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ON THE IDENTITY OF *AMPHIZOA KASHMIRENSIS* VAZIRANI (COLEOPTERA: AMPHIZOIDAE)

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Since its discovery and original description (LeConte, 1853), the genus *Amphizoa* has been the focus of considerable interest and study (Edwards, 1951) in spite of its low diversity (only six species described). Members of this genus, considered by most workers since Horn (1881) as representing a distinct, monobasic, phyletically relict family, demonstrate a combination of structural characters which appears to be intermediate between those of the Caraboidea and the Dytiscoidea of Adephaga. *Amphizoa* is thus a crucial group for understanding adephagan phylogeny in general and relationships among terrestrial and aquatic representatitves of the suborder in particular.

Amphizoids are also of interest for their presumed geographical distribution—four species restricted to western North America and two species described from the Himalayan region. This particular disjunction pattern, seen in at least a few other groups (e.g. in Opisthiini, another relict adephagan (Carabidae) group), has been interpreted as a remnant of a formerly more continuous distribution pattern. Undoubtedly some groups are presently distributed in this pattern, but we are uncertain that it actually represents the distribution of Amphizoidae. Our doubts, and this report, center on the identity of the Palaearctic components of this pattern.

Palaearctic Amphizoidae

Past efforts by North American workers (e.g. Edwards, 1951; Kavanaugh, 1980) to study or even locate identified material representing these presumed Palaearctic amphizoid taxa have failed. The location of type specimens or any other representatives of *Amphizoa davidi* Lucas (1882:157) is unknown at present. Régimbart (1899:192) indicated that at least one specimen was to be found in Museum d'Historie Naturelle de Paris (MHNP); but recent searches in that collection have uncovered nothing referable to this taxon.

Similarly, identified specimens of *Amphizoa kashmirensis* Vazirani (1964:145) have not been available for study, and structures illustrated in the original description of this taxon are unlike those of Nearctic *Amphizoa* members. This led Kavanaugh (1980) to question the familial relationships of these Palaearctic 'amphizoids' and, hence, occurrence of the genus *Amphizoa* in the Palaearctic region. However, in the absence of material representing these taxa, the problem has remained unsolved.

"*Amphizoa kashmirensis*"

Fortunately, and through the kind assistance of Dr. K. Rai, Director of the Zoological Survey of India (ZSI), Calcutta, Kavanaugh recently obtained two female paratypes of *A. kashmirensis* on loan from that institution. An initial examination of these specimens revealed that they share characteristics (in structure and form of pro- and metasterna, coxal cavities, pro- and metacoxae, and hind legs [fringed with natatorial setae]) typical of dytiscids rather than of amphizoids. Kavanaugh then asked Hugh B. Leech to review the specimens and venture an opinion on their familial affinities. Leech agreed that the specimens are dytiscids and suggested further that they belong to the genus *Gaurodytes,* subgenus *Hydronebrius* (sensu Zaitsev, 1953), which included a single species, *G. cordaticollis* (Reitter, 1896), known from the U.S.S.R. (Uzbekistan and Tadzhikistan).

Independently and somewhat earlier, Roughly had obtained unidentified material from the Canadian National Collection (CNC), Ottawa, which he subsequently identified as representative of the genus *Hydronebrius* Jakovlev (1897) (Dytiscidae), perhaps of *H. cordaticollis* (Reitter). It occurred to him at that time that these beetles could easily be mistaken for amphizoids and, further, that Palaearctic records for the latter family could actually be based on specimens of this dytiscid taxon.

We became aware of our parellel studies in early 1980 and immediately began collaborative work. We first obtained material identified as *Hydronebrius cordaticollis* (Reitter) from the British Museum (Natural History) (BMNH), London, compared same with the *A. kashmirensis* paratypes, and found all to be similar in almost every detail. A key character in recognition of *Hydronebrius* members is the absence of the short row of setae found on the ventral posteroapical angle of the hind femur in Agabini (Brinck, 1948); *A. kashmirensis* paratypes also lack this setal row.

At that point, the identify of *A. kashmirensis* appeared to be established (pending review of *H. cordaticollis* type material). However, two important papers have subsequently come to our attention which confound the issue at present. Vazirani (1970) described a second species of *Hydronebrius, H. guignoti* (from Kashmir), and illustrated pronotal silhouettes and aedeagi for members of both this species and *H. cordaticollis*. A third species,

Hydronebrius mattheyi (from Pakistan) was described by Brancucci (1980) whose illustrations of pronota and aedeagi for all three *Hydronebrius* species agree well with those of Vazirani (1970). Our comparisons of material at hand with these illustrations of pronota and original descriptions suggest the following: (1) *Amphizoa kashmirensis* Vazirani (1964) and *Hydronebrius guignoti* Vazirani (1970) appear to be synonymous, in which event the former name has priority and the valid name for the taxon would be *Hydronebrius kashmirensis* (Vazirani). (2) Specimens from CNC appear to be members of *H. guignoti* rather than *H. cordaticollis*. (3) Specimens from BMNH identified as *H. cordaticollis* appear to be members of *H. mattheyi*. (4) We have not yet seen specimens of *H. cordaticollis*.

We admit that our comparisons have been severely limited because we have not yet studied males of *A. kashmirensis* nor type specimens of any of the three *Hydronebrius* taxa. Present ambiguities are no doubt due, at least in part, to a willingness among past workers to describe new taxa based on too few specimens and/or without reference to type specimens of previously describe taxa. We therefore refrain from making any formal identifications or designations of synonymy at this time, pending a more complete review of genus *Hydronebrius,* especially type material. We have no doubt, however, that *A. kashmirensis* is a dytiscid rather than amphizoid and, further, that it belongs in genus *Hydronebrius* Jakovlev.

Our findings certainly weaken the case for occurrence of Amphizoidae in the Himalayan region; but in the absence of type material for *Amphizoa davidi* and, hence, certainty as to its identity, the question can not yet be resolved.

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