

Discovery of Sphalerite and Galena near Millbrook, Kendall County*

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Sample cuttings from a well drilled in May 1937, on the Barron farm near Millbrook, in the NE $\frac{1}{4}$ Sec. 9, T. 36 N., R. 6 E., Kendall County, Illinois, (Fig. 1), revealed an abundance of sphalerite and a trace of galena in a weathered portion of the Platteville dolomite directly underlying the glacial drift.

A log of the well from which this material was obtained is given as follows by Mr. B. L. Palmer, well driller of Aurora, Illinois:

Formation	Thickness	Depth
Pleistocene system		
Glacial drift	55	55
Ordovician system		
Galena-Platteville formation		
Hard, Blue dolomite	5	60
Conglomerate, soft, blue, cavey, containing water	2	62
Hard dolomite	18	80

L. E. Workman of the Subsurface Division, Illinois State Geological Survey, describes the mineral-bearing material which occurs between depths 60 and 62 feet as follows:

Mixture: Rounded fragments of dolomite, light gray, fine vesicular, more or less weathered, containing much finely disseminated marcasite, some sphalerite, and a trace of galena; loose, coarse crystals of sphalerite; numerous large, irregular masses of marcasite, apparently replacing plant fragments; sand, coarse; rounded grains with secondary crystalline quartz surfaces.

The bedrock under the glacial drift of this area is shown on the geologic map (Fig. 1). It consists from the top downward of the Maquoketa shale, the Galena-Platteville dolomite, and St. Peter sandstone.

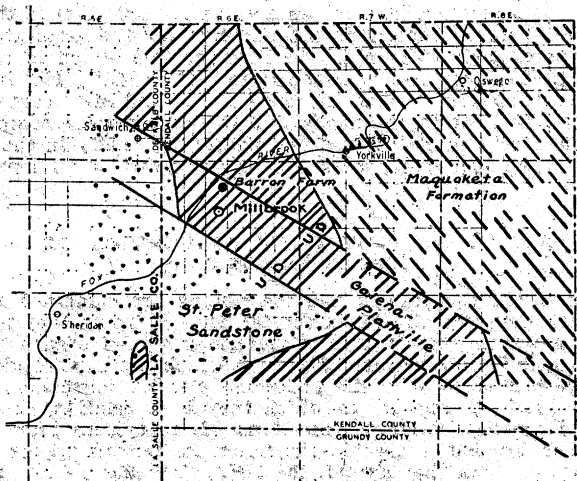


Fig. 1—Geologic map of Millbrook area.

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The rocks have a general eastward dip. The dominant regional structure is the Kankakee arch, the crest of which is to the southwest of Millbrook. This structure probably had its most important movement in the interval between the deposition of the Shakopee and the St. Peter formations.¹ However, there was some recurrent movement at some time after Maquoketa deposition, as is reflected in the gentle doming evident near Millington, south of Millbrook. It was probably during this post-Maquoketa movement, which possibly may represent relaxational movements after the first intense folding of the LaSalle anticline, that the southeastward-trending fault zone, shown on the map, was developed.

The fault zone is represented by two faults extending in a southeast direction, one through Sandwich and the Barron farm, and the other a parallel fault 3 or 4 miles to the southwest. Very probably other smaller faults connect the major faults.

The sphalerite and galena found in the Barron well are probably a residue from solution in a sinkhole or cavern developed by groundwaters along a fault or in a joint near a fault. If the material occurs in a sink, it is capped by a boulder or overhanging cliff of dolomite encountered at 55 to 60 feet depth in the well. The proximity of the well to the Sandwich fault suggests that the mineralization is related to the faulting. Probably the fault fractures served as channels bearing the mineralizing solutions. Prospecting may reveal other deposits of these minerals.

¹ Ekblaw, G. E., Kankakee Arch in Illinois: Bull. G. S. A. vol. 49, 1938, pp. 1425-1430. Reprinted as Illinois State Geological Survey Circular No. 40.