

Palynostratigraphic Correlation and Dating of Marine and Continental Permian Successions

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Permian floras were influenced by diverse geological and climatic factors: e.g. the division of Pangea into Laurasia and Gondwana, migration of continents, and the effects of major glaciations in Gondwana. The resulting regional diversification of floras may prove invaluable for plate reconstructions, but impedes reliable age determination in continental facies where each depocentre has its own unique geological history. The challenge is to determine which microfloral changes are evolutionary, and which reflect differences in floral province, climate, topography, facies, plant habitat and environment of deposition.

Local zonal schemes for the Permian, such as those based on concurrent range zones, are invaluable for correlations within a basin although their dating in terms of the classic stratotypes in the Urals may be open to interpretation. The abundant occurrence of palynomorphs in some marine and non-marine facies permits basinal, regional and inter-continental correlations. For example, in the Sverdrup Basin of the Canadian Arctic, coal measures (Sabine Bay Formation) of Roadian age can be correlated with the deep water lower van Hauen Formation. At a regional circum-polar scale, assemblages from Wordian marine glauconitic sandstone (Trolld Fiord Formation) in the Canadian Arctic can be correlated with those from coastal plain (with thin coaly layers), shoreface, deltaic and shelf rocks of Kazanian age in the southern Barents sea. Inter-continental comparisons indicate that assemblages from marine and continental beds of Roadian age in the Canadian Arctic and those from exclusively continental Ecca coal measures (Lower Karoo) of Central Africa have many genera in common.