

two successive periods have existed in the same region, and under circumstances that render it probable that plants have continued to grow on the same or adjoining areas throughout these periods, the comparison becomes direct, and this is the case with the Erian and Carboniferous floras in northeastern America. But, when the areas of the two formations are widely separated in space as well as in time, any resemblances of facies that we may observe may have no connection whatever with an unbroken continuity of specific types.

I desire, however, under this head, to affirm my conviction that, with reference to the Erian and Carboniferous floras of North America and of Europe, the doctrine of "homotaxis," as distinct from actual contemporaneity, has no place. The succession of formations in the Palæozoic period evidences a similar series of physical phenomena on the grandest scale throughout the northern hemisphere. The succession of marine animals implies the continuity of the sea-bottoms on which they lived. The headquarters of the Erian flora in America and Europe must have been in connected or adjoining areas in the North Atlantic. The similarity of the Carboniferous flora on the two sides of the Atlantic, and the great number of identical species, proves a still closer connection in that period. These coincidences are too extensive and too frequently repeated to be the result of any accident of similar sequence at different times, and this more especially as they extend to the more minute differences in the features of each period, as, for instance, the floras of the Lower and Upper Devonian, and of the Lower, Middle, and Upper Carboniferous.

8. Another geographical question is that which relates to centres of dispersion. In times of slow subsidence of extensive areas, the plants inhabiting such areas must be narrowed in their range and often separated from one another in detached spots, while, at the same time, impor-