

Under the awkward name of "ultra-basic," the following group of rocks is included in which the proportion of silica sinks to a still smaller amount than in the basalts.

Limburgite (Magma-basalt)—a fine-grained to vitreous rock composed of augite, olivine, magnetite or titaniferous iron, and apatite. The base is generally glassy and the proportion of silica in the rock is only about 42 per cent. The typical locality is Limburg, near the Kaiserstuhl in Baden.

Peridotite Group.—The rocks here embraced, stand at the extreme end of the basic igneous rocks as the rhyolites and granites stand at the opposite end of the acid series. They contain no felspar, or at least an insignificant proportion of it, and consist of olivine, with augite, hornblende or mica, magnetic or titaniferous iron, chromite and other allied minerals of the spinel type. They contain—silica, 39–45; alumina, 0–6; ferrous oxide, 8–10; lime, 0–2; magnesia, 35–48; and have a mean specific gravity between 3.0 and 3.3. When quite fresh these rocks have a holocrystalline structure, but they are generally more or less altered, and in their extreme condition of alteration form rocks known as serpentines. They occur for the most part as intrusive masses belonging to the deeper-seated portions of volcanic eruptions. The following varieties may be noticed:

Pikrite²⁰⁵ (Palaeopikrite, Pikrite-porphry)—a rock rich in olivine, usually more or less serpentized, with augite, magnetite, or ilmenite, brown biotite, hornblende, or apatite; occurs as an eruptive rock among Palaeozoic formations; is closely related to the diabases into which by the addition of plagioclase it naturally passes. When hornblende predominates over pyroxene the rock has been called hornblende-pikrite.

Lherzolite²⁰⁶—so named from L'herz in the Ariège, is a holocrystalline rock composed of olivine, diallage, and a rhombic pyroxene, with a lesser proportion of a spinel-oid sometimes brown (chromite, picotite), sometimes green (pleonast), and iron ores.

Dunite, named by F. von Hochstetter from the Dun Mountain, New Zealand, consists of a granitoid mixture of olivine with chromite or other spinelloid. Such a rock passes naturally by alteration into a serpentine.

²⁰⁵ So named from *πικρός*, bitter, in allusion to the large proportion of bitter-earth (Magnesia)—a character shared by all the peridotites. Gümbel, "Die Palaeolithischen Eruptivgesteine des Fichtelgebirges"; Munich, 1874.

²⁰⁶ On the eruptive nature of Lherzolite, see A. Lacroix, *Compt. rend.* cxv. (1892), pp. 974 and 976.