Under present conditions it does not appear feasible to mine pyrite at any of the localities where it is known to occur.

OCHER

Ocher is one of the minor mineral products of Lehigh County. It has been produced over a long period of years from several localities, but the production has always been small and spasmodic. The material is low grade.

The term "ocher" has been used in so many different ways that, at the present time, there is considerable confusion in regard to its correct usage. No sharp line has been drawn between ochers and iron ores, and at one time an important suit in the courts of Cuba involving the ownership of extensive iron deposits hinged upon the definitions of these two substances. Certain it is, however, that they may possess similar qualities and that one may pass into the other by slight gradations. Certain materials are undoubtedly applicable either to the production of pig iron or the manufacture of paints, while on the other hand certain substances that are suitable for paint possess little or no value for the production of iron and vice versa.

In this country the term ocher has been applied to red, yellow, and brown earths that owe their color to oxides of iron, but in Spanish the term is applied only to the yellow earths. The yellow ochers are so much more abundant, however, that when the term is used without any modifying term it is generally understood to refer to the yellow ochers only.

The physical character of all ochers is the same, viz., loose, earthy, and pulverulent. The chemical composition varies, however, according to the different colors.

Yellow or ordinary ocher contains as its essential constituents clay (hydrated aluminum silicates) as the base and limonite (hydrated ferric oxide) as the coloring matter. Some materials high in iron oxide and low in alumina and combined silica have been classed with the ochers by some writers but there is now a decided tendency to eliminate from the ochers those substances that are unusually high in iron. Materials containing over 30 percent of iron are classed with the iron ores and those of lower iron content are called ochers provided they have the proper physical character and the chemical composition agrees in other respects. Thus ocher is essentially a variety of clay and is so described by Pirsson ¹ who says:

"When pure it (clay) is white, but it is generally colored red or yellow by iron oxides, forming red and yellow ochers." A report of the Scientific Section of the Paint Manufacturers Association of the United States ² says "ocher is an hydrated ferric oxide permeating a clay base. It has a specific gravity of about 3.5, and a decidedly golden yellow color. A good quality should contain 20 percent or over of iron oxide."

Yellow ocher is found in nature and cannot be produced artificially. It is either marketed in its raw condition or burned to form red ocher, the burning process converting the iron oxide into the anhydrous state.