

remark to show how profoundly, yet in how natural a manner, this plant must have been modified by the parasitic fungus. Mr. Meehan⁵⁶ also states that three species of *Euphorbia* and *Portulaca oleracea*, which naturally grow prostrate, become erect when they are attacked by the *Cecidium*. *Euphorbia maculata* in this case also becomes nodose, with the branchlets comparatively smooth and the leaves modified in shape, approaching in these respects to a distinct species, namely, the *E. hypericifolia*.

Facts and Considerations opposed to the belief that the Conditions of Life act in a potent manner in causing definite Modifications of Structure.

I have alluded to the slight differences in species naturally living in distinct countries under different conditions; and such differences we feel at first inclined to attribute, probably often with justice, to the definite action of the surrounding conditions. But it must be borne in mind that there exist many animals and plants which range widely and have been exposed to great diversities of climate, yet remain uniform in character. Some authors, as previously remarked, account for the varieties of our culinary and agricultural plants by the definite action of the conditions to which they have been exposed in the different parts of Great Britain; but there are about 200 plants⁵⁷ which are found in every single English county; and these plants must have been exposed for an immense period to considerable differences of climate and soil, yet do not differ. So, again, some animals and plants range over a large portion of the world, yet retain the same character.

Notwithstanding the facts previously given on the occurrence of highly peculiar local diseases and on the strange modifications of structure in plants caused by the inoculated poison of insects, and other analogous cases; still there are a multitude of variations—such as the modified skull of the niata ox and bulldog, the long horns of Caffre cattle, the conjoined toes of the solid-hoofed swine, the immense crest and protuberant skull of Polish fowls, the crop of the pouter-pigeon, and a host of other such cases—which we can hardly attribute to the definite action, in the sense before specified, of the external conditions of life. No doubt in every case there must have been some exciting cause; but as we see innumerable

⁵⁶ 'Proc. Acad. Nat. Sc., Philadelphia,' June 16, 1874, and July 23, 1875.

⁵⁷ Hewett C. Watson, 'Cybele Britannica,' vol. i., 1847, p. 11.