PART II.

PALÆONTOLOGY.

SECTION I.

PRELIMINARY DEFINITIONS AND PRINCIPLES.

In all the stratified rocks above the Azoic, we find more or less of the remains of animals and plants. These are called *Organic Remains.* When changed into stone they are sometimes called Petrifactions.

Palæontology is the science which describes these organic remains; the word means a history of ancient beings. Some limit it to animals; but we prefer to use it in its more extended sense.

By some able writers the history of fossil animals is called Palæozoology, and that of plants Palæophytology.

A *Fossil* is the body, or any known part or trace of an animal or plant, buried by natural causes in the earth. Hence a mould or mere footmark is a fossil.

This is a difficult term to define, and the above definition may include some organic substances which come not within the province of geology to describe. It might perhaps embrace the frogs that are found alive deep in gravel or enclosed in rock. But may not these properly be regarded as fossils?

Some able writers have thought it necessary to introduce into their definition of a fossil the time and circumstances of its burial. But we prefer the phrase with no other limitation than that given above.

Among the ancients there were some (Strabo, the geographer, for instance,) who noticed and had correct notions about fossil shells. In modern times geological facts first began to excite attention in Italy, in the early part of the sixteenth century. Two questions were argued respecting fossils; first whether they ever belonged to living animals and plants; and secondly, if they did, whether their petrifaction and situation can be explained by the deluge of Noah.

These questions occupied the learned world nearly 300 years. At the commencement of the controversy in Italy, in 1517, Fracastoro maintained, in the true spirit of the geology of the present day, that fossil shells all once belonged to living animals, and that the Noachian deluge was too transient an event to explain the phenomena of their fossilization. But Mattioli regarded them as the result of the operation of a certain *materia pinguis*, or "fatty matter," fermented by heat. Fallopio, Professor of Anatomy, supposes that they