

the solidification of its outer surface. New masses of rocks are thus formed before our eyes, while the older ones are in their turn converted into other forms by the greater or lesser agency of Plutonic forces. Even where no disruption takes place the crystalline molecules are displaced, combining to form bodies of denser texture. The water presents structures of a totally different nature, as, for instance, concretions of animal and vegetable remains, of earthy, calcareous, or aluminous precipitates, agglomerations of finely-pulverized mineral bodies, covered with layers of the silicious shields of infusoria, and with transported soils containing the bones of fossil animal forms of a more ancient world. The study of the strata which are so differently formed and arranged before our eyes, and of all that has been so variously dislocated, contorted, and upheaved, by mutual compression and volcanic force, leads the reflective observer, by simple analogies, to draw a comparison between the present and an age that has long passed. It is by a combination of actual phenomena, by an ideal enlargement of relations in space, and of the amount of active forces, that we are able to advance into the long sought and indefinitely anticipated domain of geognosy, which has only within the last half century been based on the solid foundation of scientific deduction.

It has been acutely remarked, "that, notwithstanding our continual employment of large telescopes, we are less acquainted with the exterior than with the interior of other planets, excepting, perhaps, our own satellite." They have been weighed, and their volume measured; and their mass and density are becoming known with constantly-increasing exactness; thanks to the progress made in astronomical observation and calculation. Their physical character is, however, hidden in obscurity, for it is only in our own globe that we can be brought in immediate contact with all the elements of organic and inorganic creation. The diversity of the most heterogeneous substances, their admixtures and metamorphoses, and the ever-changing play of the forces called into action, afford to the human mind both nourishment and enjoyment, and open an immeasurable field of observation, from which the intellectual activity of man derives a great portion of its grandeur and power. The world of perceptive phenomena is reflected in the depths of the ideal world, and the richness of nature and the mass of all that admits of classification gradually become the objects of inductive reasoning.

I would here allude to the advantage, of which I have al-