what appears to be breithauptite and possibly of cobaltite, though the latter cannot be identified with certainty because of the nearly square cross-sections of the rammelsbergite crystals, which simulate the cubic crystals of cobaltite.

An analysis of the rammelsbergite yielded the following results:

| | Ni | Co | Fe | As | S | Sb | Total |
|---|---|---|---|---|---|---|---|
| Per cent. | 27.84 | 1.80 | trace | 67.32 | 2.03 | .83 | 99.82 |

Specific gravity at 20° C. 7.157.
Theoretical composition of rammelsbergite, Ni = 28.12 per cent., As = 71.88 per cent.

The analysis indicates that the material is essentially nickel diarsenide. The slight excess of nickel and cobalt over the theoretical percentage is no doubt due

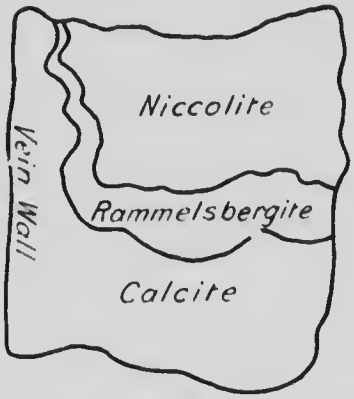


Fig. 24.

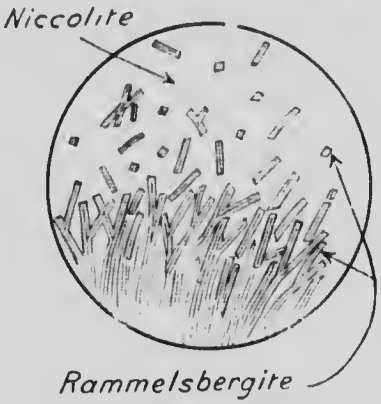


Fig. 25.

Fig. 24. Diagram of rammelsbergite specimen, natural size.
Fig. 25. Drawing of crystallized rammelsbergite at the contact with niccolite, as seen under the microscope.

to the presence of some niccolite, and the antimony is probably in the form of breithauptite associated with the niccolite. The rôle of the sulphur and cobalt is doubtful as cobaltite was not identified with certainty. The long prismatic crystals seen projecting into the niccolite together with the high specific gravity and the well-marked cleavage prove the mineral is the rhombic form—rammelsbergite.

*Paragenesis*—The fact that the rammelsbergite in contact with the niccolite is crystallized, with the crystals embedded in the niccolite would indicate that the niccolite is the later of the two. Such crystallized surfaces may often be seen in banded veins or vugs in which the growth has undoubtedly been from the walls inwards. The small inclusions of niccolite which occur in the rammelsbergite are probably due to simultaneous precipitation of a small amount of niccolite during the formation of the rammelsbergite. The composition of the mother solution which at first precipitated rammelsbergite with a little niccolite, must have altered in such a way that the amount of niccolite formed was increased until only a small amount of rammelsbergite was being precipitated along with the niccolite. At a