

Fusion obliterates all or most of the marks of earlier states of material arrangement, and it is only in a few cases that direct or indirect evidence remains, by which to form a correct judgment respecting them. Granite *may* have been derived from the fusion of previously formed strata, a mode of origin confidently ascribed to certain ancient porphyritic rocks, and probable with regard to some modern lava. The origin of all natural phenomena is obscure; and with regard to the rocks above named, and others like them, all that it is now necessary to admit, is that, through whatever previous conditions the matter of which they consist has passed, their last combination, in which they now appear, has been caused by the agency of heat.

*Geological Age.*—Heat, though a simple cause, is productive of most complicated effects; not only because of the unequal action of different degrees of heat, or the various habitudes of the substances operated on, taken singly or in combination, but because extraneous circumstances, such as pressure, the passage of electrical currents, &c., affect the condition of the fused mass, and modify the aspect and arrangement of the solidified products. The mere antiquity of an igneous rock is a circumstance absolutely inefficient in accounting for any other of its characters than the degree of superficial waste, or internal change by particular agencies; and therefore an inquiry into the composition and structure of such rocks must in the first instance include the whole series of igneous products, if we wish to determine, in the first place, the conditions to which particular phenomena are due, and, finally, to obtain a correct general history of the change of these conditions in the order of geological time.

*Composition.*—Reduced to their last molecules, all igneous rocks appear to be oxides of various metallic and metalloïd bodies, oxygen constituting about one half of their weight; silicium, aluminum, magnesium, calcium, potassium, sodium, iron, &c., are the most