

## Uncommon Occurrences of Some Southern Illinois Minerals

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Near the glacial border in southwestern Illinois, Pennsylvanian and Mississippian strata form the surface rocks, and outcrops are numerous throughout the region. Normally, none of these formations are interestingly mineralized and the occurrence of a few minerals, uncommon at least in this region, has been noted incidental to other field work and is recorded in this paper.

While the Illinois fluorspar mines are among the largest producers in the nation, the occurrence of this mineral is limited to a relatively small area in Hardin and Pope counties affected by a local igneous intrusion. The occurrence of fluorite in limestone at locations not apparently connected with igneous activity is well known but is not a particularly common mode of occurrence, especially in the southwestern part of Illinois.

While the mineral has previously been recorded in the limestones near St. Louis, Missouri, (1) as disseminated grains, fluorite crystals and crystallized masses as large as a watch have more recently been found in Illinois in a Mississippian limestone, tentatively identified on the basis of a few badly weathered corals and other inconclusive field evidence as the St. Louis formation of the Valmeyer series. The location is in Monroe County near the village of Maeystown.

The mineral occurs in two adjacent outcrops of microcrystalline chert or quartz, in and on a structure that in some features resembles an ancient coral reef. No igneous activity is known to have taken place nearer than that of the Iron Mountain area some sixty miles to the southwest in the Missouri Ozarks.

Imperfectly developed cubic crystals, few of which reach half an inch in size, make up the bulk of the crystalline mass; typical octahedral cleavage is shown in most of the specimens. The amber color of the mineral may be due in part to hydrocarbon inclusions as it becomes somewhat lighter on gentle heating, under the argon lamp, however, the crystals show no fluorescence.

Associated with the fluorite in this locality is a platy barite of a white to gray color. No good crystals of the mineral were found and it is quite unlike the better known Washington, Missouri, barite in general appearance. The density of the mineral, taken as an average of several determinations, is 4.32, a bit lower than the accepted value of 4.5 for pure barite.

The massive microcrystalline chert or quartz is grayish white in color and contains coral fossil fragments. Both the fluorite and the

barite occur in crevices in the chert but in such a way that it is difficult to tell whether these minerals were deposited at the same time as the chert or later. No millerite, as was noted (1) in the St. Louis occurrence of fluorite, was seen at either outcrop.

Aside from mention by the writer in a paper for a mineral collectors' journal (2), this occurrence seems unrecorded previously in the literature of the area.

A somewhat unique ferriferous dolomite has been found, apparently as a lining of solution cavities in the Lower Okaw formation of the Chester series (3) in southwestern Randolph County west of Kaskaskia River. Specimens of this mineral are gray to tan in color but are frequently covered with a heavy rusty incrustation on the typical dolomite crystal surfaces.

Otherwise the characteristics are those of a typical dolomite; the hardness lies between 3.5 and 4, slightly greater than siderite, and the density is about 2.9. The luster is best described as sub-vitreous with an occasional faint greenish tinge; this may be due to a surface film of oxidized material. The mineral, except in very thin sections, is practically opaque. Typical curved crystal outlines, coated with the incrustation of iron compounds, are numerous but the cleavage is too indistinct to show consistent angles.

Chemical analysis shows the presence of calcium, magnesium, and ferrous carbonates; little or no manganese is present. This composition is similar to that given for ankerite, the ferriferous variety of dolomite. (4)

While both pyrite and marcasite are abundant in the Pennsylvanian coals and shales, the latter mineral is not, in this part of the Illinois coalfield, in the discoidal form, commonly called marcasite "suns". This type of marcasite has been found to occur in the roof shale of the No. 6 coal, the Belleville coal, in a mine near O'Fallon in St. Clair County. The radiating discs are typical marcasite in structure (5), color, and chemical reactions. So far as is known, this occurrence is limited to the one portion of a single mine in the area.

#### Literature Cited

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