

bottom and afterwards be covered up by a deposit of sand or mud." He had himself observed considerable accumulations of "comminuted trappean matter" among the greenstones and porphyries of the older grauwacke of Devon and Cornwall, and was inclined to believe them to represent volcanic ashes ejected at the time that the associated sediments were in course of deposition. He was thus led to suppose "that there had been ejections of igneous matter into the atmosphere or beneath shallow water, and consequently that we might expect to discover similar facts among the other fossiliferous rocks, under favourable circumstances and in different parts of the world."<sup>1</sup>

While these observations were in progress in the south of England, another series on a larger scale was advancing in the Lake District of the north. In that mountainous tract Adam Sedgwick (1785-1873) had spent some years, tracing the intricate structure of the ground, and had found a great group of green slates and porphyries, comprising fine compact slates with coarse granular concretionary masses and breccias or pseudo-breccias; likewise amorphous, semi-columnar, prismatic porphyries, which did not take the form of dykes nor altered the limestone that rests upon them. He therefore "inferred that the whole group is of

<sup>1</sup> *Op. cit.* pp. 384, 385. The "ashes" here referred to are of Middle Devonian age. He also recognised the probable contemporaneous eruption of the trappean rocks associated with the much younger red conglomerate of South Devon which may be Permian. *Geological Manual*, 1831, p. 389. The progress of the Geological Survey in later years enabled De la Beche to add fresh details regarding the Lower Silurian volcanic rocks of Southern Wales. *Mem. Geol. Survey*, vol. i. (1846) pp. 29-36.