

the hypothesis of two fluids has been spoken of as a reform of the theory of *Æpinus*; it would probably have been more safe to have called his labors an advance in the calculation, and in the comparison of hypothesis with experiment, than to have used language which implied that the question, between the rival hypotheses of one or two fluids, could be treated as settled. For, in reality, if we assume, as *Æpinus* does, the mutual repulsion of all the particles of matter, in addition to the repulsion of the particles of the electric fluid for one another and their attraction for the particles of matter, the one fluid of *Æpinus* will give exactly the same results as the two fluids of *Coulomb*. The mathematical formulæ of *Coulomb* and of *Poisson* express the conditions of the one case as well as of the other; the interpretation only being somewhat different. The place of the forces of the resinous fluid is supplied by the excess of the forces ascribed to the matter above the forces of the fluid, in the parts where the electric fluid is deficient.

The obvious argument against this hypothesis is, that we ascribe to the particles of matter a mutual repulsion, in addition to the mutual attraction of universal gravitation, and that this appears incongruous. Accordingly, *Æpinus* says, that when he was first driven to this proposition it horrified him.¹⁶ But we may answer it in this way very satisfactorily:—If we suppose the mutual repulsion of matter to be somewhat less than the mutual attraction of matter and electric fluid, it will follow, as a consequence of the hypothesis, that besides all obvious electrical action, the particles of matter would attract each other with forces varying inversely as the square of the distance. Thus gravitation itself becomes an electrical phenomenon, arising from the residual excess of attraction over repulsion; and the fact which is urged against the hypothesis becomes a confirmation of it. By this consideration the prerogative of simplicity passes over to the side of the hypothesis of one fluid; and the rival view appears to lose at least all its superiority.

Very recently, *M. Mosotti*¹⁷ has calculated the results of the *Æpinian* theory in a far more complete manner than had previously been performed; using *Laplace's* coefficients, as *Poisson* had done for the *Cou-*

¹⁶ Neque diffiteor cum ipsa se mihi offerret . . . me ad ipsam quodammodo exhorruisse. *Tentamen Theor. Elect.* p. 39.

¹⁷ *Sur les Forces qui régissent la Constitution Intérieure des Corps.* Turin. 1836.