

constitute the beginnings of those lands destined to endure to our time. Very likely the upheaval was accomplished through many partial upheavals widely separated in time. But we can only contemplate the total result. When the Eozoic *Æon* was ended, and the Palæozoic *Æon* begun, there existed on the American side of the world, the following outcrops: 1. The Great Northern Land, lying north of the St. Lawrence and the Great Lakes, stretching in one direction to the coast of Labrador, and in the other, over the region between Hudson's Bay and the Mackenzie River to the Arctic Ocean. This sent a tongue across the St. Lawrence, at the Thousand Islands, and extended into the Adirondack Highlands. 2. The Seaboard Land, lying east of the present Appalachians, and reaching on the north to New England and on the south to Alabama. 3. The Cordilleran Land, covering a large part of the region west of the Great Plains—stretching from the crests of the eastern ranges of the Rocky Mountains into California. Of its northern and southern extent we remain in ignorance. Possibly this Cordilleran Land was more of the nature of an archipelago than a continent. There were smaller exposures of land, but we need not speak of them particularly. The rocks forming these continental nuclei are all metamorphic. Between them and the rocks immediately overlying is an abrupt contrast. Why the process of metamorphism has been thus limited upward, has not yet been explained.

These lands were outstanding at the beginning of the Palæozoic *Æon*. All else was sea. I am quite ready to believe, however, that other lands existed, since consumed by the erosions which sought to lay the foundations of newer formations. On the remoter side of this upheaval was an ocean barren, if we can believe it, of all forms of animal life. On this side was an ocean which suddenly teemed with the shapes of sensitive creatures already of high rank, and diversified in nature, but strange and archaic in their structures and aspects. This sudden advent of hordes of creatures of diversified types of life has been relied on as evidence that