

and, by depositing it in layers, it caused the extremely important neptunic transformations of the earth's crust, which have continued since then uninterruptedly, and which in our next chapter we shall examine a little more closely.

It was not till the earth's crust had so far cooled that the water had condensed into a fluid form, it was not till the hitherto dry crust of the earth had for the first time become covered with liquid water, that the origin of the first organisms could take place. For all animals and all plants—in fact, all organisms—consist in great measure of fluid water, which combines in a peculiar manner with other substances, and brings them into a semi-fluid state of aggregation. We can therefore, from these general outlines of the inorganic history of the earth's crust, deduce the important fact, that at a certain definite time life had its beginning on earth, and that terrestrial organisms did not exist from eternity, but at a certain period came into existence for the first time.

Now, how are we to conceive of this *origin of the first organisms*? This is the point at which most naturalists, even at the present day, are inclined to give up the attempt at natural explanation, and take refuge in the miracle of an inconceivable creation. In doing so, as has already been remarked, they quit the domain of scientific knowledge, and renounce all further insight into the eternal laws which have determined nature's history. But before despondingly taking such a step, and before we despair of the possibility of any knowledge of this important process, we may at least make an attempt to understand it. Let us see if in reality the origin of a first organism out of inorganic matter,