

any number of mental images, comparing them one with another, and judging them as to likeness or unlikeness. In other words, I can reason upon them.

This is a mere statement of fact easily verified. But *how* do I perceive, remember, imagine, reason? What is the mechanism underlying perception, memory, imagination, if there be any? What is the physical basis of these mental operations? In order to get at this problem, let us examine the physics of the phenomenon exterior to ourselves, which, when we perceive it, we denote "pine tree."

Physically considered, the tree resolves itself into aggregations of multitudes of very small groups of still smaller particles. These particles do not touch each other, but are separated from each other by spaces which differ in extent. These groups of particles, which we will term molecules, and which, when compared with each other, may be of different configurations, and contain a greater or less number of smaller particles, are not poised in empty space, but in a medium called "ether," which pervades all substances, and which may be conceived as filling all space. So that we may think of all substances—hence, also, of our tree—as being "ether-soaked," a very expressive phrase, invented by Tyndall. It is evident from this conception that whatever motion is performed by the constituents of the ether, may in part be communicated to the molecules of the tree, just as particles of sawdust partake more or less completely of the motion of the fluid in which they may be suspended.

If now we conceive the ether all about the tree to be in that state of vibratory agitation into which it is thrown when conveying light, it is evident that the molecules of the tree will partake of that motion. From the vibrations of the ether the molecules of the tree will select and absorb those which they themselves could impart to the ether if in a state of vibration. The remaining unabsorbed vibrations are thrown back into space—reflected.

Let us suppose that we have before us a solid wooden frame work, from the upper cross bar of which hang suspended