

“originally formed in the places where they are now found by a spermatic principle,” and yet unable to resist the evidence that “these bodies owe their original to the sea, and were sometimes the shells or bones of fishes.”

As regards hypogene phenomena Ray made no advance. Thus he says: “That the cause of earthquakes is the same with that of thunder, I doubt not, and most learned men are agreed; that is, exhalations or steams set on fire, the one in the clouds, the other in the caverns of the earth.”¹ Volcanoes are regarded by him as connected with earthquakes and due to the heating of “steams or damp” within subterranean caverns “by a colluctation of parts,” whereby combustible materials in the hollows of the mountains are set on fire and the metals and minerals are melted down, while if water enters these caverns “it mightily increaseth the raging of the mountain, for the fire by the help thereof throws up earth and stones, and whatever it meets with.”² Yet Ray, while he “utterly disallowed and rejected” Descartes’ theory of the origin of the earth, was not unwilling to admit the existence of a central fire, more especially as it would presumably support the references to Hell in the Bible. But he does not appear to have ever thought of connecting this possible central fire with the operations of active volcanoes.

That Ray, in spite of his instinct as a naturalist and keen observer, should have been shaken in his opinion that the fossils in the rocks are the remains of once living things, can hardly surprise us when we

¹ *Three Physico-Theological Discourses*, p. 258.

² p. 268.