Carboniferous conodont faunas in Australia and New Zealand

R.S. Nicoll[1,2], A.J. Mory [3,4] & I. Metcalfe [5,6]
[1.]Geoscience Australia, Canberra.
[2.]Research School of Earth Sciences, The Australian National University
[3.]Geological Survey of Western Australia
[4.]School of Earth and Environment, Univ. Western Australia
[5.]Earth Sciences, Univ. New England, Australia.
[6.]GEMOC, Earth and Planetary Sciences, Macquarie Univ., Australia

Mississippian and Pennsylvanian conodonts are known from both eastern and Western Australia (WA), but only Pennsylvanian faunas are found in New Zealand (NZ). Mississippian faunas are widely distributed in WA in the Carnarvon, Canning and Bonaparte basins as well as from marine facies in New South Wales and Queensland. Pennsylvanian conodont localities in Australia and NZ are rare. In WA Pennsylvanian conodonts are known from only a single locality in the offshore Bonaparte Basin. A more diverse fauna has been described from near Murgon in southeast Queensland. In NZ Pennsylvanian conodonts have been found within the Torlesse Terrane (Rakaia Sub-terrane) Complex.

In WA Tournaisian and Visean faunas are dominated by shallow water species, such as *Bispathodus, Clydagnathus, Polygnathus* and *Pseudopolygnathus* with *Siphonodella* and *Gnathodus* as rare components. *Mestognathus beckmanni* is present higher in the sequence. In the Carnarvon Basin *Synclydognathus* cf. *S.geminus* in the Yindagindy Formation probably indicate a Visean age. Eastern Australian Tournaisian and Visean faunas represent a deeper water and more diverse faunas than those of WA. Genera include *Adetognathus, Bispathodus, Capricornognathus, Cavusgnathus, Clydagnathus, Gnathodus, Mestognathus, Montognathus, Patrognathus, Polygnathus, Pseudopolygnathus*, and *Siphonodella*. *Montognathus* is endemic to eastern Australia except for an occurrence in Malaysia on the Sibumasu Terrane which was attached to NW Australia in the Visean.

In Australia, Pennsylvanian conodonts are known only from the Early Bashkirian *Declinognathus noduliferus – Idiognathoides corrugatus* Zone level in the Bonaparte Basin and from near Murgon in southeastern Queensland. This may reflect the early onset of glaciation at this time in the southern hemisphere. In NZ Pennsylvanian conodonts occur at Meyers Pass, Kakahu and Conical Peak, all in the Rakaia Terrane. Preservation is poor and only generic level identification of *Gondolella, Idiognathodus* and *Streptognathodus* is possible. The faunas could be as old as Bashkirian or as young as Gzhelian.

Mid-Carboniferous boundary beds in the Muradymovo section (South Urals, Russia)

S.V. Nikolaeva[1], E.I. Kulagina[2], V.N. Pazukhin[2] & N.N. Kochetova[2]
[1]Russian Academy of Sciences, Moscow, 117997 Russia
[2]Russian Academy of Sciences, Karla Marksa 16/2, Ufa, 450000 Russia

In the South Urals, the Mississippian-Pennsylvanian boundary (MCB) is examined in facially different sections in the western and eastern tectonic sectors. At the end of the Mississippian the western, paleocontinental sector consisted of a shallow shelf of the continental margin of Baltica and a marginal trough (Zilair Megasynclinorium (ZM)). The eastern, paleooceanic sector contained an accretionary uplift and a marine basin with a series of deep and shallow zones. The Muradymovo Section is in the western sector (in ZM) and displays carbonate-siliciclastic deep water facies of the Bukharcha Formation, which is partly Serpukhovian (Kosogorskian, Khudolazovian and Yuldybaevian) and partly Bashkirian (Syuranian, including Bogdanovskian and Kamennogorian). The lower part of the formation is argillaceous carbonates, whereas the upper part is mostly clean limestone (interbedded calcarenites and calcilutites) with cherty interbeds. In the north of the ZM, the formation mainly consists of limestone. In the south, it contains some beds of shale, siltstone, and shale, sometimes clastic limestones and limestone breccia. The total thickness of the formation is 250-300 m. The beds are in places folded but the succession contains no identifiable gaps in the MCB portion. The Muradymovo is mainly limestone: micritic and fine-grained, argillaceous, cherty, in places bioclastic, with well-preserved fossil remains. The MCB beds contain a succession of foraminiferal, ostracode, conodonts, and ammonoid zones. The upper Serpukhovian (Yuldybaevian, ca. 13 m) contains the foraminiferal *Monotaxinoides transitorius* Zone, the conodont *Gnathodus postbilineatus* Zone, the ostracode *Pseudoparaparchites celsus* Beds, and the ammonoid *Fayettevillea-Delepinoceras* Genozone (= E2). The MCB coincides with the base of the Bogdanovskian and is defined by the entry of *D. noduliferus*. The same level and one 6 m above contain ammonoids *Proshumardites delepinei.* Beds above MCB contain: at 4.5 m ostracodes of the *Fellerites gratus* Beds, at 6 m foraminifers of the *Plectostaffella varvariensis* Zone, at 11 m foraminifers of the *Pl. bogdanovkensis* Zone. The *D. noduliferus* Zone is ca. 18 m thick. The upper Bogdanovskian begins with the entry of the conodonts *Idiognathoides sinuatus*, foraminifers *Semistaffella minuscilaria*, ostracodes *Limnoprimitia* cf. *arcuata,* and ammonoids *Ramosites sp.* An ammonoid assemblage with *Isohomoceras* sp., *Ramosites ramosus*, and *Homoceras haugi astrictum* (= H2 Zone) is located 18 m above the base of the *I. sinuatus* Zone.