The great prominence given by Laplace to the gravitational explanation of all natural phenomena, the fact that all the observable movements of the universe, the shape and size of the moving masses, and the orbits they describe, as well as many phenomena observable on the surface of our globe, such as the aberration and refraction of light, the phenomena of the tides, of atmospheric pressure, and some of the more important molecular properties of matter, could be perfectly or approximately described, calculated, and predicted by gravitation or analogous attractions, gave to what we may call—following a hint of Clerk Maxwell's—the astronomical method [1] of con-

doubt in his mind that such phenomena "are owing to attractive and repulsive forces between molecule and molecule" ('Expos.,' 6me éd., p. 328). He saw in molecular attraction the cause of the solidity of bodies, of chemical affinities, and of the properties of chemical saturation, which Berthollet had developed about that time ('Expos.,' p. 360); he thinks it likely that the law of molecular attraction is the same for all bodies, and he finally dwells on the question whether the attraction of gravity and molecular attraction could be united under one common law or expression (p. 363), and throws out the idea that thus the phenomena of physics and astronomy might be brought under one general law, adding, however, significantly, "Mais l'impossibilité de connaître les figures des molécules et leurs distances mutuelles, rend ces explications vagues et inutiles à l'avancement des sciences."

[1] "Cavendish, Coulomb, and Poisson, the founders of the exact sciences of electricity and magnetism, paid no regard to those old notions of 'magnetic effluvia' and 'electric atmospheres' which had been put forth in the previous century, but turned their undivided attention to the determination of the law of force, according to which electrified and magnetised bodies attract or repel each other. In this way the true laws of these actions were discovered, and this was done by men who never doubted that the action took place at a distance, without the intervention of any medium, and who would have regarded the discovery of such a medium as complicating rather than as explaining the undoubted phenomena of attraction. . . . Ampère, by a combination of mathematical skill with experimental ingenuity, first proved that two electric currents act on one another, and then analysed this action into the resultant of a system of push-and-pull forces between the elementary parts of these currents. . . . Whereas the general course of scientific method then consisted in the application of the ideas of mathematics and astronomy to each new investigation in turn, Faraday seems to have had no opportunity of acquiring a technical knowledge of