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AN OCCURRENCE OF *RHIZOCORALLIUM* IN THE UPPER CASEYVILLE FORMATION (LOWER PENNSYLVANIAN) OF SOUTHERN ILLINOIS

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ABSTRACT

Rhizocorallium has not been previously reported from the Pounds Sandstone (Lower Pennsylvanian) in southern Illinois. The specimens collected are of special interest because of their short, oblique, vertically retrusive, u-shaped burrows, and linear orientation. This burrow form suggests suspension feeding crustaceans that lived in the upper subtidal zone; yet these specimens may be tidally influenced in their burrow positioning. The exact direction of the orientation could not be determined because our sample is a "float" slab. This "float" slab was collected from a large scale, trough crossbedded sandstone unit, which has been identified as a distributary channel deposit. Hence, *Rhizocorallium* burrows of this type may have formed in shallower water than previously thought. *Rhizocoralllium* burrows of this shape are referred to *R. jenense* Zenker.

INTRODUCTION

A large "float" slab from the Pounds Sandstone Member of the upper Caseyville Formation (Lower Pennsylvanian) (Figure 1) containing *Rhizocorallium jenense* Zenker was collected at the southwestern corner of the intersection between County Highway 13 and Interstate Highway 57 at the Goreville Interchange (SW1/4 SW1/4 NW1/4 SE1/4 SW1/4 Sec. 18, T. 11 S., R. 2E., Johnson County, Illinois, Lick Creek Quadrangle) (Figure 2). The uppermost unit of the Pounds Sandstone in which *R. jenense* occurs is a yellowish-brown, fine to medium-grained, quartzose sandstone containing large scale, trough crossbeds, small scale crossbeds, clay pebbles, numerous erosional contacts, ripples and plant fragments. This sandstone is interbedded with mudstone and siltstone (Gopinath and others, 1973, p. 74-78 and Koeninger and others, 1979, p. 86-88).

SYSTEMATIC PALEONTOLOGY

Ichnogenus *Rhizocorallium* Zenker, 1836
Ichnospecies *Rhizocorallium jenense* Zenker, 1836

Rhizocorallium jenense Fursich, 1974, p. 18, 23-24, fig. 2 (Synonymy to date).
Rhizocorallium jenense Hantzschel, 1975, p. 101, fig. 63, 1.
Rhizocorallium jenense Dawson and Reaser, 1980, p. 210, figs. 2-6.

The specimens studied consist of short, oblique, u-shaped filled burrows that are vertically retrusive. They occur in convex hyporelief on the bottom of a sandstone bed. A nearly complete u-shaped filled burrow with only the upper vertical portion of the tube ends broken occurs near the middle of the "float" slab (Figure 3), has a maximum diameter of 66 mm., and is about 58 mm. long. Lateral limbs of some specimens are sinuous because of distortion caused by overlapping filled *Rhizocorallium* (Figure 4). *Rhizocorallium* specimens are linearly oriented (Figure 5), probably in response to tidal currents. We are unable to determine the direction of this orientation because our sample is a "float" slab. Apparently, these burrows were made by a crustacean burrowing in mud, because they do occur on the bottom of the sandstone bed, and are filled with the same sandstone which forms the overlying matrix. No spreite are preserved. Perhaps this lack of spreite results from preservation of these ichnofossils in sandstone.

Remarks. One large "float" slab about 158 cm. × 55 cm. and containing about 40 partial to nearly complete *Rhizocorallium* filled burrows, makes up the material studied. Fursich, 1974, referred u-shaped *Rhizocorallium* burrows to *R. jenense* Zenker.

Occurrence. Uppermost unit of the Pounds Sandstone Member of the Caseyville Formation (Lower Pennsylvanian).

Type. Southern Illinois University Museum, Hypotype 5400.

DISCUSSION AND CONCLUSIONS

U-shaped, oblique, vertically retrusive *Rhizocorallium* burrows are thought to have been made by suspension feeding crustaceans living in the upper subtidal zone (Sellwood, 1970, p. 495 and Ager and Wallace, 1970 p 17). The fact that these burrows are linearly oriented suggests that their positioning was tidally influenced (Farrow in Hantzschel, 1975, p. 101). If the unit from which these ichnofossils were collected is a distributary channel deposit (Gopinath and others, 1973, p. 76 and Koeninger and others, 1979, p. 86), then *R. jenense* occurred in shallower water than previously thought, and the linear orientation of these burrows may have been influenced by some factor(s) other than tides.

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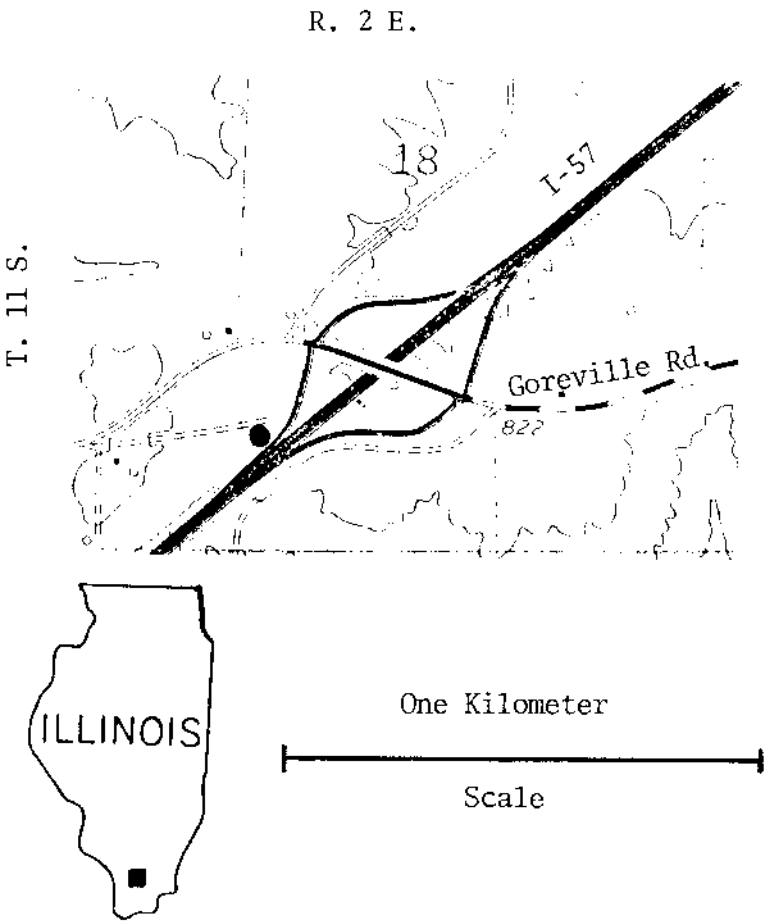

Fig. 1 Locality Map. Collecting site at •

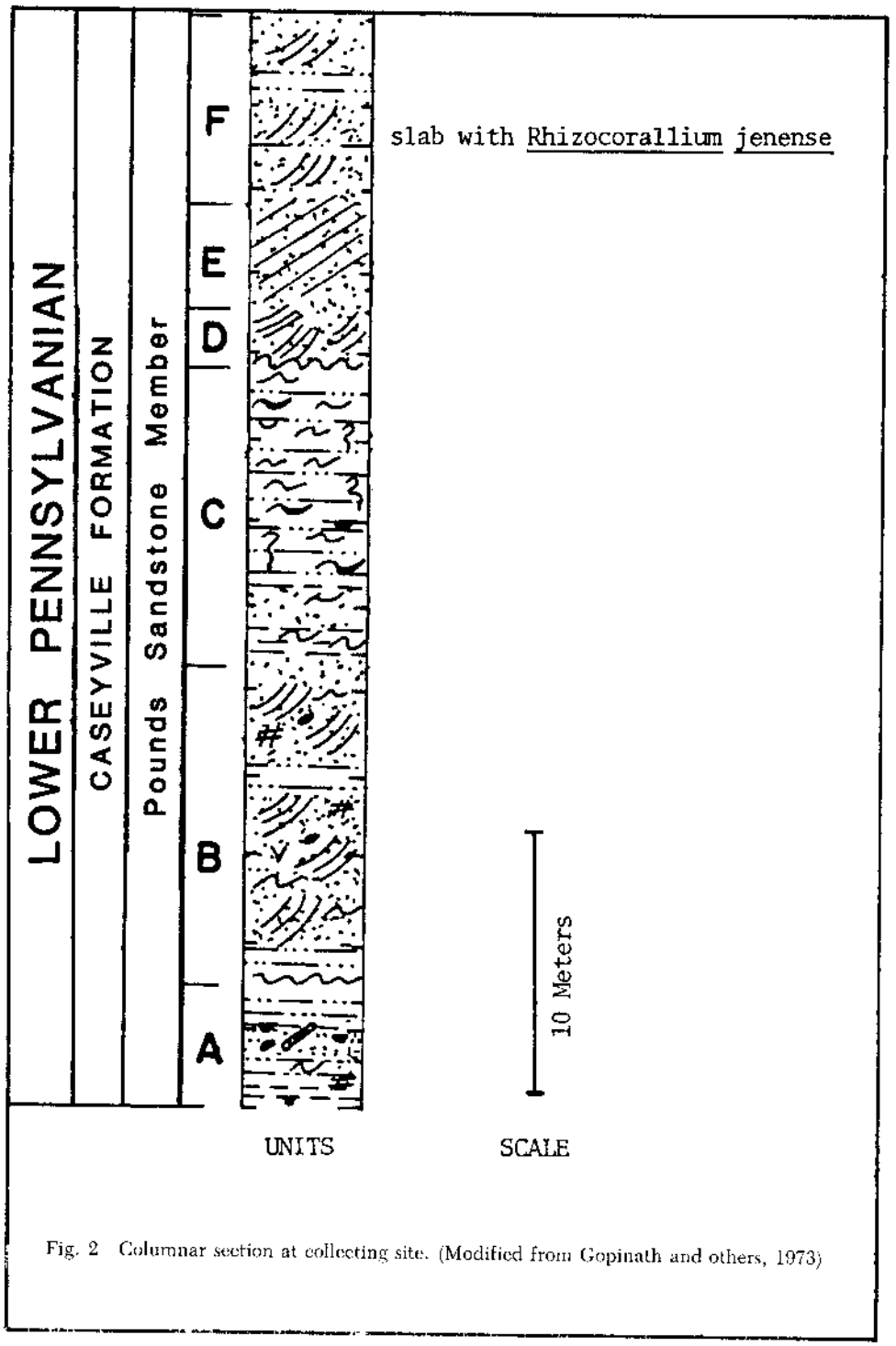

Fig. 2 Columnar section at collecting site. (Modified from Gopinath and others, 1973)

Fig. 3 Top view of nearly complete *Rhizocorallium* X 0.55 (white arrow).

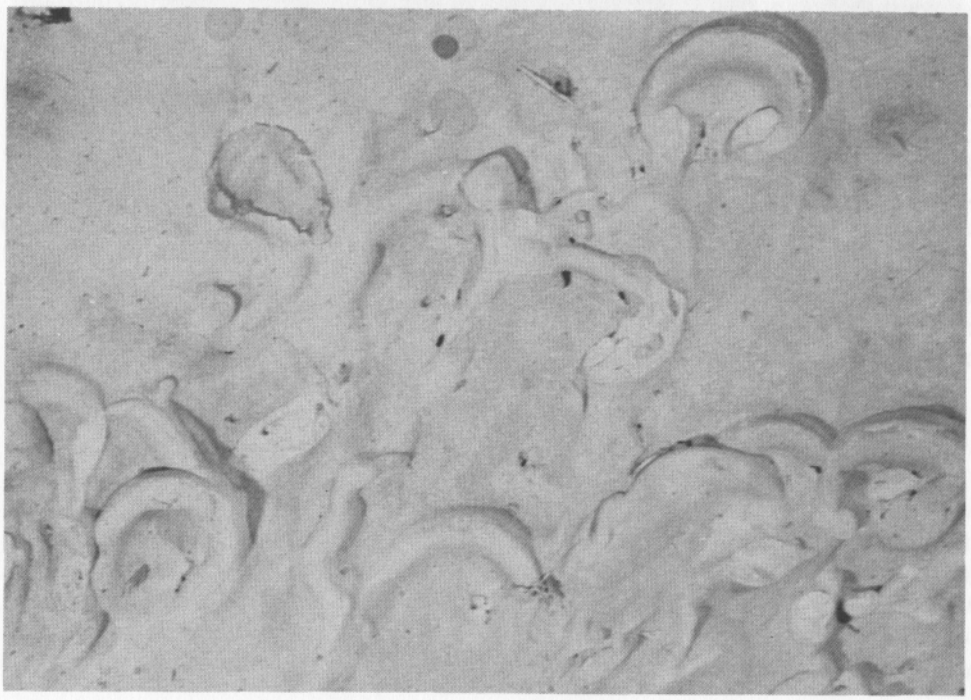

Fig. 4 Top view showing sinuous-limbed specimens X 0.40.

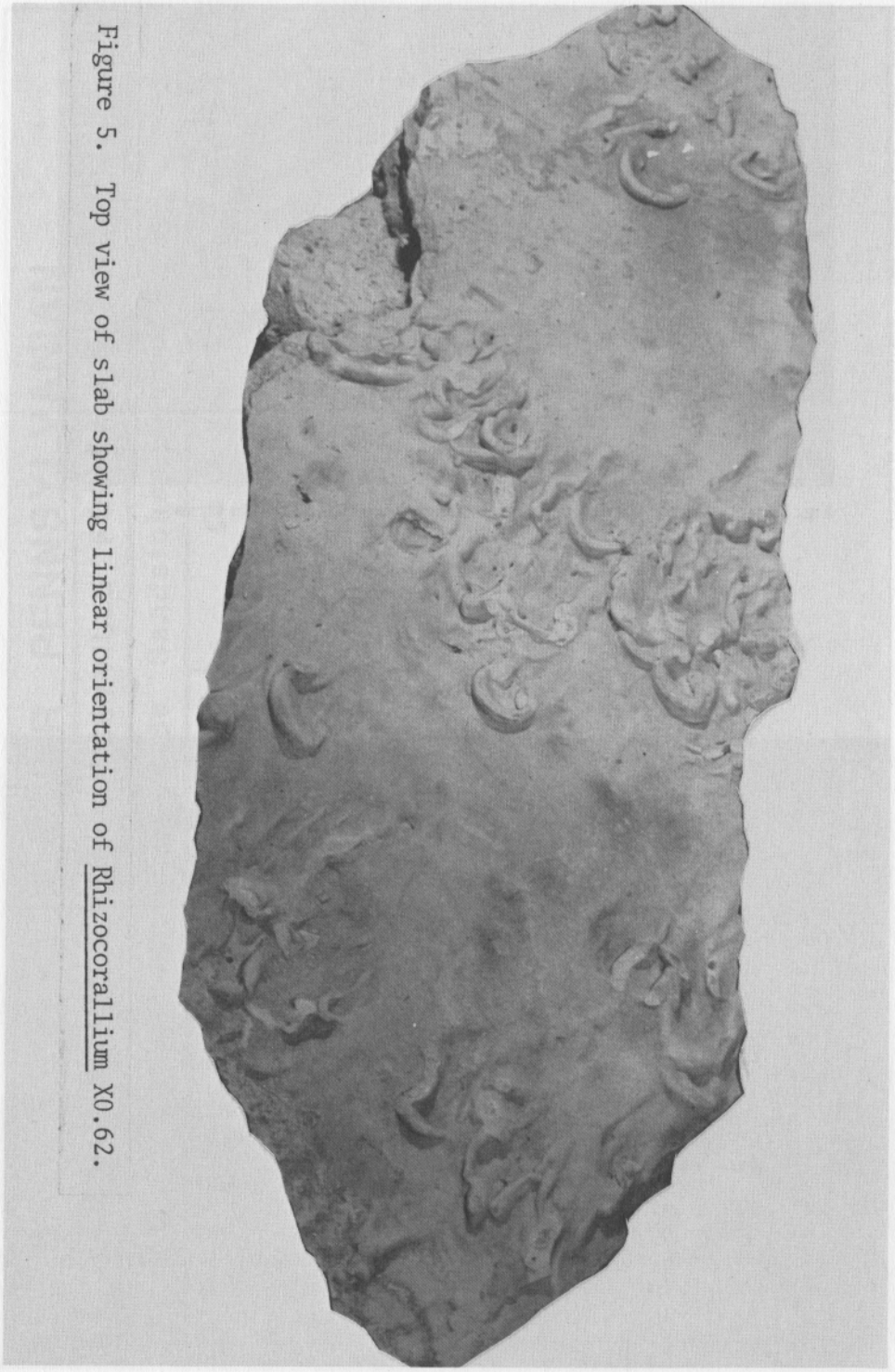

Figure 5. Top view of slab showing linear orientation of Rhizocorallium X0.62.

Fig. 5 Top view of slab showing linear orientation of *Rhizocorallium* X0.62.