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DISCUSSIONS OF "ELECTRON PROBE ANALYSES OF COPPER IN MENEGHINITE" BY KURT FREDRIKSSON, *Am. Mineral.* **49**, 1467-1469

ERWIN HELLNER, *Mineralogical Institute of the University, Marburg/Lahn, Germany.*

Fredriksson has shown in the mentioned paper that Cu is evenly distributed in meneghinite and that it is therefore part of the chemical composition with the formula $\text{Cu}_2\text{Pb}_{26}\text{Sb}_{14}\text{S}_{48}$ (or $\text{CuPb}_{13}\text{Sb}_7\text{S}_{24}$) as proposed by Berry and Moddle (1941).

In 1960 Euler and Hellner presented the result of the crystal-structure determination of meneghinite for the subcell $a=11.363$, $b=24.057$, $c=4.128$ Å. The formula $\text{Pb}_{12}\text{Sb}_8\text{S}_{24}$ without Cu was used at the beginning of least square method; it changed till the end to $\text{Pb}_{13}\text{Sb}_7\text{S}_{24}$; in the last Fourier synthesis one Cu atom, distributed statistically on a 4-fold position, appeared in a tetrahedral hole. Therefore we assumed Cu to be necessary in the composition of meneghinite and derived the formula $\text{CuPb}_{13}\text{Sb}_7\text{S}_{24}$. A further argument was given by Robinson (1948), when he could not find meneghinite as a phase in the pure system $\text{PbS-Sb}_2\text{S}_3$.

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