

TRANSITION BEDS BETWEEN THE ST. PETER SANDSTONE AND THE PLATTEVILLE LIMESTONE¹

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On account of their wide distribution in the upper Mississippi Valley and their distinctive characteristics, the middle Ordovician St. Peter sandstone and the Platteville limestone have been described frequently by geologists working in this region from the time of the first scientific explorations to the present. The formations are in marked contrast to each other, as the older St. Peter sandstone is a conspicuous friable, light-gray to white sandstone whereas the Platteville is a fossiliferous limestone.

As the result of detailed mapping of counties in northeastern Iowa in this belt of Ordovician formations, Calvin recognized and described an intervening formation which he named the Glenwood shale. This formation is a very persistent, somewhat sandy, bluish-green shale. It is seldom more than a few feet thick. Similar beds have since been reported at the base of the Platteville at several localities in Minnesota, Wisconsin, and Illinois. The southernmost reported occurrence is in Calhoun County, Illinois. The formation crops out at several places in La Salle, Lee, and Ogle counties. In most places it is the typical more or less sandy shale, but in the vicinity of Oregon, Illinois, it is a fine to medium-grained sandstone with little or no shale.

In some sections the Glenwood appears to be closely associated with the underlying St. Peter sandstone, but in a few places a slight though well-defined erosional unconformity exists at its base. Although the lithologic change to the overlying Platteville limestone is generally abrupt, the formations are everywhere apparently conformable. In one place Platteville fossils have been reported from beds that probably represent the Glenwood horizon.

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The typical Glenwood is absent in some places, and it is replaced laterally by a series of transition beds of variable thickness. Such beds have seldom been described from outcrops, but they have been reported in a few well sections in northeastern Illinois. In the detailed study of the geology of the Oregon quadrangle two sections of thick transition beds of rather unusual character were observed in ravines a few miles east of Oregon. The series consist of alternating thin and thick beds of sandstone, shale, and limestone, which differ in sequence and thickness in the two sections. Some of the shale and sandstone is similar to the Glenwood in color and texture, but a few layers of sandstone are recurrences of typical St. Peter sandstone. The limestone resembles more or less the overlying Platteville limestone. The maximum thickness is about 40 feet.

Inasmuch as the geologic and geographic conditions of northern Illinois at this stage in its history are recorded in the Glenwood and associated strata, an attempt is made to interpret the conditions under which these formations were deposited.