

which, from the circumstance of our being involved in it, and unfavorably situated for seeing it otherwise than in detail, we are incapacitated from forming a general idea but by slow progressive efforts of reason. Accordingly, the contemplation of the *circumjovial planets* (as they were called) most materially assisted in securing the admission of the Copernican system.

(196.) Of "crucial instances" we have also already spoken, as affording the readiest and securest means of eliminating extraneous causes, and deciding between rival hypotheses. Owing to the disposition of the mind to form hypotheses, and to prejudge cases, it constantly happens that, among all the possible suppositions which may occur, two or three principal ones occupy us, to the exclusion of the rest; or it may be that, if we have been less precipitate, out of a great multitude rejected for obvious inapplicability to some one or other case, two or three of better claims remain for decision; and this such instances enable us to do. One of the instances cited by Bacon in illustration of his crucial class is very remarkable, being neither more nor less than the proposal of a direct experiment to determine whether the tendency of heavy bodies downwards is a result of some peculiar mechanism in themselves, or of the attraction of the earth "by the corporeal mass thereof, as by a collection of bodies of the same nature." If it be so, he says, "it will follow that the nearer all bodies approach to the earth, the stronger and with the greater force and velocity they will tend to it; but the farther they are, the weaker and slower:" and his experiment consists in comparing the effect of a spring and a weight in keeping up the motions of two "clocks," regulated together, and removed alternately to the tops of high buildings and into the deepest mines. By *clocks* he could not have meant pendulum clocks, which were not then known (the first made in England was in 1662), but *fly*-clocks, so that the comparison, though too coarse, was not contrary to sound mechanical principles. In short, its principle was the comparison of the effect of a spring with that of a weight, in producing certain