

should have been rejected and apparently scorned by the very men who ought to have been the first to welcome it. We can hardly wonder, however, that his contemporaries should have refrained from treating this speculation as a serious contribution to science.

And yet though the conclusion was wholly untenable, it must in justice to Lamarck be admitted that he perceived in this matter, far more vividly than any other naturalist of his time, the importance of the part played by plants and animals in effecting geological changes by decomposing mineral matter, and thus modifying the surface of the earth and providing fresh materials for its crust. No one before his day had been able to follow so clearly the successive stages through which organic remains pass until they become crystalline stone, presenting no trace of their original organic structure. He distinguished between the consolidation of stratified rocks through the deposit of fine sediment (*Lapidescence par sédiments*), and through permeation by some cementing material (*Lapidescence par infiltration*).¹ He showed that agates and petrifications are examples of the results of such infiltration, but he came to the singular conclusion that the "elementary earth," "vitreous earth," or silica of the chemists, has been so potent an agent in infiltration that it constitutes the base

¹In this department of his subject Lamarck held much more accurate opinions than Hutton and Playfair, who were so carried away by their view of the efficacy of underground heat, as to believe that flints and agates had been injected in a molten state into the rocks in which they are now found.