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# *Oligophrynidae*, a Lower Jurassic dipteran family (*Diptera, Brachycera*)

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Abstract. The holotype of *Oligophryne fungivoroides* ROHDENDORF is revised. A new species, *Oligophryne britannica* from the Lower Jurassic locality Charmouth (Great Britain, Dorset) is described. The systematic position of the fossil family *Oligophryneidae* within the *Oligoneura Brachycera* is documented.

Key words: *Diptera, Oligoneura, Brachycera, Oligophrynidae*, fossil insects, Jurassic, Dorset (England), Issyk Kul (Middle Asia).

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## INTRODUCTION

The family *Oligophrynidae* was established by ROHDENDORF (1962) on the basis of a fragmentary isolated wing of *Oligophryne fungivoroides* ROHDENDORF (Fig. 1) from the Lower Liassic (probably Sinemurian) of Issyk-Kul, locality Sogjuty. (According to ICZN the family name *Oligophryneidae* ROHDENDORF, 1962 is emended to *Oligophrynidae*). The age of this locality was earlier dated at Rhaetian (Upper Triassic) (ROHDENDORF, 1957), but paleobotanical evidence indicated a younger, Lower Liassic age (GENKINA, 1966). The family *Oligophrynidae* was placed by ROHDENDORF (1962, 1964, 1974) in the *Diptera Nematocera* and considered to stay close to the *Anisopodidae* (now: *Anisopodomorpha*; KRZEMIŃSKI 1992). AMORIM (1992) without revising the holotype of *O. fungivoroides*, published his own interpretation of ROHDENDORF's original drawing, adding further mistakes to those made by ROHDENDORF (Fig. 2), and classified it on this basis to the infraorder *Axymyiomorpha*. (The phylogeny of this group is presented in KRZEMIŃSKA et al., 1993).

A second representative of the family *Oligophrynidae*, *Oligophryne britannica* sp. n., was found in the Lower Jurassic of Dorset (England) by the first author.

Re-examination of *O. fungivoroides* ROHDENDORF holotype's wing venation (Fig. 3) and comparison with the new species' wing (which is fully preserved) has drawn us to the conclusion that the family *Oligophrynidae* belongs in the *Oligoneura Brachycera.*

**Geology and age of the Lower Liassic insect bearing strata of Dorset**

At the coastal cliff between Lyme Regis and Charmouth (Dorset, England) Lower Liassic marine sediments are exposed. Fossil insects occur in calcareous nodules of Black Ven Marls associated with ammonites indicating a Sinemurian age (*turneri-obtusum* – zone) (WHALLEY, 1985). Insects of the following orders have been reported by WHALLEY (1985): *Odonata*, *Blattodea*, *Saltatoria*, *Phasmodea*, *Dermaptera*, *Homoptera*, *Heteroptera*, *Mecoptera*, *Raphidioptera*, *Coleoptera*, *Lepidoptera* and *Diptera*. The one and only representative of the *Diptera* from the Lower Jurassic of Dorset – *Prodocidia spectra* WHALLEY was placed by WHALLEY (1985) in the *Mycetophilidae*, but probably this specimen belongs in the family *Eoptychopteridae.*

*Oligophryne britannica* sp. nov. was found in a sideritic concretion (with low calcium carbonate content) in the upper part of Black Ven Marls at the cliff of Stonebarrow Hill near Charmouth.

## SYSTEMATICS

*Diptera Oligoneura Brachycera*
Family: *Oligophrynidae* ROHDENDORF, 1962
Genus: *Oligophryne* ROHDENDORF, 1962

D i a g n o s i s . Venation: *R4* very short; *R4+5* long, ca. 5-7 times as long as *R4*; *d* cell very small; *A1* ending together with *Cu* or very close to it.

R e d e s c r i p t i o n . Small species of wing length 2.3-3.2 mm. Venation: *Sc* ending beyond *Rs* fork; four radial veins present; *R4* very short; *R4+5* long, 5-7 times as long as *d* cell; *d* cell very small, pentagonal; four medial veins present; *A1* terminates in or very close to *Cu* tip.

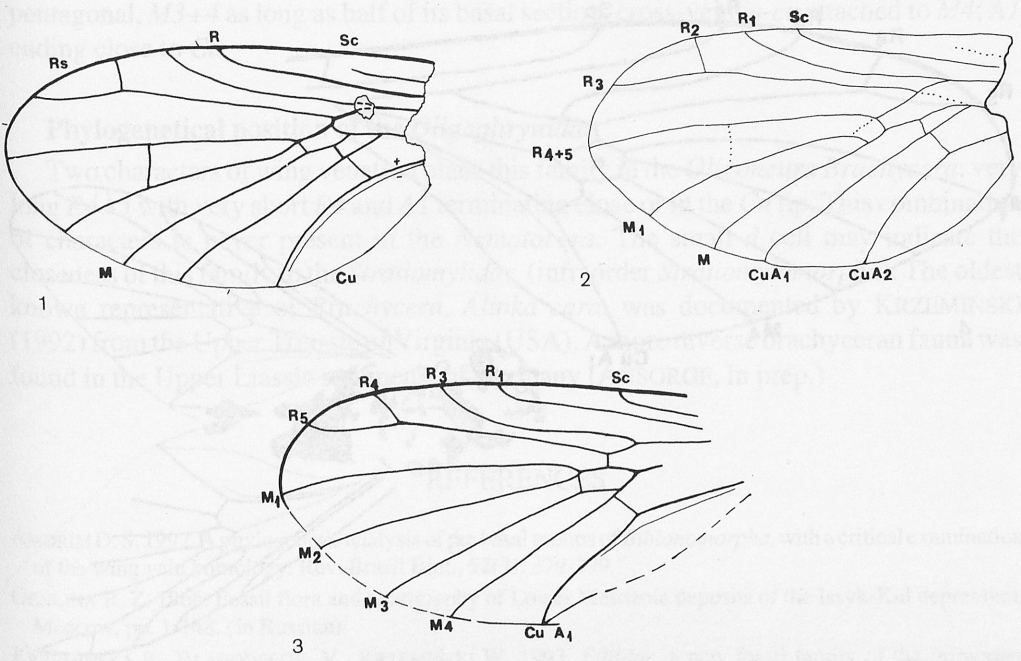
T y p e s p e c i e s : *Oligophryne fungivoroides* ROHDENDORF, 1962; Issyk-Kul (Middle Asia) – Lower Jurassic (probably Sinemurian).

***Oligophryne fungivoroides*** ROHDENDORF, 1962
Fig. 1-3

H o l o t y p e : Isolated wing Nr 358/120 from Issyk-Kul, Kyrgyzstan (Lower Liassic). Housed in the Paleontological Institute of Russian Academy of Sciences, Moscow.

D i a g n o s i s . Tip of wing rounded; *d* cell pentagonal, elongated; *M3+4* as long as 1/3 of *d* cell basal section.

D e s c r i p t i o n . A small, poorly preserved wing fragment ca. 1.8 mm long (Fig. 3) without proximal part. Entire wing length could reach approximately 2.4 mm. Tip rounded, wing margin poorly visible. *Sc* ending opposite *M3+4* fork; four radial veins present; *R4+5* very long, forked in distal part; *R4* short, equal ca. 1/6 of *R4+5* length; *d*




Figs 1-3. *Oligophryne fungivoroides* ROHDENDORF: 1 – after ROHDENDORF 1964; 2 – after AMORIM (1992); 3 – original drawing.

cell pentagonal, elongated; *M3+4* as long as 1/3 of *d* cell basal section; cross-vein *m-cu* attached to *M4*; distal part of *A1* poorly visible, its tip probably linked with *Cu* tip, or positioned very close to it. No additional cross-veins present (those pictured by ROHDENDORF appeared to be artifacts, Fig. 1).

## ***Oligophryne britannica*** sp. nov.

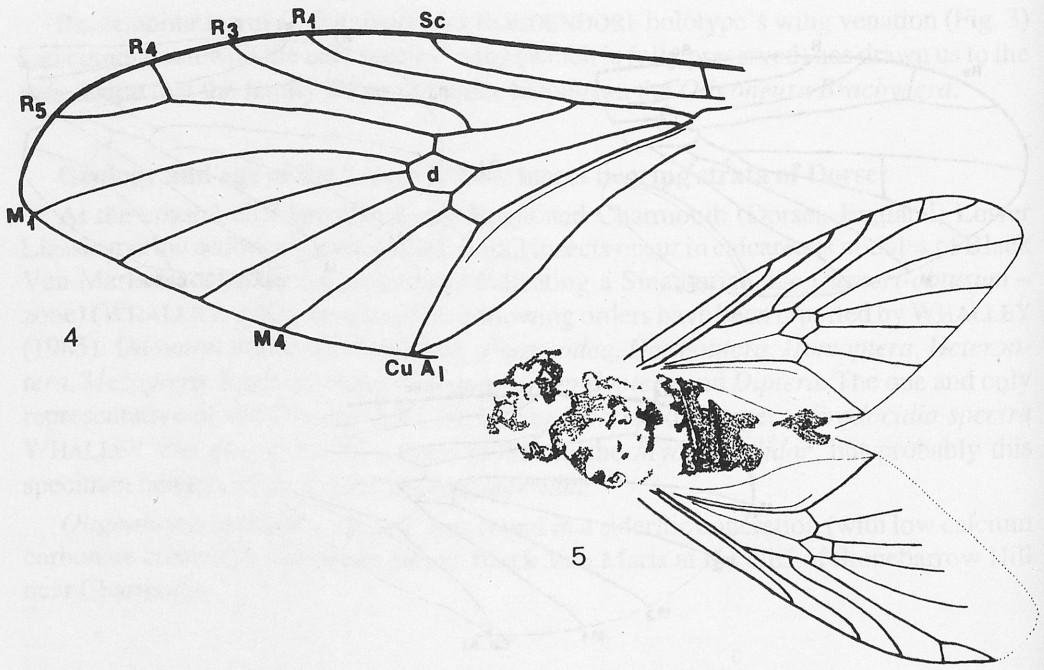
Figs 4-6

H o l o t y p e : Part and counterpart of fly No. 1 from Dorset (England), Lower Jurassic; coll. J. ANSORGE. Housed in the Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków, Poland.

Locus typicus: Stonebarrow Hill near Charmouth (Dorset, England). Stratum typicum: Sideritic nodule from the upper part of Black Ven Marls, Lower Liassic – Sinemurian (*oxynotum-raricostum* zone).

D i a g n o s i s . Wing acutely pointed; *d* cell broadly pentagonal; *M3+4* length equal 1/2 of *d* cell basal section.

D e s c r i p t i o n . Body broad, ca. 3.2 mm long; thorax and abdomen without genital parts preserved. Both wings preserved, 3 mm long. Head: only fragmentarily retained, antennae and palps invisible. Wing: distal end narrow, characteristic to this species. *Sc* ending opposite cross-vein *r-m*; four radial veins present; *R4+5* very long, forked in distal part; *R4* very short, equal ca. 1/8 of *R4+5* length; *d* cell small, broadly




Figs 4-5. *Oligophryne britannica* sp. n.: 4 – wing; 5 – whole specimen.

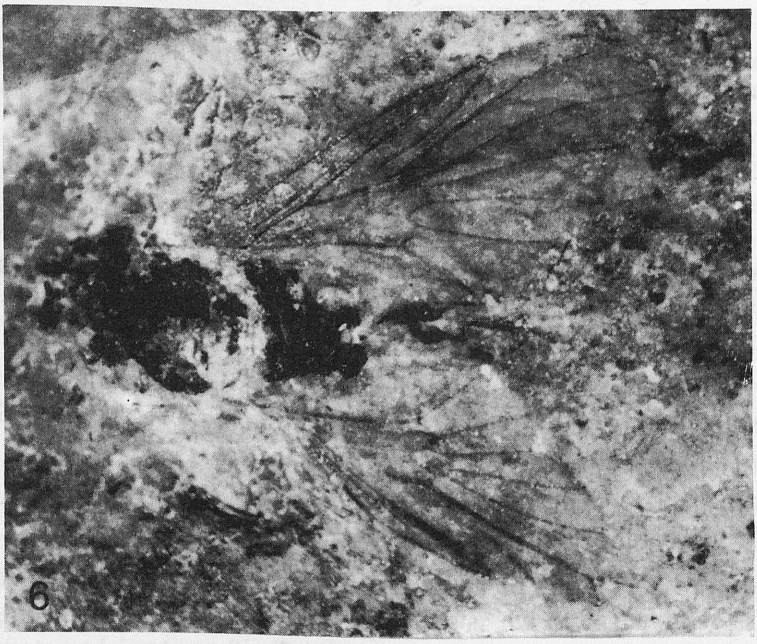



Fig 6. *Oligophryne britannica* sp. n.

pentagonal, *M3+4* as long as half of its basal section; cross-vein *m-cu* attached to *M4*; *A1* ending close to *Cu*.

### Phylogenetical position of the *Oligophrynidae*

Two characters of wing venation place this family in the *Oligoneura Brachycera*: very long *R4+5* with very short *R4* and *A1* terminating close or in the *Cu* tip. This combination of characters is never present in the *Nematocera*. The small *d* cell may indicate the closeness of this family to the *Stratiomyiidae* (infraorder *Stratiomyiomorpha*). The oldest known representative of *Brachycera*, *Alinka cara*, was documented by KRZEMIŃSKI (1992) from the Upper Triassic of Virginia (USA). A more diverse brachyceran fauna was found in the Upper Liassic sediments of Germany (ANSORGE, in prep.)

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