

WERE SOME CARBONIFEROUS INDEX CONODONTS MIGRATORY ANIMALS?

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Index conodonts have elements suitable as guide fossils. They have regional or world-wide distributions, as well as, characteristic and reliable stratigraphic ranges. Type A index conodonts occur world-wide, always in the same stratigraphic interval, and are excellent markers for inter- and intra-regional correlation. They provide the overall framework for world-wide correlation. Type B index conodonts are restricted in geographic distribution, but are reliable markers within their own areas. They allow regional correlation, and could reflect distinct climates. Type C index conodonts have world-wide distribution, are good markers in regions, but have different ranges in different areas. They too can correlate within a region, and may reflect changes in sea-level or opening of migration routes.

Type A index conodonts, were probably nectonic, euryhaline, eurythermal, and shallow water forms. Type B index conodonts, may have been part of the plankton or meroplankton, which would have ocean currents as a major control. Their restricted geographic distribution, may mean they were migratory, reflecting factors like equatorial currents and temperature or salinity gradients. Migratory animals travel great distances, but are always regionally restricted; they, or their descendants must always return to their point of departure. Type C conodonts may have been stenohaline or stenothermal, and/or typical of deeper water. Movement to other areas may have required special conditions.

Bactrognathus distortus is a Type B index conodont, only found in North America, and has a short and well-defined range in areas south of the Carboniferous Equator. It is typical of the lower part of the Burlington Formation, always near the base of the Haight Creek Member or equivalent. Its northernmost occurrence is at the erosional feather-edge of the Mississippian of Iowa. Another one is *Mestognathus*, a European-North Atlantic form, which also occurs in suspect terranes of western North America.