

nothing escapes but water and air, and the alteration they thereby receive must for ever remain. Basalts in particular are as fusible as they can be supposed to have ever been.

The second reason that appears to me a demonstration that basalts nor traps are never subjected to the operations of heat is, that they contain substances in a state absolutely incompatible with such operations; for instance, they contain mild calcareous earth, as an essential ingredient in their composition, which must necessarily have been calcined, at least in the superficial parts of those basalts, in a heat much inferior to that which could fuse the basalts. They often contained zeolytes, which must at least have lost their appropriated water; they contain hornblende crystals, which yet are fusible, and consequently destructible in as low a heat as basalt itself; they often contain calcareous spars, which must have been decomposed in the same heat, nay more, neither calcareous spar nor zeolytes are ever found in any modern (that is to say, in any undoubted) lava, as Mr. Dolomieu acknowledges. Ponces, 424.

Neither Mr. Hamilton nor Mr. Voight take any notice of this objection. Mr. Dolomieu endeavours to evade it, by allowing the liquidity of lava not to proceed from fire. With respect to shorls, he expresses himself thus: "It is no longer necessary to refute the opinion of those who have believed that the shorls of lavas were products of fire, and that they were formed either during their fusion or their cooling; it is too evident that their existence preceded the fusion of lava *;" and again, "It will be

* Ponces, 246.

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