

Still no one finds in the upper secondary rocks—much less in the tertiary, the numerous and grand crystals that are common in the primitive, and even to a degree in the transition and early secondary formations, nor does any one look for those grand crystal cavities, *fours a cristaux*, as they have been fancifully called,* except in the ancient mountains, and in the veins and beds by which they are intersected.

No person who has been conversant with chemical effects can easily confound them with those of mere mechanical deposition. Take a piece of the most beautiful granite—its quartz is translucent if not transparent—its feldspar is foliated in structure, presenting two regular cleavage planes, united at definite angles—its mica is perfectly foliated, and splits into innumerable thin laminæ, each of which, is perfectly transparent and has a high lustre, and this last property is common (sometimes in a less degree,) to the quartz and the feldspar. Gneiss and mica slate and saccharoidal limestone are distinguished, in a greater or less degree by similar characteristics. Now, translucency—transparency—lustre—cleavage-planes, and regular structure, are known and established results of chemical deposition and are never the effect of mechanical aggregation. Compare the above properties, with those found in a piece of clay, and no person, however unskilled in physical characteristics, can possibly attribute them to a similar origin. The latter has as obviously sprung from mechanical as the former from chemical laws;—mechanical suspension must have preceded the one, and solution, fusion or sublimation the other.

Crystallization is the most exalted agency of the mineral kingdom and it answers to organization in the animal and vegetable. It results in the production of regular solids—often of beautiful figures, bounded almost always, by plane faces, which constitute the outline of beauty in the mineral kingdom, as the curve line does in the organized kingdoms.—*Hauy*.

Proximate Causes of Crystallization in the Earth.

Of the original state of the materials of our planet, as first formed by the Creator, we know nothing. It is, however, in the highest degree improbable, that the innumerable crystals of so many different substances and forms, which we find in the earth were originally crea-

* Patrin's mineralogical travels.