

stances which compose these minerals; but always in determinate proportions, either by adding a foreign substance, or by regulating the fusion by the choice of minerals. The combinations which the metallurgist thus produces, are ordinarily minerals which have already been found in nature, sometimes even new species.

During a journey in Sweden, Mitscherlich observed at Fahlun, where he made inquiries regarding the ores, the scoriæ, and in general regarding the extraction of copper, in order to form a correct idea of this operation, not only some well-formed crystals in the scoriæ; but also found that the whole mass of the slag had a crystalline texture; and that the crystals, and the joints of the slags which had a lamellar texture, remained the same at different periods of fusion, provided only that the manner of operating of the metallurgist remained the same. The examination of the crystalline figure of the slag proved, that it was that of a mineral which has a composition analogous to that of the slag. After having made this observation, he found in almost every foundery which he visited in Sweden, different crystalline combinations, which resembled minerals. Thus he found at Fahlun, silicate and bisilicate of protoxide of iron; at Garpenberg, mica, and several times augite and chrysolite. These combinations have not only the same crystalline figures, but also all the other characters of the corresponding minerals.

I have pursued these inquiries, says Mitscherlich, since my return from Sweden; I have analysed the productions which I have found, and the analysis has confirmed what the exterior had led to anticipate. I have also augmented my observations by journeys in various districts