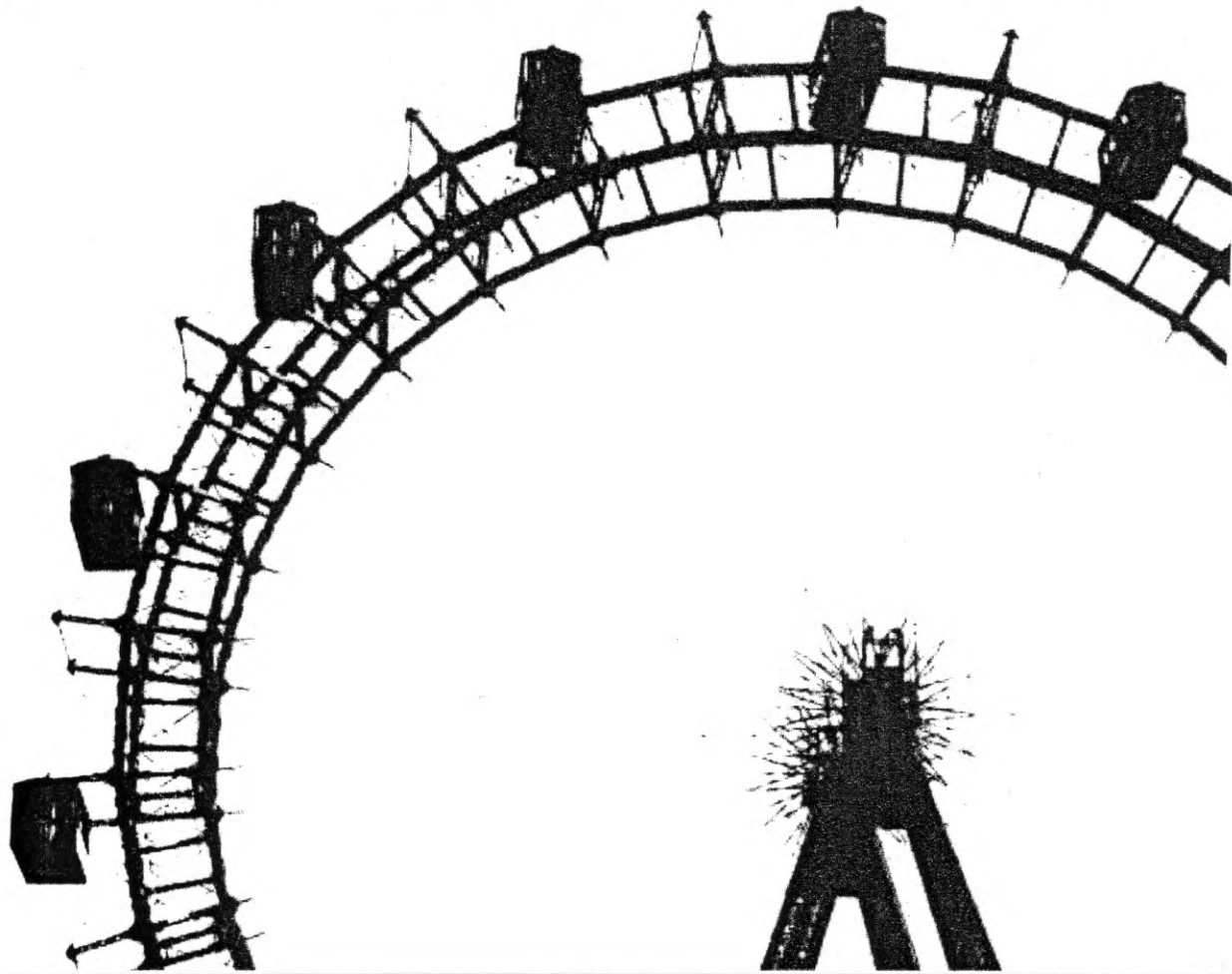




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Conjugation and morphogenesis of metopids elucidate phylogenetic relationships within the SAL supercluster

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Extensive transcriptome analyses unite the classes Spirotrichea, Armophorea and Litostomatea into the so-called SAL supercluster. Relationships among them remain, however, unresolved although over hundred genes are used to infer phylogeny. Interestingly, conjugation and morphogenesis data can elucidate the intricate sister-group relationships within the SAL supercluster. The oblique to ventral-to-dorsal pair formation and the strongly arched to almost rod-like arrangement of the conjugants might be synapomorphies corroborating the monophyletic origin of the armophoreans and litostomateans. This is further supported by the purely somatic and telokinetal stomatogenesis beginning in the dorsal and dorsolateral kineties as well as by the origin of the oral structures from migrating kinetofragments. On the other hand, the spirotricheans have a ventral-to-ventral and homopolar conjugation mode with the main body axes oriented in parallel. Their stomatogenesis is apokinetal, proliferation of basal bodies begins on the ventral side and the new oral structures differentiate from an oral primordium and are thus not migrating kinetofragments. In addition to conjugation and morphogenesis, the plate-like arranged postciliary microtubule ribbons, forming a layer right of and between the ciliary rows, also sustain a close relationship of the armophoreans and litostomateans within the SAL supercluster.