

other minerals have been forced to arrange themselves in complex, frilled, crimped, and goffered foldings. On an inferior scale, local compression and contortion may be caused by the protrusion of eruptive rocks. The characters of plicated rocks as part of the framework of the terrestrial crust are given in Book IV. Part IV.

As may be supposed, it is difficult to illustrate experimentally the processes by which vast masses of rock have been plicated and crumpled. The early devices of Sir James Hall, however, may be cited from their interest as the first attempts to demonstrate the origin of the contortion of rocks. He placed layers of cloth under a weight, and by compressing them from two sides produced corrugations

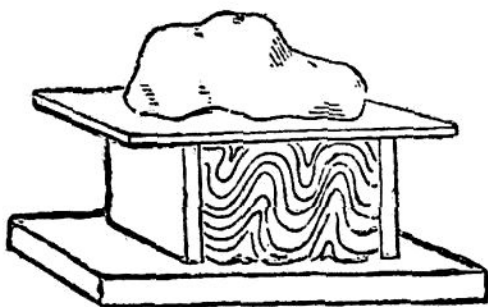


Fig. 89.—Hall's Experiment illustrating contortion.

closely resembling those of the Silurian strata of the Berwickshire coast (Fig. 89). Prof. Favre of Geneva devised an experiment which more closely imitates the conditions in nature. Upon a tightly stretched band of india-rubber he places various layers of clay, making them adhere to it as firmly as possible. By then allowing the band to contract he produces in the overlying strata of clay a series of contortions, inversions, and dislocations which at once recall those of a great mountain-chain.<sup>51</sup> More recently this subject has been illustrated experimentally by Mr. H. M. Cadell, who has obtained results curiously like those exhibited by the crumpled and dislocated rocks of the N.W. Highlands of Scotland.<sup>52</sup>

(6.) **Jointing and Dislocation.**—Almost all rocks are tra-

<sup>51</sup> Nature, xiv. (1878), p. 103.

<sup>52</sup> Trans. Roy. Soc. Edin. xxxvi. (1888), p. 337.