

conducted us to the boundaries of physical science, and gives us a glimpse of the region beyond. In following the history of Life, we found ourselves led to notice the perceptive and active faculties of man; it appeared that there was a ready passage from physiology to psychology, from physics to metaphysics. In the class of sciences now under notice, we are, at a different point, carried from the world of matter to the world of thought and feeling,—from things to men. For, as we have already said, the science of the causes of change includes the productions of Man as well as of Nature. The history of the earth, and the history of the earth's inhabitants, as collected from phenomena, are governed by the same principles. Thus the portions of knowledge which seek to travel back towards the origin, whether of inert things or of the works of man, resemble each other. Both of them treat of events as connected by the thread of time and causation. In both we endeavor to learn accurately what the present is, and hence what the past has been. Both are *historical* sciences in the same sense.

It must be recollected that I am now speaking of history as ætiological;—as it investigates causes, and as it does this in a scientific, that is, in a rigorous and systematic, manner. And I may observe here, though I cannot now dwell on the subject, that all ætiological sciences will consist of three portions; the Description of the facts and phenomena;—the general Theory of the causes of change appropriate to the case;—and the Application of the theory to the facts. Thus, taking Geology for our example, we must have, first *Descriptive* or *Phenomenal Geology*; next, the exposition of the general principles by which such phenomena can be produced, which we may term *Geological Dynamics*; and, lastly, doctrines hence derived, as to what have been the causes of the existing state of things, which we may call *Physical Geology*.

These three branches of geology may be found frequently or constantly combined in the works of writers on the subject, and it may not always be easy to discriminate exactly what belongs to each subject.⁴ But the analogy of this science with others, its present

⁴ The Wernerians, in distinguishing their study from *Geology*, and designating it as *Geognosy*, the *knowledge* of the earth, appear to have intended to select Descriptive Geology for their peculiar field. In like manner, the original aim of the Geological Society of London, which was formed (1807) "with a view to record and multiply observations," recognized the possibility of a Descriptive Geology separate from the other portions of the science.