PLATE 16.

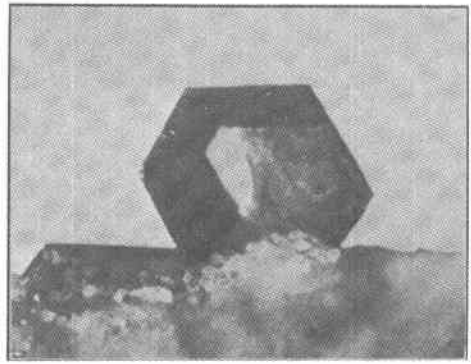

FIG. 1. PYRRHOTITE. MAGNIFIED 19 DIAMETERS.

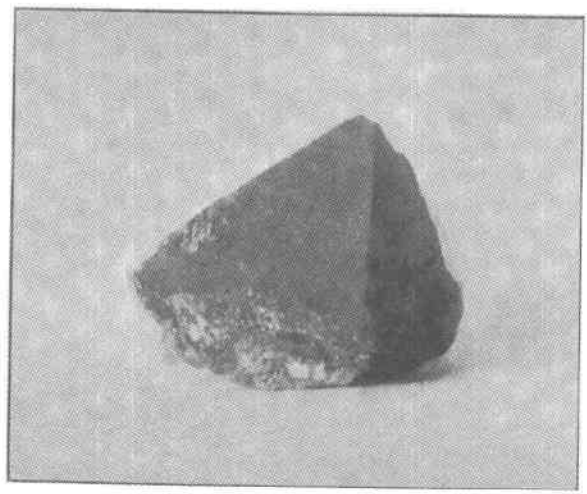

FIG. 2. MAGNETITE. $\frac{5}{6}$ SIZE.

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FAMOUS MINERAL LOCALITIES: YUMA COUNTY, ARIZONA

WM. F. FOSHAG

U. S. National Museum.

Many collectors have seen and admired the beautiful wulfenite specimens from Yuma County, Arizona, but it has been the lot of very few to visit this locality. This is due to the rather inaccessible location of the mines, set as they are some 40 kilometers (25 miles) from the railroad in the midst of typical Arizona desert country. The country is of interest to the botanist as well as to the geologist; the flora, tho sparse, is highly unique. The giant cactus and the stalky ocatilla with its brilliant crimson flowers are scattered thru the valleys, while the ironwood trees and the leafless palo verde appear on the banks of the dry streams. The Red Cloud Mine may be reached from Yuma by road up the valley of the Colorado River, or the trip may be made from Dome, taking in first Castle Dome and then the Red Cloud Mine. Castle Dome is 40 km. from Dome, and can be easily made by auto, but the road thence to the Red Cloud Mine is difficult, and the outsider needs the guidance of some one familiar with the country.

The rocks of the region consist chiefly of clay slates, partially converted into mica schists by regional metamorphism. Into and thru this schist is intruded the mass of andesite that makes the Castle Dome Mountains and, cutting thru here and there, produces the ore-bearing veins. The ore bodies are typical and well-defined veins, and have derived their material from exhalations from the intruded andesite.

Two types of wulfenite are found, the bright orange red crystals from the Red Cloud Mine, and the small lemon yellow ones from the Castle Dome mines. The two types are found in two different sorts of vein fillings.

The orange red crystals are, as above stated, from the Red Cloud Mine. The gangue is a very much crushed silica filling, partly crystallized quartz, partly chalcedony. Calcite also occurs, and the whole is dusted over with brown manganese oxides. The wulfenites are found in the cavities and interstices, loosely attached by edge or corner, so that a sharp blow breaks off many of the larger crystals. The crystals reach a size of 3 cm. or more, are thick tabular and of a brilliant luster. They are simple in habit, the base and pyramid being the usual combination. Excellent specimens and many loose crystals can still be obtained from the pillars in an old stope that has reached the surface. No other mineral of interest was noted at the time of the writer's visit.

The Castle Dome mines are about 35 kilometers east of the Red Cloud Mine. Here are several small mines and numerous prospect holes. The ore is galena, the gangue mainly fluorite. Calcite, barite, and gypsum also form a considerable part of the gangue. The gypsum is later than the other minerals and some veins have but a narrow seam of fluorite on each wall, with the filling completed with gypsum. The fluorite is in green masses; crystals are common. Where this fluorite has been exposed to the sunlight it has lost its green color and taken on a delicate pink hue. The barite occurs as platy masses, but rarely large clear crystals are found in the cavities. The wulfenites are of a bright lemon yellow color, and tho small, are brilliant and well formed. The common habit is first and second order pyramids and a large base. They range up to 1 cm. in size and are profusely scattered over etched crystals of anglesite, making very showy specimens. These wulfenites are not always obtainable, but good specimens of crystallized fluorite and masses of barite are abundant.

New Books

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Manual of the chemical analysis of rocks, by H. S. Washington. 3d edition. Wiley, 1919.

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