

frequently used.) It is especially because of this record of life mixed into the sedimentary rock that local stratigraphic columns are so meaningful. When a certain part of a local column contains an abundance of the fossilized skeletons from kinds of animals or plants which are exclusively marine (rather than fresh-water), we know that this layer was formed in some part of the ocean.³ This is especially true if the fossilized, exclusively marine animals or plants are found in growth position, as is often the case. Examples of exclusively marine organisms are (a) the entire phylum Echinodermata (starfishes and sea "lilies," and their relatives), (b) all of the many species of corals, and (c) all of several distinct forms of calcareous green and red algae.

A Stratum of Coral in Indiana

In the southern part of Indiana, a few miles north of the town of Madison, there is an outstanding example of ancient marine organisms preserved in growth position. Along the new U. S. Route 62 is a terraced road-cut about 100 feet deep, which has exposed a beautiful white layer of ancient, extinct corals of the Subclass Tabulata, near the level of the road bed. The layer is approximately 12 to 18 inches in thickness, with the rounded clumps of coral skeletons "sitting" in their original growth position. The layer extends almost continuously and with uniform thickness for at least one-fourth mile along the road. The coral layer is practically horizontal, and appears on both sides of the highway. Immediately above and below it are numerous distinct layers of siltstone and shale. Here is the unmistakable record of a time when southern Indiana was covered by ocean water for an extended period, allowing these exclusively marine creatures to build a layer of skeletal matter over the 4,000 feet of mainly marine sediments (mostly limestone and shale) which lay beneath. Then, without any major disturbance to break the continuity of the coral covering, a change of environment brought in muddy waters which entombed the entire coral community with a layer of siltstone, which then turned into rock.

On top of this layer, other distinct layers of marine sediments (with marine fossils) were added. Just how many more hundreds of feet of these sediments were added before the sea receded, we do not know. By examining the immediate surroundings, and the depth of the road cut, it is evident that at least a few hundred feet were added. One whole side of the hill in which the reef was buried was removed before the level of the coral was reached. There are marks of deep erosion in that hilly area, indicating that the geologists who have studied it are correct in saying that some hundreds of feet of thickness have been eroded from the covering of this beautiful Ordovician "mini-reef." The studies of that geographic area also include test drillings of the approximately 4,000 feet of sediments which lie beneath the level of the reef. The records of these investigations of the deeper parts of the stratigraphic column in this area are still available, describing the alternating layers of fossil-bearing marine limestone, shale, and dolostone. This is just a simple example of the great amount of information concerning ancient environments