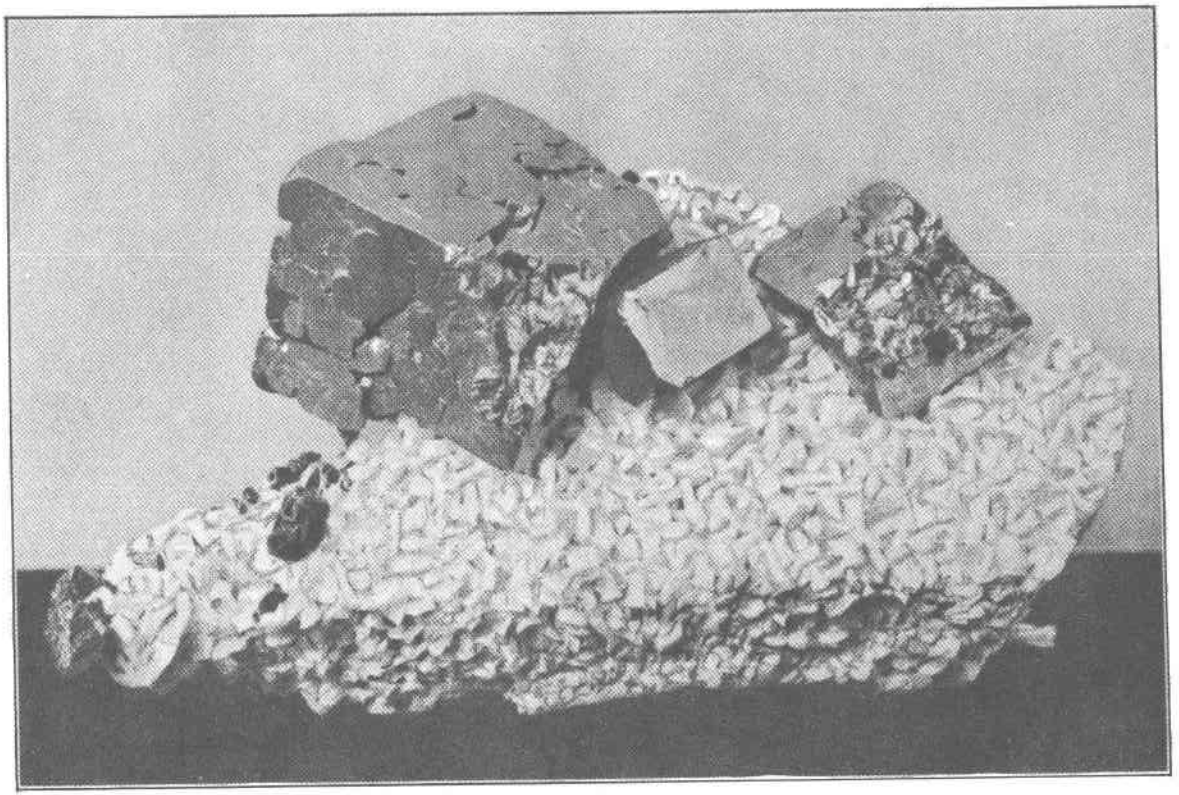
PLATE 4.



GALENITE ON DOLOMITE, JOPLIN, MISSOURI. (× ⅓.)

Florence P. Manchester Memorial Collection, Fall River, Mass.

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ARSENOPYRITE TWINS FROM NEW MEXICO

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While looking over the property of the Romaho Mining Company in the Tres Hermanas Mountains of New Mexico, the writer found a number of arsenopyrite crystals, which seem to be worth recording, both because of their form, and of the fact that none have hitherto been noted from this locality.

The crystals occur in a fault zone in quartz porphyry, where the rock has been much altered by hydrothermal action, and converted into a material that resembles kaolin. The arsenopyrites are disseminated thru the clayey rock together with small crystals of pyrite, sphalerite, galenite and chalcopyrite, as well as grains of unaltered quartz.

The arsenopyrite forms either simple crystals or twins, the latter being either cruciform or star-shaped. The simple crystals are four to five millimeters long, with a width parallel to the macro-axis of a little more than half the length, thus showing an elongation parallel to the "c" axis. The habit of the crystals is very simple, consisting of the unit prism and basal pinacoid, no other forms being noted. While the individuals are well formed and show fairly smooth faces to the eye, a microscopic examination shows that the main surfaces are curved and irregular, due to vicinal planes. The interfacial angles vary somewhat from those usually given, the prism angle $m : m$ being 67°5′, and the macrodome angle, as determined from the twinning, being 57°51′. These facts bear out the statements of Goldschmidt[1] to the effect that in twinned crystals of arsenopyrite the forms are usually simple, and that the angles show a variation from the normal.

The twinning plane in all the crystals examined is parallel to the macrodome (101), and while the cruciform twins are common, the triplets are quite rare. A twin is shown in fig. 1, p. 86.

[1] Abstd. in *Am. Min.* **5** (2), 41, 1920.

A determination of the specific gravity gave a value of 5.88 which is somewhat low for arsenopyrite, but is probably due to the presence of included pyrite. Small crystals of the latter were found not only attached to some of the crystals of the former, but examination of a polished surface of the arsenopyrite crystals showed that these contained microscopic grains of pyrite.

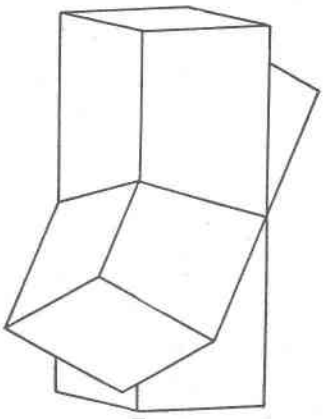

FIG. 1.

At first the crystals were suspected of being a copper mineral, since before the blowpipe they gave a strong copper reaction. An electrolytic determination on some crystals showed 0.2% of copper, while others showed none. A spectroscopic test, kindly made for the writer by Dr. Papish, gave a strong copper line, indicating that this element was probably present, in the crystal examined, to the extent of 1%; (altho exact results cannot be obtained by this method). It appears, therefore, that the copper is present in variable amounts, no doubt due to inclusions of chalcopyrite. No other foreign element showed in the spectroscope. A complete analysis was not made because of the known inclusions of pyrite and the suspected inclusions of chalcopyrite, which it was impossible to separate.

THE IDENTITY OF "COLLBRANITE" WITH LUDWIGITE

EARL V. SHANNON[1]

U. S. National Museum

The name collbranite was proposed by D. F. Higgins[2] for a mineral occurring in contact-metamorphosed limestone in the Suan Mining Concession in Central Korea. The following remarks are quoted from the original article:

[1] Published by permission of the Secretary of the Smithsonian Institution. [This mineral was included in the doubtful and discredited silicate list in our recent tabulation (6 (1), 17, 1921); it should be transferred to the borates, as shown in the present article. ED.]

[2] Higgins, D. F., Geology and Ore Deposits of the Collbran Contact of the Suan Mining Concession, Korea, *Econ. Geol.*, 13, 19, 1918.