the chalk would be fused, and the carbonic acid, released from its present relation with the calcareous particles, would enter into other combinations, and the mass when cooled, be wholly different from the product of the lime-kilns, formed by the same agency in the open air. Experiments have proved that this opinion is correct. Sir James Hall exposed pounded chalk to intense heat, under great pressure, and it was fused, not into lime, but into crystalline marble: even the shells inclosed in the chalk underwent the same transmutation, yet preserved their forms. That analogous changes have been effected by natural operations we have abundant proof; but in this stage of our inquiry it is only necessary to remark, that where ancient streams of lava have traversed chalk, the latter invariably possesses a crystalline structure. We shall hereafter find, in accordance with the beautiful and philosophical theory of Dr. Hutton, that all the strata have been more or less modified by heat, acting under great pressure and at various depths; and that the present position and direction of the materials composing the crust of the globe, have been produced by the same cause.* The Huttonian theory, indeed, offers a most satisfactory explanation of a great proportion of geological phenomena, enabling us to solve many of the most difficult problems in the science; and it is but an act of justice to the memory of an

* See Playfair's Illustrations of the Huttonian Theory, vol. i. p. 33, et seq. Edin. 1822.