

being only carbonized was a clear demonstration of their having been enveloped, like fossil wood, in a sediment deposited from water. The Academicians, in their report on his pamphlet, assert, that when the amphitheatre was first cleared out, the matter was arranged on the steps, in a succession of concave layers, accommodating themselves to the interior form of the building, just as snow would lie if it had fallen there. This observation is highly interesting, and points to the difference between the stratification of ashes in an open building, and of mud derived from the same in the interior of edifices and cellars. Nor ought we to call the *allegation in question*, because it could not be substantiated at the time of the controversy, after the matter had been all removed; although Lippi took advantage of this removal, and met the argument of his antagonists by requiring them to prove the fact. There is decisive evidence that no stream of lava has ever reached Pompeii since it was first built, although the foundations of the town stand upon the old leucitic lava of Somma; several streams of which, with tuff interposed, had been cut through in excavations.

Infusorial beds covering Pompeii. — A most singular and unexpected discovery has been recently made (1844-45) by Professor Ehrenberg, respecting the remote origin of many of the layers of ashes and pumice enveloping Pompeii. They are, he says, in great part, of organic and freshwater origin, consisting of the siliceous cases of microscopic infusoria. What is still more surprising, this fact proves to be by no means an isolated or solitary example of an intimate relation between organic life and the results of volcanic activity. On the Rhine, several beds of tuff and pumiceous conglomerate, resembling the mass incumbent upon Pompeii and closely connected with extinct volcanos, are now ascertained to be made up to a great extent of the siliceous cases of infusoria, or Diatomaceæ, invisible to the naked eye and often half fused.* No less than 94 distinct species have already been detected in one mass of this kind, more than 150 feet thick, at Hochsimmer, on the left bank of the Rhine, near the Laacher-see. Some of these Rhenish infusorial accumulations appear to have fallen in showers, others to have been poured out of lake-craters in the form of mud, as in the Broll valley.

In Mexico, Peru, the Isle of France, and several other volcanic regions, analogous phenomena have been observed, and everywhere the species of infusoria belong to freshwater and terrestrial genera, except in the case of the Patagonian pumiceous tuffs, specimens of which, brought home by Mr. Darwin, are found to contain the remains of marine animalcules. In various kinds of pumice ejected by volcanos, the microscope has revealed to Professor Ehrenberg, the siliceous cases of infusoria often half obliterated by the action of heat,

* Some of the organic bodies, called by Ehrenberg "infusoria," such as *Galionella* and *Bacillaria*, have been recently claimed by many botanists as belonging to the vegetable kingdom, and are referred to the classes called Diatomaceæ and Desmidiæ.