THE GEOLOGY OF THE MUSCOVITE AND IONE MINING CLAIMS

by

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Scope of report.- The field examination on which this report is based was carried out on August 9, 1937. Another day was occupied in microscopic identification of minerals and report preparation.

In view of the limited time available and the fact that the few prospect pits on the claims reach a depth of only a few feet, the information given below cannot be considered as complete and exhaustive.

Location, topography, and communications.- The Muscovite and Ione claims, of an area of 20 acres each, are described in the legal filings on the claims as occupying respectively the W½ NE¼ SE¼ and the E½ NE¼ SW¼, both in sec. 32 T. 13 N., R. 78 W. of the 6th Principal Meridian, Albany County, Wyoming. The claims are not adjacent. A square tract one fourth mile on a side lies between the west line of the Muscovite and the east line of the Ione.

The claims are on the gently rolling top of the Medicine Bow Range between elevations of 9,100 feet and 9,200 feet on the divide between the main North Platte River and Laramie River drainage areas. There are no deep valleys in the immediate vicinity of the

claims. The area is heavily forested with lodge pole pine. All the timber large enough for saw logs has been cut, but there is an abundance of excellent timber large enough for mine props. Over large areas the solid rock is exposed at the surface. Soil cover is thin over the rest of the area and consequently there is little probability of having to remove any extensive overburden. Because of the low relief, it is probable that the water table lies from 10 to 50 feet below the surface on both claims. Since the soil cover is thin and the metamorphic and igneous rocks have a very low porosity, it is not likely that pumping of water would be a heavy item of expense.

Both claims are accessible by a secondary road joining Wyoming Highway 70. The distance from the highway to the cabins on the Muscovite is approximately a mile. The highway is kept open by snow plows during the whole of the winter. From December to April or May the secondary road to the claims is closed by snow, which reaches, at times, a depth of three to four feet. The road could, however, be kept open at a comparatively low cost.

The nearest rail point is Fox Park on the Laramie, North Park and Western Railroad, a little more than two miles to the northeast of the claims and 40 miles southwest of Laramie. The distance from the claims to Fox Park over the present roads is approximately four miles. There is less than 100 feet difference in elevation between the claims and Fox Park and, over the present roads, there are no steep or long grades.

On the Muscovite claim there is a spring with sufficient flow of excellent water to supply the domestic needs of at least ten men. For a larger supply, such as for the operation of a mill, it would be necessary to go to West Beaver Creek three quarters of a mile to the west.

General Geology.- The rocks at the claims are of pre-Cambrian age. Metadiabases, hornblende schists and gneisses are cut by several large granite-pegmatite dikes. It is possible that there are a few thin patches of Tertiary volcanic ash lying on the pre-Cambrian rocks in some of the lower parts of the area. A large park about a mile west of the Ione claim is underlain by these volcanic ashes, which are exposed in a few stump holes.

Pegmatites.- There are at least three large granite-pegmatite dikes on the two claims. One of the Muscovite strikes N 50°E and can be almost continuously followed for 600 feet. Its maximum width is 70 feet and the average width approximately 40 feet. Near the west side of the Ione a pegmatite of maximum width of 25 feet strikes N 70°W and can be traced continuously for 450 feet. Farther east on the Ione a pegmatite dike at least 800 feet long and of maximum width of 30 feet strikes N 40°W. It is probable that these last two dikes join under cover to the southeast.

The pegmatites consist predominantly of a white feldspar and quartz. In a number of places the two minerals are intergrown in a graphic structure. The average grain size in the pegmatites is

around one inch. However, in many places there are single feldspar crystals several feet across. A characteristic feature of the dikes is the occurrence of crystals of pink microcline some inches across within the finer aggregate of quartz and white feldspar.

The minerals collected and identified with a petrographic microscope are:

1. Quartz
2. White soda-lime feldspar in the range of basic albite and acid oligoclase
3. Pink microcline
4. Muscovite
5. Beryl
6. Tantalite-columbite
7. Tourmaline (variety schorl)
8. Garnet

The albite-oligoclase feldspar and microcline occur in many places in crystals with little or no intergrowth of quartz. Some of the areas are large enough so that commercial feldspar could be produced without milling or extensive hand sorting. Muscovite occurs in the pegmatites in crystals from a fraction of an inch to an inch across over a considerable portion of the surface exposures of the dikes. In certain areas as much as 100 feet across the muscovite forms books up to a foot wide. Near the surface the muscovite contains numerous dark iron spots, but there is some indication of decrease in iron spotting in the muscovite taken from the bottom of the shallow prospect pits.

Green beryl of a range of refractive index indicating a low alkali content and tantalite-columbite occur in a few places along fracture zones and apparently fill openings or replace the wall rock along fractures.

Black tourmaline in crystals up to several inches long is found replacing the metadiabase and hornblende schist wall rock. In addition there are veinlets of very fine-grained tourmaline cutting the quartz in the pegmatite dikes.

A yellowish-brown garnet, probably andradite, is found sporadically in various places in the pegmatites.

A greenish-yellow powdery mineral, which was not identified, but is reported to contain vanadium, is found as an incrustation on quartz near the surface. Because of the powdery character and mode of occurrence, the mineral is probably a weathering product and does not occur below the water table.

Development.- On the Muscovite claim there is an old shaft filled with water to within ten or fifteen feet of the surface. It is probable that the bottom is only a few feet below the water table. There are also several trenches and prospect pits less than ten feet deep. On the Ione near the north end of the east dike a trench fifty feet long and not more than ten feet deep has been run along the strike of the dike. Prospecting has not yet been carried far enough to yield much more information than that there are areas some feet across containing muscovite, beryl, and tantalite-columbite in addition to the feldspar available.

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