

5 inches in length and breadth, by an inch or more in thickness, and are separated from the granular felspathic rock by a thin film of brownish-black mica. Titaniferous iron ore is also found in grains and lenticular masses, occasionally an inch or two in thickness; these occur in the granular base, and generally near the hypersthene, but grains of the mineral are occasionally found in the crystalline felspar. Quartz in small grains is imbedded in the titaniferous iron, but was not observed elsewhere in the rock, nor have any other minerals than these been detected. In the specimens of the rock which I selected on the spot for examination, the crystalline felspar constitutes from one-half to seven-eighths, while the hypersthene does not equal more than  $\frac{2}{100}$ ths, and the titaniferous iron more than  $\frac{1}{100}$ th of the whole; the amounts of quartz and mica are insignificant. In other portions of the rock, however, the proportion of the ore may equal 5 per cent., and in some parts the amount of hypersthene is nearly as great. By the action of the elements, the surface of the rock becomes of a dull opaque white; the cleavable masses of felspar are, however, less affected than the granular portion, and by their obscure reddish colour are distinctly visible on the weathered surfaces; this change extends but a very little distance into the rock. The iron ore of course remains unaltered, but the dark brown hypersthene becomes lighter, and inclines to a pinchbeck-brown.

The felspar is triclinic in cleavage; the angle of  $P : M$  = about  $80^{\circ} 80'$ . Cleavage with  $P$  perfect, with the other planes distinct;  $P$  is often delicately striated, and sometimes curved. Hardness = 6, and density 2.667 to 2.674. Lustre vitreous, sometimes pearly on  $P$ ; colour flesh-red, passing into reddish, greenish and grayish-brown; the surfaces sometimes mottled, but the red always predominating.

The following analyses were made of three different specimens, which were carefully selected, and after being pulverized, dried at  $212^{\circ} F$ . The earthy ingredients were determined after fusion with carbonate of soda, and the alkalies by the method of Dr. J. L. Smith, which consists in igniting for some time the finely levigated mineral with five or six parts of carbonate of lime and three-fourths its weight of sal-ammoniac. The agglutinated mass slakes by the action of water, and yields to that liquid its alkalies in the form of chlorides, with a mixture of chloride of calcium. A second ignition of the undissolved residue with two-thirds the first amount of sal-ammoniac ensures the separation of the last portions of alkali. These processes were adopted in all the analyses here given, with some exceptions to be noticed in their places.