

Palynology of the Lias, Brent Knoll, Somerset (Abstract)

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The Institute of Geological Sciences' Hill Lane and Burton Row boreholes, at Brent Knoll, Somerset, yielded a composite section through some 460m of Lias which rested upon the Penarth Group. The lowest 5.3m of the Lias, below the lowest occurrence of *Psiloceras* which defines the base of the Jurassic, are assigned to the Triassic. The overlying c.455m of Lias, of Hettangian to early Toarcian age, includes a well-defined succession of ammonite zones against which the palynomorph biostratigraphy of the sequence is calibrated.

Palynomorphs were recovered from samples taken through the Brent Knoll Lias sequence at 10m intervals. The assemblages are mostly dominated by miospores, principally bisaccates and circumpolles. Organic-walled microplankton, mainly acritarchs but including Tasmanaceae and, very sporadically, dinoflagellate cysts, are generally a subordinate component, as also are scolecodonts and test-linings of foraminifera.

Assemblages from the Lias below the *semicostatum* Zone (Sinemurian) comprise mainly miospores of the circumpolles group, and acanthomorph acritarchs, and, in contrast with those from the underlying Penarth Group, are of very limited diversity. The diversity of the assemblages increases from the *semicostatum* Zone up to the middle of the *margaritatus* Zone (Pliensbachian), largely by the addition of pteridophytic spore taxa, but is again very limited in the younger Pliensbachian and in early Toarcian associations.

The pronounced changes in diversity of the assemblages, and features such as concentrations of acanthomorph acritarchs in Hettangian strata and in the *jamesoni* and *margaritatus* zones (Pliensbachian), may reflect environmental changes. Other features, such as occurrences of the miospore *Tsugaepollenites mesozoicus* Couper 1958 in and above the *bucklandi* Zone, and of the dinoflagellate cysts *Liasidium variabile* Drugg 1978 and *Nannoceratopsis gracilis* Alberti 1961 in the *raricostatum* Zone and above the lower part of the *margaritatus* Zone respectively, are biostratigraphically important, especially as their relationship to the ammonite zonal sequence is clearly defined.

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