

with strata of clay that are impermeable by water ;* the second circumstance is the *Dislocation* of these strata, resulting from Fractures and Faults.

The simplest condition under which water is collected within the Earth, is in superficial beds of Gravel which rest on a sub-stratum of any kind of Clay. The Rain that falls upon a bed of gravel sinks down through the interstices of the gravel, and charges its lowest region with a subterraneous sheet of water, which is easily penetrated by wells, that seldom fail except in seasons of extreme drought. The accumulations of this water are relieved by Springs, overflowing from the lower margin of each bed of gravel.

A similar result takes place in almost all kinds of permeable strata, which have beneath them a bed of clay, or of any other impermeable material. The Rain water descends and accumulates in the lower region of each porous stratum next above the clay, and overflows in the same manner by perennial springs. Hence the numerous alternations of porous beds with beds impenetrable to water, that occur throughout the entire series of stratified rocks, produce effects of the highest consequence in the hydraulic condition of the Earth, and maintain an universal system of natural Reservoirs, from which water

* See pp. 70, 71.