The more solid crystalline rocks imbibe less than 0·2 per cent of water, and hold it so strongly by capillary attraction that when once filled there is little further change, if they are below the influence of surface droughts, and away from that of subterranean heat. But some sandstones are so porous that they give easy passage to the waters from above; and unaltered stratified rocks generally have much open space between the layers.

The amount of water contained in different rocks taken near or at the surface has been found to be as follows: porphyry, 0·012 per cent of the rock-mass; a feldspathic granite, 0·0203 (Durocher, 1853); coarse granite, 0·37 per cent; euryte, 0·07; milky quartz from a vein, 0·08; flint from the Upper Chalk, at Meudon, 0·12; but sandstone (Grès de Fontainebleau, near Meudon), 2·73; a Tertiary limestone (Calcaire grossier), 3·11 (Delesse, 1861). The Calcaire grossier will absorb 18·03 per cent of water; a quartzose Tertiary sandstone, 29·00; the chalk near Issy, 24·10; a Silurian slate, near Angers, 0·19; granite, 0·12 (Delesse, 1861). Chalk will absorb 2 gallons of water per cubic foot (Prestwich); the Old Red Sandstone (Devonian) of Gloucestershire absorbs 11·60 per cent; limestone of the Lower Oölyte, 12·15; Carboniferous limestone of Clifton, England, 0·70 (Wethered, 1882).

The amount of moisture absorbed, after drying at a temperature between 150° F. and 200° F., is as follows: for Potsdam sandstone, 3 specimens, 2·26 to 2·71 per cent; 3 others, 6·94–9·35; for Trenton limestone, 0·32 to 1·70, the former for a black variety; for some dolomytes, 10·0 to 13·55; a crystallized dolomyte, of the Calciferous formation, 4 specimens, 1·89 to 2·53; 2 other specimens, 5·90 to 7·22; for the Medina argillaceous sandstone, 2 specimens, 8·37 to 10·06 (T. S. Hunt, 1865).

A square bar of Triassic building-stone from Runcorn, England, 1·92 inches square and 14·92 high, being half immersed in a can of water, the water rose to the top by capillarity in $2\frac{1}{4}$ hours, taking in 4 ounces of water; and the same stone made in the form of a siphon, emptied a can of its water. The pore space was nearly $\frac{1}{8}$ of the stone. (M. Reade, 1884.)

1. *Flow of underground waters.* — In regions of massive or schistose crystalline rocks of close texture, there is no proper flow unless there are vertical fissures; and then the water will descend to the bottom of the fissures, and there remain, or push off laterally if the space admits of it. But if the rocks are uncrystalline stratified kinds, the water flows downward along the surface of the less pervious layer, and soaks more or less through the others. Subterranean waters often come out on the faces of bluffs, and indicate the position of the more impervious layers by a belt of foliage above, kept green by the exuding moisture; or they form springs or streamlets at the base of bluffs; or they feed pools or lakes; or make springs off shores below tide level. In regions of loose sand-beds and gravel-beds they generally find, at a depth of a few yards or scores of yards, a hard layer — hardened by deposits of iron oxide or otherwise (called in popular language *hard-pan*), which carries along the accumulating waters, and becomes a source of supply to the numerous wells of a village or city; and the same hard layer, if sloping seaward, will afford water by boring, even out in a bay.

In the deep sand deposits of the southern side of Long Island, where the seaward slope of the surface for the 6 miles to low-tide level is 1 : 265 feet, there is a water-plane