

sidered is the degree in which the earth's surface is wasted by atmospheric changes and aqueous agency.

*Waste of the Earth's Surface.*

If we consider that the aggregation of rocks and minerals, whether we regard it as a fruit of chemical or mechanical actions, is no otherwise fixed or stable, than as the forces which tend to keep them united are superior to those which from all sides strive to separate them, we shall be prepared to comprehend how the *variations* of these constringent and divellent forces, according to heat, moisture, new elementary combinations, &c., bring a silent but sure and often rapid decay on all the structures of man, and on all the mightier monuments of nature, which are exposed to the ever-changing atmosphere. It is painful to mark the injuries effected by a few centuries on the richly sculptured arches of the Normans, the graceful mouldings of the early English architects, and the rich foliage of the decorated and later Gothic styles. The changing temperature and moisture of the air, communicated to the slowly conducting stone, especially on the western and southern fronts of buildings, bursts the parts near the surface into powder, or, by introducing a new arrangement of the particles, separates the external from the internal parts, and causes the exfoliation or desquamation, as Macculloch calls it, of whole sheets of stone parallel to the ornamental work of the mason. From these attacks, no shelter can wholly protect; the parts of a building which are below a ledge, often decay the first; oiling and painting will only retard the destruction; and stones which resist all watery agency, and refuse to burst with changes of temperature, are secretly eaten away by the chemical forces of carbonic acid and other atmospheric influences. What is thought to be more durable than granite? Yet this rock is rapidly consumed by the decomposition of its felspar, effected by carbonic acid gas,—a process which is sometimes con-