clined at all angles, and even standing on end, we conclude that they have been disturbed. Over wide spaces, they have been upraised bodily, with little alteration of horizontality; but in most places some departure from that original position has been effected.

Dip.—The inclination thus given to rocks is termed their Dip. Its amount is expressed in degrees measured from the plane of the horizon. Thus a set of rocks half-way between the horizontal and vertical position would be said to dip at an angle of 45°, while if vertical they would be marked with the angle of 90°. The inclination is measured with an instrument termed the Clinometer, which is vari-

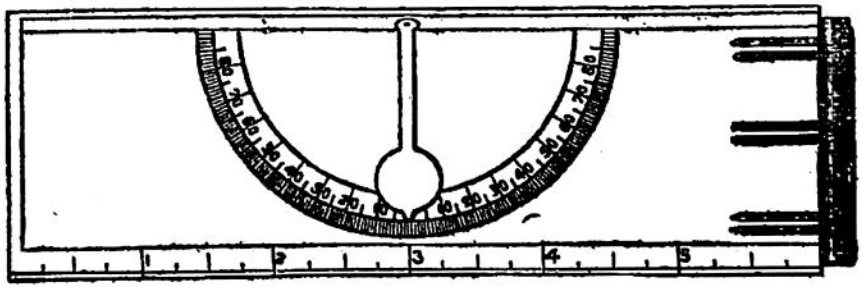

Fig. 233.—Clinometer—the leaf containing the pendulum and index.

ously made, but of which one of the simplest forms is shown in Fig. 233. This consists of a thin strip of boxwood, two inches broad, strengthened with brass along the edges, and divided into two leaves, each 6 inches long, hinged together so that when opened out they form a foot-rule. On the inside of one of these leaves, a graduated arc with a pendulum is inserted. When the instrument is held horizontally, the pendulum points to zero. When placed vertically, it marks 90°. By retiring at a right angle to the direction of dip of a group of inclined beds, and holding the clinometer before the eye until its upper edge coincides with the line of bedding, we readily obtain the amount or angle of dip. In observations of this nature it is of course necessary either to