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Procramptonomyia marianna, a new species from the Upper Jurassic of Great Britain (*Diptera, Anisopodomorpha, Procramptonomyiidae*)

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Abstract. A new species of extinct dipteran family, *Procramptonomyiidae*, from the Upper Jurassic sediments of Durdlestone Bay (Dorset, Great Britain) is described. *Procramptonomyia marianna*, sp. nov., is the fourth species of this family and the first one found in Europe.

Key words: new species, fossil, *Diptera*, *Anisopodomorpha*, *Procramptonomyiidae*, Upper Jurassic, Great Britain

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The family *Procramptonomyiidae* was described by KOVALEV (1985) from the Upper and Middle Jurassic of Siberia; two species of the genus *Procramptonomyia* were distinguished by this author. In the Upper Triassic of Virginia (USA) KRZEMIŃSKI (1992) found a much older representative of the family, belonging to the genus *Yala*, differing from the former by the wing venation characters.

In the collections of the Geological Department of British Museum (Natural History) we have found a specimen from Dorset, Upper Jurassic, representing a new species of the genus *Procramptonomyia* KOVALEV.

First information on the fossil insects from Dorset were published by BRODIE (1845) who collected abundant materials of that locality. The history of investigation and datation is given by WHALLEY (1985).

Family: *Procramptonomyiidae* KOVALEV 1985
Genus: *Procramptonomyia* KOVALEV 1985
Procramptonomyia marianna sp. n.

D i a g n o s i s . Vein *Sc* long, ending opposite *Rs* fork; cross-vein *r-m* in proximal 1/4 section of *R4+5*.

Origin of name: the new species' name is dedicated to the senior author's mother on her 80th birthday.

D e s c r i p t i o n . Single wing (Fig. 1) well preserved, only the most proximal anal part poorly visible; 4.5 mm long. Stigma conspicuous. *Sc* relatively long, ending opposite *Rs* fork; *R3* ca. 1.5 times as long as *Rs* and escaping in *C* close to *R1* tip; cross-vein *r-m* in proximal 1/4 of *R4+5*, connecting this vein with *M1+2*; *d* cell large, ca.1/5 as long as the wing; cross-vein *m-m* between *M2* and *M3*, close to base of *M2*; cross-vein *m-cu* just beyond the fork of *Mb*, slightly wavy and positioned almost horizontally (parallel to wing length); *A1* almost straight; *A2* and allula poorly preserved.

M a t e r i a l e x a m i n e d . H o l o t y p e I.12245, Upper Jurassic, Middle Purbeck, Durdlestone Bay, Dorset (Great Britain); BRODIE Coll. Purch., 1898; British Museum (Natural History, Geological Department), London.

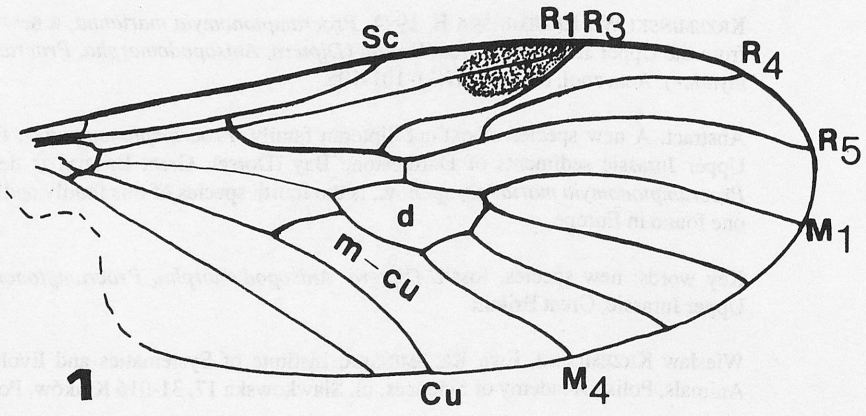

Fig. 1. *Procramptonomyia marianna* sp. n. – wing venation.

DISCUSSION

Procramptonomyia marianna n. sp. differs by the long *Sc* from *P. sibirica* KOVALEV and by the position of cross-vein *r-m* from *P. incompleta* KOVALEV. Its venation resembles mostly that of the specimen No. 2022/6 from Uda (Upper Jurassic, Siberia: Buriacia), pictured by KOVALEV (1985; fig. 69v) as a specimen of incertae sedis.

The extinct family *Procramptonomyiidae* of the infraorder *Anisopodomorpha* (suborder *Oligoneura*) is closely related to two families: the extinct *Protorhyphidae* and extant *Cramptonomyiidae* (BLAGODEROV, KRZEMIŃSKA & KRZEMIŃSKI, 1993).

Known localities of fossil *Procramptonomyiidae* and distribution of their Recent descendants, *Cramptonomyiidae*, are presented in Fig. 2. The maps show that in Triassic/Jurassic the *Procramptonomyiidae* were distributed over entire continent of Laurasia (their existence in Gondwanaland is probable, but not proved till now). Even during their greatest expansion about the turn from Triassic to Jurassic, the family was poor in species and became extinct probably with the end of Jurassic. They form however a very important, ancestral lineage to the remaining *Anisopodomorpha*, from which the *Axymyiomorpha*, *Bibionomorpha* and maybe also remaining so called *Diptera Brachycera* had evolved. The direct, morphologically closest descendants of the *Procramptonomyiidae* are *Cramptonomyiidae*; and of the latter, the Lower Cretaceous species, *Pivus sarus* BLAGODEROV, KRZEMIŃSKA & KRZEMIŃSKI represents a link between these two families. The Lower Jurassic species of the genus *Tega* BLAGODEROV, KRZEMIŃSKA & KRZEMIŃSKI evidence the radiation of that group in this period. We may assume that when the *Procramptonomyiidae* died out in the Jurassic, the *Cramptonomyiidae* survived only

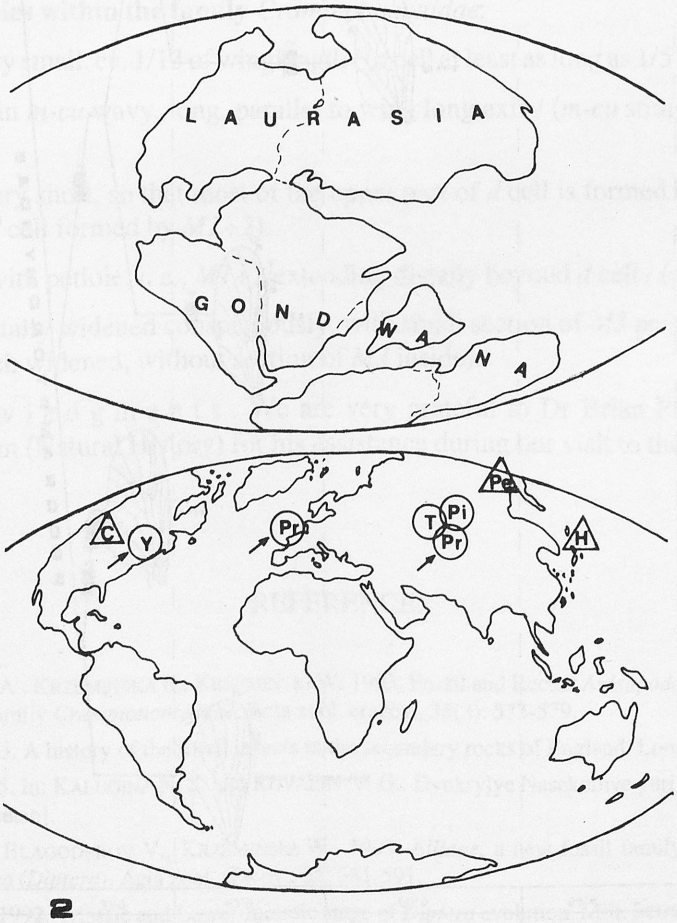

Fig. 2. Distribution of the genera of *Procramptonomyiidae* (arowed) and *Cramptonomyiidae*: Pr – *Procramptonomyia*, Ya – *Yala*, T – *Tega*, Pi – *Pivus*, C – *Cramptonomyia*, H – *Haruka*, Pe – *Pergatospes*; fossil genera in circles, Recent in triangles. Upper map: continents in the Triassic, lower map: today.

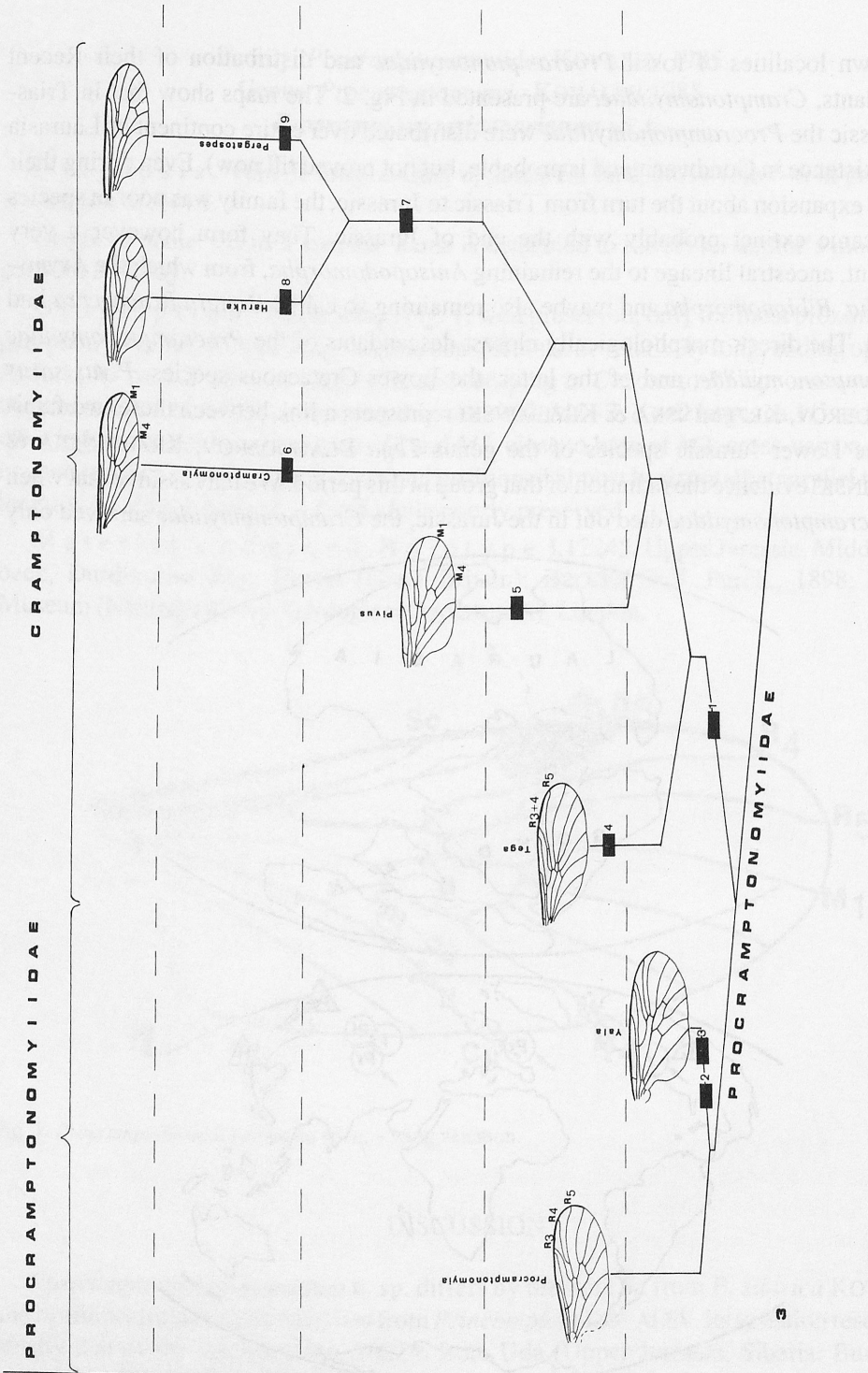

Fig. 3. Phylogenetic tree of the families: *Procramptonomyiidae* and *Cramptonomyiidae*. Apomorphies defined in the main text.

in Asia and invaded North America through the Beringia. At present, the family is represented only by three monotypic genera: *Haruka* OKADA and *Pergatospes* KRIVOSHEINA & MAMAEV in the far east Asia and *Cramptonomyia* ALEXANDER in North America.

The phylogenetic relations between all genera of these two families are pictured in Fig. 3. The tree is based only on the characters of wing venation.

Apomorphies / (plesiomorphic character state in brackets):

Apomorphy separating families: *Procramptonomyiidae* and *Cramptonomyiidae*:

1. Cross-vein between *R3+4* and *R5*, resulting from partial fusion of *R3* and *R4* / (*R3* ending in wing margin; four radial veins terminating in the Costa)

Apomorphies within the family *Procramptonomyiidae*:

2. Length reduction of *R4+5* / (*R4+5* conspicuous, fairly long)

3. Cross vein *r-m* positioned between *R5* and *M1+2* / (*r-m* between *R4+5* and *M1+2*)

Apomorphies within the family *Cramptonomyiidae*:

4. *D* cell very small, ca. 1/13 of winglength / (*d* cell at least as long as 1/5 of winglength)

5. Cross vein *m-cu* wavy, long, parallel to wing long axis / (*m-cu* straight, positioned obliquely)

6. *M1+2* very short, so that most of the upper part of *d* cell is formed by *M2* / (entire upper part of *d* cell formed by *M1+2*)

7. *m1* cell with petiole, i. e., *M1+2* extending distally beyond *d* cell / (petiole absent)

8. *d* cell distally widened conspicuously, with small section of *M3* protruding inside / (*d* cell not much widened, without section of *M3* inside).

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