

ceous crust. The sequence of volcanic rocks, as first announced by Richthofen, has an interesting connection with this speculation.³

The main mass of the earth's crust is composed of a few predominant compounds. Of these in every respect the most abundant and important is Silicon-dioxide or Silica (Kieselerde) SiO_2 . As the fundamental ingredient of the mineral kingdom, it forms more than one-half of the known crust, which it seems to bind firmly together, entering as a main ingredient into the composition of most crystalline and fragmental rocks as well as into the veins that traverse them. It occurs in the free state as the abundant rock-forming mineral quartz, which strongly resists ordinary decay, and is therefore a marked constituent of many of the more enduring kinds of rock. As one of the acid-forming oxides (H_4SiO_4 , Silicic acid, Kieselsäure) it forms combinations with alkaline, earthy, and metallic bases, which appear as the prolific and universally diffused family of the silicates. Moreover, it is present in solution in terrestrial and oceanic waters, from which it is deposited in pores and fissures of rocks. It is likewise secreted from these waters by abundantly diffused species of plants and animals (diatoms, radiolarians, etc.). It has been largely effective in replacing the organic textures of former organisms, and thus preserving them as fossils.

Alumina or aluminium-oxide (Thonerde), Al_2O_3 , occurs sparingly as corundum, which, however, according to F. A. Genth, was the original condition of many now abundant complex aluminous minerals and rocks. The most common condition of aluminium is in union with silica. In this

³ *Postea*, Book III. Part I. Section i. § 5.