

Silex, or *Siliceous Earth*, exists nearly pure in large masses, forming minerals, and even entire rocks, as rock crystal, quartz rock, and flint: it communicates a great degree of hardness to all rocks or stones into which it enters, in a large proportion. Such stones are denominated Siliceous: they resist the point of a knife, or scratch glass. In its combinations with other earths, *Silex* appears to act as an acid. More than one half of the crust of the globe is composed of siliceous earth either pure or combined. In some thermal waters, siliceous earth occurs, either in a state of minute division or in solution; and the waters of the boiling springs, or geysers, in Iceland, deposit siliceous incrustations of considerable thickness.

Alumine, pure argillaceous Earth, (Lat. *argilla*, Fr. *argille*,) is a substance which in a mixed state is well known, but pure unmixed clay is one of the rarest substances in the mineral kingdom. This earth is soft, smooth, and unctuous to the touch; it strongly absorbs water; where it exists in the proportion of thirty per cent, it communicates in some degree these properties: such rocks are called argillaceous; they generally contain a notable portion of iron, which appears to have a greater affinity for this earth than for any other.*

Lime (Lat. *calx*, Fr. *chaux*) is a well-known earth combined with carbonic acid, in which state it forms limestone, marble, and chalk: these differ from each other only by different degrees of hardness or of crystallization. Mountains composed of lime are denominated calcareous. When lime is united with sulphuric acid, it forms the stone called gypsum, which is softer than limestone, and does not, like it, effervesce with acids. Calcareous earth, mixed with common clay, forms marl.

Magnesia has, rarely, been found pure in a native state. It enters into the composition of some of the primary rocks, to which it generally communicates a soapy feel, a striated or striped texture, and sometimes, a greenish colour. It occurs, also, in various limestones in different proportions.

Iron appears to be more abundant than magnesian earth: it forms a constituent part of numerous rocks and stones; to it they most frequently owe their colour: the earths, when pure, are white. Iron, when in combination with the earths, is, like them, an oxide, or a metal united with oxygen. To the presence of iron, the increase of

* Though alumine or pure clay communicates a soft quality to most stones of which it forms a principal constituent part, a very remarkable exception to this is offered in adamantine spar and the sapphire, which nearly equal the diamond in hardness. Klaproth, one of the most laborious and eminent chemists of the present age, has analysed these stones: the former contains 90 parts in the 100 of pure clay; the latter 95 parts in the same quantity. "What a high degree of cohesive power (he observes) must nature command, to be able to transform such a common substance as clay (aluminous earth) into a body so eminently distinguished and ennobled as the sapphire by its hardness, brilliancy, and its resistance to the action of fire, of acids, or the effects of all-destroying time!"—*Klaproth's Essays*.