

other families, the extensive division of the Lip-blossoms (Labiatae) and the Composites. In these last the differentiation and perfection of the Phanerogamic blossoms attain their highest stage of development, and we must therefore place them at the head of the vegetable kingdom, as the most perfect of all plants. In accordance with this, the legion of the Gamopetalae appear in the organic history of the earth later than all the main groups of the vegetable kingdom—in fact, not until the cænolithic or tertiary epoch. In the earliest tertiary period the legion is still very rare, but it gradually increases in the mid-tertiary, and attains its full development only in the latest tertiary and the quaternary period.

Now if, having reached our own time, we look back upon the *whole history of the development of the vegetable kingdom*, we cannot but perceive in it a *grand confirmation of the Theory of Descent*. The two great principles of organic development which have been pointed out as the necessary results of natural selection in the Struggle for Life, namely, the laws of *differentiation* and *perfecting*, manifest themselves everywhere in the development of the larger and smaller groups of the natural system of plants. In each larger or smaller period of the organic history of the earth, the vegetable kingdom increases both in *variety* and *perfection*, as a glance at Plate IV. will clearly show. During the whole of the long primordial period there existed only the lowest and most imperfect group, that of the Algæ. To these are added, in the primary period, the higher and more perfect Cryptogamia, especially the main-class of Ferns. During the coal period the Phanerogamia begin to develop out of the latter; at first, however, they are represented only