

back in the history of the subject and draw attention to the gradual change which the nineteenth century has brought about in our ideas regarding the different states in which matter is supposed to exist, be it in motion or in rest: the solid, the liquid, and the gaseous states.

Not very long ago the impressions of common-sense, according to which a fundamental difference separates solid from liquid and liquid from aeriform bodies, permeated scientific treatises also. Rigid demarcations were maintained between hydrostatics and pneumatics, and likewise between the doctrines of bodies at rest and such as are in a state of perceptible motion. One of the most marked changes which the century has witnessed, has been the breaking down of these older landmarks of science. The state of rest—once supposed actually to exist—has had to give way to a state of concealed yet measurable motion, as in the case of the kinetic theory of gases, which explains dead pressure by the bombardment of innumerable particles darting about. The idea of dynamical equilibrium—*i.e.*, the maintenance of a state of uniform motion—has in many cases taken the place of static equilibrium or rest, as in the doctrine of the flow of heat, the theory of exchanges of radiation, and the conception that the rigidity of solids depends upon a peculiar form of whirling motion—the vortex. Similarly the intermediate or transition states which lie between the solid and fluid, the properties of viscosity and of colloidal substances, and of vapours as marking the transition between liquids and gases, have attracted more attention in pro-