

by reflected light. In ten of them no trace of gold could be detected, but in the other two both from the same hand specimen, a few little bright yellow spots having exactly the color of gold could be distinctly seen in three of the pyrite grains. These spots were quite different in color from the pyrite and easily distinguished from it. Figures 2 and 3 represent two of these grains of pyrite with their inclusions of gold. In order to make certain of the character of the yellow spots, the cover was removed from one of the sections and a portion of the section containing the grain of pyrite seen in figure 3 was removed to a clean glass slide and treated with hot concentrated nitric acid. The acid was found to dissolve away the pyrite with effervescence leaving the bright yellow spangles of gold behind. The gold therefore occurs in part at least, in a free state and imbedded in the pyrite; no gold could be detected except in the pyrite. The zeolite mentioned as occurring in the rock is present in small amounts and is not seen in every section. It is evidently secondary, occurring in small irregular-shaped masses as a microcrystalline aggregate.



FIGURE 2.
Grain of pyrite holding inclusions of native gold, magnified 43 diameters.



FIGURE 3.
Grain of pyrite with inclusion of native gold.

The individual grains were too small to allow its optical character to be determined. The cover was however removed from one section containing it and the rock was treated with concentrated hydrochloric acid in the cold for half an hour. On treating with fuchsin the aggregate was found to take up the coloring matter readily, showing that it had been decomposed by the acid and is probably one of the zeolites.

It is a matter of difficulty to determine whether any cases of secondary enlargement are to be found in the sections. I believe however that in some cases the broken fragments have commenced to grow again by secondary deposition of material around their edges, although on account of the ragged character of the latter due to breaking away of fragments by crushing, it is very difficult in some cases to determine whether an irregular boundary is the result of crushing or of a secondary growth. The outline of some grains is very similar to that of a feldspar crystal showing secondary enlargement which is figured (Fig. 1, b.) in the preliminary notice of a paper on the Archean Geology of Missouri by Erasmus Haworth, (John Hopkins University Circulars, No. 65, April 1888). The feldspar of the rock is generally much clearer and more transparent along the borders of the veins and irregular masses of secondary quartz. In one case an individual of decomposed plagioclase was observed which was very clear and fresh