

erally calcspar, fluorspar, quartz and metallic silver, and more sparingly, bitterspar, stilbite, prehnite, harmotome, laumontite, anthracite, fibrous pyroxene, chrysolite, asbestos, actinolite, axinite, adularia, and perhaps albite, auriferous silver, metallic gold, horn silver, metallic arsenic, silver glance, red silver ore, galena, blende, magnetic, iron, and copper pyrites. These cross veins are exceedingly well developed within the fahlband, but beyond its limits they exhibit little distinctness or regularity, and moreover are totally destitute of silver. They do not however, while intersecting the fahlband, uniformly contain that valuable metal; on the contrary its occurrence there is almost as uncertain as that of a valuable ore in any other lode, but only within the limits of the fahlband can one expect to find it. The only rule which seems to have been ascertained to exist with regard to its distribution in the vein, within the fahlbands, is this—that where the latter is most strongly charged with the impregnating sulphurets, the vein at that point is richest in silver.

Such are the characters of the Kongsberg silver veins, striking examples of the influence which the wall-rocks exert on the contents of metallic lodes, and little liable to be neglected in theories regarding the filling of such. The connection between the pyritous impregnation of the fahlbands, and the argentiferous contents of the veins, necessitates the deduction that the silver has been derived from the pyrites, and as these have been found to be argentiferous, the deduction assumes the character of a fact itself. As to the mode in which the silver has been secreted various opinions may exist; the most probable appears to me to be the following:—

Through gradual contact with the waters containing oxygen, percolating through the rocks, the sulphurets, especially the iron pyrites, were decomposed, sulphates of protoxide and peroxide of iron, and sulphate of protoxide of silver being the results. The first named salt would be produced in the earlier stages of the decomposition, and removed; the two latter salts, produced towards the end of the process, can exist simultaneously in solution. On reaching the fissure thus, in solution, they were met by some agent capable of precipitating the silver of the sulphate. The agent which seems to me to have accomplished this, is the sulphate of protoxide of iron, already alluded to as a product of the decomposition of the pyrites. The precipitation of silver salts by a solution of copperas, is a well known chemical reac-