

But some eruptions of granitic and other substances, ejected from the interior, never reach the surface at all. In such cases the clefts and crevices—longitudinal or oblique—are filled, but the fissures in the crust do not themselves extend to the surface. Fig. 16 represents an eruption of granite through a mass of sedimentary rock—the granite ejected from the centre fills all the clefts and fractures, but it has not been sufficiently powerful to force its way to the surface.

On the surface of the earth, then, which would be at first smooth and unbroken, there were formed, from the very beginning, swelling

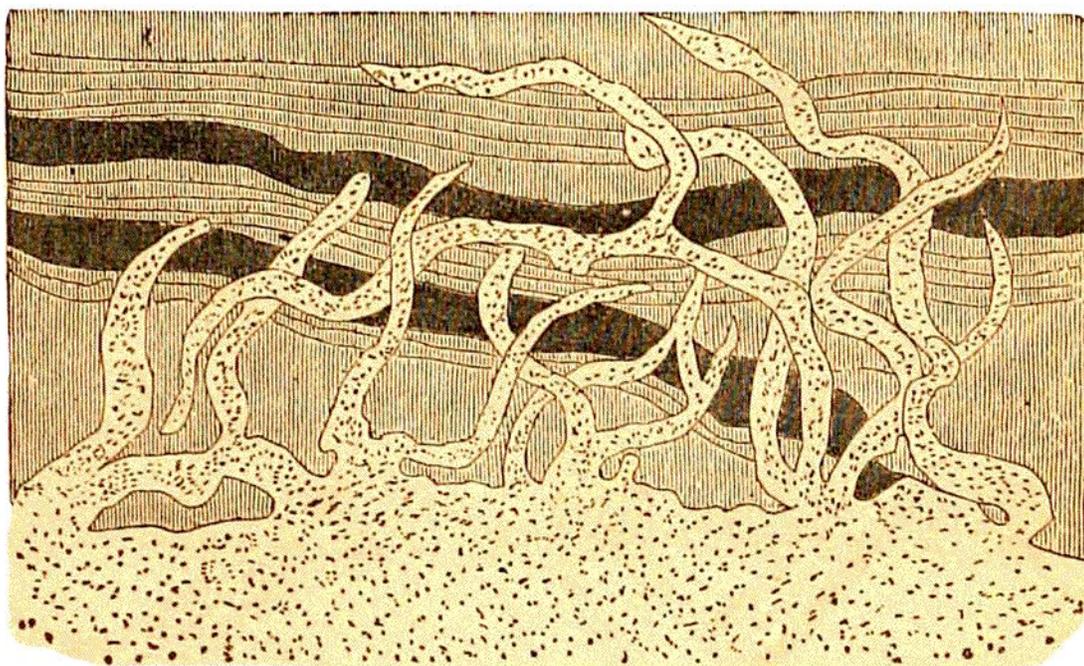


Fig. 16.—Eruption of granite.

eminences, hollows, foldings, corrugations, and crevices, which would materially alter its original aspect; its arid and burning surface bristled with rugged protuberances, or was traversed by enormous fissures and cracks. Nevertheless, as the globe continued to cool, a time arrived when its temperature became insufficient to maintain, in a state of vapour, the vast masses of water which floated in the atmosphere. These vapours would pass into the liquid state, and then the first rain fell upon the earth. Let us here remark that these were veritable rains of boiling water; for in consequence of the very considerable pressure of the atmosphere, water would be condensed and become liquid at a temperature much above  $100^{\circ}$  Centigrade ( $212^{\circ}$  Far.)