

When a portion of the wall was protected from access to the atmosphere by glass, which projected a little distance from the surface, the formation of nitre went on for a certain time, and then ceased. The saline crystals were better defined, and longer, than on the other parts of the wall. When the wall was coated with paint, crystals of nitre were even formed on the paint. The formation of carbonate of lead on the walls of the mine at Wolfclough, may be analogous to the formation of nitre; and in both instances, the surface of the wall and of the atmosphere, may perhaps be considered as two galvanic plates in action, decomposing and recomposing the elements of metallic or saline matter from the atmosphere, or the gaseous fluids with which it is intermixed. The base of nitre (potassium) is known to be a metal; and could we seize nature in the act of producing a fixed alkali from more simple elements, we might compel her to reveal the process by which she prepares her metallic treasures in the deep recesses of the earth. Nor can the discovery be very remote; for we are already acquainted with the composition of the volatile alkali, and are thereby enabled successfully to imitate nature in its formation.

When the matrix, or the substance which principally fills veins, is a soft unctuous clay, masses and particles of ore are often disseminated through it, varying in size from a pea to that of a large gourd, and they are sometimes even of many ton's weight. Masses of veinstone are also imbedded in the same manner; and it is observed that the masses both of ore and veinstone are of no determinate shape, and have generally the appearance of being corroded. Are we to conclude, in such instances, that the hard minerals and metallic ores, have been formed in the substance of the clay by some peculiar elective affinity, or that they once occupied the cavity of the vein, and have been all subsequently decomposed, except the remaining detached masses? I should be more inclined to adopt the former opinion; but it must be allowed, that there are inexplicable instances of the disappearance of minerals which formerly existed in veins.

The formation of one mineral upon the crystals of another, and the disappearance of the crystal which has served as the mould, is indeed a common phenomenon in many English mines. I have before me a mass of rock crystal from Durham, formed on cubic fluor spar; but the crystals of the latter have entirely disappeared, leaving nothing but the impression of their form. In the mines of Derbyshire, incrustations of calamine are formed on calcareous crystals, taking the shape of the dog-tooth spar; but in these false crystals, no trace of the interior crystal is left. Certain local causes also appear to influence the crystallization of minerals in different districts, and to dispose them to take peculiar secondary forms, which may be considered as appropriate to the minerals of that district. The pyramidal crystallization of carbonate of lime, called the dog-tooth spar (*chaux carbonatée metastatique* of Haüy,) is abundant in some