Ansorgiidae, a new family from the Upper Cretaceous of Kazakhstan (Diptera, Ptychopteromorpha)

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Received: 25 Nov. 1992
Accepted to publication: 28 Dec. 1992


Abstract. Ansorgiidae fam. n., with Ansorgia praedicta gen. et sp. n., are described and illustrated and their phylogenetical relations are discussed; the new family shows characters linking Tanyderidae and Eoptychopteridae.

Key words: Ansorgiidae, Eoptychopteridae, Ptychopteridae, Tanyderidae, fossil, Jurassic, Kazakhstan.

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The superfamily Ptychopteroidea, enclosing families Tanyderidae and Ptychopteridae, was created by HENNIG (1973). In the first volume of the Manual of Nearctic Diptera the Tanyderidae, at a higher rank of a superfamily was transferred to the infraorder Tipulomorpha (MC ALPINE et al. 1981). This change however seemed not satisfactory to the authors and in the third volume the HENNIG’s idea of combining both families in one higher taxon was again undertaken by WOOD and BORKENT (1989), who created for them the infraorder Ptychopteromorpha. KRZEMIŃSKI (1992), in recognition of a special position of the Tanyderidae in the phylogeny of the entire Diptera, distinguished this family as a separate infraorder and left in the Ptychopteromorpha the Recent Ptychopteridae and their direct ancestor, a fossil family Eoptychopteridae (known since the Upper Triassic and probably being extinct in the Lower Cretaceous).

In the Upper Jurassic materials from Karatau (Kazakhstan, south-western Asia) two males were found; their wing venation resembles both the Tanyderidae and the Eoptychopteridae. This unique set of characters (presented below) deserves separating them in a new family, Ansorgiidae. However, the absence of a long, radial vein $R_2$ terminating in the costa (characteristic for the Tanyderidae) allows to place the new family in the infraorder Ptychopteromorpha, together with the Ptychopteridae and Eoptychopteridae.
SYSTEMATIC PART

*Ansorgiidae* fam. n.

**Diagnosis**. Four long, radial veins terminating in wing margin present (i.e., long *R*₂ is absent); *R₅, R₄₊₅ and R₄* form one straight line; *M₄* 2.5 times as long as *M₃₊₄; cross-vein *m-cu* originates in midth of *M₃₊₄.

**Type genus**: *Ansorgia* gen. n., Upper Jurassic (Karatau, Kazakhstan).

*Ansorgia* gen. n.

**Diagnosis** of the new genus and the new species is covered by that of the family.

**Origin of name**: the new genus and family name is dedicated to dr Jörg ANSORGE, the geologist from Germany, specializing in fossil insects.

*Ansorgia praedicta* sp. n.

**Origin of name**: *praedicta* = predicted (foreseen), points to the phylogenetical proximity of the *Ptychopteridae* and the *Tanyderidae*, intuitively presumed by HENNIG and other authors and proved by the old, Jurassic species described here.

**Description**. Body ca. 6 mm long, wing 5 mm long.

Head: antennae partially preserved, flagellomeres narrow and cylindrical; only some fragments of palpi visible.

Wing (Fig. 1): *Sc* visible in its terminal part, reaching beyond cross-vein *r-m*; cross-vein *sc-r* invisible, probably absent; *R₅* short, three times shorter than *R₄₊₅; *R₂* invisible, probably absent; *R₄₊₅ and R₄* positioned in direct, straight prolongation of *R₅; R₅* arcuated in its first section originating from *R₄₊₅; cross-vein *r-m* just before midth of *d* cell upper part, which is as long as *M₂; M₃ three times as long as *M₃₊₄; cross-vein *m-m* placed between *M₂ and M₃*, in the midth of the latter vein; anal field hidden under the abdomen and hence invisible.

Legs without tibial spurs. Abdomen broad, slightly shorter than the wing.

Male hypopygium well preserved (Fig. 2), distinctly more narrow that the abdomen; some structures resemble the "surstyli" in the genus *Proptychopterina* KALUGINA (Eop-tychopteridae).

**Material examined**: Holotype No. 2784/114, paratype No. 2784/410(+) and No. 2784/428(-), both from Karatau (Kazakhstan, Central Asia), Upper Jurassic. Housed in the Paleontological Institute, Russian Academy of Sciences, Moscow.

**Discussion**: *Ansorgiidae* fam. n. – an extinct link between *Tanyderidae* and *Ptychopteridae*.

The specimens representing the new family exhibit the following wing venation characters of the *Tanyderidae* (Fig. 3):

1. Veins *R₅, R₄₊₅ and R₄* form one straight line; *R₅* is positioned definitely below it.
2. The cross vein *r-m* is placed between *R₅* and *M₁₊₂*.
3. The vein $M_4$ is very long when compared to $M_{3+4}$.

The characters of the Ansorgiidae fam. n. which are shared by the Eoptychopteridae (Fig. 4), are as follows:

1. Long, radial vein $R_2$ absent.
2. Cross-vein $m-cu$ attached to $M_{3+4}$ and $Cu$.
3. Male hypopygium resembles that of Proptychopterina (Eoptychopteridae).

Unfortunately, in both specimens examined a very important character, the cross-vein $sc-r$, is invisible. In the Tanyderidae this vein is characteristically and uniquely to the group placed at the end of $Sc$, while in the Eoptychopteridae it is always absent. We can only state that in the Ansorgiidae fam. n. the $sc-r$, if present, is not positioned at the end of $Sc$, since only the terminal section of this vein is retained.

Concerning the vein $r-r(R_2)$, in the well preserved radial field neither a long $R_2$, nor any cross vein between $R_1$ and $R_3$ could be found.

The vein $M_{3+4}$ is equal to $M_4$ or even slightly longer in the Eoptychopteridae while in the Tanyderidae this vein is very short, ca. four times shorter than $M_4$. In the Ansorgiidae
fam. n. \( M_{3+4} \) is 2.5 times shorter than \( M_4 \), neither as long as in the Eoptychopteridae, nor as short as in the Tanyderidae.

The cross-vein \( m-cu \) is attached to \( M_{3+4} \), which is characteristic of the Eoptychopteridae and very rare in the Tanyderidae, present only in the species of two Recent genera, Araucaderus Alexander and Radinoderus Edwards (Krzemiński, in prep).

Summarizing, an intermediate position of the Ansorgiidae fam. n. between the Tanyderidae and the Eoptychopteridae is an evidence of the evolutionary proximity of these two groups; yet in the Upper Jurassic a lineage linking both groups existed. Thus, in the opinion of the senior author, the phylogenetical system of the Diptera proposed by him (Krzemiński 1992) has gained a further support.

Plate I. *Ansorgia praedicta* sp. n., holotype.

REFERENCES


