

The importance of such attempts shew the value of any experiments that go to prove the formation of minerals by artificial means; and Mitscherlich has been very successful in detecting several mineral species formed artificially.

Berzelius has shown, in his Chemical System of Mineralogy, that the greater part of the chemical combinations of which our Earth is composed, and especially the primitive mountains, are analogous to salts and double salts; and that, in these combinations, the silica, carbonic acid, and oxide of iron, act the part of acids; the silica combines with the alumina, lime, magnesia, protoxide and peroxide of iron, protoxide of manganese, potash and soda, forming, with these bases, either simple salts, or double salts, in proportions determined by the different degrees of saturation; the carbonic acid is combined with the lime and manganese, and the peroxide of iron with the protoxide.

The object which should be proposed in these attempts, of which we speak, is to investigate the relation of these bases to the three acids. We find ourselves fortunately seconded in this attempt by a branch of national industry; for the complete extraction of the greater number of metals depends upon the relation of the silica to the above-mentioned bases, the degrees of saturation in which the silica may occur with them, the greater or less degree of affinity with which these bases combine with the silica, and, lastly, the chemical qualities of the combination formed. It is necessary for the metallurgist that he endeavour, in order to attain his object completely, to produce, in proportion as the minerals differ, different chemical combinations of the sub-