

not over one millimetre thick and often very much less, with arborescent breithauptite closely set and with little intervening calcite. Other specimens show relatively small patches of breithauptite surrounded by a ground mass of niccolite as though the breithauptite had been the nuclei around which comparatively large quantities of niccolite had precipitated. The specimens richest in cobaltite are characterized generally by rather small and scattered breithauptite areas with calcite more prominent. When native silver occurs it appears to fill cracks which penetrate all the minerals just mentioned.

*Micro-structure of Breithauptite.*—After etching with nitric acid the breithauptite appears as a dark porous massive surface containing numerous minute irregular inclusions of niccolite which stand in bright relief (Fig. 8). The breithauptite areas with their coating of niccolite and cobaltite and the calcite filling in the spaces between this arborescent complex may be seen in Figures 9, 10 and 11. No inclusions of any mineral other than niccolite were observed in the breithauptite.



Fig. 11. The same structure as shown in Fig. 9. A few dark breithauptite inclusions in the niccolite may be noted. As before, the black vein-like band represents deeply etched calcite. (x 50).

which with this exception appears to be quite uniform and pure. Neither breithauptite nor niccolite exhibit any evidence of crystal form or structure. These structures suggest a simultaneous precipitation of breithauptite and minor quantities of niccolite as the first of the minerals to be deposited.

*Micro-structure of the Niccolite.*—The niccolite, which occurs as a narrow coating on the breithauptite appears to be quite pure, and has the closely granular appearance typical of a pure metal or mineral. In the more massive areas it contains inclusions of breithauptite which here also tend to be arborescent and appear to have been the nuclei around which the niccolite was deposited (Fig. 12). It also contains inclusions of cobaltite (Fig. 13). From the structures seen in Figs. 9, 10 and 11 the niccolite seems to have come down in maximum quantity after the breithauptite had been entirely precipitated.

*Micro-structure of the Cobaltite.*—This mineral occurs as a thin coating on the niccolite (Figs. 9, 10 and 11). It appears to have an extremely fine granular structure and may at times contain a few small inclusions of niccolite. The surface next the calcite is sometimes crystallized in cubes as previously mentioned. From