

have the composition of granites. They vary much in coarseness from place to place and from band to band, ranging from finely and evenly granular varieties (which are the prevailing ones) to those which are quite coarsely crystalline. An alkali feldspar (microperthite, microcline or orthoclase in order of abundance) and quartz are the prevailing minerals, magnetite is always present, and usually hornblende in small amount as well. Biotite sometimes occurs instead of hornblende or together with it. The coarser gneisses often show traces of cataclastic structure, larger individuals, usually of feldspar, being surrounded by a granular mosaic which seems to have resulted, at least in part, from the crushing of the larger individuals. The fine grained varieties have the character of this mosaic throughout, the larger individuals being absent, so that, though they are likely akin to the coarser rocks, being simply more thoroughly granulated representatives, due perhaps to original finer grain, it is impossible to be certain that this is the case.

Along with these red gneisses, often interbanded with them with seeming regularity, often found in large masses, are two other kinds of gneiss of common occurrence. Like the red gneiss, they show many variations in composition and appearance, and also show a rude foliation, usually parallel to the banding. The more abundant sort is usually gray in color and consists essentially of pyroxene and feldspar, both plagioclase and orthoclase. The pyroxene may be either augite or hypersthene (or enstatite), or both, augite being the more frequent. The usual augite is a deep emerald green and shows pleochroism from green to yellow green, resembling aegirine augite. Magnetite is always present and sometimes a little hornblende and biotite as well. Either orthoclase or plagioclase may be in excess and either may be present to the exclusion of the other. The plagioclase is usually oligoclase but sometimes andesine. These rocks usually show an evenly granulated or granulitic structure quite like that of the fine grained red gneisses, but how much this is due to granulation, or to recrystallization, or may even be original, can not be determined.