

Cor. 1.—When the centre of gravity is vertically *under* the point of support or suspension, if the body be slightly disturbed from rest, the moment of the weight will tend to bring it back again to its original position. The equilibrium is therefore said to be *stable*. When the centre of gravity is vertically *above*, the contrary takes place, and the equilibrium is *unstable*.

Cor. 2.—This affords a practical method of finding the centre of gravity of any plane area. Thus, suspending it freely from any one point, trace on it, when at rest, the direction of the vertical passing through this point: then, taking any other point (not in this line) for a new point of suspension, trace also the vertical through it. The intersection of the two lines thus drawn is the centre of the gravity required.

55. *When a rigid body, having a plane base, is placed with this in contact with a fixed horizontal plane, and is acted on only by its own weight, it will stand or fall according as the vertical through its centre of gravity passes within or without the base.*

Body placed
on a horizon-
tal plane,
will it stand
or fall over

By the base is here meant the figure included by a string stretched completely round the outside of the plane section of the body which is in contact with the horizontal plane.

If the body fall over, it must begin to turn round some tangent to the curve formed by this string, and the moment of the weight, supposed collected at the centre of gravity, must tend about this tangent in a direction *from* the inside *towards* the outside of the area of the base, and the vertical through the centre of gravity will pass outside the base.

Also, when this vertical passes outside, the body must fall over; but if this vertical pass within the base, the moment of the weight about *every* tangent to the string tends in direction from the outside towards the inside, and the body cannot fall over.
