

for effecting great material results through the union of individuals, we perceive that we have to do, not with a low condition of those powers which we designate life, but with their manifestation through the means of a simple organism ; and this in a degree of perfection which we, from our point of view, would have in the first instance supposed impossible.

If we imagine a world altogether destitute of life, we still might have geological formations in progress. Not only would volcanoes belch forth their liquid lavas and their stones and ashes, but the waves and currents of the ocean and the rains and streams on the land, with the ceaseless decomposing action of the carbonic acid of the atmosphere, would be piling up mud, sand, and pebbles in the sea. There might even be some formation of limestone taking place where springs charged with bicarbonate of lime were oozing out on the land or the bottom of the waters. But in such a world all the carbon would be in the state of carbon dioxide, and all the limestone would either be diffused in small quantities through various rocks or in limited local beds, or in solution, perhaps as chloride of calcium, in the sea. Dr. Hunt has given chemical grounds for supposing that the most ancient seas were largely supplied with this very soluble salt, instead of the chloride of sodium, or common salt, which now prevails in the sea water.

Where in such a world would life be introduced? on the land or in the waters? All scientific probability would say in the latter.¹ The ocean is now vastly more populous than the land. The waters alone afford the conditions necessary at once for the most minute and the grandest organisms, at once for the simplest and for others of the most complex character. Especially do they afford the best conditions for

¹ A recent writer (Simroth) has, however, undertaken to maintain the thesis that land life preceded that in the sea. It is unnecessary to say that he is an evolutionist, influenced by the necessity laid upon that philosophy to deduce whales, seals, etc., from land animals.