

was the seat of powerful forces, by which solid rocks had been rent open and wide regions of land convulsed, were familiar facts, attested by every volcano and earthquake. These phenomena had been for the most part regarded as abnormal parts of the system of nature; by many writers, indeed, as well as by the general mass of mankind, they were looked upon as Divine judgments, specially sent for the punishment and reformation of the human species. To Hutton, pondering over the great organic system of the world, a deeper meaning was necessary. He felt, as Steno and Moro had done, that the earthquake and volcano were but parts of the general mechanism of our planet. But he saw, also, that they were not the only exhibitions of the potency of subterranean agencies, that in fact they were only partial and perhaps even secondary manifestations of the influence of the great internal heat of the globe, and that the full import of that influence could not be understood unless careful study were given also to the structure of the rocky crust of the earth. Accordingly he set himself for years patiently to gather and meditate over data which would throw light upon that structure and its history. The mountains and glens, river-valleys and sea-coasts of his native country were diligently traversed by him, every journey adding something to his store of materials, and enabling him to arrive continually at wider views of the general economy of nature. At one time we find him in a Highland glen searching for proofs of a hypothesis which he was convinced must be true, and, at their eventual discovery, breaking forth into such gleeful excitement that his attendant gillies concluded he must certainly have hit upon a mine of gold. At another time we read of him boating with his friends Playfair and Hall along the wild cliffs of Berwickshire, again in search of confirmation to his views, and finding, to use the words of Play-