REDEFINITIONS AND SYNONYMY OF SOME GENERA OF AMBER FUNGUS-GNATS (DIPTERA, MYCETOPHILIDAE)

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The fungus-gnats (Mycetophilidae) form one of the largest constituent groups of the abundant insect fauna of Baltic Amber, and as the publications of Meunier have shown, the species are very similar to those of the present day. Meunier introduced numerous new genera for some of the fossil species, but some of them have since been found to be synonymous with recent genera, while several others have still living representatives which were not recognised till after the fossils were described. The same may be true of others of the fossil genera, and any generic revision of recent Mycetophilidae should therefore take account of the amber forms. As a contribution towards such a revision I am now giving some additional information regarding the genotypes of a number of Meunier's genera. Most of this information was obtained during a visit to Königsberg in 1933, when with the kind assistance of Dr. Elizabeth Skwarra I was able to examine many of Meunier's types; subsequently Dr. A. Keilbach of the Königsberg Museum kindly sent me for study several further types which could not be found at the time of my visit.

Meunier's descriptions seldom mentioned such important details as the position of ocelli, hairs on the pleurae, and trichiation of the wings, all of which characters have been found to be important for generic differentiation. In most of the better-preserved fossils, however, these characters are as clearly visible as in fresh balsam mounts of existing species.

The amber fungus-gnats are all referable to recent subfamilies and tribes, and the classification outlined by me in 1924 and adopted by Landrock (1927) proves equally well adapted to recent and fossil forms; the genera are here arranged according to that classification. It is interesting to note that in fossil as in recent forms the presence or absence of a small "Sciophiline Cell" bounded by the short vein *R*4 is not a reliable generic distinction and in several cases is not even constant for a species. This was not recognised by Meunier, who distinguished his genus *Palaeoempalia* from *Boletina* chiefly by the presence of this cell. I find, however, that *Boletina anacliniformis* Meunier is simply a specimen of *Palaeoempalia crassipes* Meunier with *R*4 missing, while under *Boletina fimbriata* Meunier had included similar aberrant specimens of his *Syntemna elongata*, *Empalia subtriangularis*, *Palaeoempalia brockii*, and perhaps *P. succini*. Species of the tribe Gnoristini are particularly numerous: many genera are involved, the distinctions between these and between recent genera of the tribe being often unsatisfactory.

Sciophilinae.

Sciophilini.

Anaclileia Meunier, 1904.

Founded for four supposed species, of which *A. anacliniformis* Meun. was designated as the genotype by Johannsen. I could not find the specimens of

this species in Königsberg, but the types of the other three (*sylvatica* Meun., *gazagnairei* Meun., and *dissimilis* Meun.) are all present and are probably specimens of one and the same species, the antennal differences being sexual. They show the following characters :—

Lateral ocelli remote from eyes and rather small. Pleurotergites hairy; postnotum conspicuously hairy towards base of abdomen. Tibial setulae irregular. Wing-membrane with small dense macrotrichia (as well as microtrichia) on at least the distal half.

These features, as well as those of venation (already described by Meunier), agree with the recent genus *Paraneuratelia* Landrock, 1911, which must now be placed as a synonym **syn. n.**

Proanaclinia Meunier, 1904.

Proposed for *P. giebeli* Meun. and *P. gibbosa* Meun.; the former appeared to be missing from the Königsberg collection, but the latter was found and may be taken as the genotype.

Characters of thorax, wings, legs and ocelli as in the recent genus *Neuratelia* Rond., of which *Proanaclinia* would appear to be a synonym (as suggested by Johannsen). In *P. gibbosa* *Sc* is present but faint, costa slightly produced, *M*1 complete; the last point is the only obvious difference from recent species of *Neuratelia*, but it is clearly of no great significance as *P. giebeli*, according to Meunier's figure, agrees with recent species in having *M*1 incomplete.

Gnoristini.

Sciobia Loew, 1850.

Palaeoempalia Meunier, 1897.

The very brief diagnosis given by Loew for his genus *Sciobia* shows that he intended it to include all amber Sciophilinae with *Sc* reaching costa and *R*4 present, *i.e.* species of *Sciophila* and *Mycomyia* (both of which genera occur in amber), and also the species later placed by Meunier in *Palaeoempalia*. Johannsen thought *Sciobia* might be identical with *Mycomyia*, but took no action in the matter. I prefer to suppose that *Sciobia* is the same as *Palaeoempalia*, as this will save the risk of having to change the name of *Mycomyia*, a genus which contains numerous recent species. Species of *Palaeoempalia* are more numerous in amber than *Mycomyia*, and Loew doubtless knew some of them; he named but did not describe in detail two species (*S. quadrangularis* and *spinosa*) with strong bristles on the tibiae, and one of these may well have been Meunier's *Palaeoempalia brogniarti*, which is the only *Palaeoempalia* among those which I have examined which has the tibial bristles long, strong and black. I suggest that *S. spinosa* Loew be assumed to be the same as *P. brogniarti* and taken as the type of *Sciobia*. *P. brogniarti* has already been chosen by Johannsen as type of *Palaeoempalia*, so that this name will now become a synonym of *Sciobia* **syn. n.**

I examined four males of *P. brogniarti* in Königsberg, as well as a fifth specimen so labelled which represents another allied species; the type of the species may be taken as no. 2451. There is also a good male specimen in the Geological Department of the British Museum. The following features can be made out in the specimens :—

Lateral ocelli at a distance less than their own diameter from the eyes, which are rather large and emarginate above the antennae. Mesonotum with long and rather dense bristly hair; pleurotergites and postnotum bare. Abdomen with eighth segment scarcely visible, seventh small, and even the sixth much shorter than the fifth. Hypopygium broad, with large coxites and tergite and long simple styles, remarkably similar to that of the recent *Boletina erythropyga* Holmgr. (*sahlbergi* Lundst.). Tibial setulae irregular: longest bristles on hind tibia nearly twice the tibial diameter; no distinct hind tibial comb; no sexual modification of front tarsi or middle tibiae; claws each with a single strong tooth, all similar in size. (I think small empodia are present in the British Museum specimen, but cannot be certain; unfortunately I failed to note the presence or absence of these structures in the Königsberg specimens.) Wing-membrane with fine microtrichia only; *Sc* setose except near base; forks of *M* and *Cu* also shortly setose. Venation as already figured by Meunier and Johannsen.

Most of the other species referred by Meunier to *Palaeoempalia* differ in some details and are perhaps not congeneric with *P. brogniarti*; they may belong to *Palaeoboletina* (see below). The correct location of the recent European *P. collaris* Mg. (*stylifera* Grzeg.) is also questionable.

Palaeoboletina Meunier, 1904.

Proposed for *P. elongatissima* Meun. (which may be taken as the genotype) and *P. grandis* Meun. Both are missing from the Königsberg collection. The genus was placed by Johannsen as a synonym of *Boletina*, but I think this unlikely. Meunier's figure of the wing suggests that *P. elongatissima* may be a species related to his *Palaeoempalia crassipes*, or possibly even a specimen of that species lacking vein *R*4. Assuming that this is so, the genus *Palaeoboletina* could be regarded as including most of the species referred by Meunier to *Palaeoempalia* and *Boletina*, and defined as having ocelli and eyes as in *Sciobia* (*Palaeoempalia*) but without macrotrichia on forks and with hypopygium resembling that of *Synapha*. These species cannot well be referred to *Boletina*, which has a different type of hypopygium and *Sc*2 near middle instead of near tip of *Sc*.

Palaeoanaclinia Meunier, 1904.

Proposed for three species of which Johannsen designated *P. distincta* Meun. as type. The type male of *P. distincta* shows the following features :—

Lateral ocelli touching eyes, which are large and emarginate above antennae as in *Palaeoempalia*. Pleurotergites and postnotum bare. Tibial setulae irregular: bristles long and black. Front tarsi with spines on second and third segments. Wings without macrotrichia on membrane or forks; *Sc*2 absent; stem of median fork rather short; *fCu* well before *rm*.

The recent species referred here by Johannsen are not congeneric, but belong to the genus *Boletina*. *P. curvipetiolata* Meun. also differs generically; it has the ocelli well removed from the eyes. The absence of *Sc*2 in the type *P. distincta* may be merely an individual anomaly, and the genus *Palaeoanaclinia* may prove to be the same as *Palaeoboletina*.

Proboletina Meunier, 1904.

Proposed for *P. syntemniformis* Meun. The type ♀ in Königsberg (no. 4055) and a male (unnumbered) show the following features :—

Lateral ocelli touching eyes, which are very slightly emarginate above antennae. Palpi 3-segmented, first about twice as long as broad, second twice as long as first but more slender, third longer than first two together and very slender. Postnotum and pleurotergites bare. Abdomen of ♂ with 6 distinct segments before hypopygium, 6th not long. Hypopygium elongate with small terminal styles. Tibial setulae irregular; no obvious combs; mid tibia of ♂ with sensory patch. Claws with sub-basal tooth; empodium rudimentary. Wings without macrotrichia on membrane or forks. Venation as in *Synapha*: *Sc*2 near tip of *Sc*; median fork with rather long stem; *fCu* just beyond *rm*.

Palaeophthinia Meunier, 1904.

Proposed for *P. aberrans* Meun. The type ♀ in Königsberg shows all the characters of a typical *Coelosia* :—

Lateral ocelli small and remote from eyes. Pleurotergites bare and rather flat; postnotum also bare. Legs moderately long; tibial setulae irregular, bristles few and short; front basitarsus equalling tibia in length. Wings without macrotrichia on membrane or forks; *Sc*2 absent; *rm* very long.

The name *Palaeophthinia* falls as a synonym of *Coelosia* **syn. n.**

Archaeboletina Meunier, 1904.

Proposed for *A. tipuliformis* Meun. The type ♂ (no. K. 4232) and one other specimen in Königsberg are slender insects much resembling the recent *Speolepta leptogaster* (Winn.). The following features may be noted :—

Lateral ocelli remote from eyes. Palpi with third (last) segment very long. Postnotum and pleurotergites bare, latter not prominent. Scutellum with two bristles. Abdomen long and slender, but segments VII and VIII both small, together not longer than VI. Hypopygium with large and somewhat pointed tergite, style simple, terminal, bristly, coxites only narrowly connected at base. Front tarsi and mid tibiae simple; front basitarsus longer than tibia (4 : 3). Tibial setulae in regular rows except at base, bristles very few and minute. Wings without macrotrichia on membrane or forks. Venation much as in *Speolepta*, but *Sc*2 only slightly before *Rs* and *fCu* almost below instead of beyond *rm*, the fork narrower.

The regularly arranged tibial setulae and the differences in venation noted above will perhaps suffice to distinguish this genus from *Speolepta*, to which it is evidently related. The bare wings and incomplete *Sc* separate it from *Paratinia*.

Dianepsia (Loew 1850) Meunier.

The genotype, *D. hissa* Lw., seems to be a common amber species. I have examined numerous specimens and can add the following details to the published descriptions :—

Lateral ocelli small and well separated from the rounded eyes. Palpi 3-segmented, but last segment not very long. Postnotum and pleurotergite bare. Tibial setulae and microtrichia of wings not in definite rows, though the former are less irregular than usual in this tribe. No macrotrichia on wing-membrane or forks (or with a few at tips of *M*1 and *M*2). Hypopygium small, with large tergite.

The rather short and broad wings with unusually short but complete *Sc* (with *Sc*2 near its tip) characterise this genus, which in general appearance has some resemblance to *Docosia*.

Loewiella Meunier, 1894.

No species were mentioned by Meunier in 1894; from among those described in 1904 Johannsen selected *L. incompleta* Meun. as genotype. The type of *L. incompleta* is a ♀ in Königsberg; although it has a rather shorter *Sc* than the other species of the genus it seems to be related to *L. asinduloides* Meun. and *L. indistincta* Meun., both of which are represented by males; there are also several males of *L. asinduloides* or a closely related species in the British Museum. I base the following description on an examination of all these specimens :—

Lateral ocelli almost touching eyes, which are emarginate as in *Palaeoempalia*. Pleurotergites and postnotum bare. Hypopygium with large broad tergite which extends well beyond the coxites and covers the small styles. Tibial setulae more or less regular on distal half, especially beneath. Hind tibia with conspicuous comb on inner side at tip. Front tarsus of ♂ with short spines on segments 2, 3 and 4; mid tibia with sensory patch. Empodia present but small. Wings with dense microtrichia but no macrotrichia on membrane or forks; stem of median fork at least twice as long as *rm*; *fCu* below *rm*.

L. tenebrosa Meun. is not congeneric with the three species mentioned above as it has the ocelli remote from the eyes and the pleurotergites hairy. The recent species referred by Lundström to *Loewiella* are also not congeneric but belong to the genus *Syntemna* (tribe Sciophilini). The recent genus most resembling *Loewiella* is *Dziedzickia* Johannsen, 1909, but the British species, at least of this genus, show some differences from *Loewiella*, such as the hairy pleurotergites and the simple front tarsi of the male.

Palaeodocosia Meunier, 1904.

Palaeotrichonta Meunier, 1904; *?Sciomorpha* Meunier, 1923.

The names *Palaeodocosia* and *Palaeotrichonta* were introduced for *P. brachypezoides* Meun. and *P. brachycamptites* Meun. respectively; both were described from females which I have examined and find to be not only congeneric but conspecific **syn. n.** Among the characters visible are the following :—

Lateral ocelli moderately large, less than their own diameter from eyes. Pleurotergites hairy. Tibial setulae irregular, bristles short. Short macrotrichia present on forks but not on membrane of wing. *Sc* ending in *R* far before *Rs*; stem of median fork not or but little longer than *rm*; *fCu* well before *rm*.

The genus *Sciomorpha* was introduced for two species which according to the figures have a wing-venation similar to that of *P. brachypezoides* except that *R4* is present, forming a small cell. There is one such specimen in the Geological Department of the British Museum; it resembles *P. brachypezoides* in most respects and appears to me certainly congeneric if not conspecific. *Sciomorpha* may therefore be quoted provisionally as a synonym of *Palaeodocosia*. A further synonym was perpetrated by Meunier (1922), who suggested an alternative generic name *Paléo-Syntemna* for *P. brachypezoides*.

The recent species *Syntemna alpicola* Strobl, which I have transferred to *Dziedzickia*, and for a close relative of which Dziedzicki (1923) erected the genus *Heteropygium*, has a wing very similar to that of *P. brachypezoides*, and must, I think, be placed in *Palaeodocosia*. Whether the genotype of *Dziedzickia* (*marginata* Dz.) is also congeneric is less certain.

The various genera of amber Gnoristini noted above may be grouped as follows :—

A. Lateral ocelli less than their own diameter from eyes.
   a. *Sc* ending in costa.
      1. *fCu* before *rm* : *Sciobia, Palaeoboletina, Palaeoanaclinia.*
      2. *fCu* beyond *rm* : *Proboletina.*
   b. *Sc* ending in *R*.
      1. Stem of median fork very short; pleurotergites hairy : *Palaeodocosia.*
      2. Stem of median fork longer; pleurotergites bare : *Loewiella.*

B. Lateral ocelli remote from eyes : *Archaeboletina, Coelosia, Dianepsia.*

Leiini.

Proneoglaphyroptera Meunier, 1904.

Proposed for *P. eocenica* Meun., the type ♂ of which I have examined.

Ocelli three, in a straight line, laterals touching eyes which are emarginate above antennae. Pleurotergites bare. Scutellum with two long bristles. Tibial setulae irregular; bristles short; spurs very long and equal. Empodia large. Wings without macrotrichia on membrane or forks. *Sc* ending distinctly in costa, *Sc2* beyond its middle; *R1* scarcely twice as long as *rm*, which is about equal to stem of fork; costa reaching half-way from *Rs* to *M1*; *fCu* just before or almost below level of base of *rm*.

P. eocenica appears to resemble the Australian and South American *Paraleia* more than any other recent genus of Leiini, differing in the position of the ocelli.

Willistoniella Meunier, 1904.

Proposed for *W. magnifica* Meun. and described as a Sciarid. The type is missing from the Königsberg collection, but from the figure of the wing, which shows *Sc* long and ending in *R*, and *Cu* forking at base of wing, it seems certain that the species is related to *Tetragoneura*, and may perhaps be the same as *Tetragoneura elongata* Meun., *T. rectangulata* Meun., *T. glabra* Meun., *T. borussica* Meun. or *T. minuta* Meun. All these species, according to my notes, are not typical *Tetragoneura* but belong to the allied genus *Ectrepesthoneura* Enderlein, 1911.

The name *Willistoniella* being pre-occupied, Johannsen (1909) proposed *Meunieria* as a substitute, but Kieffer (in Meunier, 1904) had previously used the name *Meunieria* for an amber Cecidomyiid, and although no adequate description of this insect has been published, Johannsen's *Meunieria* is invalidated by Kieffer's. The correct name for *Willistoniella* Meunier is therefore *Ectrepesthoneura*.

Sciarella Meunier, 1904.

Proposed for *S. mycetophiliformis* Meun., and described as a Sciarid.

I have examined the type ♀ and regard it as a specimen of *Tetragoneura* lacking *R4*, as is the case frequently in recent examples of the genus. *Sciarella* falls as a synonym **syn. n.**

Heeriella Meunier, 1904.

Proposed for *H. bifurcata* Meun., and described as a Sciarid.

I have examined two of Meunier's three cotypes and find them to be similar to *Tetragoneura* in most respects, but the lateral ocelli are much nearer

the eye-margins than usual in this genus (about half their diameter) and *R1* is slightly shorter instead of longer than *rm*. The species also has some resemblance to *Docosia*, but has *Sc* very short and pleurotergites bare (as in *Tetragoneura*). Abdomen of ♂ of the type of *Tetragoneura*, with the small hypopygium turned upwards.

Mycetophilinae.

Palaeoepicypta Meunier, 1904.

Proposed for *P. longicalcar* Meun. I have examined the type ♀, and also a second ♀, which appears to belong to the same species, in the Geological Department of the British Museum.

The species is not at all related to *Epicypta* as suggested by the name, but on the other hand shows all the essential features of *Rhymosia* Winn. or *Brachypeza* Winn., two recent genera which are not very well distinguished. *Palaeoepicypta* must be placed as a synonym of one of these, say *Rhymosia* **syn. n.** *P. longicalcar* has short discal bristles posteriorly on mesonotum (none on front half); scutellum with four long bristles; anepisternite with many very short hairs above; wings with *CuP* long and strong, *An* fairly distinct but not long.

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