

that the mineral masses in which they are localised belong especially to amygdaloid rocks or to the basic series.

Another very significant fact may be here noticed, viz., that whereas zeolites abound in basic volcanic rocks they have no such great development in other crystalline rocks. Thus the paste of granites and porphyries, richer in silicic acid than the rocks just mentioned, do not contain zeolites, which are replaced by siliceous concretions, by quartz, chalcedony, and opal. All this demonstrates in a conclusive manner that the waters infiltrated in volcanic masses do not deposit there matters other than those taken up from these very rocks, and that the products of the alteration of these rocks furnish the elements entering into the constitution of the zeolites or other secondary minerals. Water is, then, only an instrument in this regeneration of minerals. At the moment of its infiltration it may not have been charged with any of the elements constituting the secondary products about to be deposited from it; these elements are found ready in the eruptive masses from which the waters take them to abandon them almost immediately in the form of crystals or of amorphous coatings.

The study of contemporaneous phenomena supports the preceding deductions drawn from the observation of eruptive rocks of past geological periods. Daubr e has proved that at Plombi eres water but slightly mineralised has infiltrated into the concrete and masonry by whose aid the Romans had retained the spring, and has there determined the formation of zeolites, among which he has observed crystallised phillipsite. In the vesicles of the bricks and in the cement, the infiltrating water has deposited minerals identical in every respect with those observed in the vesicular rocks of the basaltic series. At Plombi eres better than anywhere else the conditions under which zeolites may be formed are easily observed, and it may be there demonstrated with certainty that the waters depositing the zeolites take the elements from the surrounding medium. There are no traces of zeolites nor of other contemporary minerals in the sandy gravel traversed by the waters before reaching the concrete and masonry, and these formations are absent also in the friable granite found at Plombi eres although submitted to identical conditions as the cement and Roman bricks. We must conclude from these facts, and especially from this localisation, that the very material in which the crystals are deposited furnishes to the water the constituent elements of zeolites, and it is evidently according to the composition or alterability of mineral matters traversed by water that zeolitic matters are extracted, deposited, and crystallised. Granite and gravel, richer in silica, offer more resistance to the solvent action; the water cannot take anything away nor deposit anything there. These modern phenomena then present an exact repetition of those revealed by the study of crystalline rocks of geological formations.

We have given these details of Daubr e's observations at Plombi eres, which he has found to be confirmed at several other thermal springs, because these phenomena present points of comparison which permit us to determine with great probability the origin of