

interpreted. Very large portions of the land and sea are however still unknown in this respect.

Hardly so much can be said regarding the effects of heat ; for though these are for the most part clearly, they are not completely, interpreted, nor is the *order of their succession* sufficiently known. It appears, however, that the products and effects of heat *at different times* have not varied so much as those of water, so that the order of succession among them is of less importance.

In a complete geological theory, not only the order of succession among the several groups of phenomena would be deducible from the principles on which it was based, but also, in proportion to the completeness of the facts indicating the lapse of time, the real duration of the several successive geological periods would be at least approximately known. It would be very unwise to attempt this at present, because of the imperfection of the data in every part of the series of strata ; and in this respect geological theory is not singular, for even the most perfect mathematical theorem is equally inapplicable to incomplete data. This was strongly felt by the geologists of England, who gave a fair proof that hypotheses were out of fashion, when they declined to compete for the medal which the Royal Society offered to encourage researches into the antiquity of the globe. (See on this subject of geological time, Vol. I. chap. i.)

It may perhaps be thought, that the limits which have been fixed for a legitimate “theory of the earth” are sufficiently wide to include an immense number of general speculations ; and that many conflicting hypotheses, advanced by Neptunists and Plutonists, should now be compared and condemned. But, in truth, a little consideration will prove that there have not been, and can never be, more than two hypotheses really general on the subject. Nature, as we see it, exists under the influence of particular forces and conditions, vital, chemical, and mechanical ; and the sum of the phenomena that now occur in a given time is the