

ing the vegetables which gave origin to coal are, 1st, that a large proportion of these plants were vascular Cryptogamiæ, and especially Ferns; 2dly, that among these Cryptogamic plants, the Equisetaceæ attained a gigantic size; 3rdly, that Dicotyledonous plants, which compose nearly two-thirds of living Vegetables, formed but a small proportion of the Flora of these early periods.* 4thly, that although many extinct genera, and certain families have no living representatives, and even ceased to exist after the deposition of the Coal formation, yet are they connected with modern vegetables by common principles

* The value to be attached to *numerical* proportions of fossil Plants, in estimating the entire condition of the Flora of these early periods, has been diminished by the result of a recent interesting experiment made by Prof. Lindley, on the *durability* of Plants immersed in water. (See Fossil Flora, No. xvii. vol. iii. p. 4.) Having immersed in a tank of fresh water, during more than two years, 177 species of plants, including representatives of all those which are either constantly present in the coal measures or universally absent, he found :

1. That the leaves and bark of most dicotyledonous Plants are wholly decomposed in 2 years, and that of those which do resist it, the greater part are *Coniferæ* and *Cycadeæ*.

2. That Monocotyledons are more capable of resisting the action of water, particularly Palms and Scitamineous Plants; but that Grasses and Sedges perish.

3. That Fungi, Mosses, and all the lowest forms of Vegetation disappear.

4. That Ferns have a great Power of resisting water if gathered in a green state, not one of those submitted to the experiment having disappeared, but that their *fructification* perished.

Although the Results of this experiment in some degree in-