CHAPTER II.

ON PETRIFACTIONS, OR FOSSIL, ANIMAL, AND VEGETABLE REMAINS.

Opinions of early Naturalists respecting Petrifactions.—On the Process called Petrifaction.—Experiment of Dr. Jenner on the Petrifaction of recent Bones.—Living Reptiles occasionally found in solid Stone.—Remarkable Difference in the Condition of Fossil Remains in adjacent Strata; Instance of this at Westbury Cliff, Gloucestershire.—The four grand Divisions of the Animal Kingdom.—Distribution of the Remains of certain Classes and Orders of Animals in each Division through the different Rock Formations.—Fossil Elephant proved to have been an Inhabitant of cold Climates.—Remains of Monkeys hitherto undiscovered in a Fossil State.—On Vegetable Petrifactions in the Transition, Secondary, and Tertiary Strata, supposed to prove the former high Temperature of the Globe in Northern Latitudes.—Observations on Fossil Organic Remains, as serving to identify Strata in distant Countries.

If it had been predicted a century ago, that a volume would be discovered, containing the natural history of the earliest inhabitants of the globe, who flourished and perished before the creation of man, with distinct impressions of the forms of genera of animals no longer existing on the earth,—what curiosity would have been excited to see this wonderful volume; how anxiously would Philosophers have waited for the discovery! But this volume is now discovered; it is the Volume of Nature, rich with the spoils of primeval ages, unfolded to the view of the attentive observer, in the strata that compose the crust of the globe. The numerous and varied forms of organic beings, whose remains are there distinctly preserved, sometimes differ so much in structure from any known genera of animals, that we can scarcely hazard any probable conjectures respecting their modes of existence. Nor do we discover merely the forms of unknown animals in the different strata, we also learn the order of succession in which they first appeared on the globe.

It is only within a comparatively short period, that these fossil organic remains have engaged the attention of naturalists. It is true that in remote times, the occasional discovery of shells and bones of large animals imbedded in rocks, did not escape the attention of philosophers; but, the shells were supposed to belong to species now living, and the bones to a gigantic race of men, that perished during some great inundation, or had been buried by earthquakes. Other hypotheses, equally remote from truth, serve to show how little attention had been bestowed on this department of Natural History. The celebrated botanist, Tournefort, from the regularity of form in many fossil remains, was induced to believe that they were stones that grew and vegetated from seeds. "How could the *Cornu Ammonis*," he observes, "which is constantly in the figure of a volute, be formed without a seed containing the same structure in the small,