cent CaCO₃. Also some quarries have a few beds that contain as much as 12 percent MgCO₃, so much that the rock must be sorted out and discarded.

The cement limestone contains numerous fossil remains, most of which, however, are fragmentary and scarcely determinable. They are seldom apparent except on the weathered surfaces of the rocks. They are of the same kinds as those contained in the limestone layers interbedded with the argillaceous cement rock. Fragments of small crinoid stems are most abundant but locally bryozoans are very common. The bryozoans belong to several different kinds, of which the branching and the bead-like colonies are most abundant. Poorly-preserved brachiopods are also found occasionally.

The massive character of the cement limestone beds has prevented them from crumpling, but steeply dipping and overturned folds are present. The south side of the quarry of the Coplay Cement Manufacturing Company on the west bank of Lehigh River exhibits an overturned synclinal fold. The syncline is overturned to the north so that the cement limestone both overlies and underlies a mass of "cement rock" with all the beds dipping to the southeast.

Elsewhere in the region the cement limestone normally dips gently to the north or northwest at low angles and disappears beneath the cement rock. This cement limestone is of variable thickness, ranging from 100 to 200 feet.

The cement limestone grades into the overlying argillaceous limestone or cement rock by an intermediate band of interbedded, relatively pure limestone and impure argillaceous limestone strata. For that reason the two kinds of rock, although lithologically dissimilar, are regarded as constituting a single geologic formation.

At the base the cement limestone is in contact with the Beekmantown magnesian limestone. In this region the two formations are approximately conformable, although to the eastward in New Jersey a marked erosional unconformity is shown in many places.

Glacial clay of variable thickness, with included cobbles and boulders, rests upon the cement limestone. The glacial cover interferes with the determination of the position of the formation boundaries.

"Cement rock."—The cement rock is an argillaceous limestone intermediate both in composition and stratigraphic position between pure limestone and shale or slate. In color it suggests the overlying slates and in many places it shows marked slaty cleavage. A freshly broken piece is bluish-black and shows glistening particles of sericite too fine to be individually distinguishable except as light is reflected by them. The unaltered rock breaks partially along cleavage planes and partially along bedding planes, producing hackly or, in some places conchoidal surfaces that are unlike those of either the pure limestones beneath or the slates above. As the rock weathers, however, it separates into small cleavage fragments so similar to those resulting from the decomposition and disintegration of slate that it is difficult to distinguish between a slate soil and a cement rock soil. Both are filled with thin rock fragments of a light yellowish-gray color, ranging up to 1 inch in length.