or observation bring forward any indications that the idea is not only a theoretical possibility, but an actual reality, then the mode of thought now so successfully used—*viz.*, that of transferring phenomena belonging to molar dimensions, and exemplified in the physical laboratory, into cosmic or molecular space by a process of enlarging or of reducing—would become inapplicable. Mathematics indeed would not fail, but our ordinary geometry and the physical model and mechanism would fail: we should probably still be able to calculate, though not to represent, those phenomena of immeasurable dimensions.

As it is, the first great example of calculating and predicting the phenomena of an unreachable world was Newton's successful attempt to explain the movements of the moon, and other cosmical bodies, by using the phenomena of falling bodies on the surface of the earth described by Galileo and Huygens; and he was rewarded by the discovery of a universal law of attraction, which would probably never have been discovered by experiments carried on within molar dimensions, the mass of the earth being so immeasurably greater than that of any molar masses under our control. It quite escapes our observation that in the action and reaction of the falling stone the immensity of the earth's mass is compensated by the vanishing distance through which the earth moves when attracted by the stone. Thus the astronomical view came to the rescue of physical or molar experiments, helped to explain them, and indicated the manner in which cosmical forces could be measured even on the surface of the earth. The pendulum experi-

30. Difficulty of measuring gravitation directly.