

j31 Conodont zones < vs. ammonoids >

William Joscelyn Arkell could rightly remark in 1956 that “whenever ammonites are present they take pride of place.”¹ Since then, the value to biostratigraphy of conodonts has proven to be superior. —HR

Beginning in 1956, Willi Ziegler found that sections sampled layer by layer can establish a detailed a parachronological conodont zonation better than other known biochronologies, including the standard one based on ammonoids.² Although controversy as to the precise placement of a boundary between time-stratigraphic units in a locality is seemingly a storm in a teacup, passions often run high among biostratigraphers. For example, the Middle Devonian upper-boundary in central Europe is traditionally established by the ranges of the ammonoids: early Upper Devonian *Pharciceras lunulicosta* and the Middle Devonian *Maenioceras terebratum*. However, the lower limit of the occurrence of *P. lunulicosta*, has not been found to be definite in all sections investigated and there could be a gap between the ranges of *P. lunulicosta* and *M. terebratum*. To lessen debate, Ziegler recommended the use of conodonts for placement of this boundary (**Table j31.1**, **Figure j31.1**).³

Marine strata, Triassic down through Cambrian have been divided into 150 conodont zones. Not all are found globally, however. ⁴ □

Table j31.1

PERIOD	CONODONT SHAPES
Triassic	Pectiniforms dominate all groups.
Permian	
Carboniferous	Pectiniforms common.
Devonian	Ramiforms, at top none, increase in frequency downward.
Silurian	Pectiniforms and ramiforms common.
Ordovician	Coniforms only.
Cambrian	

Figure j31.1

Zonation and distribution of index species across the Upper Devonian-Givetian boundary in Europe.

The upper portion of the *hermanni-cristatus* Zone has no definite ammonoids, but probably belongs in the Upper Devonian. The level within it that coincides with the explosive development of wide-plated polygnathid (7-10) conodonts, is recommended as the lower boundary of the Upper Devonian, by Ziegler.

