

tained in the present day that the metamorphism of rocks over areas of any but very moderate extent is due to the intrusion of veins and erupted masses. The insufficiency of such agency becomes the more obvious when we consider the slight effects produced by even tolerably extensive outbursts, such as the Dartmoor granite; while in the case of the Malverns there is an absence of any local cause whatever. The more probable explanation in the case of these larger areas is, that they were faulted down, or otherwise depressed, so as to be brought within the influence of the earth's internal heat, and this is the more likely as they belong to an epoch when the crust is believed to have been thinner." When it is considered that, according to the doctrine of modern geology, the Laurentian rocks, or their equivalents, lie at the base of all the sedimentary deposits; that this, like other systems of stratified rocks, was deposited in the form of sand, mud, and clay, to the thickness of 30,000 feet; and that over an area embracing Scandinavia, the Hebrides, great part of Scotland, and England as far south as the Malverns, besides a large proportion of the American continent, with certain forms of animal life, as recent investigations demonstrate—can the mind of man realise any other cause by which this vast extent of metamorphism could have been produced?

Electric and galvanic currents, circulating in the stratified crust, are not to be overlooked. The experiments of Mr. R. W. Fox and Mr. Robert Hunt suggest that, in passing long-continued galvanic currents through masses of moistened clay, there is a tendency to produce cleavage and a semi-crystalline arrangement of the particles of matter.*

* Report of the Royal Cornwall Polytechnic Society for 1837. Robert Hunt, in "Memoirs of the Geological Survey of Great Britain," vol. i., p. 433.