

FOSSIL PARASITIC HYMENOPTERA OF THE FAMILY SCELIONIDAE FROM BALTIC AMBER

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The Scelionidae form the largest family of the hymenopterous superfamily Serphoidea. At present approximately 1600 living species are known, distributed among 170 genera. The first entomologist who attempted to deal with the family as a whole for any region was Ashmead who included a consideration of all the North American species known to him in his "Monograph of the North American Proctotrypidae," published in 1893. Regarding the group as a subfamily he recognized four tribes, viz., Telenomini, Baeini, Teleasini and Scelionini. Later he raised these to the rank of subfamilies and this has been generally adopted by later workers. Kieffer has added the Platygastriinae as another subfamily although Ashmead separated these as an independent family, and I think rightly so.

Aside from the Oligocene species described on the following pages, our present knowledge concerning fossil Scelionidae is exceedingly meagre. Altogether only six species have previously been made known. These include three from Canadian amber of Cretaceous age: *Baeomorpha dubitata* Brues, *Baryconus fulleri* Brues and *Proteroscelio antennalis* Brues. The second of these belongs to a living genus, but the two others are not closely related to any recent ones. From the Oligocene of Gurnet Bay Cockerell has described *Macroteleia veterna* which is from his description and figure apparently a member of this living genus or at least of some closely related one. From the Baltic amber only one species was previously known, *Hadronotus electrinus* Cockerell. Finally Statz includes among his middle Oligocene insects from the Siebengebirge, as *Scelionites capitatus* Statz, a small hymenopteron which may belong to this family, perhaps to the subfamily Scelioninae. Two species from Zanzibar copal, *Calotelea aurantia* Westwood and *Ceratobaeus incertus* Meunier can hardly be considered as actually fossil.

In the living fauna the subfamily Scelioninae is by far the largest, including nearly half of the species in the family. This proportion holds true

of the Oligocene fauna also as approximately half of the species so far discovered are Scelioninae. Of the other subfamilies, the Teleasinae does not appear in the amber collections at all, which is rather unexpected as about one-fifth of the recent species fall into this group which shows no characters that appear to be of particularly specialized nature. The Telenominae are represented in the amber by only two species, although they form about one-quarter of the recent fauna. This subfamily is distinguished from the others by the lack of lateral carinae on the abdomen, a character that is quite definite in recent genera, but in several of the Oligocene genera this difference is not clear-cut and cannot be relied upon with such assurance. On this account it appears that the Telemoninae were not at that time so sharply differentiated as they now are from the rest of the family. This condition is to be noted also in the case of the subfamily Baeinae. In the living fauna this is the smallest one, containing less than one-tenth of the species. It is distinguished by the form of the antennae which have a reduced number of joints in the female, due to the fusion of the three or four apical joints into a large oval or ovate club-joint. In several living genera this fusion is not entirely complete as there remain faint traces of sutures on one or both sides of this club-joint, although there is a complete anchylosis of the sections. On account of these sutures there has been some difference of opinion as to whether the genera in question should be placed in the Baeinae or removed to the Scelioninae. In the amber there is a disproportionately large number of Baeinae (nearly 20%) and all of the genera are those which show indications of sutures on the club-joint. As this is obviously a generalized condition we may regard the Baeinae of the amber as on the whole more primitive than its recent representatives although some are very highly specialized in other ways, e. g., in the development of aptery, and the occurrence of a highly developed abdominal horn in one species. Undoubtedly Baeinae with com-

pletely fused antennal club will be found in the Oligocene as one form from Canadian amber of Cretaceous age is of this type.

It will be seen therefore that the several sub-families were not as clearly distinguishable in the amber fauna as they are at the present day, and that their proportionate abundance was clearly, although not very fundamentally, different.

Two remarkable genera remain yet to be mentioned. One of these, *Uroteleia*, is a very aberrant form, at once recognizable by a long thinly chitinized tubular extension of the abdomen. This genus might perhaps be placed in another family (*Diapriidae*), but on a later page its affinities are given in more detail.

Still more confusing is a very striking insect with 14-jointed antennae that I believe is a scelionid although it must be admitted that its affinities are by no means clear. No other scelionid has more than twelve joints in the antennae, except one genus from the Canadian amber which I described in 1937. Such discoveries are very disconcerting and add to the perplexity of interrelationships that must be dealt with when we compare faunas of different geological ages on the basis of a taxonomy built of necessity on the more extensively known living fauna.

The systematic account that follows is based on the examination of more than 300 specimens, including a series belonging to the Museum of the University of Königsberg, loaned to me for study some years ago, as well as those in the Haren Collection belonging to the Museum of Comparative Zoology at Harvard University. The combined collections contain numerous species in addition to those dealt with here, but these are not sufficiently well preserved for complete examination and it would serve no useful purpose to give them names.

Nearly all of the accompanying illustrations are from drawings made by Mrs. A. S. O'Connor. In spite of the difficulties in dealing with such minute amber insects, she has succeeded in demonstrating the important characters with great clarity. The remainder were drawn by Mrs. Imlah some years ago at the time the first collection was received from the Königsberg Museum.

Dissolcus Ashmead

Bull. U. S. Nat. Mus., No. 45, p. 164 (1893).

There is a single species, represented by two female specimens that agrees very well with the living forms of this genus.

Dissolcus electra sp. nov.

♀. Length 1.5 mm. Shining and apparently entirely black, including the legs and antennae; wings hyaline, with the veins dark brown. Head large, very long antero-posteriorly when seen from above; ocelli in a large triangle, the posterior ones very near to the eye-margin; vertex, front and probably the face also strongly shagreened. Eyes large and coarsely granulated. Antennae 12-jointed, with seven-jointed club, the club fusiform, rather slender and tapering apically from near the base; scape long, reaching well upwards toward the vertex; pedicel much longer than thick, strongly constricted basally, nearly as long as the first flagellar joint which is fully twice as long as thick and not conspicuously narrowed basally; second to fourth flagellar joints short, gradually wider and the fourth forming quite clearly a part of the club; club-joints transverse, the first and the penultimate not so strongly so; apical joint triangular, longer than thick; head behind the eyes smooth, much widened below on the cheeks and with some faint, radiating striae extending over the malar space from the bases of the mandibles, the latter bidentate at tips. Thorax above shining, shagreened on the mesonotum; parapsidal furrows deeply impressed behind, but not extending in front of the middle. Scutellum polished, with a marginal line of small punctures along its posterior margin; metanotum very short its posterior edge straight, margined like the scutellum. Propodeum short, sharply declivous, finely rugose. Mesopleurae smooth, irregularly punctate along the sutures; sides of metathorax and propodeum rugulose. Abdomen visible only from below; first segment very short, its sternite coarsely striate; second longest, about one-third longer than the third, faintly striate at the sides; fourth and following much shorter. Marginal vein very short, less than half as long as the stigmal; postmarginal about as long as the stigmal.

Type in the Collection of the University of Königsberg Museum, without number. A second specimen No. Z3671 may be the same species but the preservation is not good enough to permit a positive statement.

Sembilanocera gen. nov.

(Fig. 1)

There are a number of specimens representing a single species which is quite unique in having 9-jointed, strongly clubbed antennae in the female, in combination with a normally developed wing venation. This number does not occur elsewhere in

the Scelionidae so far as I am aware, although it is not unknown in the related family Platygasteridae which is often not given separate rank. There, however, the wing venation is completely absent or reduced to a single clubbed discal vein and the general structure is quite different, especially in the form of the thorax and doubly geniculate antennae. In general habitus, except for the jointed antennal club, there is a similarity to members of the subfamily Baeinae. On the other hand the quite obsolete lateral carinae of the abdomen show a relationship to the Telenominae where the genus

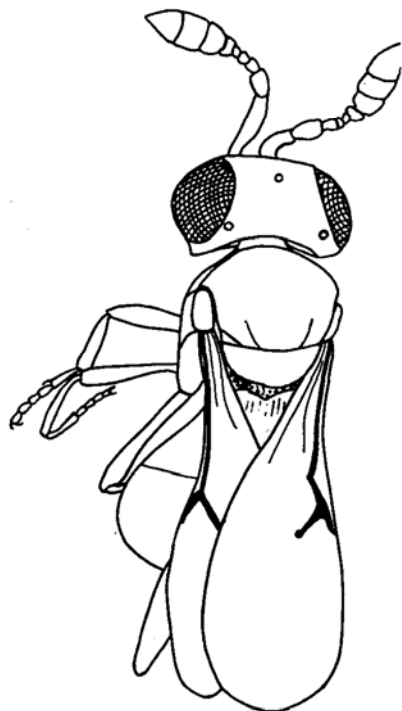


FIGURE 1. *Sembilanocera clavata* Brues, ♀.

and perhaps better be placed with the understanding that it would seem to be annectant to the Baeinae.

♀. Head transverse, the eyes large and the lateral ocelli close to the eye margin. Antennae short, 9-jointed, with large pedicel; basal flagellar joints minute; club very large, composed of three entirely independent joints. Thorax much narrower than the head; parapsidal furrows indicated by posterior impressions next to the scutellum which is simple. Abdomen short and broad; much narrowed at the base; third segment the longest and widest. Wings with the submarginal vein extending to the middle; marginal vein very short; stigmal vein long, knobbed at tip; postmarginal distinct, but somewhat shorter than the stigmal.

Type: *S. clavata* sp. nov.

Sembilanocera clavata sp. nov.

(Fig. 1)

♀. 0.9–1.1 mm. Appearing black with the legs and antennae and perhaps also the abdomen brownish; wings hyaline or somewhat infuscated, the veins brown. Head above faintly roughened; ocelli widely separated in a rather low triangle, the lateral ones practically contiguous with the eye. Eyes large, approaching the occiput above, but more widely separated from the gular margin below; malar space large, with radiating striae that extend upwards from the base of the mandible to the eye (almost exactly as in *Mirotelenomus angulatus* described on another page!). Scape one-third the length of the antenna, not much thickened; pedicel large, oval, narrowed at the base, about half as long as the scape; first three flagellar joints extremely small, the first longer than wide, the second globular, as wide as the first, third wider, transverse; fourth flagellar joint larger and very strongly transverse, but much narrower than the following and hardly to be considered as a part of the club; the three-jointed club fusiform, longer than the pedicel and funicle together, its first joint transverse, second quadrate and third triangularly pointed. Mesonotum faintly shagreened; scutellum weakly punctulate; parapsidal furrows deeply impressed behind, but entirely wanting anteriorly. Abdomen finely striate on the first tergite, this sculpture extending to the middle portion of the second, except at apex; first tergite half the length of the second; third one-half longer than the second; fourth as long as the first; following ones very short. Stigmal vein moderately oblique.

Type: Collection of the University of Königsberg (without number). Paratype, V141. Also four other specimens in the Königsberg Collection and one in the Museum of Comparative Zoology.

Mirotelenomus Dodd

Trans. Roy. Soc. South Australia, vol. 37, p. 173 (1913).

Dodd, *ibid.*, vol. 50, p. 312 (1926).

Mirotelenomus angulatus sp. nov.

(Fig. 2)

♀. Length 1.6 mm. Color apparently wholly black, with the legs a little lighter; wings faintly infuscated, with dark brown venation. Head large, seen from above slightly more than twice as wide as thick; upper surface with strong, well separated punctures; occiput more or less angularly concave, the eyes widely separated from the posterior mar-

gin of the head. Ocelli in a low triangle, the anterior one much larger than the lateral ones which are about twice as far from the anterior one as from the eye-margin. Malar space conspicuously striate, the striae spreading out fan-shaped from a point just anterior to the base of the mandible. Antennae 12-jointed; scape thick and rather short; pedicel considerably longer than thick, strongly narrowed basally; first to fourth flagellar joints gradually thicker, the first wider than long, the third quadrate and the fourth transverse; club of six joints, the first scarcely larger than the preceding one, but

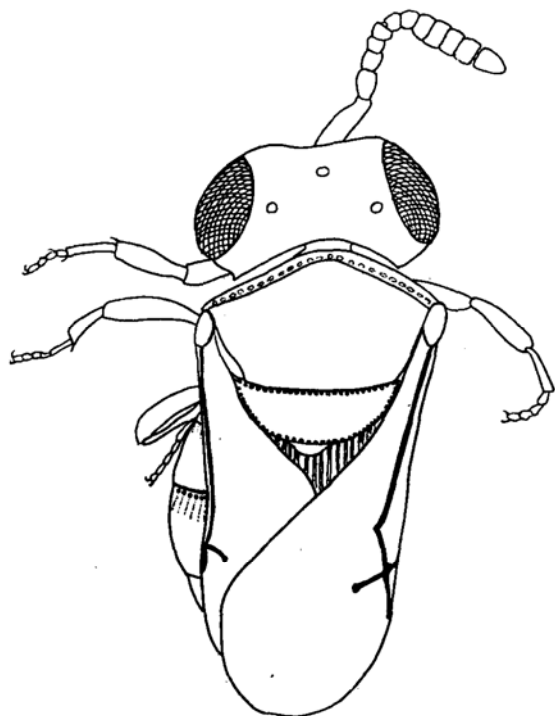


FIGURE 2. *Mirotelenomus angulatus* Brues, ♀.

clearly a part of the club which is five times as long as thick; middle four joints of club transverse, the first of these more strongly so. Mandibles slender, with two teeth at apex. Thorax very broad, as wide as the head; mesonotum wider than long, without trace of parapsidal furrows, the pronotum visible as a narrow band, not widened laterally. Scutellum with a foveate suture and a coarse punctate line along its hind margin; nearly half as long as the mesonotum and fully two and one-half times as wide as long, its surface sculptured like the mesonotum. Postscutellum with a slight median projection. Abdomen short, broadly oval and bluntly rounded at apex; first tergite extremely short; second nearly as long as the third, sharply longitudinally striate on its basal half,

apically obsolete punctulate as is the rest of the dorsal surface of the abdomen. The sides of the thorax are not clearly to be seen, but the pleurae appear to be coarsely sculptured at least in part. Legs short and stout. Submarginal vein sharply bent downward, almost angulate before the apex; marginal vein very short, almost punctiform; stigmal vein long, not strongly oblique, without a distinct knob; postmarginal vein strong, distinctly longer than the stigmal.

Type: No. 10,590, Museum of the University of Königsberg.

This is a very striking species, represented by an exceptionally well preserved specimen, but I have had considerable difficulty in placing it satisfactorily in any genus. It will be noted that the marginal vein is extremely short and the lateral margins of the abdomen are not at all carinate while the antennae are 12-jointed. The type has the habitus of certain genera of Scelioninae like *Hadronotus*, but it resembles certain *Telenomus* (sens. lat.) also in spite of the 12-jointed antennae and very short marginal vein. Dodd does not indicate directly where his genus *Mirotelenomus* should be placed although it is put between two genera of Scelioninae in his paper and no reference is made as to the presence of a lateral carinate margin on the abdomen which is clearly lacking in the amber species. So far only living Australian species are included in *Mirotelenomus*. Kieffer has proposed the genus *Hadrophanurus* (1926) for Ashmead's North American *Telenomus pennsylvanicus* which resembles the amber species, but he overlooked Dodd's *Mirotelenomus* and consequently made no comparisons with it.

Parabaeus Kieffer

Bull. Ent. Soc. France, 1910, p. 294.

There is a species in the amber which is probably congeneric with *Parabaeus ruficornis* Kieffer, known from the Seychelles, but the insect is stouter-bodied than the living form and may represent a new genus. However the relationship is certainly close. There is further a close similarity to *Mirobaeus tasmanicus* Dodd from Tasmania, but the latter has one more joint in the antenna and has been placed in another subfamily by Kieffer apparently on this account. From both the living fauna and the forms here described from the amber it is evident that the transitions between a solid and jointed club exist. Following is a résumé of what appear to be generic characters in the amber species.

Very small, completely apterous species. Head large, broadly oval; eyes large; ocelli very widely separated, the posterior ones next to the eye-margin; cheeks large, the malar space very long as the eyes are inserted high up on the sides of the head. Antennae 10-jointed; scape long; pedicel and two following joints longer than wide; third and fourth flagellar joints small, followed by a large pointed club of four joints, these separated from one another by oblique sutures. Thorax, seen from above longer than wide; pronotum separated, but the scutellum apparently not separated. Abdomen broadly oval, wider than and not much longer than the thorax. Legs with very stout, clavate femora and tibiae, but with the tarsi extremely slender.

***Parabaeus pusillus* sp. nov.**

(Fig. 3)

♀. Length 0.8 mm. Reddish brown as preserved, with the head darkened above and this may quite probably have been the color in life. Head rounded above, less than twice as wide as long in

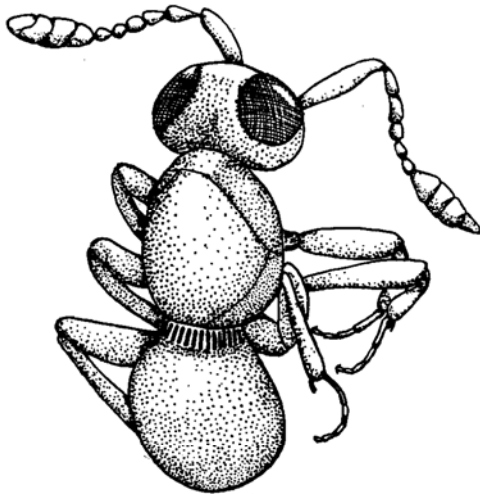


FIGURE 3. *Parabaeus pusillus* Brues, ♀.

dorsal view; front, vertex and occiput very finely, irregularly aciculate; occipital margin broadly and shallowly excavated. Antennae about as long as the body; scape nearly as long as the width of the head, much thickened just beyond the middle, only slightly curved; pedicel slender, much narrowed at the base, fully twice as long as wide; first flagellar joint as long as the pedicel, but not so thick; second flagellar joint thicker, but little longer than wide; two following minute, globose; club large, closely compacted, oval-acuminate with the sutures between its four joints very strongly oblique when

seen from the side. Face convex, smooth; malar space very large, without furrows, its surface finely aciculate, with the lines curved and more or less parallel with the eye margin. Pronotum very deeply excavated behind, its sides extending backwards nearly to the middle of the thorax; mesonotum smooth or but faintly sculptured; without trace of parapsidal furrows, and as well as can be seen, not separated from the scutellum by any suture. Abdomen exhibiting no sutures above so far as can be seen, its extreme basal margin raised and provided with several foveae medially; dorsal surface highly convex.

Type: University of Königsberg collection, No. 9024.

There is only a single specimen of this very peculiar species. It is very well preserved, but on account of its very small size and the dark color of the piece of amber, some details of bodily structure are hard to see clearly.

***Aneurobaeus* Kieffer**

André, Spéc. Hymén. Europe et Algérie, vol. 11, p. 87 (1912).

***Aneurobaeus collaris* sp. nov.**

(Fig. 4)

♀. Length 1.0 mm. Stout-bodied, with the head and abdomen turned downward so that the dorsal outline of the body is strongly convex. Color apparently entirely black. Head wider than the thorax. Eyes rather small, set well forward

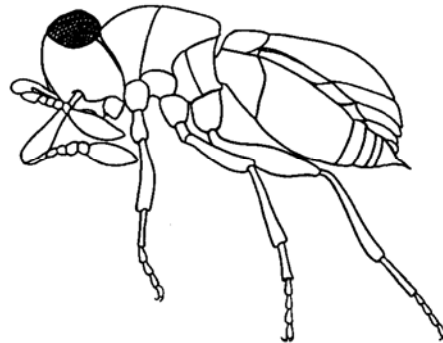


FIGURE 4. *Aneurobaeus collaris* Brues, ♀.

and high up so that the cheeks are long and wide; ocelli in a large triangle, the posterior ones quite near to the eye and not far from the carinate occipital margin. Surface of front and occiput microscopically roughened or reticulate. Antennae 7-jointed, stout; scape very much thickened beyond the middle where it is as broad as the club-joint; pedicel one-third longer than thick; first

flagellar joint shorter and narrower; second to fourth subequal, as wide as the first, more or less quadrate; club-joint entirely solid, without trace of sutures, elongate-ovate. Prothorax narrowed medially, but clearly visible from above, its posterior margin curving obliquely backwards on the sides, the posterior angles extending beyond the middle of the thorax. Pronotum sculptured like the head. Mesonotum long, narrow, without trace of furrows, its surface shining, slightly shagreened; scutellum not separated; propodeum very short. Abdomen as long as the thorax; first segment short, much wider than long and only about half the width of the second; its upper surface irregularly reticulate. Second tergite occupying most of the abdomen, very convex and wider than the thorax; basal half microscopically reticulate, distinctly longitudinally aciculate on the basal half, the aciculations growing more noticeable basally and medially; third tergite forming a narrow band, fourth scarcely visible. Venter with all six sternites present, the second occupying less than one-half of the venter; the first coarsely longitudinally striate. Legs stout, all the femora and tibiae very strongly clavate.

Type: Museum of Comparative Zoology, No. 8095.

This species is superficially very similar to *Parabaeus pusillus* Brues described on another page. However, the antennal club is solid, without sutures and the antennae are longer and more slender; furthermore it is considerably larger and has the habitus of *Aneurobaeus* although the pronotum is longer than in that genus and clearly exposed in dorsal view. It differs at once from *Baeus* in the long second (not third) tergite. The recent species of the genus occurs in Ceylon.

***Pseudobaeus* Perkins**

Fauna Hawaiiensis, vol. 2, p. 620 (1910).

There are more than fifty female specimens of minute winged Baeinae and a smaller number of males that I have referred to this genus although they differ in having the parapsidal furrows present near the posterior edge of the mesonotum. The costal margin of the wing bears a series of long cilia which extend as far as the tip of the postmarginal vein but disappear toward the base of the wing. The several described species occur in Hawaii and Australia and are known only in the female sex.

***Pseudobaeus fecundulus* sp. nov.**

(Fig. 5)

♀. Length 0.8–1.1 mm. Apparently black, with the wings hyaline; venation dark brown. Head considerably wider than the thorax; about twice as wide as long when seen from above; occiput gently concave, with a fine marginal line. Ocelli in a large triangle, the posterior ones practically contiguous with the eye-margin. Face smooth and shining; front and vertex very finely roughened or shagreened, cheeks and temples smooth, polished, with a few minute, scattered punctures. Malar space as long as the antennal scape, with a series of clearly defined striae extending from the lower corner of the eye and converging to the base of the mandible. Antennae seven-jointed; scape two-thirds as long as the remaining joints together; pedicel fully as thick as the scape, nearly twice as long as thick; four following joints subequal, very small, moniliform; club-joint a little more than twice as long as thick, without sutures or with just the faintest trace of such in certain lights on the upper side of the joint. Mesonotum and scutellum shagreened, separated by a straight, simple suture; parapsidal furrows indicated as short, widely separated impressions on the posterior third of the mesonotum. Scutellum twice as wide as long, the posterior edge raised and separated by a submarginal, weakly punctate line. First segment of abdomen transverse, fully twice as wide as long, evenly longitudinally fluted or coarsely striate; much narrower than the propodeum; second tergite much widened behind, coarsely longitudinally striate at the base, the striae extending back medially as very fine lines nearly to the apex of the segment; third tergite wider than, and one-half longer than the second, as wide as the thorax. Marginal vein short, slightly thickened; stigmal vein long, oblique, faintly curved, knobbed at tip; postmarginal vein very distinct, longer than the stigmal.

Type: No. 6728, in the Museum of the University of Königsberg.

Besides the type there are in the Königsberg collection nine females and in the Museum of Comparative Zoology four that are unquestionably the same species. In addition there are 49 others that are most likely conspecific; at least none of them can be excluded on the basis of characters visible in the individual specimens. Of these latter seven are in the Museum of Comparative Zoology.

The material before me includes also 30 males, six of which are, I believe, certainly this species, while the other 23 cannot be excluded and probably be-

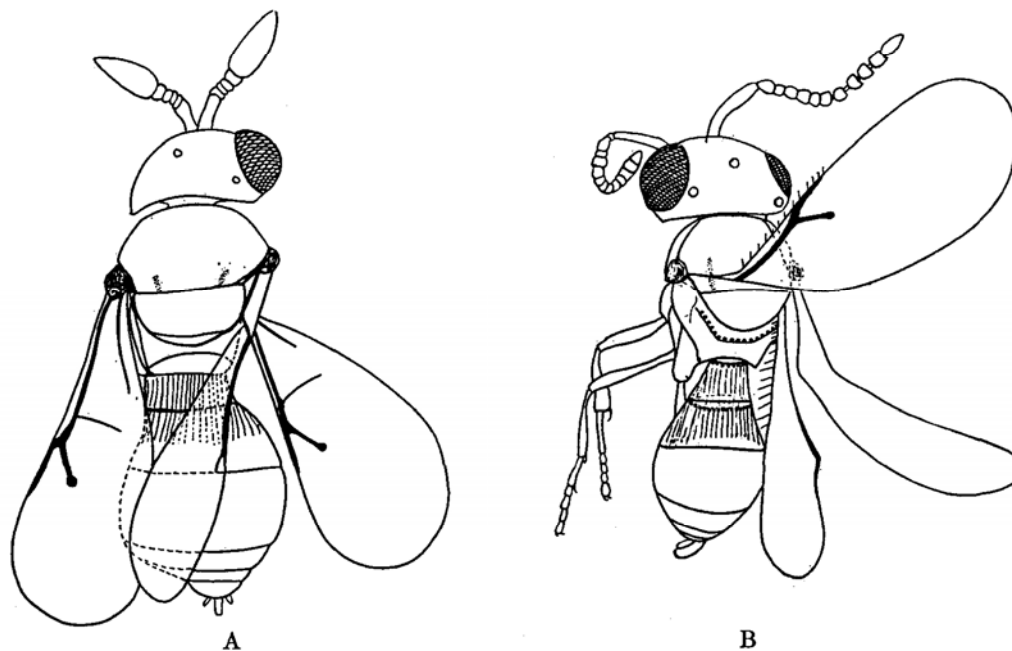


FIGURE 5. *Pseudobaeus fecundulus* Brues. A, ♂; B, ♀.

long here. Considering the great abundance of the species in the amber there can be little question that the males are properly associated, although this would be impossible on morphological grounds alone as this sex is known in only one of the described living species.

♂. Length 0.7–1.0 mm. Similar to the female, but the head and thorax less distinctly sculptured and more shining. Abdomen more constricted at the base, the petiole somewhat less than twice as wide as long, its striations much finer; the striae of the second tergite are fine also, not stronger at the base of the tergite. Antennae 12-jointed; scape slightly arcuate; following joints of about equal thickness except that the first flagellar joint is narrowest and the following joints grow imperceptibly wider to the penultimate one which is wider than the pedicel; the flagellar joints, except the last, are more or less moniliform. Legs much more slender than in the female.

Allotype: No. 8143, Museum of Comparative Zoology.

Ceratobaeoides Dodd

Mem. Queensland Mus., vol. 2, p. 337 (1913).

Ceratobaeoides acuminatus sp. nov.

(Fig. 6)

♀. Length 1.1 mm. Head and thorax black; antennae brownish testaceous; legs, including coxae, brown; abdomen brown below; piceous above, with

the base of the basal horn honey-yellow; and with the middle portion of the second and third segments testaceous, this pale area narrowed basally on the third tergite; sixth segment ferruginous. Wings clear hyaline, with very dark venation. Head contracted and noticeably extended downward, the eyes elongate oval, removed from the mandibles by nearly half the head-height. Front and face apparently smooth, the lateral ocelli adjacent to the eye-margin. Antennae 10-jointed; scape half as long as the height of the head, thickest near the base; pedicel large, as thick as and nearly half as long as the scape; first flagellar joint very slender, two-thirds as long as the scape; following three joints minute, moniliform; club large, elongate ovate, composed of four anchylosed joints separated by distinct indications of sutures. Mesonotum smooth; convex, especially in front, without parapsidal furrows; scutellum short, one-fourth as long as the mesonotum, its basal groove foveate and its hind edge raised with a marginal line of foveae. Thorax almost truncate, the very steep slope of the propodeum nearly straight and in line with the posterior margin of the scutellum. Abdomen elongate-oval, sharply acuminate at tip; first segment with a dorsal horn at the base that extends to the scutellum. The horn is flattened, wider than usual in related forms with the end broadly rounded; its upper surface is striate, the striae extending over the tip as very fine lines. Second

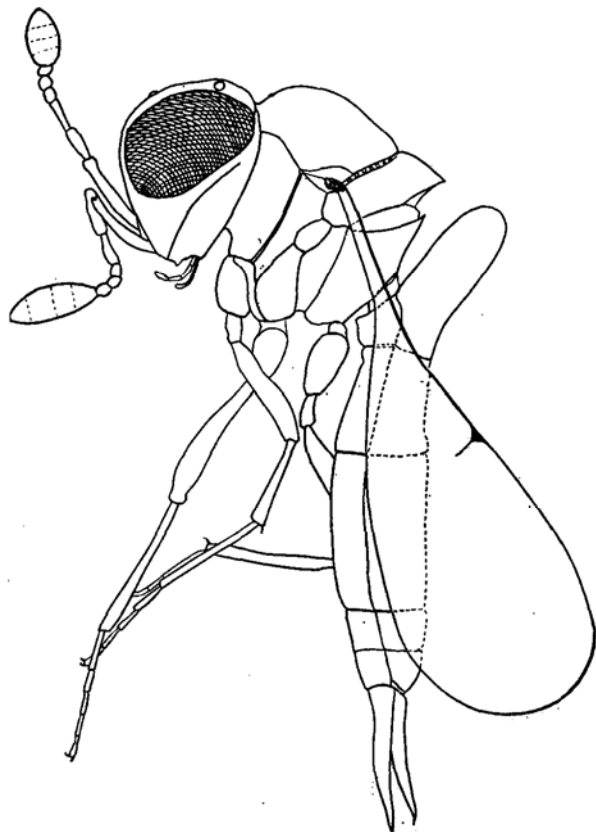


FIGURE 6. *Ceratobaeoides acuminatus* Brues, ♀.

tergite with coarse striae at base, more abbreviated laterally; much wider than long; third twice as long and much wider, about equal in length and breadth; fourth, fifth and sixth very short; seventh projecting as a narrow pointed process and below the seventh sternite projects even slightly further. Wings not reaching the tip of the abdomen, the hind pair not enlarged; marginal vein short, more or less punctiform; postmarginal distinct, but extremely short; stigmal vein very thin, oblique, without knob at apex.

Type: No. 8144, Museum of Comparative Zoology and paratype No. 8145, Museum of Comparative Zoology.

Both specimens are beautifully preserved and the type is as perfect as though carefully dehydrated and freshly mounted in Canada balsam.

The generic reference may not be correct as there are several points in which the fossil species disagrees with Dodd's original description of the genus and the first three Australian species. The abdominal horn is much longer in the amber species and the abdomen is much more acuminate at the tip, while the segmentation of the antennal club is apparently less pronounced. However it runs to this genus in Dodd's key (Trans. R. Soc.

South Australia, vol. 38, p. 58; 1914) and also in Kieffer's key to the genera of Scelioninae to which subfamily this author transfers it in Das Tierreich (Lief. 48, p. 264; 1926) although he retains several other genera with obsoletely jointed club in the Baeinae. From the latter the fossil species differs much more widely. A species later added by Dodd (*Ceratobaeoides turneri*) is much more similar to the fossil species in the form of the abdomen and length of its basal horn.

Brachyscelio gen. nov.

(Figs. 7, 8)

Body short and very stout, the head large and broader than the thorax; abdomen short, extending beyond the wings which appear to be slightly reduced in size. Ocelli close together, placed far forward on the vertex. Antennae (♀) 12-jointed, strongly geniculate; scape stout, excavated at tip to receive the pedicel; flagellum stout throughout, all the joints together forming a long, fusiform, pointed club, widest at its middle. Eyes large, widely separated; occipital margin very deeply concave medially. Pronotum very short, forming a narrow arcuate band. Mesonotum twice as wide as long, with complete, curved parapsidal furrows that are close together behind and very widely separated in front. Scutellum short, its basal suture curved backwards on the sides; posterior margin straight, transverse. Postscutellum and propodeum short. Abdomen broadly oval, strongly longitudinally fluted or striate at the base, at least below. Legs rather slender, the femora and tibiae strongly clavate. Wings with a peculiar venation, the submarginal, submedian, basal, marginal and stigmal veins strongly developed, the marginal vein punctiform and separated from the costal margin of the wing (actually the apical part of the submarginal vein is straight and where it ends and the marginal begins cannot be stated).

Type: *B. cephalotes* sp. nov.

This is a very unusual insect and I have been greatly puzzled in attempting to place it satisfactorily in the system. The form of the head and antennae, coupled with the coarse striations at the base of the abdomen, seem to indicate that it belongs to the Scelionidae. However, the wing venation is not compatible with any living member of the family of which I have any knowledge and, moreover, the mesonotum and scutellum are anomalous, recalling certain Bethyilidae, although the propodeum is not of the form characteristic of that family and the antennae are strictly of the

geniculate type with long, strongly differentiated scape. There is no indication of a stigma in the wing, but the marginal vein is quite distinctly separated from the costal edge of the wing. On account of the closed basal cell it appears to be a rather primitive form and similar in this respect at least to *Prolapitha* Kieffer, *Platyteleia* Dodd or related genera. The second species is quite different and probably not really congeneric.

***Brachyscelio cephalotes* sp. nov.**

(Fig. 7)

♀. Length 1.3 mm. Apparently entirely black, including the legs and antennae; wings perhaps slightly infuscated, the venation dark and very distinct. Head not more than one-half wider than long in dorsal view; upper surface finely rugulose, with an irregular row of punctures next to the

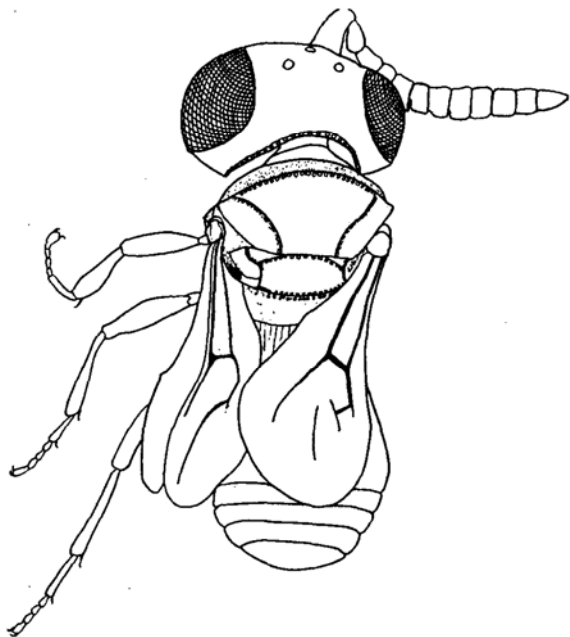


FIGURE 7. *Brachyscelio cephalotes* Brues, ♀.

raised occipital margin; face rugulose, with a smooth area above the base of the antennae; malar space with a deep groove. Ocelli in a triangle, the posterior pair about twice as far from one another as from the eye margin. Antennal scape reaching to the anterior ocellus; pedicel longer than wide, as long as the first flagellar joint which is wider at tip but much narrowed basally; second and following flagellar joints of about equal length, each two-thirds as long as the first; these grow wider to the sixth which is almost twice as wide as long, thence the club tapers off to the pointed apical joint so that the entire flagellum forms a long fusiform club.

Mesonotum and scutellum faintly shagreened, the parapsidal furrows crenulate as is also the basal suture of the scutellum which bears at each side a much larger circular impression; posterior margin of scutellum with a crenate line. Metanotum and propodeum finely rugose. Second segment of abdomen apparently much longer than the others, strongly striate at base below; apical tergites very short and broad, but the basal ones are not visible in the type. Wings not quite attaining the tip of the abdomen; basal vein nearly perpendicular to the costal margin, shorter than the marginal vein which is nearly twice as long as the stigmal; radial vein slightly indicated in the region of the stigmal; postmarginal absent.

Type: Museum of Comparative Zoology, No. 8146. No other specimens.

***Brachyscelio dubius* sp. nov.**

(Fig. 8)

♀. Length 2.0 mm. Apparently black, with the abdomen brownish as are also the legs and antennae; wings hyaline with very heavy, dark veins. Head above with some transversely striate sculpture, especially at the sides of the occiput; occipital emargination margined by a series of very large punctures. Ocelli in a small triangle, the posterior pair less than twice as far from one another as from the eye margin. Sides of face delicately aciculate, the striae more or less circular with the base of the antennae as a center. Antennae 12-jointed; scape long and stout; pedicel and first flagellar joint subequal, each narrowed at the base; second flagellar joint very much shorter and thicker, about quadrate or slightly transverse; third and fourth becoming wider; fifth and sixth the largest, not very strongly transverse; following of about equal length and growing slightly narrower with the last acutely triangular. The club is thus composed of seven or eight joints forming an elongate, fusiform thickening. Mesonotum and scutellum smooth; parapsidal furrows curving outwards in front where they are twice as far apart as at the base of the scutellum; basal suture of scutellum a straight, simple, impressed line which ends laterally in a large reticulated impression; posterior edge of scutellum crenate, the scutellum half as long as the mesonotum which is less than twice as wide as long. Metanotum coarsely foveate-reticulate; propodeum reticulate, with a median well defined tooth at the base. Abdomen very broadly ovate; second sternite as long as the three following, striate at the base; third, fourth and

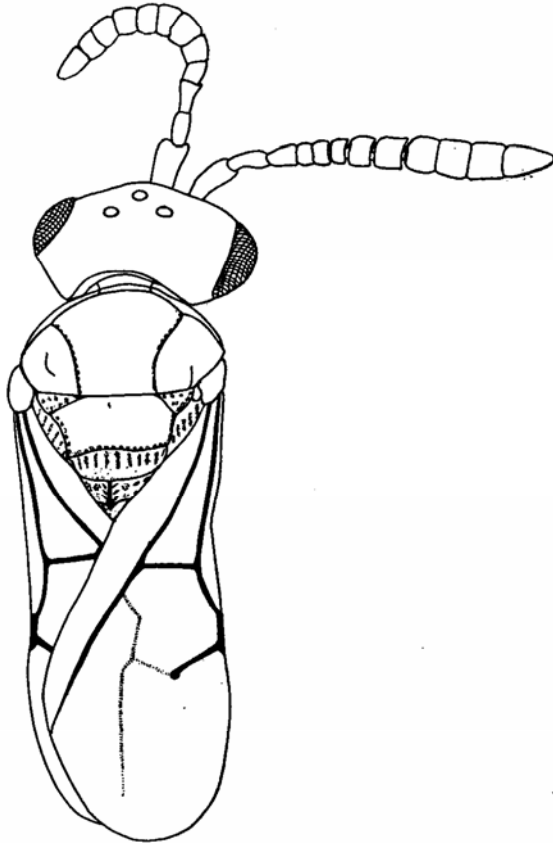


FIGURE 8. *Brachyscelio dubius* Brues, ♀.

fifth sternites decreasing gradually in length; sixth suddenly narrowed, as long as the fourth. Tergites obscured by the folded wings. Tibiae and femora clavate, the latter considerably thickened. Wings with a long submarginal vein attaining the costa beyond the middle of the wing; marginal vein linear, contiguous with the margin of the wing; stigmal vein twice as long as the marginal, straight, not knobbed; basal vein very strong as is also the median vein which extends almost to the wing margin.

Type: Museum of Comparative Zoology, No. 8147. No other specimens.

This insect is similar to the preceding species in general habitus and wing venation, except that the basal cell is not only complete, but the median vein extends far beyond the cell. I feel sure that the two are related but they probably should be separated generically. This I hesitate to do as they cannot be placed in the family with complete assurance.

Sparaison Latreille

Hist. Nat. Crust. et Ins., vol. 3, p. 316 (1802).

There are two species in the amber which I have referred to this genus. One shows a very indis-

tinct frontal ridge or carina and the other lacks entirely any elevation on the front. The development of this structure varies in living members of the genus from a very prominent ridge to a very indistinct elevation. Kieffer has proposed *Prosparaison* for a Malayan form with normal head and on this basis one amber species might be placed there. *Sparaison* includes species with and without parapsidal furrows and in the single *Prosparaison* these are absent. In both amber forms they are complete, a condition which exists in all known Nearctic and Austromalayan species of *Sparaison*.

Sparaison simplicifrons sp. nov.

(Fig. 9)

♀. Length 3.2 mm. Apparently black, with the legs paler apically and the wings brownish, especially on the apical half. Head very thick antero-posteriorly, nearly three-quarters as thick as wide between the eyes (20 : 28), without a distinct lamina or projecting shelf, but the surface is



FIGURE 9. *Sparaison simplicifrons* Brues, ♀.

raised as a broad tubercle between the face and vertex; face and upper side of head coarsely rugose-punctate; occipital margin carinate. Antennae with the scape short, not extending much more than halfway to the frontal tubercle; pedicel two-thirds as long as the first flagellar joint; second flagellar joint slightly shorter than the pedicel, widened apically; third shorter, but distinctly wider than long; four following quadrate, forming the thickest part of the club, the last three becoming

narrower, but of the same length, the last rather acutely narrowed to its tip. Pronotum very short medially, practically lacking a dorsal surface at this point although very long laterally. Mesonotum smooth and apparently not punctate, at least so far as can be seen in quite clear dorsal view; parapsidal furrows distinct, more approximate than usual and strongly convergent behind. Scutellum rugose punctate like the upper surface of the head. Pleurae smooth, at least the propleura and the impression of the mesopleura; sides of propodeum coarsely reticulate, the posterior edge produced as a tooth just above the hind coxa and again above this, the upper tooth separated from the lower one by a semicircular emargination and extending backwards laterally to the extreme base of the abdominal petiole; petiole sharply produced below at base and also distinctly elevated at the base above. First and second tergites coarsely and deeply longitudinally striate; third striate at base; fourth and fifth with the striae punctiform, forming a basal frenum; sixth very short, without basal frenum. Second to fifth sternites each with a basal line of deep impressions separated by a very short striae; first sternite with a punctate basal line. Wings with a distinct, but very narrow pterostigma which gradually narrows apically to continue as a strong postmarginal vein to the tip of the radial cell, stigmal vein long, curved, more widely divergent from the postmarginal vein than in recent members of the genus, and forming an angle of nearly 90° with the radial vein which is well developed for its entire length, extending straight to the wing margin which it attains well before the wing tip.

Type: No. B14548, in the collection of the University of Königsberg Museum. No other specimens.

This species appears to be closely related to *Sparaison*, but differs in some respects, especially in wing venation as the form of the radial cell is of a much less highly specialized type. However the elevated tubercle on the head, form of thorax and abdomen are very similar to members of this genus from the Malayan region and in possessing parapsidal furrows the fossil form resembles the known Malayan species.

***Sparaison amabilis* sp. nov.**

(Fig. 10)

♀. Length 3.0 mm. Apparently black, polished, the legs more or less brownish and also the base of the antennae; wings hyaline, with brown venation. Face strongly convex, but without any distinct elevated ridge or tubercle; face, front and

occiput very deeply and distinctly, sparsely punctate; space behind the eyes nearly smooth, with a coarsely punctate marginal line or frenum that extends upwards along the edge of the occiput which is very deeply emarginate medially. Eyes large, nearly circular in outline, apparently bare; ocelli in a wide triangle, the posterior ones close to the eye-margin. Antennae 12-jointed, with a distinct club; in the type and only female the club shows six large segments, but the base of the flagellum can be seen only in very oblique view and it appears probable that two or three more joints actually form a part of the club which is widest at the eighth and ninth flagellar joints. Pronotum angularly shortened medially; its ante-

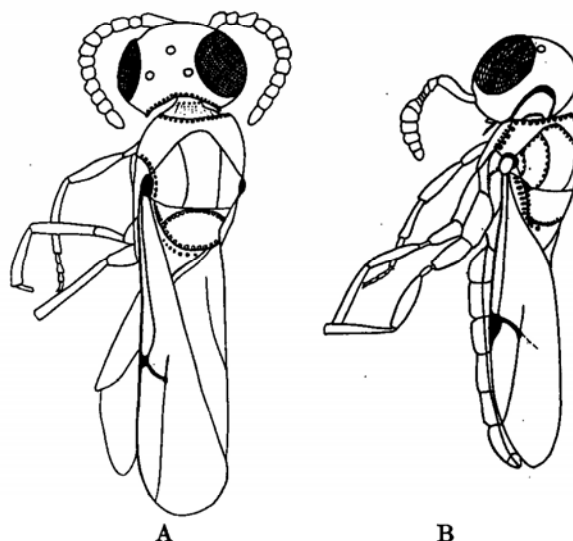


FIGURE 10. *Sparaison amabilis* Brues. A, ♀; B, ♂.

rior margin carinate, with a series of large deep punctures; the surface sparsely punctulate. Mesonotum impunctate; with deep, but not broad, foveate parapsidal furrows. Scutellum smooth medially, finely reticulate at the sides; its posterior edge carinate, with a submarginal foveate line. Pleurae coarsely reticulate, the mesopleural furrow deep, smooth. Abdomen only partly visible in the type, its segments about equal in length. Wings with the stigmal thickening well developed; stigmal vein curved.

♂. Length 3.1 mm. Essentially similar to the female and included in the same block of amber. Antennae short, most of the flagellar joints stout and more or less quadrate; pedicel small, globose, about one-fourth as long as the curved scape; first flagellar joint about twice as long as the pedicel, strongly widened apically; second flagellar joint about quadrate, slightly shorter than the

first and somewhat wider; following gradually narrower and shorter, as wide as long. First segment of abdomen striated, at least at the sides; following segments obscured.

Type: female, No. 8148, Museum of Comparative Zoology. The male is imbedded in the same small block of amber and this fact, in connection with its close anatomical similarity, indicates that the two are conspecific.

Electroteleia gen. nov.

(Fig. 11)

There is a long series of a large, striking species that does not fit in any described genus although in habitus, wing venation and abdominal structure it seems quite surely to be related to Sparaisson.

♀. Head rounded or oval, not at all thickened antero-posteriorly. Body not coarsely sculptured, except the propodeum and striate base of abdomen. Antennae long; 12-jointed, with a slender 7- or 8-jointed club. Eyes bare. Parapsidal furrows complete; scutellum and postscutellum simple, not spined or toothed; propodeum deeply excavated at apex to receive the abdominal petiole. Abdominal segments two to five each with a line of deep impressions or very short striae forming a transverse row at the extreme base of both the tergites and sternites. Wings with the basal and radial cell clearly enclosed by vein-like thickenings; marginal vein broadened to form a distinct pterostigma that tapers apically and extends to the tip of the radial cell as the postmarginal vein; stigmal vein long, curved. Legs clavate, not thickened.

♂. Differs from the female by the filiform antennae of rather stout form, the flagellar joints toward the apex each not much more than twice as long as wide. Otherwise the sexes are essentially similar.

Type: *E. stigmatica*, sp. nov.

Electroteleia stigmatica sp. nov.

(Fig. 11)

♀. Length 3.8 mm. Apparently all black, although in some specimens the legs and antennae, except club are paler and this was probably their color in life. Body highly polished. Head smooth above, practically impunctate except for a line of punctures on the cheeks, temples and occiput that follows the anterior edge of a raised marginal line; cheeks faintly and face closely, punctate. Scape of antennae reaching halfway to the vertex, strongly curved basally and swollen apically; pedicel elongate, nearly half as long as the scape; first flagellar joint much lengthened, nearly as long as

the scape, slender, especially toward the base; second flagellar joint not much more than half the length of the first, stouter, twice as long as thick; third shorter and wider, fourth wider, slightly longer than thick, following, except the last, subequal, quadrate. Lateral ocelli close to, but not touching the eye-margin. Mesonotum sparsely and very minutely punctate, scutellum nearly smooth. Pronotum very short, its anterior surface separated from the dorsum by a delicate carina. Parapsidal furrows complete, foveolate as is also an anterior and lateral line along the edge of the mesonotum. Base of scutellum with a series of large foveae, apex margined by a row of smaller ones. Propleurae and sides of propodeum coarsely reticulate; mesopleurae punctate below, smooth

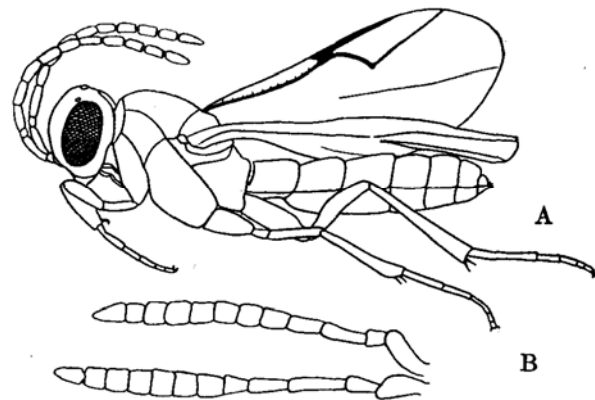


FIGURE 11. *Electroteleia stigmatica* Brues.
A, ♂; B, antennae of female.

and longitudinally impressed above, and margined behind by a series of large foveate impressions. Abdomen punctate above, coarsely longitudinally striate on the first tergite except at the extreme sides; second tergite with similar striae that do not extend so far laterally; third tergite with the striae occupying only a semicircular area on its basal half; fourth and fifth with only very abbreviated striae across the base. Venter coarsely punctate except for the very short basal striae that separate the lines of foveate impressions. Stigmal vein strongly, evenly curved, not knobbed at tip; radial vein straight.

♂. Differing mainly in the form of the antennae. Pedicel but little longer than thick, scarcely one-third the length of the scape; first flagellar joint nearly as long as the scape, three times as long as thick; following successively a very little shorter and becoming slightly thinner beyond the middle of the flagellum. Abdomen with a frenum at the base of segments two to six.

Type: female, No. 8149, Museum of Comparative Zoology, also nine other females (Museum of Comparative Zoology, Nos. 8151-8154) (Königsberg Museum, Nos. 13889, 2226, B18840 and two without numbers).

Allotype: ♂, No. 8150, Museum of Comparative Zoology. Also nine other males (Museum of Comparative Zoology, Nos. 8155-8159) (Königsberg Museum, No. 9018 and five without numbers).

Hoploteleia Ashmead

Bull. U. S. Nat. Mus., No. 45, p. 227 (1893).

A single species represented by a series of specimens is contained in the present collection. Positive generic reference is difficult, but among the genera so far described in the living fauna the amber species seems to agree most closely with *Hoploteleia*. Also it is the only fossil form with the thorax conspicuously pilose and this character appears in this genus and also in *Rhacoteleia*. Dodd believes (Trans. Entom. Soc. London, 1920, p. 338) from an examination of the type and only species of the latter that it is not distinguishable from *Hoploteleia* which is a large and widespread genus in the recent fauna. Unfortunately in his compilation of the Scelionidae in *Das Tierreich* (1926) Kieffer has entirely overlooked this paper by Dodd and his treatment of several genera is badly confused on account of this omission. The hairy body is of course not to be regarded as a generic character as it occurs for example elsewhere, in *Sparaisson*, certain subapterous Australian *Baryconus*, *Lapitha*, etc.

Hoploteleia doddii sp. nov.

♀. Length 4.4 mm. Entirely black as preserved, with the wings strongly infuscated; the venation strong, very dark brown. Head above rough, the surface irregularly and shallowly reticulated; lateral ocelli very close to the eye, the median one much below the level of the other ones. Head behind the eyes at least to some extent striated, especially on the cheeks. Scape of antennae long, fully equal to the height of the eye, slender; pedicel nearly as thick as the apical part of the scape, one-half longer than thick, not noticeably constricted at the base; first flagellar joint nearly twice as long as the pedicel and nearly as thick; second flagellar joint two-thirds as long as the first; third and fourth successively shorter, the latter no longer than wide and expanded apically so that it appears to form a part of the apical club which includes the following joints (six);

this club is not greatly thickened, with its joints about quadrate except the apical one. Surface of mesonotum irregularly wrinkled, with large scattered puncture-like depressions, especially laterally, each bearing a conspicuous hair so that the mesonotum appears strongly hairy in lateral view; parapsidal furrows complete, strongly convergent behind, but there is no indication of a median furrow between them. Groove at base of scutellum deep, but neither broad nor foveate; posterior margin weakly curved, carinate, with a submarginal foveate line. Postscutellum and propodeum deeply reticulate, the former with a median tubercle which is not, however, a true spine or thorn. Pro- and mesopleurae in great part smooth and polished, except for some reticulation next to the propodeum; the latter coarsely reticulate-rugose, except for an elongate polished area near the middle of each side. Abdomen longer than the head and thorax; first tergite short, rather finely longitudinally striate above, the striae extending on to the second tergite, but growing less distinct beyond the middle; third and following tergites closely punctulate; second and third subequal, each nearly twice as long as the first. Legs slender, strongly clavate. Marginal vein very short, slightly thickened; stigmal vein long, straight, strongly knobbed at tip; postmarginal vein extending almost to the wing-tip, unusually thick at base and almost to its apex. Basal and radial veins very feebly indicated by brownish streaks.

Type: No. 8160, Museum of Comparative Zoology.

A second specimen in the Collection of the University of Königsberg is not so well preserved, but undoubtedly the same species, although the antennae are shrunken in preservation and appear at first glance to be much more slender. Also two others (one Museum of Comparative Zoology, No. 8161, and the other Königsberg) may be quite probably placed here.

Hadronotoides Dodd

Arch. Naturgesch., vol. 79A, p. 171 (1913).

There is a single female, of very striking aspect, but not very perfectly preserved which may be a member of this genus. The body is very roughly sculptured, with the habitus of *Hadronotus* but the apex of the scutellum bears two rather approximate teeth separated by an emargination. If not a true *Hadronotoides*, it is certainly a close relative. The described recent species are from Australia. In the form of the scutellum it re-

sembles *Duarina* Dodd, but so far as other characters are visible, does not appear to be similar in other respects.

***Hadronotoides dubitatus* sp. nov.**

♀. Length 3.4 mm. Apparently black, with hyaline wings. Body stout, the head and thorax wider than the abdomen which is small, not extending to the tips of the wings. Head large, the eyes bare; its surface above coarsely, but not very deeply reticulate. Occipital margin deeply concave, margined and with a series of large punctate impressions just inside the margin; vertex flat, the ocelli placed next to the eyes at its front edge, below which the front drops down at a sharp angle; sides of head behind the eyes smooth or faintly punctate, but with an orbital and posterior marginal line of very large punctate impressions which are very conspicuous in comparison with the smooth band between them that leads to the base of the long mandibles which end in two long, acutely pointed teeth. Antennae short and very stout, 12-jointed; scape as long as the eye, thickened apically, about half as long as the remaining joints together; pedicel narrow, longer than wide and longer than the first flagellar joint which is as long as wide, but much narrowed at the base; second joint shorter and thicker, very strongly expanded apically; third very large, transverse; following all transverse; club 8-jointed or perhaps even 9-jointed as the second flagellar joint fits closely into the third. Thorax large, both vertically and horizontally, with unusually coarse, deep sculpture. Pronotum, mesonotum and scutellum deeply and coarsely reticulate. Pronotum with the anterior margin straight and the anterior face vertically truncate; its posterior margin Λ -shaped, almost attaining the front margin medially, but the sides are as long as half the anterior width. Mesonotum without parapsidal furrows. Scutellum about half the length of the mesonotum and separated from it by a not very conspicuous basal groove; sides irregular due to the coarse sculpture, but without distinct teeth, the apex bears, however, a pair of short distinct approximate teeth separated by an arcuate emargination. Pleurae coarsely, irregularly rugose with a few deep striae on the mesopleura above its smooth central impression. Propodeum reticulate, gently declivous behind. Abdomen concealed by the wings from above. From the side, the first tergite is seen to be strongly longitudinally striate, some striae extending onto the second tergite and perhaps weakly on the following one; laterally there are some punctures on

all except the first tergite and toward the apex of the abdomen the punctures appear to cover the whole surface; tergites slightly and evenly growing shorter from the base to the tip of the abdomen. Venter convex, with indications of longitudinal striations. Wing venation not clearly visible.

Type in the Museum of the University of Königsberg.

In spite of its imperfect state of preservation this is such a conspicuous form that it seems advisable to describe it at this time.

***Hadronotus electrinus* Cockerell**

Schr. Physikal.-Oekonom. Gesellsch., Jahrg. 50, p. 2 (1910).

This species was described from Baltic amber, but there appear to be no specimens in the collections before me.

***Ceratoteleia* Kieffer**

Ann. Soc. Sci., Bruxelles, vol. 32, p. 121 (1908).

In the collections before me there are a large number of specimens of both sexes representing this genus. It appears on the basis of the females that three species are represented in the amber, two of them very closely related. Nearly all belong to one species (*C. proleptica* sp. nov.) which is thus one of the most common members of the family in amber. There are also a great many specimens of males, but I am unable to correlate these with the females, although the proper generic reference is pretty well assured by the strongly striate cheeks which are characteristic of all females found in the amber fauna. Consequently I am obliged to omit any further discussion of this sex. *Ceratoteleia* occurs in the living fauna in both the Old and New World, so that its occurrence in Baltic amber is not unexpected.

The following key will serve to distinguish the three species.

KEY TO THE BALTIC AMBER SPECIES OF
CERATOTELEIA (FEMALES)

1. Postscutellum with a single series of large rectangular foveate impressions, extending entirely across its upper face which slopes downwards posteriorly and lies well below the level of the hind margin of the scutellum; coarse striae of abdominal petiole extending to the extreme base of its protuberance *C. caudata* sp. nov.
- Postscutellum not thus sculptured; its central portion elevated and not below the level of the posterior margin of the scutellum; striae of abdominal petiole not extending to its extreme base 2

2. Middle portion of postscutellum broadly rounded behind, fully one-half as long as the scutellum; striae of abdominal petiole replaced by rugose reticulate sculpture only at the extreme base of the segment *C. succinophila* sp. nov.

Middle portion of postscutellum more or less truncate behind and shorter, much less than half the length of the scutellum; striae on abdominal petiole not extending forward of the middle of the segment *C. proleptica* sp. nov.

***Ceratoteleia caudata* sp. nov.**

(Fig. 12)

♀. Length 3.5 mm.; tube of ovipositor 1.6 mm. Apparently entirely black, with hyaline wings and dark veins, except the stigmal vein which is paler than usual. Head very thick, more or less globular, seen from above twice as wide as thick; front narrowed above, narrower than the width of the eye at the level of the anterior ocellus; surface of front at the sides coarsely, longitudinally rugose, leaving a smooth median strip below the ocellus. Vertex obliquely striate, the striae passing to the sides and downward behind the eyes, becoming coarser and

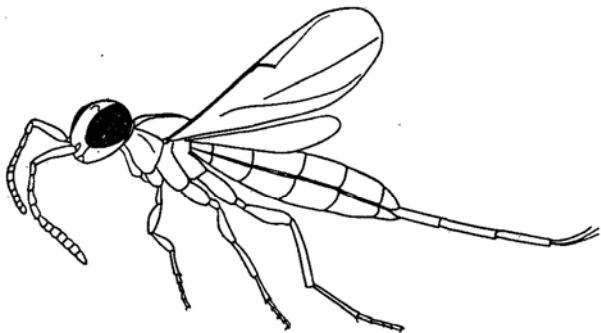


FIGURE 12. *Ceratoteleia caudata* Brues, ♀.

more conspicuous as they converge and meet the ones along the facial margin of the eyes at a point between the mandible and base of the antenna. Eyes large, strongly convex, bare; ocelli in a rather low triangle, the lateral ones very close to the eye-margin. Antennae 12-jointed, long, with a slender, not very abrupt club of six joints; scape fully as long as the height of the head, contracted in diameter apically and very strongly so at the base; pedicel longer than thick; half as long as the first flagellar joint which is one-fourth longer than the second; third shorter, twice as long as thick; fourth clearly longer than wide, the following scarcely longer than wide and forming the club. Mesonotum rather sparsely and weakly punctate between the posteriorly converging, crenate parapsidal furrows, almost smooth laterally; scutellum nearly

smooth, with very minute scattered punctures; with a coarse frenum behind, and anteriorly, except near the median line. Postscutellum arcuate, following the margin of the scutellum; of even width. Propodeum excavated to receive the abdominal horn, with a triangular tooth on each side of the excavation; its surface finely rugose. Abdominal petiole as long as wide, not very strongly narrowed basally, coarsely longitudinally striate over the entire upper surface, except near the lateral margins; basal horn or protuberance not conspicuously elevated and not filling the thoracic excavation in the normal position; second tergite striate on the basal third, coarsely and confluent punctate behind; following tergites similarly punctate, but the punctures grow smaller on each succeeding segment; third tergite slightly longer than any of the others; sixth very short. Venter with the first sternite irregularly striate, the second rugoso-striate and the following each more sparsely punctate than the corresponding tergites. Tube of ovipositor heavily chitinized, consisting of three subequal sections, from the last of which issue three long hair-like bristles. Pleurae roughly sculptured, mainly rugose-reticulate, with the mesopleurae more or less obliquely striate. Propodeum deeply, irregularly rugose reticulate. Basal cell enclosed by indistinct veins; marginal vein twice as long as thick, more than half the length of the stigmal which is slightly curved and knobbed at apex; postmarginal vein long, extending halfway from the marginal to the apex of the wing; radial vein faintly indicated.

Type: Collection of the University of Königsberg, No. XIII B937; no further specimens.

This is a very finely preserved specimen, showing practically the entire external structure. The extruded tubular ovipositor is very unusual, but probably does not represent any unique structure. However, this extrusion is not normally seen in specimens of this family nor in any other amber example.

***Ceratoteleia succinophila* sp. nov.**

(Fig. 13)

♀. Length 3.4 mm. Apparently black, with the base of the antennae and the legs brownish or lighter; wings hyaline, with brown venation, the stigmal vein paler. Head globular. Front and vertex with moderately large, but not confluent punctures, on the occiput more or less finely rugose reticulate. Ocelli in a nearly equilateral triangle, the posterior ones almost contiguous to the eye margin. Sides of face, head behind the eyes and

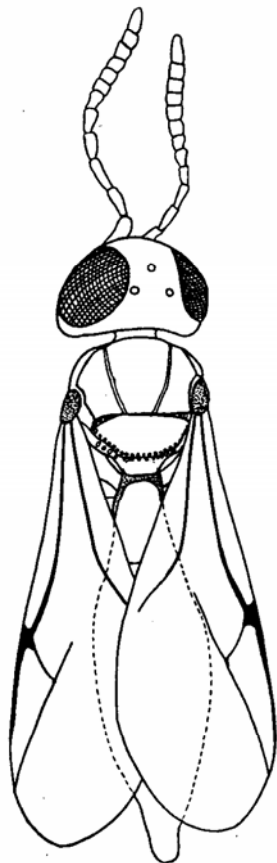


FIGURE 13. *Ceratoteleia succinophila* Brues, ♀.

malar space coarsely striate, the striae converging below as in *C. caudata*. Antennae long; with a moderately stout club of six joints, although the preceding joint is much thickened and might be considered as a seventh club-joint; scape not extending much above the middle of the face; pedicel more than twice as long as thick, about one-fourth shorter than the first flagellar joint which is one-half longer than the second; second and third of equal length, the third thicker; fourth shorter, but longer than thick; fifth and following about as long or barely longer than thick, the fifth narrower toward the base. Mesonotum and scutellum with moderate sized, well separated punctures; parapsidal furrows deep, weakly crenate, convergent behind and widened where they end at the base of the scutellum; base of scutellum margined at each side with a series of deep foveae which, however, do not extend to the median line; its posterior margin with a complete foveate or crenate line; postscutellum with a similar basal line at the sides, the median portion fully half as long as the scutellum, finely rugose. Petiole of abdomen striate; the striae extend to the base at the sides of the basal horn except medially at the extreme base where

they are replaced by large punctures, the latter also extending backward between the striae to beyond the middle of this tergite; following tergites with moderately spaced punctures which grow much smaller toward the apex of the abdomen. Pleurae more or less irregularly rugoso-punctate, no distinct striated area on the mesopleura, its central oblique impression smooth. Basal cell in wings indicated by imperfectly formed veins; marginal vein very short, hardly longer than thick; stigmal vein, long, not distinctly knobbed at apex, nearly one-fifth as long as the submarginal; postmarginal vein very long, extending to the apical fourth of the faintly indicated radial cell.

Type in the Collection of the University of Königsberg.

***Ceratoteleia proleptica* sp. nov.**

(Fig. 14)

♀. Length 3.6 mm. Black, including the legs in the type, but in other specimens the legs are ferruginous which may have been their color in life. Wings hyaline, the veins clear brown. Head coarsely, but not confluent punctate above and on the front; orbits below and cheeks coarsely and conspicuously striate as in the preceding two species. Antennal scape extending to the middle of the eye; pedicel two and one-half times as long as thick, one-fourth shorter than the first flagellar joint which is nearly one-half longer than the second; second and third equal; fourth shorter, much wider at apex than at base; first three club-joints each slightly wider than long. Posterior ocelli clearly separated from the eye-margin although close to it. Mesonotum strongly, closely punctate throughout, but not so coarsely on the parapsides; parapsidal furrows complete, noticeably convergent behind; scutellum sculptured like the mesonotum; postscutellum much less than one-half as long as the scutellum, its surface reticulate punctate or minutely rugose. Pleurae punctate reticulate; mesopleural furrow smooth, but above and behind it are distinct striae. Striae of first abdominal tergite not extending distinctly on to its basal half where they give way to reticulations that also extend posteriorly between the striae; second tergite less distinctly, more irregularly and more weakly striate; following tergites except the sixth also showing indications of striae. Marginal vein very short, almost punctiform; basal and radial veins not clearly indicated; stigmal vein long, faintly knobbed at the tip, less than one-fifth as long as the submarginal; postmarginal vein very

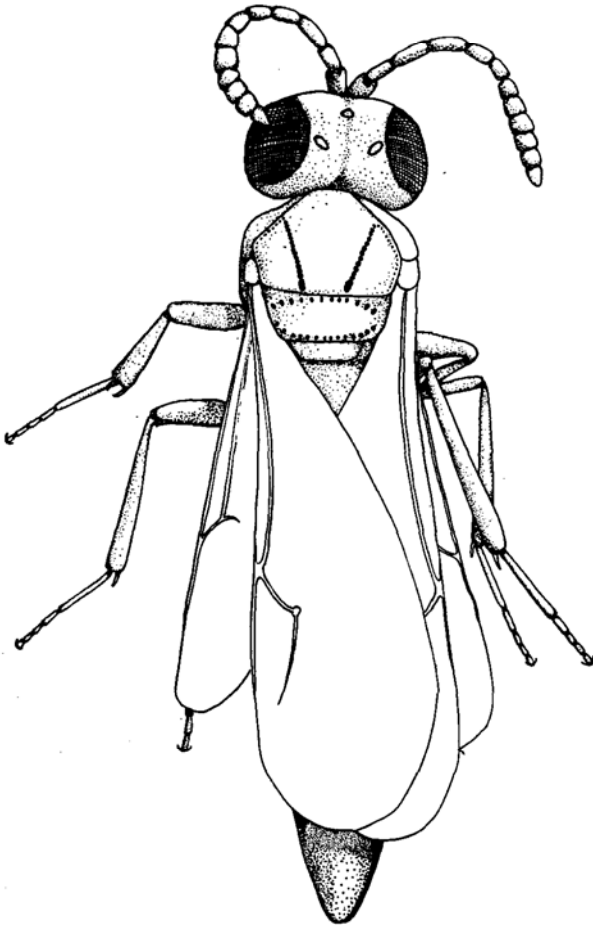


FIGURE 14. *Ceratoteleia proleptica* Brues, ♀.

long, extending nearly to the apex of the very faintly indicated radial cell.

Type: No. 8162, Museum of Comparative Zoology; paratype, No. 8163. Also numerous other additional specimens in this collection and that of the University of Königsberg. In all, there are 24 females that are clearly this species which is thus a very abundant one in the Baltic amber.

C. proleptica is undoubtedly related very closely to *C. succinophila*, but seems to be clearly distinct on the basis of the characters tabulated in the key.

Proplatyscelio gen. nov.

♀. Similar to *Platyscelio* Kieffer, but differing in having a long, well developed postmarginal vein in the wings. Head very much flattened, considerably wider than the thorax and apparently wider than high; posterior ocelli on the sharply rounded vertex, dividing the space between the eyes into three equal parts; occiput very short, strongly declivous, the temples very wide; eyes bare. Antennae 12-jointed, short; scape expanded

apically, with the outer angle triangularly produced; club large, consisting of seven short joints. Prothorax very deeply excavated behind; mesonotum with complete parapsidal furrows; scutellum and propodeum of equal length, the latter with a median crenate groove, each one-half the length of the mesonotum. Abdomen flattened, somewhat narrower than the thorax and one-third longer than the head and thorax together. Wings ample, but not reaching the tip of the abdomen; submarginal vein extending beyond the middle of the wing, five times as long as the marginal vein which is longer than the stigmal; postmarginal vein long.

Type: *P. depressus* sp. nov.

Proplatyscelio depressus sp. nov.

(Fig. 15)

♀. Length 3.1 mm.; of wing 1.7 mm. Apparently entirely black or very dark in color, with hyaline wings. Head in front view broadly oval, with the eyes bulging laterally; face very wide, three times as wide as either eye; vertex sharply rounded, but not carinate above, the ocelli apparently in a very broad flat triangle, although the median one is not very clearly visible; surface of occiput finely and not very densely punctate; eyes not extending back on to the cheeks or temples. Mouthparts and sculpture of face not visible in the type. Antennae very short, not longer than the width of the head, attached close to the clypeus; scape triangularly expanded outwards at apex, curved at the base; the pedicel inserted at about the apical third of the scape; pedicel longer than thick, narrowed basally, much longer than the basal joint of flagellum which is as long as thick and narrowed basally; second flagellar joint quadrate, ones beyond transverse, more strongly so on the thicker part of the 7-jointed club. Pronotum very sharply, almost triangularly excavated behind, its anterior margin only slightly convex behind the neck-like front portion, so that the scapular region is quite wide; its surface closely, finely punctate. Mesonotum as wide as long, almost flat, its anterior margin defined by a sharply impressed groove that is irregularly transversely striate or crenate; parapsidal furrows slightly bowed inwards and more widely separated in front; surface entirely smooth, except the bottom of the parapsidal furrows which are finely granulate or punctate. Scutellum smooth, its anterior margin sinuate, the posterior one arcuate, no distinct groove at the basal margin. Propodeum

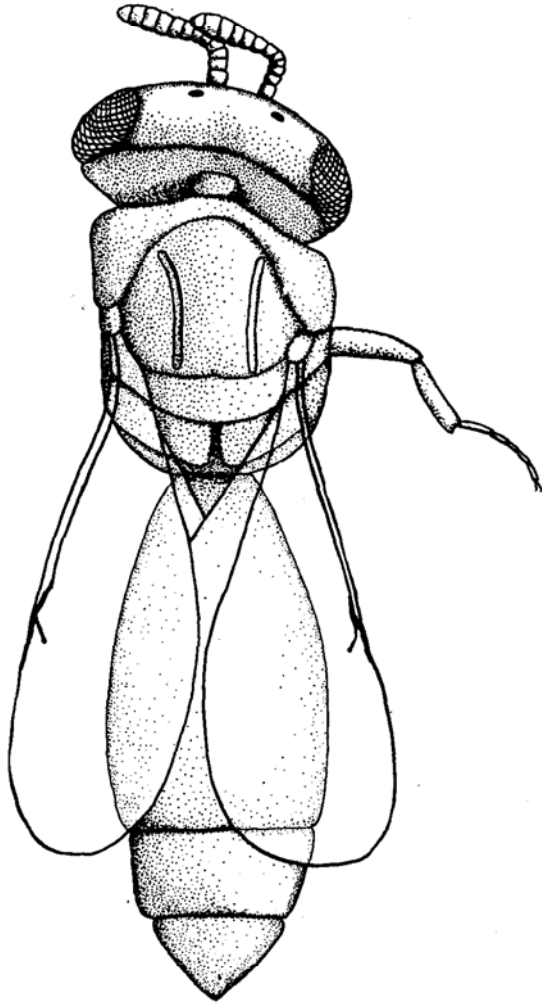


FIGURE 15. *Proplatyscelio depressus* Brues, ♀.

highly polished, only slightly declivous, with a median crenate furrow that expands behind into a small triangular rugulose median area at the base of the abdomen. Abdomen apparently smooth above, although it is concealed by the overlapping wings, except apically; seen from below nearly flat, as it is above, the segments of about equal length; lateral carinate edge unusually wide. Stigmal vein weakly clavate, about three-fourths as long as the marginal vein; postmarginal more than twice as long as the stigmal.

Type: In the University of Königsberg Collection (No. 4224, Phys. Oec. Ges).

This is a conspicuously flattened species which would fit perfectly in the modern genus *Platyscelio*, except for the long, fully developed postmarginal vein. *Platyscelio* is at present restricted to the Austromalayan region, whence a small number of species have been described.

Trachelopteron gen. nov.

(Fig. 16)

♂. Head, thorax and abdomen considerably flattened. Head attached to the thorax very close to the occipital line which is very slightly excavated; eyes small placed high up; ocelli forming a very low triangle or curved line, the lateral ones well removed from the eye-margin. Antennae 10-jointed; scape short, much expanded apically and excavated below to receive the large pedicel; first four flagellar joints extremely short, the first minute and very closely attached to the second; four club joints longer, but not much thicker. Pronotum visible as a narrow band of equal width; mesonotum flat, broader than long; without parapsidal furrows; separated from the broad, flat, short scutellum by a narrow, feebly impressed suture. Abdomen broad, little longer than the thorax; first segment very short, second nearly as long as the following ones together. Wings sharply bent upwards near the base so that they extend vertically above the body;¹ basal part of fore-wing narrow, strap-shaped; submarginal vein very short, with a curved apex probably representing a vestige of the stigmal vein; behind this with a thin vein, curved backwards at the tip and about as long as the submarginal vein, and further, with two broad, short thickenings joined basally at the anal angle; remainder of wing of normal size and form, without further venation. Legs short and stout.

Type: *T. angulipenne* sp. nov.

Trachelopteron angulipenne sp. nov.

(Fig. 16)

♂. Length 0.7 mm. Apparently black or piceous, including the legs; wings distinctly infuscated, the venation and thickenings dark brown. Head more than three times as wide as thick, quite flat between the base of the antennae and the ocelli; posterior ocelli almost as far from the eye as from the median line and well below the top of the head. Antennae very stout throughout, especially

¹This may be due to the process of inclusion in the amber, but both wings are bent in exactly the same way. This in connection with the unique thickenings at the base of the wing lead me to believe that the bending is not due to accident. I do not know of any similar modification in related forms, but in one common North American species of Encyrtidae (*Eupelmus rhizophilus* Ashm.) the wings are similarly bent sharply upward in the female which has greatly reduced wings.

toward the apex where the last four joints form a more or less distinct club; nevertheless the specimen appears to be a male as the abdomen is blunt at the tip and shows the presence of seven tergites very clearly. The second to fourth flagellar joints are strongly transverse and the first is very short, rounded and much narrower than the others; the club joints increase in length apically, the penulti-

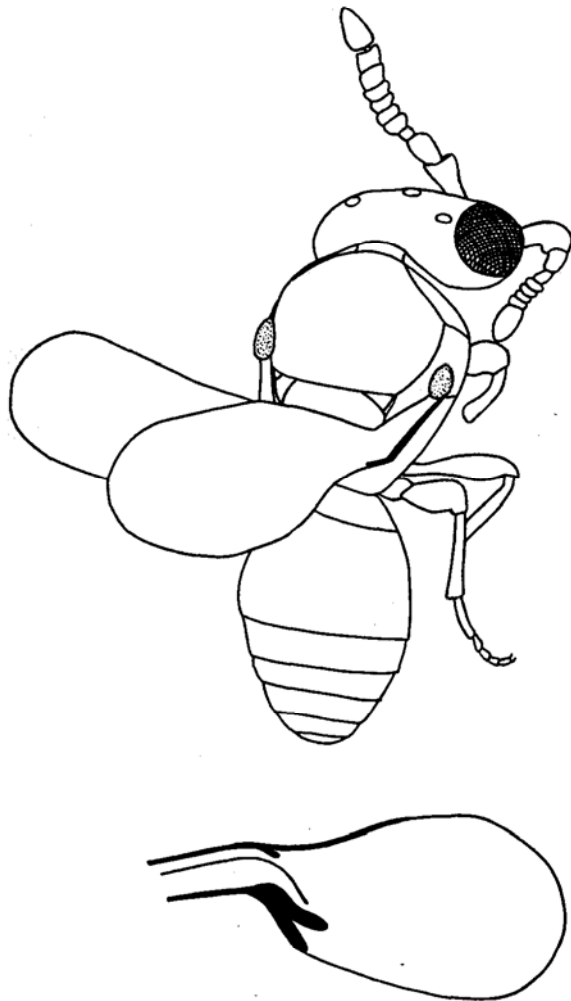


FIGURE 16. *Trachelopteron angulipenne* Brues, ♀ and wing of same.

mate one quadrate and the apical one about one-half longer than wide. Head, thorax and abdomen smooth and shining. Second tergite slightly wider than long; third to sixth subequal; seventh narrow, rounded at apex and slightly shorter.

Type: No. XIII B922, University of Königsberg Collection.

I am quite at a loss as to where this peculiar insect should be placed. The body is strongly flattened, but not so much so as in scelionid genera like *Platyscelio* or *Platytelenomus* and the wings are

very unusual, due to the adventitious vein-like thickenings. The antennae show a tendency to the double geniculation usually seen in the *Platygastridae*. The presence of a club-like thickening of the apical joints is noticeable in males of some genera of that family (e. g., *Sactogaster*, *Isostasius*), although this in more exaggerated form is a typical female characteristic. The only known genus of *Platygastridae* with more than a simple clubbed submarginal vein is *Proplatygaster*, erected for a South American species by Kieffer, but this is evidently not a close relative of the present form. It is probable that the antennal scape will be found to be more widely expanded in the female as occurs in *Sacespalus* and other Indoaustralian genera.

A more exact placing of *Trachelopteron* must await the discovery of other related types.

Uroteleia gen. nov.

(Fig. 17)

♀. Head, in dorsal view, very thick, not much wider than long, the occiput emarginate and the anterior edge almost semicircular. Antennae 12-jointed; scape long and slender; pedicel and basal flagellar joints short, rounded; club elongate oval, six-jointed, the first club joint smaller than the others. Ocelli far removed from the occipital margin, the posterior ones close to the eye-margin. Prothorax long, its posterior edge nearly straight, transverse; mesonotum much wider than long, with deep parapsidal furrows; base of scutellum with a foveate groove, the posterior margin rounded. Abdomen greatly narrowed at the base, the first tergite small, as wide as long and about one-third the width of the third which is the widest; apical segments narrowed, the tip with a straight, tubular appendage, fully as long as the gaster, extending straight backwards. This is only partly sclerotized, composed of at least two telescoping segments, and about one-tenth as wide as long, with blunt tip. Submarginal vein extending beyond the middle of the wing; marginal vein thicker than the stigmal vein and shorter; postmarginal vein much longer than the marginal; no trace of a radial vein; basal vein present, at least the upper part near the submarginal vein.

Type: *U. synthetica* sp. nov.

This again is a type of doubtful affinities. The thinly chitinized, long tubular ovipositor has its counterpart in certain members of the *Platygastridae*, such as *Gastrotrypes* and at least one species of the large genus *Platygastridae*.² Also an

² These were described by the writer in 1922 in the

Australian genus (*Stylaclista* Dodd) of the family Belytidae is provided with a similar fleshy ovipositor as long as the gaster. The thick, rounded head of the present genus is quite similar to that of some Belytidae although not unknown in the Scelionidae (e. g., *Aratala* Dodd) but the antennae are inserted lower on the face. Their exact insertion is slightly obscured in the amber, but in this important diagnostic character reference to the Belytidae cannot be made. The wing venation is, however, so typically that of the Scelioninae that I have placed it in this group although the head and the form of the abdominal petiole are reminiscent of the Belytidae.

Uroteleia synthetica sp. nov.

(Fig. 17)

♀. Length 1.25 mm.; abdominal tube 0.8 mm. Black, or dark colored, the funicle of the antennae paler; wings hyaline, slightly infuscated apically,

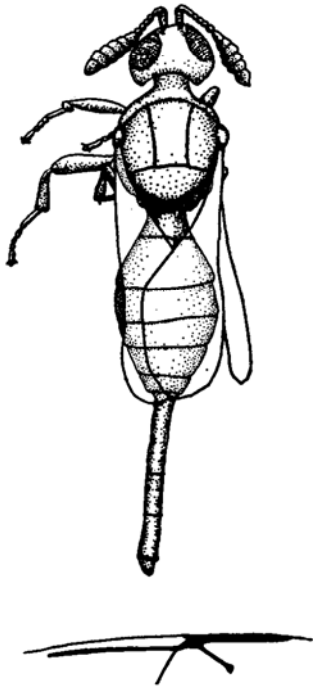


FIGURE 17. *Uroteleia synthetica* Brues, ♀ and stigmatal area of wing.

with brown venation. Ocelli forming a triangle, the median one far below the level of the others. Eyes large; the face narrow above; the temples broad, obliquely narrowed behind the eyes and

Proceedings of the American Academy of Arts and Sciences, vol. 57, pp. 263-283, but have unfortunately been omitted by Kieffer in his compilation on the family Scelionidae in 1926 (*Das Tierreich*, Lief. 48).

with a carinate posterior margin. Antennae with a large, heavy club; pedicel narrower than, and about as long as, the first flagellar joint, the latter narrowed at the base, slightly longer than thick; second to fourth flagellar joints rounded, not as large as the first and growing successively shorter; club as long as the remainder of the antenna, exclusive of the scape; its first joint small, abruptly widened to the apex; four following ones large, nearly one-half wider than long; the apical joint narrower, subtriangular, barely longer than the preceding one. Pro- and mesonotum smooth, impunctate, the latter strongly convex anteriorly, its furrows converging posteriorly. Metanotum and propodeum short; simple. Second abdominal tergite widened behind, its sides straight, the apical width twice that at the base; about as long as the third which is of even width and slightly wider than long; fourth tergite narrower; fifth very short and narrow; fleshy ovipositor including four telescoped segments, the first short, second longest, third shorter, the last but slightly projecting and rounded at apex. Marginal vein short, about twice as long as thick; stigmal vein strongly oblique, knobbed at the tip, a little longer than the marginal; postmarginal more than three times as long as the marginal.

Type: No. 61828B, in the University of Königsberg Museum. No other specimens.

Archaeoscelio gen. nov.

(Fig. 18)

Body very short, stout and roughly sculptured; antennae 14-jointed in both sexes, geniculate, with slender filiform flagellum in the male and with a thick, 10-jointed club in the female, inserted low on the face, near the large tridentate mandibles. Entire body both above and below very deeply, coarsely punctate, almost rugose. Head broad and rather thin, especially in the male, the face broad. Ocelli large, widely separated, in a low triangle. Pronotum very narrow medially, wider at the sides; mesonotum wider than long, without parapsidal furrows, its anterior margin nearly straight and oblique on the sides and sharply rounded medially; scutellum at the base with a deep frenum, its surface strongly convex, wider than long and fully half as long as the mesonotum. Legs rather slender, the femora and tibiae strongly clavate. Wing venation very unusual; submarginal (?) vein widely separated from the margin of the wing, giving off a short vein or thickening at its end to the costal margin and forking just

beyond the posterior branch, forming a stigmal vein from the end of which a weaker vein extends toward the wing-tip to enclose a quite clearly formed and nearly complete radial cell.

Type: *A. rugosus* sp. nov.

***Archaeoscelio rugosus* sp. nov.**

(Fig. 18)

♂. Length 2.3 mm. Apparently entirely black, with the wings slightly infuscated, especially near the veins which are brown. Head nearly three times as wide as long in dorsal view; ocelli large,

narrowed basally; second about as long as the first, the ones beyond shorter, subequal, clearly longer than wide, the last longer and pointed. Thorax above deeply punctate, less coarsely so on the pronotum and becoming quite rugose on the mesonotum behind and on the scutellum, the latter with two distinct, blunt teeth at its tip. Upper side of abdomen hidden by the wings above, but seen from the side seven or eight tergites are visible, the second and third longest, but greatly exceeding the fourth and fifth, the apical ones growing much shorter; the surface of the tergites appears to be coarsely longitudinally rugose. The

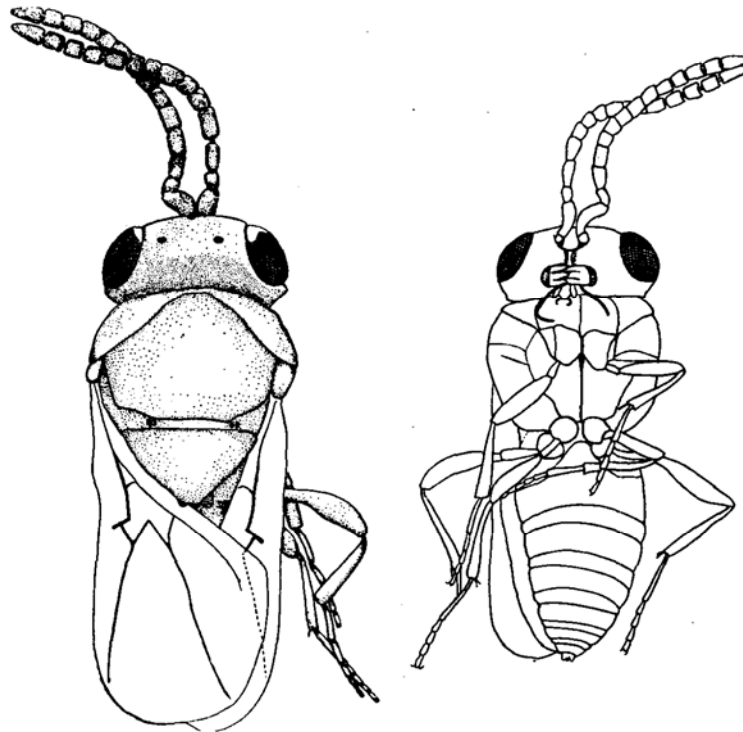


FIGURE 18. *Archaeoscelio rugosus* Brues, ♀ in dorsal and ventral view.

the posterior pair twice as far from one another as from the eye margin, forming with the anterior one a very low triangle. Surface of head anteriorly coarsely, closely punctate, behind the ocelli rugose-reticulate. Temples and cheeks strongly carinate along the posterior edge, the malar space half as long as the eye, without furrow; eye nearly twice as high as wide. Mandibles very wide at the base, terminating in three strong teeth. Scape of antenna reaching to the middle of the eye, cylindrical and much thickened toward apex; pedicel small, elongate, as long as the thickness of the scape. Flagellum slightly thickened toward the middle; first joint one-half longer than wide,

venter shows the third (second visible) sternite to be only about half the length of the second; third and following with a basal row of pits separated by short longitudinal carinae. The venter as well as the dorsum is expanded so that the sclerites are widely separated by the connecting membrane, but this condition is undoubtedly due to an internal expansion of gases before the amber hardened, and lengthens the abdomen considerably in the specimen.

♀. Length 1.9 mm. Abdomen no longer than the thorax, the sclerites all closely connected the upper surface appearing to form a sort of heavy carapace composed of six tergites decreasing in

length from the basal one to the sixth. Antennal scape shorter and thicker than in the male and not narrowed basally; pedicel and first flagellar joint as in the male; second flagellar joint shorter and much thicker than the first, about as long as wide at apex; following joints forming a long club with each joint transverse, those near the middle of the club especially so, these being fully twice as wide as long. Whole body even more coarsely sculptured than in the male, the eye shorter and the malar space longer.

Type: ♂. No. XIII B929, in the collection of the Königsberg Museum. Allotype, ♀, in the Museum of Comparative Zoology, No. 8164.

***Archaeoscelio filicornis* sp. nov.**

♂. Length 1.2 mm. Very similar to the preceding species, but with the antennae very much more slender, the flagellar joints all at least twice as long as thick. Ocelli forming a nearly equilateral triangle, the posterior ones as far from the eye as from one another. Head rather shallowly sculptured above and on the face, the malar space quite smooth, with a distinct furrow. Scutellum rounded at apex, without teeth.

Type: No. 8165, Museum of Comparative Zoology.

This species is clearly very closely related to *A. rugosus* which it resembles almost exactly, except for the very striking differences noted above.

It is unfortunately not well preserved and the wings are not in a position to be examined.

It is with some misgivings that I have included in this family the very anomalous insects just described, although it seems impossible to place them elsewhere. The most striking discrepancy is the presence of fourteen joints in the antennae of both sexes which are otherwise as in other Scelionidae with long scape, filiform flagellum (♂), clubbed flagellum (♀) and no ring joints discernible in either sex. One other fossil genus which I described recently from Canadian amber as *Proteroscilio* has likewise 14-jointed antennae, but they are flattened, as is the whole body, like the recent *Platyscelio* and the Oligocene *Proplatyscelio* described earlier in this paper. The general habitus, including the large, tridentate mandibles, reminds one of a chalcidoid, but there is no trace of ring-joints in the antennae and the morphology of the thoracic dorsum does not conform to that seen in the Chalcidoidea. The very coarsely sculptured body, with the head so completely fitted to the thorax both above and below is very striking, but finds its counterpart occasionally in several groups of Hymenoptera. Likewise, the wing venation is not in close conformity with that of any group known to me. The presence of two clearly distinct species in such an aberrant genus is most unexpected and suggests the prevalence of insects related to them in the early Tertiary.