

Anorganology, especially in *Geology*, and forms the crown of our knowledge in that department, in the same way as Lamarck's Theory of Descent does in *Biology*, and especially in *Anthropology*. Both rest exclusively upon mechanical or unconscious causes (*causæ efficientes*), in no case upon prearranged or conscious causes (*causæ finales*). Both therefore fulfil all the demands of a scientific theory, and consequently will remain generally acknowledged until they are replaced by better ones.

I will, however, not deny that Kant's grand cosmogony has some weak points, which prevent our placing the same unconditional confidence in it as in Lamarck's Theory of Descent. The notion of an original gaseous chaos filling the whole universe presents great difficulties of various kinds. A great and unsolved difficulty lies in the fact that the Cosmological Gas Theory furnishes no starting-point at all in explanation of the first impulse which caused the rotary motion in the gas-filled universe. In seeking for such an impulse, we are involuntarily led to the mistaken questioning about a "first beginning." We can as little imagine a *first beginning* of the eternal phenomena of the motion of the universe as of its final end.

The universe is unlimited and immeasurable in both space and time. It is eternal, and it is infinite. Nor can we imagine a beginning or end to the uninterrupted and eternal motion in which all particles of the universe are always engaged. The great laws of the *conservation of force*³⁸ and the *conservation of matter*, the foundations of our whole conception of nature, admit of no other supposition. The universe, as far as it is cognizable to human capability, appears as a connected chain of material pheno-