

earths and alkalis; and though the former eminent philosopher abandoned his speculation, it has found able support in Dr. Daubeny. The account given by Daubuisson will clearly exhibit the opinion of Gay-Lussac. "If we admit, what is in fact almost certain, that water enters in great quantity to the foci of volcanos, and there comes in contact with the metalloïd bases of the earths and alkalis, and some chlorides (especially the chloride of sodium), the following effects will happen:— One part of the liquid will be quickly decomposed; the metals and the chlorides will seize oxygen, and be thereby converted to silica, alumina, lime, magnesia, soda, &c.— substances which predominate in lavas; the hydrogen will be liberated in the state of gas, or in combination with chlorine will form hydrochloric acid, which is known to be very often present in the vaporous exhalations of volcanos."* The heat generated by the primary chemical action (oxygenation) and the energetic action of steam, to which part of the water is converted, are thought sufficient to account for the mechanical phenomena of volcanos.

Dr. Daubeny has given to this speculation a character of greater completeness, by an examination of the actual products of volcanos, for comparison with a regular deduction of chemical phenomena from the fundamental postulates of Gay-Lussac and Davy.

If, at a depth of 3 or 4 miles, the nucleus of the earth consists of the metalloïd bases of the earths and alkalis, with iron and other metals, partially combined with sulphur,—the new oxygenation to which, under ordinary conditions, they would be subject, may be productive of no other phenomena than a moderate rise of temperature in the neighbouring rocks or in thermal springs.

But *with access of water*, and especially sea water, the effects of the heat generated will become more formidable. Oxygenation on an extensive scale; evolution

* *Traité de Géologie*, tom. i. p. 206.; and *Ann. de Chimie*, tom. xxii.