

is friction. Water under hydrostatic pressure entering the base of a fine, close sand bed will be hindered by friction from rising as high as it would were it not thus restrained. When a pipe is sunk to the base of the bed this friction is removed and the water rises within the pipe to a higher level than it does in the sand outside the pipe. This difference may in some cases be sufficient to produce flows at the surface.

Another set of conditions producing effective hydrostatic pressure are those shown in Fig. 19, p. 348. The figure represents a cross section taken at right angles to a typical Coastal Plain valley. In the higher lands shown at either end of the section the water table stands higher than in the lower terraces bordering the stream in the center. The relatively impervious stratum *a*, which serves as the confining agent for the water-bearing stratum *b*, permits but little water to pass downward through it; but the pressure resulting from the weight of the mass of water above *a* is transmitted downward through it, producing hydrostatic pressure in *b*. Wells located on the terraces, if sunk deep enough to penetrate *b*, will flow. It is believed that many flowing wells in the Coastal Plain are produced by conditions similar to these.

Other factors than those described, such as temperature and barometric pressure, exert a certain amount of influence upon hydrostatic pressure, but these are believed to be of minor importance, since they operate merely to increase or decrease slightly the effectiveness of that pressure. They are therefore omitted from this discussion.

The upper limit of the saturated portion of the materials making up a land body has been referred to as the water table. This lies at a greater or lesser distance below the surface, depending upon a variety of conditions, such as amount of rainfall, porosity of the materials, configuration of the surface, etc. In the case of swamps it coincides with the surface. It is not a level plain, but conforms in its curves to the curves of the surface, though the degree of curvature is less. In the higher lands it lies somewhat deeper below the surface than it does in the lower lands. Neither does it occupy a fixed position, but fluctuates in response to changes in the amount of rainfall. During periods of excessive rainfall the water table rises; during periods of drouth it subsides. Its subsidence is due in part to the passage of the water downward into the underlying beds, whence it moves slowly oceanward as shown in Fig. 17, p. 344; but in much greater part the subsidence is due to gravitational movement of the water laterally towards the surrounding valley and scarp slopes, where it escapes once more to the surface in the form of springs, and eventually finds its way to the ocean as surface streams.