

others show the peculiar mottled extinction produced by pressure, while others again are distinctly seen to be in the act of breaking up into a mass of small grains. Both feldspars also, although having more or less perfect crystalline forms, are almost invariably broken into little grains around their edges which gives them a somewhat rounded contour, the edges being often highly serrated. In addition to these feldspars the rock contains quartz, hornblende, epidote, ilmenite, sphene (?), apatite, hematite, calcite, chlorite and pyrite.

The quartz is present in rather small amount and lies chiefly in corners or between the large feldspar individuals. It is uniaxial and positive and shows an uneven extinction. Judging from its mode of occurrence it is in great part at least a primary constituent of the rock. The hornblende occurs only in very small amount and is not seen in all sections. It is pleochroic in light green and light yellowish green tints and is without good crystalline form, being somewhat fibrous in character, the extinction making an angle with the cleavage, for which the highest value observed was 17° . The epidote is present in small quantity, in irregularly shaped grains, or aggregates of grains, often associated with the hornblende. It shows the characteristic pleochroism and is probably secondary in every case. Primary epidote does however occur in a similar, but unaltered mass of biotite granite, which is erupted through rocks of the same series as those cut by this granite on Wrangell island, Alaska. (See appendix 5 B, Annual Report of the Geological Survey of Canada, 1887). A small amount of ilmenite or titaniferous iron ore is also found in the sections. It is opaque and black, sometimes having a slight reddish tinge by reflected light. In one case a few small grains were seen imbedded in broken feldspar. Each grain had been broken into several pieces which lay close to one another and were cemented together by a greyish material resembling leucoxene, which is frequently observed associated with the iron ore in this rock. A few little flecks of hematite are seen as inclusions in the feldspar. The sphene and apatite are present in small amount, the latter being in rather short and stout crystals.

In addition to these minerals the rock contains remains of some mineral now replaced by aggregates of decomposition products which frequently present rather perfect oblong outlines as if the original mineral had possessed a pretty good crystalline form. The principal constituent in these aggregates is calcite, which occurs in grains having the peculiar silvery white color usually exhibited by this mineral between crossed Nicols. Associated with it is chlorite, epidote, and often very small amounts of quartz, pyrite, and ilmenite or magnetite. In one of these masses a grain of light green somewhat fibrous hornblende was found filled with calcite grains and associated with epidote, chlorite and hematite. The mass appears originally to have been all hornblende, of which these other minerals are decomposition products, in fact all these aggregates probably represent original hornblende grains, chlorite, quartz, calcite and epidote being the minerals into which the hornblende of granites usually splits up in decomposing.