

Further Notes on Enargite.

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WHEN I submitted my Paper on Enargite (*Min. Mag.* Vol. vi. p. 49) to this Society, I was unable to give the exact locality of the mineral. As the territory of Montana embraces a considerable extent of land, I was therefore desirous of ascertaining the position of the mines yielding the ore.

Having during the past summer had the opportunity of visiting the locality, I am now able to give some further particulars.

I have found it at the Liquidator Mine in Silver Bow county, near Butte City, also at the Gaquon mine. At the Liquidator it is associated with iron pyrites, Covelline, and Bornite, and seems to constitute a large proportion of the ore raised.

At the Gaquon mine it is associated with chalcocite containing silver. I did not find any at the famous "Anaconda" mine; but as they were then working on the rich lead of the lode (only a portion thereof) which was almost a pure chalcocite, containing about 35 oz. silver per ton, it is quite possible that the mineral will also be found there.

I also found it in the Parrot and Colusa ores, although these are as a rule free from arsenic.

The mineral therefore seems rather widely diffused, and as I was informed on good authority that it was also found near Marysville, in Lewis and Clark county, it is probable that it is rather a common ore in the district.

The specimens from the Gaquon mine are interesting, as they show several crystals. Some are rhombic prisms about $\frac{1}{8}$ inch across and $\frac{1}{4}$ long, with only the prism and basal pinacoid developed, while others are truncated, and thus give some planes of the pyramids. The very perfect cleavage and deep striations are characteristic of the mineral throughout the district.

As these deposits of Montana are comparatively superficial, I searched very earnestly for some indications of decomposition and its results; for, as all mineralogists well know, it is here we may look for interesting and new compounds. I was unable to meet with any thing however in the locality, but in some ores from the Mammoth Copperopolis mine in Nevada, where

I also found some Enargite in a decomposed state, we meet with several minerals of extreme interest.

I have here specimens of olivenite, Chenevixite, Cornwallite, conichalcite, from this mine, also probably Bayldonite, though as I have only the simple blowpipe tests to rely on, which confirm the rough determinations of my mining friends in America, I do not feel certain that all these names will be maintained after chemical analysis. They are undoubtedly hydrated arseniates of copper, and some contain lead. Olivenite and Chenevixite are certainly there, but as for the others I am not positive, though I do not care to dispute the miner's determination; cacoxenite also appears to be present.

About ten years ago, a sample parcel of ore from Mammoth Copperopolis was sent to Liverpool, which yielded a high percentage of copper. From this I obtained azurite, chrysocolla, and another copper mineral which then puzzled me extremely. I found it was an arseniate of copper with chloride of copper intermixed. It was with pleasure I found, about two years since, that there was an almost similar specimen at the British Museum, labelled Cornwallite. It is probable, therefore, that a considerable quantity of this mineral has been raised during the past decade from Nevada.

Enargite has thus been found in most of the states and territories lying about the range of the Rocky Mountains, and I fully expect to hear of our American friends finding some remarkable combinations, when this ore is found in close proximity to their seemingly boundless deposits of lead minerals.
