

thus classed by them: 1. Andesites and andesitic porphyrites—from the fusion of a mixture of four parts of oligoclase and one of augite. 2. Labradorites and labradoric porphyrites—from the fusion of three parts of labrador and one of augite. 3. A microlitic rock formed of pyroxene and anorthite. 4. Basalts and labradoric melaphyres—from the fusion of a mixture of six parts of olivine, two of augite and six of labrador. 5. Nephelinites—from the fusion of a mixture of three parts of nepheline and 1·3 of augite. 6. Leucitites—from the fusion of nine parts of leucite and one of augite. 7. Leucite-tephrite—from the fusion of a mixture of silica, alumina, potash, soda, magnesia, lime, and oxide of iron, representing one part of augite, four of labrador, and eight of leucite. 8. Lherzolite. 9. Meteorites without felspar. 10. Meteorites with felspar. 11. Diabases and dolerites with ophitic structure. In these artificially produced compounds the most complete resemblance to natural rocks was observed, down even to the minutiae of microscopic structure. The crystals and microlites ranged themselves exactly as in natural rocks, with the same distribution of vitreous base and vitreous inclusions. It is thus demonstrated that a rock like basalt may be produced in nature in the dry way, by a process entirely igneous.¹⁶

More recently, another series of experiments has been carried on by Messrs. Doelter and Hussak of Gratz, to de-

¹⁶ See the work of Messrs. Fouqué and Michel-Lévy, "Synthèse des Minéraux et des Roches," 1882, from which the above digest of their researches is taken. Since this was written I have had the advantage of being shown by M. Michel-Lévy the original slides prepared from the products obtained by him and M. Fouqué, and I can entirely corroborate the results at which these observers have arrived. They have succeeded in imitating all the essential features of such rocks as basalt, down even into minute microscopic details. They have produced rocks, not only showing microlitic forms, but with crystals of the constituent minerals as definitely formed as in any natural lava. Indeed it would be hardly possible to distinguish between one of their artificial products and many true lavas.