

shaped crystals of plagioclase now almost entirely altered to rhombohedral carbonates; also phenocrysts of some ferromagnesian constituent now completely altered to a mixture of rhombohedral carbonates, quartz, chlorite and oxide of iron. The rock shows a few vesicles now completely filled with decomposition products, such as chlorite and calcite. A few well defined hexagonal crystals of fresh apatite of large dimensions occur scattered through the groundmass, also a few veins of calcite.

No. 8.—Fine-grained grey rock from Brewer Creek, Upper Kettle River.

"About one mile from the mouth of Brewer Creek and in line with the foothills, there is an outcropping of the solid rock formation exposed in the banks of the creek. The formation here seems to be chiefly granite, alternating with dykes of fine-grained basic volcanic rocks, and occasionally, apparently, with still more recent and very acid dykes."

The sample in question is taken from one of the acid dykes.

The hand specimen is a dyke rock, medium fine-grained and grey in colour.

Under the microscope, the rock is seen to be much altered and to be composed almost wholly of altered felspar crystals twinned according to the Carlsbad law, on account of which, as well as from the total absence of albite twinning, they were assumed to be orthoclase. Small narrow laths of biotite are abundant, which, however, have undergone considerable alteration, in most cases being changed to chlorite. Secondary quartz, associated with calcite and apatite, is also noticeable, and, as accessory constituents, magnetite and pyrite. The groundmass, which consists of small felspar individuals, also has a small amount of quartz, possibly secondary, distributed through it. There are a few vesicular cavities filled with zeolites.

The rock corresponds in character and composition to a minette.

No. 53.—"Porphyrite from Rebecca Mine, Rock Creek, west side of Kettle River, 4 miles above Rock Creek. Elevation 4,000'."

"The chalcopyrite is carried by a quartz vein which cuts this rock. Value of mineral, \$22 per ton."