

planet have been and are still being modified. We have already seen how vast are the changes which result from the effects of water ; we must now take a rapid survey of the influence which caloric is capable of exerting ; an influence far more universal and varied than we may at first be prepared to expect. The expansive power which heat exerts on most substances, and its conversion of the most solid and durable bodies, first into a fluid, and lastly into a gaseous state, are phenomena so familiar as to require no lengthened comment. But the effects of heat are found to vary according to the circumstances under which bodies are submitted to its operation, and hence the changes induced by high temperature beneath great pressure, are totally different from those effected by fire on the surface, under the ordinary weight of the atmosphere. A familiar example will serve to illustrate my meaning. Chalk consists of lime combined with carbonic acid ; and as for agricultural, and other economical purposes, it is desirable to have the lime in its pure state, the chalk, or limestone, is exposed to a great heat, in kilns erected in the open air, until all the carbonic acid gas is dissipated, and the stone is said to be burnt into quick-lime. In the specimens before us, the same substance is seen in the state both of chalk and lime. It may readily be conceived, that if this operation were conducted beneath such a degree of pressure as would prevent the escape of the gas, the formation of quick-lime would not take place ;