

It would seem almost inevitable that the temperature and constitution of the primeval sea should be incompatible equally with vegetable and animal life. It is true that both plants and animals are now known to flourish under conditions of heat and cold, and chemistry, which are entirely at variance with the general notions of organic adaptability. Certain plants, for instance, are reported as flourishing in the boiling geysers of Iceland and the hot springs of California. Others make their habitat upon the snows of Greenland, and impart the ruddy glow of warmth even in the undisputed empire of frost. The germs of vegetable, and even of animal life, populate every element and every locality; and only a temperature of some hundreds of degrees suffices to rid a fluid exposed to the air of all the vitalized germs that inhabit it. The egg of an insect, stuck in the crevice of the bark of an apple-tree, endures the rigors of a Canadian winter; and the organized chrysalis seems, in many cases, to possess equal powers of resisting cold. It is unsafe, then, to attempt to determine at what epoch the waters of the primeval sea became sufficiently cooled and purified to receive the first organic forms. There was, in all probability, an earliest epoch that was completely destitute of organic forms. But, to ascertain its beginning and its end, Geology must yet apply herself to a closer study of the monuments of the gneissic age.

Reasoning deductively, it is equally presumable that vegetable life preceded animal life in order of appearance. Vegetable life is capable of enduring more extreme conditions. Vegetation could better tolerate the excess of carbonic acid in the atmosphere and the waters. Vegetation, moreover, is capable of drawing its sustenance from the mineral world, while animals rely exclusively upon organic food. The vegetable stands between the animal and