

SOME PENNSYLVANIAN LIMESTONES OF THE  
CARLINVILLE QUADRANGLE, ILLINOIS \*

BY

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## ABSTRACT

The Carlinville quadrangle is in the southwest part of Illinois about 40 miles north of East St. Louis. The rocks of Pennsylvania age underlying the surficial deposits are chiefly shales and clays which disintegrate readily. Associated with them, however, are several limestones resistant enough to make ledges across the stream channels, and to make rock terraces in some of the valleys.

The limestones and their associated rocks belong to the McLeansboro series of the Pennsylvanian system. The aggregate thickness of the exposed part of the McLeansboro series is slightly over 100 feet. At least seven limestones of this sequence may be recognized quite readily. A few other instances of limestone outcrop, somewhat isolated, are known, and may prove to be different occurrences from those now recognized. The names of a few of the more important limestones follow, beginning with the oldest rock of the list: Shoal Creek limestone, Centralia limestone, Macoupin and Upper Macoupin limestones, and the LaSalle limestone.

Of this list the Shoal Creek limestone probably possesses the greatest amount of historical interest. On account of its frequent exposures in the vicinity of the city of Carlinville it has been called the "Carlinville" limestone. In all probability it has been confused with other limestones, both in the Carlinville quadrangle, and in other parts of the State. It is quite readily distinguished from other limestones of the quadrangle by its common occurrence in two prominent ledges, the upper one thicker and more massive and separated from the lower ledge by about 8 inches of dark shale. With the exception of the LaSalle limestone it is one of the thickest limestones in the quadrangle, and, with its lower member, attains an aggregate thickness of from 6 to 8 feet. In the vicinity of Carlinville it generally underlies other rocks of the McLeansboro series, but near Palmyra, in the northwest part of the quadrangle, it generally occurs as the uppermost of the Pennsylvanian rocks. This is due to the gradual inclination of all the Pennsylvanian rocks, the dip following a general southeast direction.

The Centralia limestone, lying in a stratigraphic position about 17 feet above the Shoal Creek limestone, and the Macoupin limestone, at about the same interval above the Centralia, are both quite distinct lithologically from the Shoal Creek. These two limestones resemble each other very closely, however. In some of the earlier geologic literature describing the rocks of this part of the State, occur references that imply some confusion in identity between the Centralia and Shoal Creek limestones, also. The Centralia limestone is one of the more fossiliferous rocks of the quadrangle and contains numerous brachiopods of common Pennsylvanian types. In color, texture, and in its habit of weathering, the Macoupin limestone resembles the Centralia quite closely. It may be distinguished, however, by its abundant fauna.

The LaSalle limestone is a prominent limestone. In the southeast part of the quadrangle, due to the structural attitude mentioned above, it becomes the capping rock of the McLeansboro series as far as represented in the outcrops. It is thicker, locally, than the Shoal Creek limestone, and is responsible for faintly developed rock terraces east of Carlinville.

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