Palaeobiogeography of the Alborz Mountains (North Iran) in the Early Permian: Evidence from Brachiopods and Palynomorphs

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The set of continental blocks that form Iran have always been considered of Gondwanan affinity for several reasons: their pre-Palaeozoic basement is thought to be related to the Baikalian orogenetic cycle, and continuity of Precambrian-Cambrian sedimentary rocks is thought to occur north and south of the Zagros suture. Similarly the region lacks Variscan deformation and is located south of the supposed position of the Palaeotethys suture. Palaeontological evidence has also been used to suggest Gondwanan affinity because north and central Iranian Devonian stromatoporoids, rugose corals and brachiopods were considered to be similar to those of Armenia, Afghanistan and Karakorum. But in fact the Devonian fauna has a cosmopolitan character and shares affinities with northern regions also (Western Europe and Russian platform). This study of the Lower Permian Dorud Formation of the Alborz Mountains (north Iran) illustrates how fossil groups can be used to infer the palaeobiogeographic affinities of continental blocks. The assemblages of Asselian-early Sakmarian brachiopods and palynomorphs from Dorud have a south boreal or north palaeoequatorial affinity, consistent with the southern provinces of the Boreal Realm and of the W Tethys province, and are dramatically different from coeval faunas and microflora of the Gondwanan peripheral regions from Western Australia, India, Karakorum, Central Afghanistan and Oman. It is difficult to explain the boreal affinity of the Dorud brachiopods and palynomorphs if north Iran is considered part of the Peri-Gondwanan fringe during the Asselian-early Sakmarian. A more northerly position for this block at this time is thus more likely.