

acter to that here described remain to be discovered. With the facts developed in connection with this mine in view it would appear to be well worth while to subject to examination and assay all pyritous granitoid rocks in contact with or penetrating the sedimentary formations, and in particular those which may be found to traverse the slaty argillites of the formation above referred to as the Vancouver series.

ON THE MICROSCOPICAL CHARACTER OF THE ORE OF THE TREADWELL MINE, ALASKA.

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(Read before the Royal Society of Canada, May 8th, 1889.)

The material employed in this examination consisted of several small specimens kindly placed at my disposal by Dr. Geo. M. Dawson who collected them at the Treadwell mine in 1887, together with two collected by Mr. R. G. McConnell, of this survey, who visited the mine when returning from the Yukon country last autumn.

The ore is a more or less altered granite, rather coarse in grain and of a light grey color. As mentioned by Dr. Dawson in the previous paper it encloses "kernels" often greenish in color and distinctly granitoid in appearance, having a diameter of from six inches to several feet. These are of the same grain as the rest of the mass, but are harder and less evidently decomposed, and pass rather sharply but imperceptibly into the ordinary grey granite. As these represent the granite in its least altered form they will be described first.

The Kernels.—One of the hand specimens shows a portion of one of these "*kernels*" which is seen to differ from the ordinary granite in two particulars: 1st, in being light reddish in color instead of grey; 2d, in being free from quartz-veins and holding but little pyrite. When a thin section is held against a dark background it is seen to be made up of numerous rather large translucent crystals or individuals closely packed together, but separated by narrow, transparent, intermediate lines. Under the microscope these translucent crystals are seen to be feldspar a good deal decomposed (which accounts for the opacity) while the intervening spaces are found to be in part grains of quartz, or of broken feldspar and in part the edges of feldspar crystals, which are often much freer from decomposition products than their central portions.

Most of the feldspar is untwinned and is referred to orthoclase. A much smaller amount, however, shows polysynthetic twinning, in a few cases two sets crossing at right angles, and is therefore plagioclase. In one of the sections a few large grains showing perthitic intergrowths were seen. Both feldspars often possess a marked zonal structure, caused or accentuated by the accumulation of decomposition products along certain concentric lines. Although many of the feldspar individuals extinguish simultaneously over their whole extent many