(as lherzolite and pikrite), and occurs in many gabbros; under the microscope with polarized light, gives, when fresh, bright colors, specially red and green, but it is not perceptibly pleochroic. Its orthorhombic outlines can sometimes be readily observed, but it often occurs in irregularly shaped granules or in broken crystals, and is liable to be traversed by fine fissures, which are particularly developed transverse to the vertical axis. It is remarkably prone to alteration. The change begins on the outer surface and extends inward and specially along the fissures, until the whole is converted either into a green granular or fibrous substance, which is probably in most cases serpentine (Fig. 26), or into a reddish-yellow amorphous mass (limonite).

Hauyne (SiO_2 34·06, Al 27·64, Na_2O 11·79, K_2O 4·96, CaO 10·60, SO_4 11·25) occurs abundantly in Italian lavas, in basalt of the Eifel, and elsewhere.

Nosean (SiO_2 33·79, Al 28·75, Na_2O 26·20, SO_4 11·26), under the microscope, is one of the most readily recognized minerals, showing a hexagonal or quadrangular figure, with a characteristic broad dark border corresponding to the external contour of the crystal, and where weathering has not proceeded too far, inclosing a clear colorless centre. It occurs in minute forms in most phonolites, also in large crystals in some sanidine volcanic rocks. Both hauyne and nosean are volcanic minerals associated with the lavas of more recent geological periods.

Epidote (Pistacite, CaO 16–30, MgO 0–4·9, Fe_2O_3 7·5–17·24, Al_2O_3 14·47–28·9, SiO_2 33·81–57·65) occurs in many crystalline rocks, as a result of the alteration of other silicates such as felspars and hornblende (see postea, p. 1040); largely distributed in certain schists and quartzites, sometimes associated with beds of magnetite and hæmatite.

Zoisite is allied to epidote but contains no iron. It occurs in altered basic igneous rocks and also (sometimes in large aggregations) in metamorphic groups.

Vesuvianite (Idocrase, CaO 27·7–37·5, MgO 0–10·6, FeO 0–16, Al_2O_3 10·5–26·1, SiO_2 35–39·7, H_2O 0–2·73) occurs in ejected blocks of altered limestone at Somma, also among crystalline limestones and schists.

Andalusite (Al_2O_3 50·96–62·2, Fe_2O_3 0–5·7, SiO_2 35·3–40·17). —Found in crystalline schists. The variety *Chiastolite*, abundant in some dark clay-slates, is distinguished by the regular manner in which the dark substance of the surrounding matrix has been inclosed, giving a cross-like transverse section. These crystals have been developed in the rock