

indeed than any other geologist of his time, remained up to the last a firm believer in the aqueous origin of that rock. Even after the death of the great Swiss geologist, Cuvier, sharing his opinions on these matters, proclaimed as late as the year 1810 his belief that De Saussure overthrew the doctrine of central fire, or of a source of heat within the earth's interior, demonstrated granite to be the oldest rock, and proved it to have been formed in strata that were deposited in water.¹ Nobody before Hutton's time had been bold enough to imagine a series of subterranean intrusions of molten matter. Those who adopted his opinion on this subject were styled Plutonists, and were looked upon as carrying out the Vulcanist doctrines to still greater extravagance, "attributing to the action of fire widely-diffused rocks which nobody had till then ever dreamt of removing from the domain of water."²

According to the Huttonian theory, fissures and openings which have from time to time arisen in the external crust of the earth have reached down to the intensely hot nucleus. Up these rents the molten material has ascended, forming veins of whinstone underground, and, where it has reached the surface, issuing there in the form of lava and the other phenomena of volcanoes. Every geologist recognises these generalisations as part of the familiar teachings of modern geology.

We have seen that Werner made no distinction, as regards origin, between what we now call mineral-

¹Cuvier, "Éloge de De Saussure," *Éloges*, i. p. 427.

²Cuvier, *Op. cit.* ii. p. 363.