tion by which vegetable matter is changed into a carbonaceous mass.

The geological position of the coal, the manner in which it is interstratified with layers of clay, shale, micaceous sandstone, grit, and ironstonein some districts associated with beds of fresh-water shells (Murch. Sil. Syst. p. 84)-in others alternating with strata containing marine remains, are fully treated of in Wond. pp. 598-620, Bd. p. 525, and Ly. II. pp. 106, 127; and it is not within the scope of this work to dwell in detail, upon what may be termed the physical geology of the carboniferous deposits. But a few observations on the phenomena presented by these accumulations of bituminized vegetables, and their associated strata, are necessary, to render the subsequent remarks on the habits and affinities of the plants composing this ancient Flora, intelligible to the general reader.

It may here be necessary to remind the student, that while the essential conditions for the conversion of vegetable substances into coal, appear to be the imbedding of large quantities of recent vegetables in a deposit which shall exclude the air, and prevent the escape of the gaseous elements, when released by decomposition from their organic combination, so, according to the more or less perfect manner in which these conditions are fulfilled, will result coal, jet, lignite, brown coal, or peat-wood; or a mass of partially carbonized vegetables, like that observable when new-mown hay undergoes spontaneous

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