nal shape of cusp are less important taxonomically, at least for these cordylodans, than shape of basal cavity and, probably, style of bar denticulation.

A Conodont Sequence over the Lower/Middle Devonian Boundary in the SW Lahn-Mulde/Eastern Rhenish Slate mountains.

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Crinoidal limestones 11.5 m thick have been investigated in 57 samples. The neritic or high bathyal fauna contains abundant *Icriodus* specimens and only sporadic *Polygnathus* index forms. However, the *Icriodus corniger* lineage and the particular variants of *Polygnathus linguiformis* indicate a stratigraphic range from *serotinus* to *partitus*-Zone. Within the latter zone five faunal levels can be recognized, comparable with levels in the Ardennian-Eifelian facies area. In deviation from the Eifelian standard sequence forms of *Icriodus corniger* cf. *retrodepressus* without the characteristic depression occur. Moreover, *Latericriodus beckmanni sinuatus,* a conodont of the Upper Emsian of the Barrandian, is also found. Although the conodont-bearing limestones overlie an Upper Emsian hiatus, there are no obvious signs that the *Latericriodus* specimens are derived. It is therefore presumed that ecological factors are responsible.

Utility of Conodonts in Determining Rates of Synorogenic Sedimentation and in Timing Antler Orogenic Events, Western United States.

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The extremely fine conodont zonations that have been developed for parts of the Paleozoic during the past decade provide a new and important tool for conodont biostratigraphers as well as for petroleum and structural geologists. This tool can be utilized to interpret the reservoir rocks, source rocks, and events of the Antler orogeny, which spans the Devonian-Carboniferous boundary in Nevada and Utah.

The 27 standard conodont zones of the Late Devonian permit its division into zonal time units, each having a span of about 0.5 m.y. Timespans of standard conodont zones of the Early Carboniferous are similarly calculated to be of about 1.5 m. y. duration. Using these timespans, rates of synorogenic sedimentation are calculated in m/m.y. as follows: Antler calcareous flysch, 267–400; Antler (Pilot) silty protoflysch, 32–160; bioclastic carbonate-platform sediments, 40–240; nonphosphatic basinal muds, 55; slope lime muds, 26–30; phosphatic starved-basin sediments, 4.5–9; and transgressive lag deposits, 1–3.

Applying the so-called Haug Effect, which states that times of major transgression are times of major orogeny, to the regional distribution and type of sediments and to conodont biofacies, a sequence of 11 important Antler orogenic, epeirogenic, eustatic, and erosional events can be interpreted for a time interval of from 16 m. y. before to 9 m. y. after the Devonian-Carboniferous boundary. These events and their duration are internally consistent regardless of any fluctuation in the radiometric placement of the boundary. The most significant structural interpretation is that emplacement of the Roberts Mountains thrust took 8 m. y., as determined by the age of the youngest allochthonous Devonian rocks and the oldest overlapping Mississippian rocks.

Silurian Conodonts from Southeast Alaska.

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The Triassic Conodonts from the Inner Dinarides of Yugoslavia.

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While Triassic conodonts are recently increasingly studied in Yugoslavia, with notable results, conodonts are little referred to as typical fossils of the Triassic. In the present report, results of stratigraphic and biostratigraphic analyses of Triassic sediments are considered, based on the studies of conodonts in the country of the Inner Dinarides of Yugoslavia, which confirmed the extraordinary significance of conodonts for detailed stratigraphic or biostratigraphic division of Triassic formations in Yugoslavia.

The Inner Dinarides (Dinaric eugeosyncline) is a tectonic unit on the territory of Yugoslavia bounding, according to M. ANDJELKOVIĆ (1977, 1980) on the Central Alps and Pannonides in the north, the Shumadides in the east, Central Dinarides in the west, and the Helenides in the south-east. Within these boundaries, the Triassic has an extensive distribution and is characterised by terrigenous material, carbonatic rocks, and volcanogeno-sedimentary formations, and by development of an Ophiolite-Radiolarite complex.

In Lower Triassic (Campilian substage) carbonatic rocks, conodonts are identified in west (Gučevo Mountain) and south-west (the Uvac River canyon) Serbia. Conodont microassociation in Gučevo Mountain (Brasina) is very rich. Its location enabled a precise biostratigraphic subdivision of the Campilian substage (K. BUDUROV and S. PANTIĆ, 1974).

The conodont richest sediments of the Middle Triassic are red Bulog Limestones of the Anisian stage, located in Bosnia and Herzegovina (Han Bulog, Haliluci, Trebević Mountain) and in Serbia (the Uvac River canyon). Diverse and rich in number of species and individuals, conodont microassociation of red Bulog Limestone includes forms of middle (Pelson) and upper (Illyrian) Anisian Stage, and contain far less abundant conodont species typical of younger Triassic sediments.

In several localities of central Slovenia, Ladinian conodont fused clusters have been found representing portions of *Pseudofurnishius murcianus* natural assemblage (A. RAMOVŠ, 1978). It was the first natural conodont assemblage found in Yugoslavia, that opened the ways to new modes of conodont investigation in this country.

Among sediments of Upper Triassic in the Inner Dinarides, conodonts are found in the Carnian and Norian stages and none in the Rhaetian stage. Carnian and Norian formations of Slovenia (the Mirna River valley, Šmarjetna Gora), Bosnia and Herzegovina (Draguljac, Ravne-Brus), Montenegro (proximity of Pljevlje) and west Serbia (Gučevo Mountain) could be subdivided stratigraphically and biostratigraphically in detail by conodont identification. The results are particularly notable in localities near Pljevlje, Sarajevo and Gučevo Mountain (M. SUDAR, 1979, D. UROŠEVIC and M. SUDAR, 1980), where conodonts are used to document Carnian and Norian formations (uniform series of limestones with cherty nodules and neritic limestones) which were considered before it the Ladinian or transitional from the Ladinian to the Carnian.

Fused Clusters of Paraconodonts

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Fused clusters of *Prooneotodus? tenuis* are comparatively often in the subsurface Upper Cambrian of northern Poland. Comparative anatomical study shows that they have strikingly similar structure to the grasping apparatus of recent Chaetognatha. The similarity involves the shape, details of morphology, internal structure and manner of growth of isolated elements as well as construction of the whole apparatus. The inner structure of *P. ? tenuis* elements is the same as in „protoconodonts" investigated by BENGTSON (1976). Chaetognath grasping spines are also constructed of three layers. Although the thickest, middle layer, having lamellar structure in „protoconodonts", has a fibrous structure in chaetognath spines, but the fibrills are arranged in laminae. Protochaetognatha grasping spines (= *P. ? tenuis* and possibly other „protoconodonts") are known only from Cambrian and Tremadocian probably because they were then composed partly of calcium phosphate and/or there were exceptionally good conditions for secondary phosphatization.

Natural assemblages of *Prooneotodus gallatini* and juvenile *Furnishina* ? co-occur with *P. ? tenuis* in the Upper Cambrian of Poland. They, for the most, are preserved in clusters composed of two elements only and their complete skeletal apparatuses can not be reconstructed as yet. In both types of the clusters the elements contact with fragments of their bases. In *P. galletini* the elements differ slightly in