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## LAVA CREEK SILVER-BASE METALS, IDAHO

Alfred L. Anderson, 1946: Epithermal mineralization at the Last Chance-Hornsilver mines, Lava Creek District, Butte Co., Idaho. GSA Bull. v. 57, 1174-1175.

The epithermal deposits in the Lava Creek district are confined to a zone of structural weakness in Tertiary volcanics which facilitated intrusion of Miocene magma and circulation of ore-bearing solutions. After widespread sericitization, chalcedonization, pyritization, and local aluminization had initiated the first of two main stages of mineralization, pyrite, marcasite, sphalerite, wurtzite, galena, and chalcedony were deposited from solutions whose flow was controlled by minor structural adjustments at the source and along the channelways. Following a more marked structural reopening a second assemblage consisting of minor and variable amounts of quartz, barite, pyrite, stannite, tetrahedrite, famatinite, enargite, klaprothite, chalcopyrite, aikinite, and dickite were added. Lack of equal permeability of fracture zones during mineralization resulted in considerable variation in substance of individual lodes. Those of present commercial interest contain a notable concentration of lead and zinc sulfides.

Characteristics of the mineralization indicate that the early solutions were alkalic and moderately hot but with the formation of alunite they became and remained acidic and mostly below 135 C. Intimate associations of pyrite-marcasite and sphalerite-wurtzite afford evidence of a delicate balance between temperature and acidity with some fluctuations of one or the other and a gradual rise in temperature at the close of the stage. Colloform structures in the iron and zinc sulfides suggest colloidal phenomena. Solutions remained acid during the second stage of deposition but had a higher temperature than during the earlier stage.