

the incumbent air be the direct cause of the elevation of the mercury, it must be measured by the amount of that elevation, and therefore that, by carrying a barometer up a high mountain, and so ascending into the atmosphere *above* a large portion of the incumbent air, the pressure, as well as the length of the column sustained by it, must be diminished ; while, on the other hand, if the phenomenon were due to the cause originally assigned, no difference could be expected to take place, whether the observation were made on a mountain or on the plain. Perhaps the decisive effect of the experiment which he caused to be instituted for the purpose, on the Puy de Dôme, a high mountain in Auvergne, while it convinced every one of the truth of Torricelli's views, tended more powerfully than any thing which had previously been done in science to confirm, in the minds of men, that disposition to experimental verification which had scarcely yet taken full and secure root.

(247.) Immediately on this discovery followed that of the air-pump, by Otto von Guericke of Magdeburgh, whose aim seems to have been to decide the question whether a vacuum could or could not exist, by endeavoring to make one. The imperfection of his mechanism enabled him only to diminish the aërial contents of his receivers, not entirely to empty them; but the curious effects produced by even a partial exhaustion of air speedily excited attention, and induced our illustrious countryman, Robert Boyle, to the prosecution of those experiments which terminated in his hands, and in those of Hauksbee, Hooke, Mariotte, and others, in a satisfactory knowledge of the general law of the equilibrium of the air under the influence of greater or less pressures. These discoveries have since been extended to all the various descriptions of aërial fluids which chemistry has shown to exist, and to maintain their aëriform state under artificial pressure, and even to those which may be produced from liquids reduced to a state of vapor by heat, so long as they retain that state.

(248.) The manner in which the observed law of equilibrium of an elastic fluid, like air, may be consider-