tent, is a natural cistern, where Providence saves the rains within reach of the surface—a cistern of filtered water, preserved in a cool and protected situation. Man penetrates the drift a few feet at any place, and opens one of these natural cisterns and supplies his wants (Fig. 83).

But the dumb beasts have never learned to dig wells. Observe that Providence has not neglected them. The geological forces that have dug river gorges, and scooped out valleys large and small, have cut across these beds of clay, and tapped a myriad cisterns where their contents

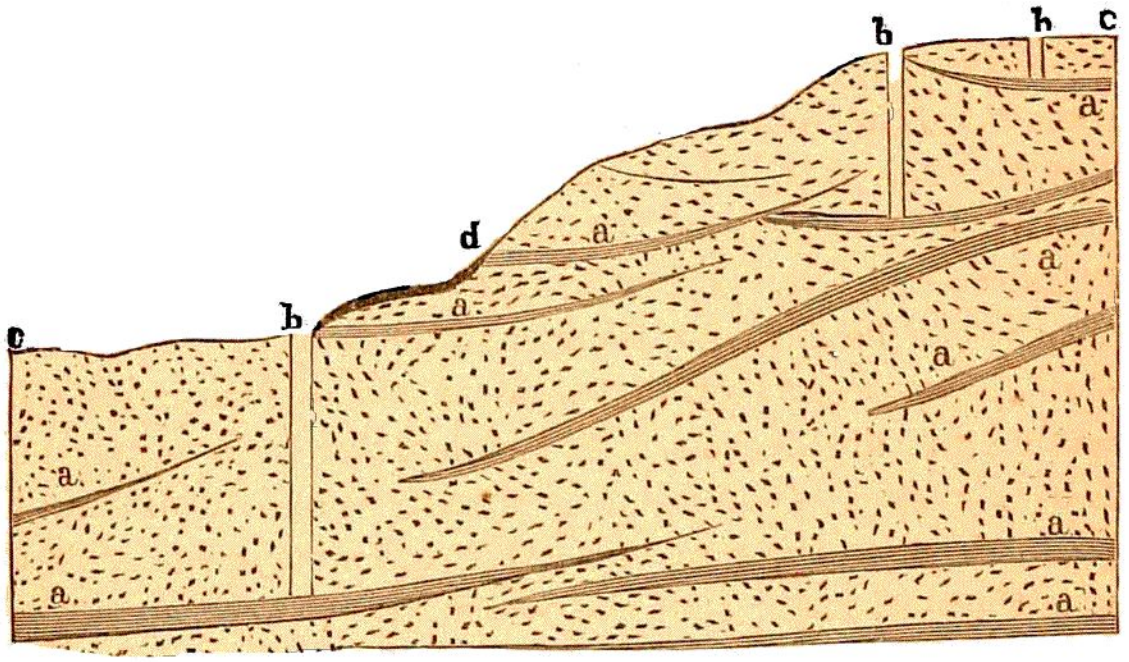

Fig. 83. Phenomena of Wells and Springs in Drift Materials.

a, a, a, etc. Beds of clay variously disposed in a mass of sandy materials. b, b, b. Wells sunk in different situations, and finding a supply of water only when a bed of clay is reached. A well on the top of a hill may be shallower than one at the foot. c, c. The surface of the earth. d. Outcrop of bed of clay, causing a spring. If the porous materials contain fragments of limestones, these spring waters are hard, and deposit travertine from d toward b. A well carried below its supplying-bed may lose its water again.

escape upon a hill-side (Fig. 83), and form a spring at which the untutored brute may slake his thirst without the benefits of shovel and pick. But as all animals could not conveniently resort to springs, and as there are certain regions that have not been scored by denuding forces, we find the hill-side spring wandering off in a modest rill. At length it joins hands with a neighboring rill, and, with aug-