

fact that the enormous masses of carbon which we now find deposited in the primary coal mountains were first reduced to a solid form by the action of vegetable life, and are the compressed and condensed remains of innumerable vegetable substances, which have accumulated in the course of many millions of years. But at the time when, after the origin of water in a liquid state on the cooled crust of the earth, organisms were first formed by spontaneous generation, those immeasurable quantities of carbon existed in a totally different form, probably for the most part dispersed in the atmosphere in the shape of carbonic acid. The whole composition of the atmosphere was therefore extremely different from the present. Further, as may be inferred upon chemical, physical, and geological grounds, the density and the electrical conditions of the atmosphere were quite different. In like manner the chemical and physical nature of the primæval ocean, which then continuously covered the whole surface of the earth as an uninterrupted watery sheet, was quite peculiar. The temperature, the density, the amount of salt, etc., must have been very different from those of the present ocean. In any case, therefore, even if we do not know anything more about it, there remains to us the supposition, which can at least not be disputed, that at that time, under conditions quite different from those of to-day, a spontaneous generation, which now is perhaps no longer possible, may have taken place.

But it is necessary to add here that, by the recent progress of chemistry and physiology, the mysterious and miraculous character which at first seems to belong to this much disputed and yet inevitable process of spontaneous