

the more eminent workers in the subject. Now, in the evening of his days, he thinks it right to endeavour to place before the world a summary of facts and of his own matured conclusions—feeling, however, that nothing can be final in this matter; and that he can only hope to sketch the present aspect of the subject, and to point the way to new developments, which must go on long after he shall have passed away.

The subject is one which has the disadvantage of presupposing some knowledge of the geological history of the earth, and of the classification and structures of modern plants; and in order that all who may please to read the following pages may be placed, as nearly as possible, on the same level, this introductory chapter will be devoted to a short statement of the general facts of geological chronology, and of the natural divisions of the vegetable kingdom in their relations to that chronology.

The crust of the earth, as we somewhat modestly term that portion of its outer shell which is open to our observation, consists of many beds of rock superimposed on each other, and which must have been deposited successively, beginning with the lowest. This is proved by the structure of the beds themselves, by the markings on their surfaces, and by the remains of animals and plants which they contain; all these appearances indicating that each successive bed must have been the surface before it was covered by the next.

As these beds of rock were mostly formed under water, and of material derived from the waste of land, they are not universal, but occur in those places where there were extensive areas of water receiving detritus from the land. Further, as the distinction of land and water arises primarily from the shrinkage of the mass of the earth, and from the consequent collapse of the crust in some places and ridging of it up in others, it follows that there have, from the earliest geological periods, been deep ocean-