

Excursion to KINGSBARNs: 6TH August 2011

Leader: Dr. Colin Braithwaite, University of Glasgow

Report: Eve Gilmore

Participants

A full coach party were taken to Kingsbarnscarpark, south of St Andrews to meet our leader. He introduced us to the sequences of the Lower Carboniferous which are exposed along the Fife shoreline south of Kingsbarns. We started working south from the fault which separates the Cambo Sands (Upper Old red Sandstone) from the Lower Carboniferous. We were impressed with the obvious succession of thin layers of limestones and sandstones and softer, more eroded shales, which could be seen dipping to the southeast. These have all been eroded to greater and lesser extent to add to the dramatic rock shapes of the present shoreline. Red limestones, probably a reflection of an Iron rich situation at time of deposition contained high densities of bi-valves.



The resulting rocks were dramatic enough for a few to be pocketed by the ‘collectors’ of the group.

However, we all could admire the cross bedding and the very obvious animal burrow tracks which feature in the structure of these beds.



We also found carbonised parts of various sized ancient trees, thin coal layers and diffusion cracks within a number of the beds.

A highlight was Muriel's stigmaria of lepidodendron!



However, all of us found examples of Lower Carboniferous fossilised Stromatolites, with the distinctive mound-like shape of calcareous formations produced by cyanobacteria.



The dip of the beds change south of the Cambo Burn, indicating a syncline which is shown also by the repetition of the bedding sequence along the shoreline. This syncline and dome structure is perhaps indicative of folding due to the proximity of a subterranean volcanic vent.

However the main feature of the area is of thin repeated rock sequences with thin layers of limestone interbedded with calciferous sandstones and shales, including bi-valves of low diversity and high density. This whole is indicative of estuarine, rather than marine conditions; cycles of sedimentation and sequences of shallow seawater, brackish and deltaic conditions. This is consistent with the slow subsidence of a basin in the Lower Carboniferous the resultant rocks of which have been exposed to form what are now very attractive features of the Fife shoreline.

We are all very grateful to Dr Colin Braithwaite for leading us along a stretch of coastline which he clearly knows well and can interpret in such an interesting way.

Photos M. Cummings