MICRO-ORGANISMS FROM THE WALDRON SHALE OF CLIFFY CREEK, INDIANA

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Last spring while on the way to Nashville, Indiana to attend the spring meeting of the Academy I went over the route through Hartsville and the Cliffy Creek region of Bartholomew County, Indiana. Several hundred feet south of the bridge over Cliffy Creek below Hartsville a culvert had recently been put in. Here they had dug a trench well down into the Waldron Shale of Silurian age. This opened up an excellent new and unweathered exposure of the shale. I spent several hours collecting from the excavated material amassing a fair collection of small brachiopoda and some bryozoa. The brachiopoda all seem to be referable to the genus *Rhynchonella* Fischer and are often replaced by pyrite, sometimes with cubes of pyrite attached to the cast. I have not as yet examined the bryozoa but they are all of the non-encrusting type.

I also collected several pounds of the unweathered shale from the east end of the culvert. Here the unweathered shale was a light slightly bluish gray and the weathered upper layers a lighter more yellowish color. This material was soaked in water for about two weeks, then washed through 150 mesh screens and dryed. Upon examining it microscopically I found evidence of an amazing fauna of *Ostracoda*, consisting of one definite specie and the fragments of possible six more species. The same examination showed up some objects which looked very much like arenaceous foraminifera but on being sectioned proved to be of inorganic origin. There were also a few varieties of crinoid stems and more non-encrusting bryozoa. I found no evidence of radiolaria or diatoms although the material was examined for them.

The literature on the *Ostracoda* and *Protozoa* of the Waldron is surprisingly meager considering how famous it is for fossils of larger size. In 1875 James Hall[1] described and figured two species of *Ostracoda* from the Niagara Group of Indiana. He also described five species of *Protozoa* which are now refered to the phylum *Poriferia*. Again in 1881 Hall in the 11th Annual Report of the Department of Geology and Natural History of Indiana on page 331 describes and figures the same *Ostracods* described in 1875. Since that time I find little work of Microscopic nature done on the Waldron Shale although much of the Silurian of Indiana has been examined by Cummings, Foerste and others for microscopic organisms.

In the material collected there are fragments which appear to be referable to the species *Leperditia fava* Hall[2] which Hall described from the Waldron Shale from Conn's Creek, Decatur County, Indiana in 1875.

The other fragments are too poor to be referred to even by genera but I hope to collect more material from the Waldron Shale at a future date.

The species which I have named *Paraechimina waldronesis* W. Berry seems to be new to science. *P. waldronensis* is closely related to forms found in the Clinton and McKenzie formations of Maryland and the Rochester Shale of Western New York State. This species is fairly rare. It may be described as follows.

Proc. Ind. Acad. Sci. 40: 207-208. (1930) 1931.

[1]Hall, James. The Fauna of the Niagara Group in Central Indiana. Ann. Rept. N. Y. State. Mus. Nat. Hist. **28**:99-201, (1875) 1879.

[2]Idem.

Paraechimina waldronensis is distinguished from other species by its almost equally ended valves, distinctly depressed over their median parts, the depressed area enclosed by a strong wall-like ridge of equal thickness starting near the ends on the dorsal side and continuing around the end, the ventral side the other end and ending on the dorsal side near the end. Spine large, bluntly pointed and of moderate height.

PARAECHIMINA WALDRONENSIS W. Berry n.sp. Fig. 1.

Fig. 1.

Length average 0.90 mm. Height without spine average 0.35 mm.

P. waldronensis is apparently closely related to *P. spinosa* Hall and *P. depressa* Ulrich and Bassler, being about half way between the two.

Occurence—Waldron Shale, Cliffy Creek, Indiana.

Type in the collections of The Ohio State University Geological Museum, Columbus, Ohio.

Note: Illustration, camera lucida by D. W. Curtiss.