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GEOLOGICAL REPORT ON THE

COL CLAIM GROUP - RIDGE.

Location and General Topography

The geological mapping of the ridge, which bends roughly North, in the map-area lies in the Omenica mountains of the central Plateau. The mapped area is at latitude 55°57N and longitude 125°26 W. The nearest township is Germansen Landing, about 50 miles, from the map area. Access from Germansen is provided by tractor road.

Relief in the area range from 5500 feet to 6430 feet. The highest point on the ridge as observed from altimeter reads 6500 feet. Besides the central ridge there are two easterly bending ridges giving horse shoe appearance. Broad and flate valleys on both the sides, East and West, give rise to numerous small streams. In Towards the south central part of the map-area is a cirque lake which is surrounded by steep semi-cone shaped ridge.

The Northern slopes of the ridge are very steep (slope angle 33.5°) and commonly laid with loose mantle. But the southern slopes are smoother and practical whole length of the ridge. Slopes are mantled. Evidence of glaciation is more on the southern slop.

Vegetation along the stop is very sparse. The valleys give rise to thick timbers and beautiful alpine meadows

Geology of the Map Area

The geological formation of the ridge as studied from the out crop along the ridge top and the slopes can be divided into two major rock Units :-

(1) Hogem Granitoid and

(2) Duckling Creek syenite complex

Besides the two major units are also exposed numerous fine grained dykes and aplitic intrusion cutting through the country rock. ~~Also~~

Within Hogem ~~granited~~ granitoid rocks are distinguished quartz bearing monzodiorite and fine grained monzonite. Rock formation along the ridge top is mainly coarser grained Hogem Granitoid and these gets more abundent along the Northern extreme end of the ridge. The North West slop is laid with abundent loose mantle of Hogem granitoid and quartz bearing monzonite. Hogem granitoid in the southern area show gradual change into finer grain with less content of quartz and finally to monzonite. with alteration of Biotite & hornblend to chlorite.

Duckling creek Syenite complex consists principally of K-felspar syenite, porphyritic and ~~Syeni~~ pegmatitic syenites. Syenite complex formation ~~formation~~ is common in the centre of the map area and along the valley with some pyroxenite and mafic micaceous rocks. Pyroxenite out crops are irregularly found along the with the syenite rocks.

monzonite and monzodiorite rocks are commonly exposed to the south. They show gradual change in grain size towards the southern end from fine to medium and coarse grain with alteration of mafic minerals.

Rock types in the map area show gradual change and with this gradual change the contact between rock types some times becomes confusing.

The rock types within syenite complex are - variable textured syenites, syenitic monzonite pyroxinite and flow from monzonite and Hogem Quartz bearing monzonite.

(1)

(1) Hogem Granitoid Rocks.

(a) Hogem Quartz bearing monzodiorite

Hogem Granitoid rocks are the Hogem Quartzbearing monzodiorite. The composition of these rocks are nearest to that of diorites. The ridge top show the formation of these rocks. They are generally massive, grey, medium grained with phenocrysts of felspars. Mineral composition shows potassium felspars 20%, plagioclase 30-35% quartz about 5% and the mafic minerals include pyroxene augite, biotite, magnetite and apatite.

The plagioclase content is dominant some times giving pinkish grey colouration to the rocks and it's usually well shaped phenocryst. Alkali felspars is not fine to some times med grained and quartz show fine grain; anhedral. Hogem

granitoid show hydrothermal alteration. Chloriti-zation is shown from hornblende and biotite.

⑤ Monzonite

Monzonite occupy an intermediate position between syenite and hogem quartz bearing monzodiorite, or diorites; hence some times they may even be referred to as syenodiorite. They are characterized by approximately equal amount of potash feldspar and plagioclase - neither of these constitute less than a third or more than two thirds of the total feldspar. Quartz is usually present but in very small amount, never exceeds 7% by volume. Color indices generally lie between 30 and 40. The mafic minerals are augite, hornblende, biotite, apatite and sphene. By increase in quartz, monzonites pass into adamellites. These rocks are generally pink and fine to medium grained.

② Duckling Creek Syenite complex.

(a) Syenites - usually fine to medium grain, grey, in which alkali feldspars make up at least two thirds of all the feldspar with little or no plagioclase. The common mafic minerals are those of hornblende and biotite.

(b) Pyroxinites.

These are coarse, allotriomorphic-granular rocks consisting mainly of pyroxene. They

found to occurs as discrete intrusions. They are Exposed to the southern slop of the ridge and along the valley to the south of the map area. Pyroxenite rocks are dark blackish green which is due to monomineralic Ultramafic pyroxene. Biotite pyroxene occurs as plutonic complex to the south along the hillock before the circque lake at about 800feet south of camp site. Half the volume of the rock is of biotite which gives the rock dark blackish colour.

Flow-foam Monzonite

These are the monzonite flow found along the ridge on the centre of the map area. The rocks show K-feldspars, plagioclase and pyroxene which give slightly gneissic appearance

Fine Grained Porphyritic Dykes

The fine grained dykes as shown on the map are exposed mainly along the ridge top. The two sets of dykes striking along the ridge show four dyke exposes. The dyke striking in the middle of the map area is found ~~at about 100feet from~~ two feet South ~~of~~ from the post with no tags. The dykes are exposed through the Porphyritic granitoid rocks and are fine grained, grey and pink. Along the dykes is found a good showing of malachite mineralization. The malachite

showing is about 200 feet along the ridge and about 175 feet across. These rocks show very good showing of malachite & chalcopyrite. These are also found some qtz vains with malachite mineralization along the rock formation. These rocks are scattered as loose mantle upto fare distance along the slopes. The dyke exposes are about 50 to 70 feet and along the slopes they could be traced for only few feet due to the slopes covered with heavy loose mantle and talus of hypers porphyritic rocks and dyke rocks. The second set of dyke is found along the slope to the extreme end of the ridge to the North. These dykes show two types of texture alternating at about after regular interval. One type shows porphyritic fine grained, pinkish buff color mostly of felspar, plagioclase, biotite. The rocks are very brittle and loose texture with minute cavities - microlitic texture - shrinkage during freezing of magmas giving rise to cavities which may have been formed due to late emission of gas during close of crystallization. The second type show very fine grained glassy nature with flow structure. The rocks show tendency to parallel and sub parallel alignment of minute porphyritic elements in fabric of fine grained plagioclase and felspar - light pinkish grey colour. The structure resemble swirling lines of viscous flow. Out crop about 30 feet along

the ridge top between 70 to 80 feet regular interval of each succeeding dykes. Along the slopes the dykes can be traced for only about 60 feet on the west slop and this is due to the loose mantle & talus.

Aplite

Light colored of cream to pink, granite composition - of fine grained quartz, feldspar, plagioclase and the mafic mineral content is less than 5 percent. The texture of the rock look like glassy - to saccharoid. A good aplitic showing is found to the southern slope of the ridge. A quartz vein is also found cutting through Aplite formation Monzonite around the intrusion show high alteration of biotite to chlorite. At other places aplite rock is found as small veins as stringers.

One of the dyke intrusions as shown in the syenitic rocks in the centre of the map area shows an interesting feature. The intrusion is Ultrabasic and the rocks show porphyritic texture - with mafic composition of large well shaped phenocrysts of hornblend (?) set in a fine mafic ground mass of mainly pyroxene, mica, crystals of quartz, feldspar also feldspar. Some quartz crystals are also developed within hornblende phenocrysts (sample 80-7-3) The formation

of phenocrysts and the of fine ground mass can be explained as two stages of crystallisation condition of magma changed by intrusion or extrusion. The phenocrysts originated at depth and belong to the early stages of crystallisation when the magma was hot and then the finely crystalline mineral matter in the ground mass may have been formed due to sudden transfer from a depth to a higher level in the crust as may have been extruded at the surface. These rocks show good mineralization of malachite along with chalcopyrite. The out crop of the rocks is about 150 x 50 feet.

Other features of the geology are the quartz veins. The veins are very common, of various lengths & widths. They are at places densly crystalline with large crystalline development and swell. In the centre of the map among the monzonite rock at about 5720 feet is found an exposed of an interesting quartz vein. The vein exposed can be traced for about 133 feet and along most of the length the vein is almost about 2 feet. Interesting feature about this showing is a very good

formation of malachite mineral along with rich chalcopyrite.