

either vague, or blended with the most unfounded hypotheses, has, at a subsequent epoch, been confirmed by sure experience, and then been recognized as a scientific truth! The presentient fancy and the vivid activity of spirit which animated Plato, Columbus, and Kepler, must not be disregarded, as if they had effected nothing in the domain of science, or as if they tended, of necessity, to draw the mind from the investigation of the actual.

As we have defined the history of the physical contemplation of the universe to be the history of the recognition of nature in the unity of its phenomena, and of the connection of the forces of the universe, our mode of proceeding must consist in the enumeration of those subjects by which the idea of the unity of the phenomena has been gradually developed. We would here distinguish :

1. The independent efforts of reason to acquire a knowledge of natural laws, by a meditative consideration of the phenomena of nature.

2. Events in the history of the world which have suddenly enlarged the horizon of observation.

3. The discovery of new means of sensuous perception, as well as the discovery of new organs by which men have been brought into closer connection, both with terrestrial objects and with remote regions of space.

This three-fold view serves as a guide in defining the principal epochs that characterize the history of the science of the Cosmos. For the purpose of further illustration, I would again adduce some examples indicative of the diversity of the means by which mankind attained to the intellectual possession of a great portion of the universe. Under this head I include examples of an enlarged field of natural knowledge, great historical events, and the discovery of new organs.

The *knowledge of nature*, as it existed among the Hellenic nations under the most ancient forms of physics, was derived more from the depth of mental contemplation than from the sensuous consideration of phenomena. Thus the natural philosophy of the Ionian physiologists was directed to the fundamental ground of origin, and to the metamorphoses of one sole element, while the mathematical symbolism of the Pythagoreans, and their consideration of numbers and forms, disclose a philosophy of measure and harmony. The Doric-Italian school, by its constant search for numerical elements, and by a certain predilection for the numerical relations of space and time, laid the foundation, as it were, of the subsequent devel-