PHYLOGENETIC RELATIONSHIPS WITH THE DIATOM FAMILY AMPHIPLEURACEAE, WITH SPECIAL ATTENTION TO THE GENUS *FRUSTULIA* RABENHORST

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The diatom family Amphipleureae was proposed by Grunow in 1862. It originally included the genera *Amphipleura* and *Rhapidogloea* (now known as *Berkeleya*). The family Amphipleuraceae, as recognized by Round et al. 1990, includes *Frickea*, *Frustulia* and *Amphipleura*. Subsequently, the genus *Cistula* has been included in the Family. It is diagnosed by its members having a siliceous rib running the length of the axial area.

A survey of valve and girdle features of representatives of the genera *Amphipleura, Frustulia, Frickea, Cistula*, and several outgroup genera of the closely allied family Berkelyaceae, reveals new insights into the diversity of morphologies within and between the members of the Amphipleuraceae.

A phylogenetic analysis of morphological data of the species found in the three genera, show first that the Amphipleuraceae is monophyletic. Within the family, the genus *Frustulia* is non-monophyletic, with certain species groups (such as the rhomboides group) more closely alled with *Amphipleura*, while others, such as *F. creuzbergensis, F. neomundana F. weinholdii* and *F. submarina*, are more closely allied to *Frickea* than to other *Frustulia* species. A continuum of forms was suggested for *Frustulia*, from species lacking a porte-crayon to those who have a large, fully developed porte-crayon structure, but that continuum is not supported in terms of monophyly. To identify monophyletic (natural) genera within this family, it may be necessary recognize additional taxonomic groups. Ecological breadth of the taxa considered in this analysis is mapped onto the phylogenetic analysis and appears to have a historical component.

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