

Mineralographic Report on the Contact Group,

Hand Specimens

The large ~~and~~ number of hand specimens showed a surprising variety of minerals and a black sooty oxidation products. Minerals seen were: galena, magnetite, sphalerite and pyrrhotite ^{with} jarosites (?) or limonite and pyrrhotite as oxidation products. The hand specimens were not studied in detail.

Microscopic Examination

The purpose of the problem was to attempt to identify the minerals which exist as inclusions in the galena. Therefore, only those sections which showed a profusion of such inclusions were examined in detail.

Minerals seen and their diagnostic properties are as follows.

	HgCl ₂	KOH	KCN	FeCl ₂	HCl	HNO ₃	Other Features
Galena	neg	neg	neg	irr.	irr.	blackens flames tarnish	triangular pits
Sphalerite	neg	neg	neg	neg	neg		poor internal reflection
pyrrangyrite	pos	pos	neg	neg	neg	neg	blue color & strong red internal reflection
Dyscrasite	browns	neg	neg	irr	neg	pos	
Chalcopyrite	neg	neg	neg	neg	neg	neg	light yellow colour & association with sphalerite
Tetrahedrite	neg	neg	neg	neg	neg	neg	identified by x-ray.
Matrix Sb	pos	neg	pos	pos	pos	pos	
Unknown I	neg	neg	slowly pos.	neg	neg	neg	aqueous regia - neg, isotropic, Hardness C
Unknown II	neg	neg	neg	neg	neg	neg	strong bluish green to brown anisotropism. - bournonite?
Unknown III	neg	pos	pos	neg	pos	pos	distinct anisotropism, crystal texture.

Comparison of these results with those of Wilson shows agreement in all etch tests. Wilson's suspicion of tetrahedrite as one of his unknowns was confirmed by x-ray. The only major difference with Wilson is the recognition of another mineral inclusion in the galena. It is referred to as Unknown II in this report and has been tentatively identified as bournonite.

The Chalcopyrite exists as blebs included in the sphalerite and as narrow rims on the sphalerite. Tetrahedrite in places is also seen rimming sphalerite. Pyrrargyrite is seen as veinlets filling cleavage fractures in galena and occasionally as blebs in sphalerite or galena.

The dyscrasite and Native antimony occurs as occasionally euhedral grains in the galena. These grains may be surrounded by tetrahedrite.

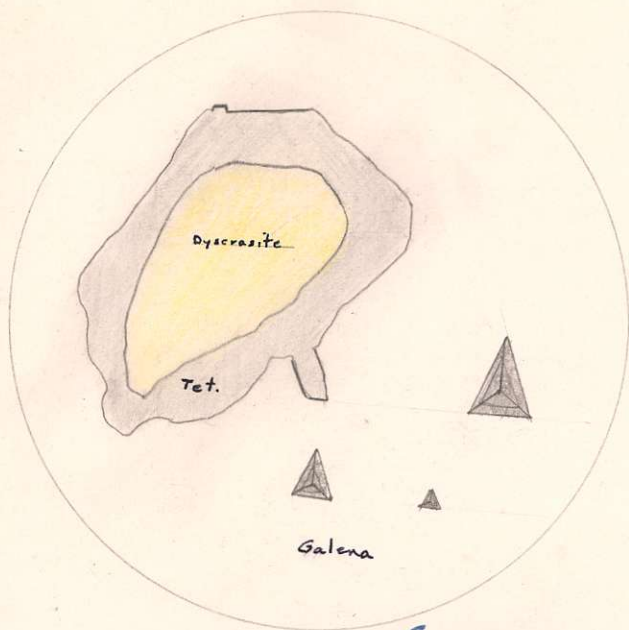
The ~~the~~ first two unknowns (I & II) and tetrahedrite occur as vermicular inclusions in the galena. In places these are aligned to form a Widmanstätten texture.

Unknown III occurs as ^{small} white euhedral grains in the galena. It appears to be in small crystals but shows no preferred orientation.

Paragenetic Sequence.

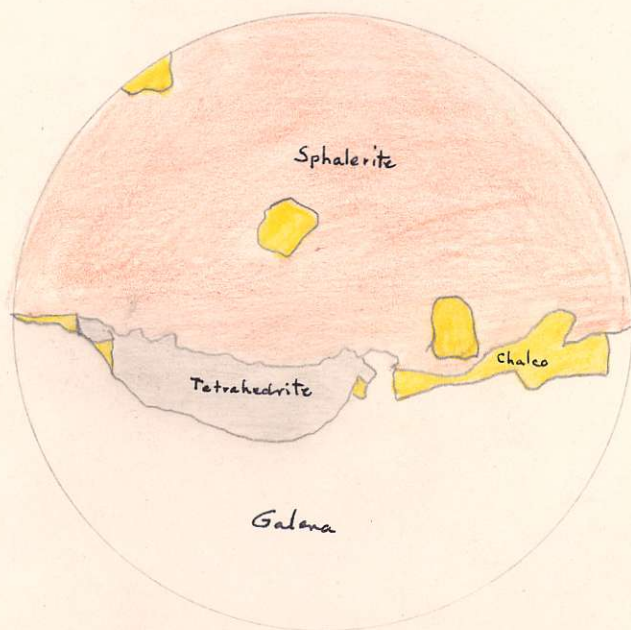
It is perhaps unwise to definitely state a paragenetic sequence from the examination of so few sections which do ~~did~~ not show all the minerals in the deposit. The paragenesis of the minerals observed appears to be

- 1 sphalerite - with exsolution chalcopyrite and tetrahedrite
- 2 galena - with exsolution of Unknowns I & II and tetrahedrite
- simultaneous or later than unknown III
- 3 Pyrrargyrite

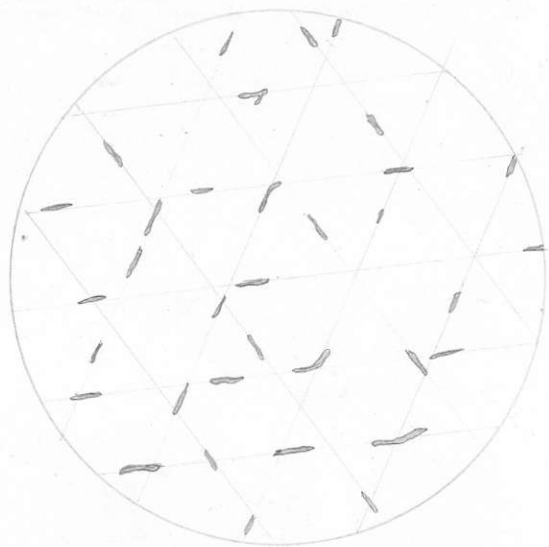


Grain of dyscrasite rimmed by
tetrahedrite in galena

Scale?



Sphalerite - galena boundary
showing exsolution rims of
tetrahedrite and chalcoppyrite
and disseminations of chalcoppyrite
in sphalerite.



Sketch showing alignment of
vermicular gray grains of tetrahedrite?
Unknown I (?) and/or Unknown II?
in galena. Seen in only parts
of section and then best after
staining galena with HCl fumes.