

## PROBABLE WORM CASTINGS ("COPROLITES") IN THE SALEM LIMESTONE OF INDIANA

---

ROBERT R. SHROCK, University of Wisconsin

Many references in paleontologic literature call attention to various types of fossil evidence for the existence of worms in past geologic ages. Recent investigations have not only added much to the knowledge of the work and character of ancient worms, but, through observations on present bottoms, have also revealed much concerning their present importance as scavengers, modifiers of sediments, and rock builders.

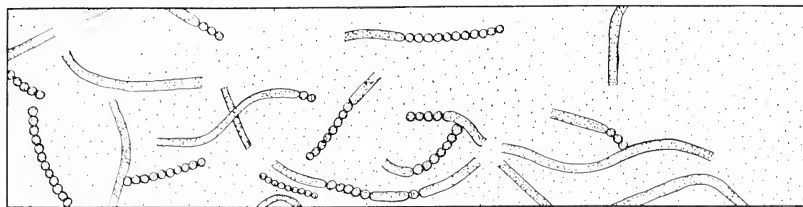
It is the purpose of this brief account to call attention to an interesting type of fossil record found in the well known Salem or Indiana Oölitic Limestone. In Madison, Wisconsin, numerous structures built of this stone, after a dozen or more years of weathering, show on the surfaces of the blocks numerous strap-like markings which appear to represent longitudinal sections of castings, or coprolites, of fairly large worms. These markings are generally confined to rather thin zones which are more or less parallel to the planes of stratification.

The castings to be described are thought to represent material which as a granular calcareous sand passed through the digestive tract of some worm and was then cast off. The castings were in the form of either solid rods or solid, discrete pellets. In tracing the markings through the rocks the rod-like type of excreta gives way to a series of pellets which in turn pass again into the former (Fig. 1). It appears from the character of the preserved castings that at times passage of the granular sand through the worm was easy, whereas at other times there was congestion, and the excreted material took the form of solid pellets.

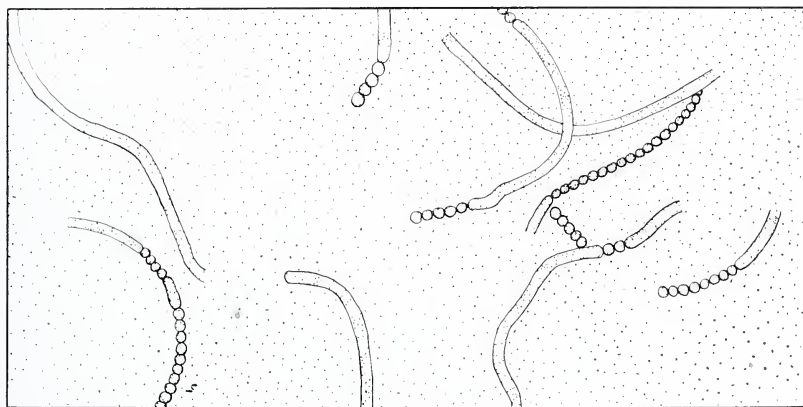
The castings vary considerably in size, with the smallest ones tending to be more sinuous. The largest have a diameter of as much as three-fourths of an inch; the smallest are less than one-eighth of an inch across. Individual castings have about the same diameter throughout their length. The largest sizes may be traced through the rock for more than two feet but the smaller are always much shorter. So far as present observation goes it is not possible to state whether there was any comminution of the material as it passed through the digestive tracts of the worms.

The insoluble residues of the Salem limestone are not known to contain scolecodonts or other preservable structures which might be attributed to worms, but the absence of such structures is not considered to mean necessarily that such organisms were not present in the seas of Salem time. If worms were as abundant as the many castings indicate, much of the calcareous sand of the Salem limestone must have passed through the bodies of worms at one time or another.

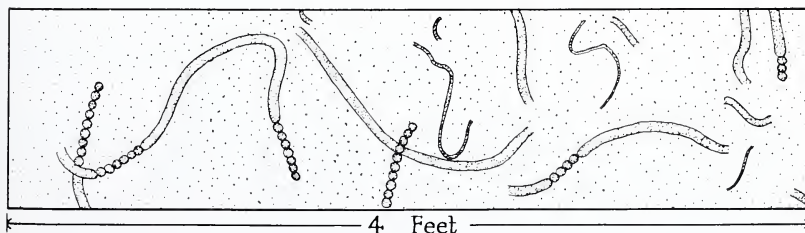
To name these interesting fossils seems altogether unnecessary until more is known about the organisms which made them. Suffice it to record their presence, characteristics, and possible significance.



A



B



C

Fig. 1. Sketches (to scale) of probable worm castings in the Salem limestone. The blocks of stone containing these fossils are found on top of the retaining wall just southeast of the intersection of Langdon and Park streets, Madison, Wisconsin. Similar castings may be seen in the walls of several buildings constructed of the same stone in the business district of the city.