

OSTRACODE PALEOECOLOGY OF THE BANGOR-PENNINGTON TRANSITION
(CHESTERIAN, MISSISSIPPIAN) IN NORTHEASTERN ALABAMA

OLSON*, William, Dept. of Geology and Geography, Mississippi State University, Mississippi State, MS 39762-5167, U.S.A.; DEWEY, Chris, Dept. of Geology and Geography, Mississippi State University, Mississippi State, MS 39762-5167, U.S.A.

The Pennington Formation (Chesterian, Mississippian) of northeastern Alabama is a regressive, distal lobe of the Pennington/Lee clastic wedge, located on the western flank of the Appalachians in the Tennessee structural salient. The clastic units of the Pennington include sandstone, siltstone, mudstone, clay shale and coal and are genetically related to the effects of progradation. The presence of limestones and dolostones within the southwestwardly prograding and thinning Pennington is due to the lateral equivalency and interfingering relationships of the Pennington with the upper part of the adjacent Bangor Limestone shelf.

A highly diverse ostracode fauna has been collected from outcrops along the Pennington-Bangor transition in northeastern Alabama. The most common assemblage of ostracodes is dominated by kirkbyaceans and includes species of Amphissites, Polytylites, Kirkbyella, Kirkbya and Reviya. Bairdiaceans are notably absent from this assemblage. The Kirkbyacean Assemblage is only found in middle to outer shelf palaeoenvironments where clastic input is high, but where salinity conditions are thought to have been typically marine. In middle to outer shelf limestone-producing palaeoenvironments, a Bairdiacean Assemblage is dominant, although kirkbyaceans are still present.

A Sansabellid Assemblage, consisting of kloedenellaceans such as Sansabella, Geisina, Geffenina, Nufferella and Glyptopleura appears to be produced under rapidly changing nearshore, inner shelf conditions, where terrigenous input was often high and palaeosalinities may have been variable or less than normal marine. The Sansabellid Assemblage contains occasional kirkbyaceans, however bairdiaceans are notably absent. Intermediate assemblages contain elements of the three main assemblages and reflect the transition from the inner to outer shelf.

In summary, the ostracode assemblages of the Pennington-Bangor transition in northeast Alabama provide indicators of palaeoenvironmental change during the southwestward progradation of the Pennington deltaic wedge onto the Bangor Limestone shelf. The prime factors resulting in palaeoecological response appear to have been variations in terrigenous input and palaeosalinity.