tensity depending on the greater or less separation of contiguous molecules; finally, that the *quantity* of polarity is proportional to the number of molecules moving together alone in the same direction.

5. That the molecules of the imponderable matters light and heat are *vastly less*, and move with inconceivably *greater velocity*, than the molecules of any ponderable substance; and that their substance is of such a nature as to allow them to become virtually more or less oblate, in proportion to the intensity of their motion.

6. That the molecules of imponderable matters, from their extreme minuteness, are capable of *pervading and operating within* ponderable molecules; that the intensity of the motion of the molecules of imponderable matters influences the motions of the molecules of ponderable bodies; and that the molecules of imponderable matters thus appear in the character of *agents*.

Page 74.—Diffusion of gaseous bodies. There are three distinct modifications or cases of gaseous diffusion, of which, the following brief remarks will convey some notion to the reader.

First. The diffusion of *two different gaseous bodies* of the *same*, or of *different* specific gravities.

Secondly. The diffusion of *a gaseous body* and *a vapour*.

Thirdly. The diffusion of *two portions* of the *same* gaseous body, or vapour, having *different temperatures*, and consequently, *different specific gravities*.

First. Of these modifications or cases of gaseous diffusion, the diffusion of two different gaseous bodies is the best known, and is, we believe, the only case of diffusion that has been experimentally investigated. By way of illustrating the phenomena, let us suppose a flexible air-tight bag to be furnished with a stop-cock, and to be filled with a gaseous body having, under the same temperature and pressure, precisely the *same specific gravity* as atmospheric air. Let us now suppose the stop-cock to be opened. Immediately the gaseous body in the bag, and the atmospheric air, will begin to intermingle with equal velocities;