communication with the external world; is made acquainted with the forms and qualities of objects in the most remote regions of space; and is enabled, in some measure, to determine his position and relation in a universe in which he is but an atom.

4. If we suppose it clearly established that light is produced by the vibrations of an ether, we find considerations offer themselves, similar to those which occurred in the case of sound. The vibrations of this ether affect our organs with the sense of light and colour. Why, or how do they do this? It is only within certain limits that the effect is produced, and these limits are comparatively narrower here than in the case of sound. The whole scale of colour, from violet to crimson, lies between vibrations which are four hundred and fifty-eight million millions, and seven hundred and twenty-seven million millions in a second; a proportion much smaller than the corresponding ratio for perceptible sounds. Why should such vibrations produce perception in the eye, and no others? There must be here some peculiar adaptation of the sensitive powers to these wonderfully minute and condensed mechanical motions. What happens when the vibrations are slower than the red, or quicker than the blue? They do not produce vision: do they produce any effect? Have they any thing to do with heat or with electricity? We cannot tell. The ether must be as susceptible of these vibrations, as of those which produce vision. But the mechanism of the eye is adjusted to this latter kind only; and this precise kind, (whether alone or mixed with others,) proceeds from the sun and from other luminaries, and thus communicates to us the state of the visible universe. The mere material elements then are full of properties which we can understand no otherwise, than as the results of a refined contrivance.