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EPIBOULANGERITE FROM MONTANA

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ON June 10, 1916, while visiting the surface plant of the Iron Mountain Mine, a property of the Federal Mining and Smelting Co., located on Flat Creek, 3½ miles north of Superior, Montana, the writer noticed that all of the zinc ore being mined and milled at the time was intimately intergrown with a steel-gray mineral resembling stibnite. Inquiries were made of the assayer at the mine and he stated that the mineral contained lead. Believing the mineral to be jamesonite, the writer spent some two hours watching the ore as it passed over the sorting belt, and selecting the purest pieces.

The ore being mined at the time all came from the so-called "Zinc Vein," a sphalerite vein, practically free from galena, which is parallel to, and only 30 to 50 feet from, the main vein, a galena vein practically free from zinc. The ore as seen at the mill consisted of fine-grained sphalerite, ranging from steel-black, thru various shades of red-brown to a pale straw-yellow color. The latter variety is by far the most abundant. The gangue is glassy bluish to white quartz. The sulfantimonite is scattered in small grains and needles thruout the sphalerite and the quartz of the gangue, the grains being, for the most part, 1 mm. or less in diameter. The mineral reaches its greatest development, however, in certain bunches of pure white quartz which are apparently slightly later than the main mass of the vein. Here the steel-gray mineral occurs as bunches of needles and fibrous masses, some of which reach several inches in diameter. It is associated with coarse-granular black sphalerite. The only other minerals noted were very rare grains of buff siderite and a little pyrite and pearly smears of sericite on cracks. That the quartz and the sulfantimonite were contemporaneous is proved by the fact that quartz crystals, which occasionally line cavities

in the massive quartz, are filled with variously oriented needles of the other mineral. Altho the needles of the gray mineral project into open cavities and appear to be terminated, a careful search of the material at hand failed to reveal measurable crystals.

Selected steel-gray fibers are soft, having about the hardness of gypsum, and are moderately brittle, breaking at right angles. The streak is blackish lead-gray. The specific gravity was found by means of a Jolly balance to be 6.303 (average of two determinations). A partial analysis on selected material gave Pb 52.74, Sb 20.85%.

While the results are not entirely conclusive, this seems to be closer to the rare species epiboulangerite, than to any other of the difficult group of sulfosalts. The above value for lead is the mean of three closely agreeing determinations and is much too high for jamesonite. The close agreement between this and the analyses of epiboulangerite from Altenberg, Silesia, by Websky, as given in Dana's Mineralogy, is shown in the following table:

TABLE 1

	1	2	3
S		21.89	21.31
Sb	20.85	20.77	20.23
Pb	52.74	56.11	54.88
Ni		0.20	0.30
Fe		0.60	0.84
Zn		0.29	1.32
Specific gravity	6.303		6.309

1. Acicular needles in quartz, Iron Mountain Mine, Montana.
2. Granular epiboulangerite, Altenberg, Silesia.
3. Needles of epibculangerite, Altenberg, Silesia.

The mineral from the Iron Mountain is thus provisionally considered epiboulangerite. A study under the reflecting microscope of a polished section of the material analyzed showed it to be free from impurities. The Iron Mountain mine is closed at present and filled with water, and, in all probability, will never be reopened. The abundant occurrence of this rare sulfantimonite there is, however, worthy of record.

According to a report which has appeared in the daily press, Professor Freeman F. Burr, who has recently been appointed State Geologist of Maine, has just completed a report on the mineral resources of that state. At least 86 species are known to occur in the state, and some deposits of commercial importance are represented. Twelve pegmatite quarries are being worked.