

## XXXV. AN EARLIER BEGINNING.

## INTIMATIONS OF A FIERY ÆON.

WE are searching for a beginning. We have followed down the succession of formations to what seems a foundation; but we perceive this must rest on something which already existed; it can not be the beginning. It is an ocean-born mass of sediments. The ocean preceded the sediments. Something for the ocean to rest on preceded the ocean; what was that? Not something born of ocean. What existed before ocean and ocean sediments?

You have just seen (Talk XXXIV) that the deepest rocks are hard and crystalline. We have concluded that their condition has probably resulted largely from the action of water and heat. Water alone would not dissolve the substances of which these crystals are composed; but heated water would be much more efficient. Moreover, the addition of alkali to the heated water would enable it to dissolve nearly all the substances in these lower rocks. However mud-like or sandy the sediments originally were, heated alkaline waters would dissolve them; and then, if the solution were allowed to cool, the various constituents would enter into such combinations as suited their several affinities for each other. So the resulting state of the materials would be extremely different from that of the original sediments. This is at least a part of the process called metamorphism of the rocks—a subject to which your attention has been many times called, and a cause of the disappearance of any organic remains in rocks thus metamorphosed.

But in this connection, the important point is the evidence of ancient heat universally extended. I do not suppose the metamorphism of the rocks has taken place at the surface. The heat engaged seems to have been interior heat. It was shut in and retained for ages by overlying masses of strata. And yet I doubt if all metamorphic regions now exposed have been formerly covered. Much yet remains to be learned about metamorphism.