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UNUSUAL CRYSTAL GROUPS FROM GREENE COUNTY, MISSOURI

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Some interesting crystal groups from "King's Butte," Greene County, Missouri, have been described by Ellis (1947) as being pseudomorphs of goethite after twinned pyrite crystals. These groups, when well developed, consist of three tabular crystals oriented at right angles to one another. The tabular crystals are themselves twinned and exhibit chevron shaped striae, such as are often seen on marcasite. Two other sets of striae, one in the centers of the blades and the other on their ends, are also present. Figure 1 illustrates a crystal group of this nature.

Ellis based his identification of pyrite as the original mineral on the pronounced cubic symmetry of the groups and an x -ray diffraction pattern of unaltered material from the centers of some groups. Further investigation of this material has revealed that the tabular crystals were

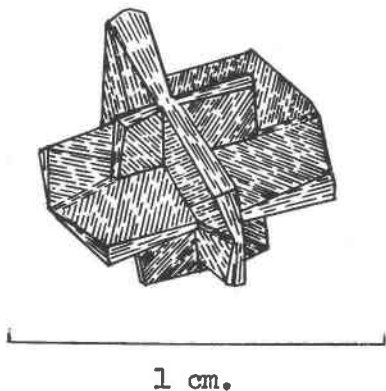


FIG. 1. Drawing of a crystal group from King's Butte showing the mutually perpendicular blades which exhibit chevron and other twinning striae.

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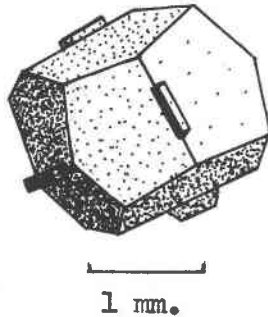


FIG. 2. Sketch of pyrite pyritohedron with oriented marcasite crystals.

formerly marcasite rather than pyrite. This identification is based on an *x*-ray diffraction pattern of unaltered material found in the ends of a few blades. The cubic symmetry of the crystal groups is accounted for by the fact that the bladed marcasite crystals are oriented overgrowths on pyrite. The marcasite crystals are attached to the pyrite at the intersection of pyritohedron faces where this line of intersection coincides with the cube face. A few small specimens showing the early stages of this overgrowth were found at King's Butte. One of these is illustrated in Fig. 2.

In view of this new information, the crystal groups would probably be better described as goethite pseudomorph after twinned oriented overgrowths of marcasite on pyrite. A somewhat similar phenomenon has been reported in the case of wurtzite oriented overgrowths on sphalerite (Mitchell and Corey, 1954).

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