

the same family, or those of one and the same genus, should be considered as lineal descendants of a common stock; for orders, families, and genera are based upon different categories of characters, and not upon more or less extensive characters of the same kind, as I have shown years ago (vol. 1, p. 150-163), and numbers of different kinds of representatives of these various groups make their appearance simultaneously in all the successive geological periods. There appear together Corals and Echinoderms of different families and of different genera in the earliest geological formation, and this is equally true of Bryozoa, Brachiopods, and Lamellibranchiates, of Trilobites and the other Crustacea, in fact of the representatives of all the classes of the animal kingdom, making due allowance for the period of the first appearance of each; and at all times and in all classes, the representatives of these different kinds of groups are found to present the same definiteness in their characteristics and limitation. Were the transmutation theory true, the geological record should exhibit an uninterrupted succession of types, blending gradually into one another. The fact is, that throughout all geological times, each period is characterized by definite, specific types, belonging to definite genera, and these to definite families, referable to definite orders, constituting definite classes, and definite branches built upon definite plans. Until the facts of nature are shown to have been mistaken by those who have made them known, and that they have a different meaning from that now generally assigned to them, I shall, therefore, consider the transmutation theory as a scientific mistake, untrue in its facts, unscientific in its method, and mischievous in its tendency.

## SECTION VII.

### GRADATION AMONG ACALEPHS.

Confident that I have correctly ascertained the limits of the class of Acalephs, and that the method I have followed in that investigation is the only one that may furnish the means of avoiding arbitrary decisions with reference to the natural affinities of animals, I now proceed to an inquiry into the gradation or relative standing of the different members of this class. Keeping in view the principles laid down in the first volume of this work (p. 150), this inquiry should lead us to a knowledge of the *Orders* among Acalephs, if orders, as natural divisions, are based upon the different degrees of complication of the structure of the members of one and the same class; and that this is the true view to take of orders, I have at present not the least doubt. It is certainly so in all the classes, of