that, notwithstanding the molecules of these bodies do not touch one another, they possess a force which tends to keep them together, and to resist your attempt to separate them.

§ **12. Force defined.** — This tendency to push and to pull, which matter possesses, is called *force*. We do not know why separate portions of matter tend to approach one another, or to separate from one another. We do not know the nature of force; we cannot see it or grasp it; we simply know that there must be a *cause* for certain *effects* produced. The familiar effects produced are motion and rest. For example, we see a body move; we know that there is a cause: that cause we attribute to force. When a body in motion comes to rest, we look for a cause, and that cause we attribute to force. It is difficult to define force; probably the most comprehensive definition that has been given is the following: *Force is that which can produce, change, or destroy motion.*

All force exhibits itself in pushes or pulls. All motion is produced by pushes or pulls, or by a combination of both. A pulling force is called an *attractive* force, or simply *attraction*. A pushing force is called a *repellent* force, or *repulsion*.

§ **13. Attraction and repulsion mutual.** — **Experiment.** Suspend a wooden lath in a sling. Rub one end of a glass rod with silk, and bring that end of the rod near to one end of the lath. Now place the rod in a sling, and bring the lath near to its excited end. Does the experiment prove that the pulling force belongs to only one or to both of the bodies? In the experiment with the pith-balls (§ 11, Exp.), they seem to be mutually pushing each other.

All attraction and repulsion between different portions of matter are mutual.

§ **14. Molar and molecular forces.** — The glass rod does not seem to possess any attractive force, until it is rubbed with the handkerchief. The pith-balls do not repel one another until they have first touched the glass rod. After a time, the rod and the balls lose both their attractive and repellent forces. Or, if we pass the hand several times over the part of the rod