

HYPOPHYLOCERAS AND THE CLASSIFICATION OF THE PHYLLOCERATIDAE

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Critical to the history of the study of the Phylloceratidae were misidentifications of the Aptian species, *Hypophylloceras onoense*, by J. P. Smith (1898), whose illustration of the sutural development of "*Phylloceras onoense*" led to misconception of this taxon and introduced confusion in the classification of the family. Smith misidentified *Phylloceras ramosum* and juvenile *Desmophyllites* from the Upper Cretaceous of California as *Phylloceras onoense*, and what he described as the internal lobe of this *Phylloceras* was actually that of a juvenile desmoceratid. On the basis of this supposed aberrancy Salfeld (1924) established *Hypophylloceras*, with *P. onoense* as type species. Wiedmann (1962) discovered that *H. onoense* has a lituid internal lobe as in other phylloceratids, and he reclassified *Hypophylloceras* as a subgenus of *Phylloceras*, assigning most Cretaceous phylloceratids to it.

The Phylloceratidae is a conservative stock that has changed little over its long history. We suggest that heterochronous parallel developments, such as tetraphyllic endings of saddles, are common in the Phylloceratidae, and that the principal branches of the family arose as early as Early Jurassic. The main early split was between groups without constrictions (Phylloceratinae) and those with constrictions. The latter group includes those with internal constrictions (Calliphylloceratinae), and those with constrictions expressed on the outer shell (Ptychophylloceratinae). *Hypophylloceras* has constrictions in early growth stages and belongs to Calliphylloceratinae, not to Phylloceratinae where it has resided since Wiedmann's work. This produces a more internally consistent classification, but requires re-evaluation of the nomenclature for most Cretaceous Phylloceratinae, which authors, following Weidmann, have assigned to "*Hypophylloceras*". A second major split occurred in the Late Jurassic with the origin of inflated, coarsely-ribbed Phyllopachyceratinae. A close connection between Jurassic and Cretaceous forms assigned to this taxon and the earlier *Partschiceras* is unlikely, as the two taxa differ in most basic characters.

Salfeld, Hans, 1924: Die Bedeutung der Konservativstämme für die Stammesentwicklung der Ammonoideen, Leipzig, 16p.

Smith, J. P., 1898: The Development of *Lytoceras* and *Phylloceras*. - California Academy of Sciences, Proceedings, 3rd series, Geology, 1, 127-160.

Wiedmann, Jost, 1962: Ammoniten aus der Vascogotischen Kreide (Nordspanien), I. Phylloceratina, Lytoceratina. - Palaeontographica (Abt. A), 118, 119-237.