to a smaller space, and which, either wholly, as in air or liquids, or in part, as in the greater number of solids, will not recover its former dimensions when the force is taken off. In the case of air, this condensation may be urged to almost any extent; and not only does a mass of air so condensed completely recover its original bulk, when the applied pressure is removed, but if that ordinary pressure under which it exists at the earth's surface (and which arises from the weight of the atmosphere) be also removed by an air-pump, it will still further dilate itself without limit so far as we have yet been able to try it. Hence we are led to the conclusion that the particles of air are mutually elastic, and have a *tendency to recede from one another*, which can only be counteracted by *force*, and therefore is itself a force of the repulsive kind. Nevertheless, as air is heavy, and as gravitation is a universal property of matter, there is no doubt that this repulsive tendency must have a limit, and that there is a distance to which, if the particles of the air could be removed from each other, their mutual repulsion would cease, and an attraction take its place. This limit is probably attained at some very great height above the earth's surface, beyond which, of course, its atmosphere cannot extend.

(240.) What, however, we can only conclude by this or similar reasoning respecting air, we see distinctly in liquids. They are all, though in a small degree, compressible, and recover their former dimensions completely when the pressure is removed; but they cannot be dilated (by mechanical means), and have no tendency, while they remain liquids, to enlarge themselves beyond a certain limit, and therefore they assume a determinate *surface* while at rest, and their parts actually resist further separation with a considerable force, thus giving rise to the phenomenon of the *cohesion of liquids*.

(241.) Both in air and in liquids, however, the most perfect freedom of motion of the parts among each other subsists, which could hardly be the case if they were not separate and independent of each other. And from this, combined with the foregoing considerations, it has been