

very small. In some cases none whatever has been found to elude the spongioles of plants, and to pass to even a depth of three feet below the surface. Artificial wells of small depth are then dried; shallow springs fail, and we learn the value of those perpetual fountains which gush out from below the dry wolds and limestone hills, bearing life and beauty on their course,—objects on which rustic love and admiration may tastefully bestow the emblematic flowers and grateful songs*, which constituted a pleasing form of popular worship in the earlier ages of the world.

The function of water while passing underground is essentially to waste the solid substances among which it is filtered in capillary streams—to dissolve lime, silica, and other elements—to excavate caverns—to make subterranean river-channels, and thus to bring to the surface a large amount of mineral matter. Much of this matter is deposited near the spring-head in tufa, and a new life is imparted to the current. It acquires mechanical force, transports clay, sand and pebbles, and wears away even the marble which is so abundant in our north-western dales. But again there is a change, the inclination of the surface diminishes, the river approaches the sea, and deposits in the low ground near its mouth, the spoils it had won in conflict with the mountains which gave it birth.

There are no experiments on record made in this district from which we can infer how much of the rain is carried up again invisibly by ordinary evaporation, how much transpires through the leaves of plants, how much descends into the earth to be poured out again in springs and drains. Nor am I aware of any published experiments to show how much water is discharged in a year by the rivers, or indeed by any one river. As some approximation to these results, I have gauged, with the assistance

* The beautiful ceremony of the 'Well-flowering' of Tissington, near Ashbourn, Derbyshire, which takes place annually on Ascension Day (Holy Thursday), is here alluded to; a ceremony, in which, to some extent, the Psalms of the Church of England are employed.