

at will produce, from the same mass of bottle glass, either a glass or a stony substance, according to the rate at which he allowed it to cool.

Sir James was too loyal a friend and too devoted an admirer of the author of the *Theory of the Earth* to pursue these researches far during the philosopher's lifetime. "I considered myself as bound," he tells us, "in practice to pay deference to his opinion, in a field which he had already so nobly occupied, and I abstained during the remainder of his life from the prosecution of experiments which I had begun in 1790."<sup>1</sup>

The death of Hutton in 1797 allowed the laird of Dunglass to resume the experiments on which he had been meditating during the intervening years. Selecting samples of "whinstones," that is, intrusive dolerites and basalts, from the dykes and sills in the Carboniferous strata around Edinburgh, he reduced them in the reverberatory furnace of an iron-foundry to the condition of perfect glass. Portions of this glass were afterwards re-fused and allowed to cool very slowly. There was thus obtained "a substance differing in all respects from glass, and in texture completely resembling whinstone." This substance had a distinctly crystalline structure, and Hall gave it the name of *crystallite*, which had been suggested by the chemist, Dr. Hope.

Before he was interested in the defence of the Huttonian theory, Sir James had made a journey into

<sup>1</sup> For Hall's papers see *Trans. Roy. Soc. Edin.* iii. (1790), p. 8 ; v. (1798), p. 43 ; vi. (1812), p. 71 ; vii. (1812), pp. 79, 139, 169 ; x. (1825), p. 314.