

greatest discoveries only land us on the confines of a wider and more wonderfully diversified view of the universe; and have now, as we always shall have, to acknowledge ourselves baffled and bowed down by the infinite which surrounds us on every side.

(54.) Beyond all doubt, the widest and most interesting prospect of future discovery which their study holds out to us, is that distinction between *gravitating* and *levitating* matter, that positive and unrefutable demonstration of the existence in nature of a repulsive force, co-extensive with but enormously more powerful than the attractive force we call gravity, which the phænomena of their tails afford. This force cannot possibly be of the nature of electric or magnetic forces.\* These forces are especially polar in their action between particle and particle—a magnet, or an electrified particle, of indefinitely minute dimensions—so minute as the discrete particles which go to form a comet's tail, could by no possibility be either attracted or repelled, *as such*, by a body, however powerfully magnetized or electrified, placed at the distance of the sun. It might have a *direction* given to its magnetic or electric *axis*, but its centre of gravity would not be

\* This and much of what follows may seem inconsistent with what is said in my "Results of Ast. Obs., &c., at the Cape of Good Hope," p. 409, and note thereon. To a certain extent it is so, and to that extent it is a recommendation, but I am here speaking only of that portion of the matter of the comet whose chemical union may be considered as completely overcome, and whose levitating or negative constituent is fairly driven off, never to return. That which may be conceived to remain behind may conform under the circumstances of the case to the dynamical relations there indicated.