

187 Pegmatite. This is a coarse grained rock made up of the same minerals as are found in granite. Quartz and light colored felspar however predominate in this rock, and mica when present is usually light colored. The rock is often a storehouse for rare and valuable minerals, among which may be mentioned tin-stone, tourmaline, corundum and beryl. Graphic granite is a variety in which the gray quartz is so arranged through the white felspar as to present the appearance of characters in the ancient Grecian or Phoenician alphabet.

188. Syenite. Coarse grained; color usually reddish or gray. This rock has much the appearance of granite, and differs from it only in the absence of quartz. Hence a syenite may be called a quartzless granite. While the percentage of silica in granite, on account of the presence of quartz, is high, 65 to 80, making an acid rock, the silica in syenite is in a considerably lower percentage. Hence syenite is said to be a rock of intermediate composition—its percentage of silica lying between that of granite and the basic rocks, or those low in silica. A highly interesting rock known as nepheline syenite is found in the northern part of the county of Hastings, Ontario. In it the rare mineral nepheline plays the part of a felspar.

189. Diorite. Usually a rather coarse grained rock and darker in color than syenite, from which it differs by having plagioclase instead of orthoclase as its felspathic constituent. Typical diorite consists essentially of plagioclase and hornblende.

190. Gabbro. Often very coarse grained; usually dark in color. It contains a lower percentage of silica than diorite, and typical specimens are composed essentially of basic plagioclase and the variety of pyroxene known as diallage. Where hypersthene is present as an essential constituent the rock is known as norite. Anorthosite, a rock related to gabbro, consists essentially of lime-soda felspar. It may be mistaken for crystalline limestone, but is harder. Gabbro often contains much magnetite, and it is believed by some authorities that certain magnetite deposits found associated with this rock are of igneous origin, and have been formed at the same time and out of the same molten mass as the gabbro with which they are associated. A similar theory has been proposed to account for the origin of the nickeliferous pyrrhotite deposits of Sudbury, which are associated with gabbro like rocks.

191. Obsidian. This is a natural glass. It is, in some cases, a volcanic representative of the plutonic granite, as the two rocks agree in chemical composition. Their structural difference, one being a glass and the other a coarsely crystalline granular rock, is to be accounted for by their difference in origin. Granite originated deep down beneath the surface of the earth by the gradual or slow cooling of molten matter. On the other hand, the molten material from which obsidian was formed poured out at the surface of the earth and lost heat so quickly that there was not time for the molecules of the minerals to arrange themselves so as to form grains. The whole mass became solid in a comparatively short time. Rhyolite is like granite in chemical composition, but is more or less glassy. Sometimes it is composed of crystals of orthoclase and granules of quartz set in a glassy groundmass.

Rhyolite.