

externally by the slow action of the vapours of sulphurous acid gas. These vapours rise in abundance; and what is rather remarkable, through crevices which seem to have no communication with the apertures that emit aqueous vapours. We may be convinced of the presence of the sulphurous acid, by examining the fine crystals of sulphur, which are everywhere found in the crevices of the lava. This acid, combined with the water with which the soil is impregnated, is transformed into sulphuric acid by contact with the oxygen of the atmosphere. In general, the humidity in the crater of the peak is more to be feared than the heat; and they who seat themselves for a while on the ground find their clothes corroded. The porphyritic lavas are affected by the action of the sulphuric acid: the alumine, magnesia, soda, and metallic oxides gradually disappear; and often nothing remains but the silex, which unites in mammillary plates, like opal. These siliceous concretions,* which M. Cordier first made known, are similar to those found in the isle of Ischia, in the extinguished volcanoes of Santa Fiora, and in the Solfatara of Puzzuoli. It is not easy to form an idea of the origin of these incrustations. The aqueous vapours, discharged through great spiracles, do not contain alkali in solution, like the waters of the Geysir, in Iceland. Perhaps the soda contained in the lavas of the peak acts an important part in the formation of these deposits of silex. There may exist in the crater small crevices, the vapours of which are not of the same nature as those on which travellers, whose attention has been directed simultaneously to a great number of objects, have made experiments.

Seated on the northern brink of the crater, I dug a hole of some inches in depth; and the thermometer placed in this hole rose rapidly to 42° . Hence we may conclude what must be the heat in this solfatara at the depth of thirty or forty fathoms. The sulphur reduced into vapour is condensed into fine crystals, which however are not equal in size to those M. Dolomieu brought from Sicily. They are semi-diaphanous octohedrons, very brilliant on the surface, and of

* *Opalartiger kieselsinter*. The siliceous *gurh* of the volcanoes of the Isle of France contains, according to Klaproth, 0.72 silex, and 0.21 water; and thus comes near to opal, which Karsten considers as a hydrated silex.