

causes in producing this variation. Perhaps metallic matter was diffused through different rocks according to their elective affinity, and separated from them by voltaic electricity, the different sides of the vein possessing different states of electricity; or, the strata may act like a series of plates in the voltaic pile, separating and secreting metallic matter from its different combinations. Some of the metals and other substances found in veins, are capable of solution in hydrogen gas, and perhaps all of them may be so by natural processes; in this state they may have penetrated the vein, and deposited their contents.

The discovery of the metallic nature of the very earths of which rocks are composed, and the probability that the metals themselves are compound substances of which hydrogen forms a part, open new views respecting the formation of metallic matter by natural processes, which may be within the reach of human power to develop, if not to imitate.

If metallic matter be now forming in mines, the process of its formation is extremely slow; but there are circumstances which appear to prove that it may, in some instances, be perceived. M. Trebra, director of the mines in Hanover, informed a gentleman of my acquaintance, that he had seen a leather thong suspended from the roof of a mine, coated with silver: he has also observed native silver, and vitreous silver ore, coating the wooden supports left in a mine called Dreyweiber, in the district of Marienburgh, which had been under water two hundred years, and was opened in 1777.

From his own observations on mines, M. Trebra was led to infer, that metallic ores are formed by mineral exhalations, or were once in a gaseous state. Mr. Westgarth Forster, a practical miner in Northumberland, states, that at Wolfclough mine, in the county of Durham, which was closed for more than twenty years, and opened again, needles of white lead ore, more than two inches in length, were observed projecting from the walls.

These and other phenomena observable in mines, may convince us, that there are processes going on at present in the great laboratory of the earth, and perhaps there are analogous processes taking place in the atmosphere, which may throw some light on these hidden operations of nature. The formation of saline matter on the surface of walls, is a fact which merits more attention than it has hitherto received. Dr. Kidd, of Oxford, has published some very ingenious observations and experiments on the spontaneous production of nitre on limestone, which may lead to more important results than the learned Professor appears to have anticipated. These experiments show, that neither the alkali nor the acid exists previously in the stone. Nor do they exist, ready formed, in the moisture of the atmosphere, dry frosty weather being particularly favorable to the rapid production of nitre, and moist weather the contrary.