

Micas, etc., and the hydrous silicates which include the Zeolites, Clays, talc, chlorite, serpentine, etc.

The family of the F e l s p a r s forms one of the most important of all the constituents of rocks, seeing that its members constitute by much the largest portion of the plutonic and volcanic rocks, are abundantly present among many crystalline schists, and by their decay have supplied a great part of the clay out of which argillaceous sedimentary formations have been constructed.

The feldspars are usually divided into two series. 1st, The orthoclasic or monoclinic feldspars, consisting of two species or varieties, Orthoclase and Sanidine; and, 2d, The plagioclastic or triclinic feldspars, among which, as constituents of rocks, may be mentioned the species albite, anorthite, oligoclase, andesine, labradorite, and microcline.

Orthoclase (K_2O 16.89, Al_2O_3 18.43, SiO_2 64.68) occurs abundantly as an original constituent of many crystalline rocks (granite, syenite, felsite, gneiss, etc.), likewise in cavities and veinings in which it has segregated from the surrounding mass (pegmatite); seldom found in unaltered sedimentary rocks except in fragments derived from old crystalline masses; generally associated with quartz, and often with hornblende, while the feldspars less rich in silica more rarely accompany free quartz. It is an original constituent of plutonic and old volcanic rocks (granite, felsite, etc.), and of gneiss and various schists. A few examples have been noticed where it has replaced other minerals (prehnite, analcime, laumontite). Under the microscope it is recognizable from quartz by its characteristic rectangular forms, cleavage, twinning, angle of extinction, turbidity, and frequent alteration.²² Orthoclase weathers on the whole with comparative rapidity, though durable varieties are known. The alkali and some of the silica are removed, and the mineral passes into clay or kaolin (p. 140).

Sanidine, the clear glassy fissured variety of orthoclase so conspicuous in the more silicated Tertiary and modern lavas, occurs in some trachytes in large flat tables (hence the name "sanidine"); more commonly in fine clear or gray crystals or crystalline granules; an eminently volcanic mineral.

Plagioclase (Triclinic) Feldspars.—While the different feldspars which crystallize in the triclinic system may be more or less

²² On microscopic determination of feldspars, see Fouqué and Michel-Lévy, *op. cit.* pp. 209, 227, and postea, pp. 168-172.