THE PALEONTOLOGY AND STRATIGRAPHY OF SLEEPY HOLLOW IN OLDHAM COUNTY, KENTUCKY

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Abstract: This report gives the stratigraphic column for the Ordovician of Sleepy Hollow, makes additions to Charles Butts' faunal list of 1914-1915 for the Liberty formation, and points out the evidence of the Whitewater age of the upper beds of the Liberty and the lower beds of the Saluda.

Sleepy Hollow is located in the Prospect Quadrangle at Black Bridge about 2.5 miles north of Worthington in Oldham County, Kentucky.

The section ranges from the Upper Waynesville to the top of the Laurel and is exposed in the valley of the South Fork of Harrods Creek. (See Fig. 6).

The Waynesville formation is represented by the upper 17± feet. It is a greenish-grey shale with occasional argillaceous limestone ledges. The upper part is streaked with glauconite. Zygospira modesta, Zygospira kentuckiensis, and Platystrophia clarksvillensis occur throughout.

The contact with the overlying Liberty is marked by the "Bardstown Reef" characterized by Beatricea undulata, Columnaria algae, and Columnaria vacua. It is 4± feet thick and persistent.

The Liberty formation as restricted here is 51 feet of alternating shales and thin fossiliferous limestones. The upper part (mollusk horizon) is the mudstone of other writers and is believed to be Whitewater. The contact with the Saluda has been variously placed. Foerste placed it at the bottom of the Columnaria zone about 2 feet below the "Madison Reef" at Madison, Indiana. This Columnaria zone is represented at Sleepy Hollow by a bryozoan reef containing species of Hallopora and Homotrypa with a few Columnaria heads, 2-4 feet below the Tetradium approximatum reef. The scolecodont Arabellites also occurs here. Where Columnaria is absent, the contact has been drawn between the fossiliferous mudstone of the Liberty and the nearly barren mudstone of the lower Saluda. Butts placed the contact 8-10 feet below the Tetradium approximatum zone (Madison Reef) of the Saluda in Jefferson County, Kentucky (Butts, 1915, p. 63).

The writer observed such forms as Cyrtodonta beckneri, Bel-
lerophon mohri*, Whitella umbonata* and Hormotoma sp. in the upper few feet of the mudstone of the Liberty. The starred forms are regarded as diagnostic of the Whitewater formation in Southern Ohio (Bucher and Caster, 1945, p. 29).

For 4± feet above the Madison Reef, there is a series of dense magnesium limestones with calcite specks containing numerous ostracods: Leperditia sp., Eurychilina sp., Leperditellia glabra? and Primitia lativia; the last two forms are regarded as Upper Whitewater of the Cincinnati area (Dalve, 1948, p. 52). The cephalopod beds of the Lower Whitewater of Ohio are absent. The total Saluda (non-restricted) is 47 feet in thickness. It is a dolomitic limestone which is ripple marked and of a greenish-grey appearance. Upon weathering the rocks appear banded.

The Hitz member (which is Upper Whitewater) (McFarlan, 1948, p. 33) at the top of the Saluda is 4.5 feet thick. The bottom 2 feet is silty and the upper 2.5 feet is a dense magnesium limestone like the lime just above the Madison Reef. In addition, this horizon contains Leperditellia glabra.

Following a disconformity the Hitz is succeeded by the Brassfield formation. The Brassfield is a massive-bedded, coarse-grained elastic, grey dolomitic limestone. Upon weathering the rock turns a brown color. The thickness is 3 feet here, but the Brassfield thickens to 20± feet on the east side of the Cincinnati Arch. The Brassfield here contains Phaenopora expansa and Clathropora frondosa. The Brassfield is succeeded by the Osgood and Laurel formations of the Niagaran.

The conclusion reached in the above study is that a part of the Whitewater formation (14 feet here) is represented in the upper Liberty and basal Saluda as well as in the heretofore recognized Hitz limestone member. The Whitewater forms represented in the upper Liberty and basal Saluda have their closest affinities to the faunas of upper Whitewater age.

Some additions to Charles Butts’ faunal list for the Liberty formation of Jefferson County (as restricted in the present paper) are offered. The forms are from Sleepy Hollow at Black Bridge, Oldham County, Kentucky:
Bryozoans: \( \text{Proboscina auloporoides} \)
\( \text{Proboscina frondosa} \)

Brachiopods: \( \text{Hebertella alveolata} \)
\( \text{Zygospira modesta} \)

Pelecypods: \( \text{Byssonychia radiata} \)
\( \text{Caritodens demissa} \)
\( \text{Modiolodon sp.} \)
\( \text{Modiolopsis sp.} \)
\( \text{Orthodesma sp.} \)

Gasteropods: \( \text{Liospira sp.} \)
\( \text{Lophospira sp.} \)

Cephalopods: \( \text{Endoceras sp.} \)
\( \text{Orthoceras sp.} \)

Trilobites: \( \text{Isotelus maximus} \)

**Literature Cited**

**Butts, Charles**


**Bucher, W. H., Caster, K. E.**


**Dalve, E.**


**McFarlan, A. C.**

1943 *Geology of Kentucky*. University of Kentucky Press, 531 pp., 117 pls.
FIGURE 6