

grasping, that is, imaging to ourselves, the mechanical framework of the universe. This is shown conclusively in astronomy, which has proved its command of the cosmical phenomena of motion by prediction of things distant in Space and Time to a degree which marks one of the greatest triumphs of the human intellect, and is to the popular mind one of the marvels and the very ideal of scientific knowledge.

If we advance a step further in our view of natural phenomena, taking in not only the data of Time, Space, and Mass just mentioned, but in addition the physical qualities, such as Colour, Sound, and Temperature, we tread upon more uncertain and conjectural ground in our endeavour to construe to ourselves natural phenomena. For here we lose hold of the first law of Motion just mentioned, that is, of the directing principle in actual occurrences: we are reduced to the two principles of the conservation of Mass and of Energy. In all cases where such Energy disappears in the form of Motion (becoming what is called potential instead of kinetic Energy), its reappearance may take place in directions which cannot with any accuracy be foretold.

The principles of the conservation of Mass and Energy are not violated. They serve the purpose of verifying the correctness of our observations in the same way as the operations of a book-keeper serve to control the transactions in a complicated business, though the book-keeper's accounts do not disclose the nature of those transactions.

This is especially evident in chemical changes of decomposition or composition. The purely mechanical view of Nature must therefore, according to some