

of gravel, and converting some portions of the loose pebbles into a solid mass, while those parts which the liquid flint did not reach remained in the state of loose water-worn materials. It is not my intention in this lecture to dwell on the silicification\* of the remains of animals and plants; it will suffice to remark, that in the silicified woods from the West Indies the most minute vegetable structure may be detected, although the specimens will strike fire with steel.

60. EFFECTS OF HIGH TEMPERATURE.—The phenomena presented to our notice in this investigation of the Geysers of Iceland, lead to the consideration of another agent in the transmutations that take place in the crust of the globe. It must be obvious to every intelligent mind, that beds of unconnected and porous materials can have acquired hardness and solidity only by one of the following processes, namely:—1st, by matter dissolved in a fluid, and afterwards deposited among the porous masses in the manner just described; or, 2dly, by the reduction of the materials by heat into a state of softness or fusion, and their subsequent conversion, by cooling, into a solid mass.† Fire—or to speak more correctly, a high temperature, however induced, whether by electro-magnetic influence, or proceeding from central or medial sources of heat—and water, are therefore the great agents by which the mineral masses composing the crust of our

\* Petrification by flint.

† Playfair.