

gram will show the relationship between these veins.

The Eva and Criterion veins, if they maintain their direction, should intersect on the Oyster ground. Reasoning from analogy, when they intersect, increased values may be found, and probably cross veins and other veins be met with. The galena vein, besides the lead sulphide, carries blende and iron or copper pyrite rather heavily developed in a quartz gangue. The veins vary in width from a few inches to a number of feet.

On the Beatrice, near the head of Mohawk Creek, a quartz vein with some sericite and calcite occurs in a highly carbonaceous phyllite. Blende is perhaps the commonest sulphide. It is veined by tetrahedrite. Galena also is found of later formation than the tetrahedrite. Pyrite and chalcopryrite occur intimately mixed, veining the zinc blende, and apparently formed later than the tetrahedrite.

#### FERGUSON CAMP.

Ferguson is the mining centre of Lardeau Creek. The central mineral belt from Camborne crosses from the Beatrice to the Lardeau slope, continuing over Great Northern Mountain, the spur of Ferguson Mountain between the forks of Lardeau Creek and up the slope of Silver Cup Mountain to its summit. On this belt a number of claims have been located. A considerable section of the line dike belt is also tributary to Ferguson, but on account of difficulties of transportation little work is at present in progress on the most promising claims in this belt.

The Nettie L. is situated on a spur of Ferguson Mountain, about 5,100 feet above the sea, or 2,100 feet above the towns. The country rocks are carbonaceous phyllites or slate. Some quartzitic rocks already referred to occur in the neighbourhood together with dykes of the diabase schist. The average strike of the rocks is about  $280^{\circ}$  but varies somewhat on account of folding. A synclinal fold seems to be here developed, whose symmetry is disturbed by faulting. The dip and strike at any point will therefore depend on its position in the fold.

About 6,000 feet of work have been done in two claims opening up three leads, known as the main, the cross leads and the big quartz vein. These veins are for the most part independent of the strike of the rocks. On the Ajax claim adjoining the Nettie L. to the east, and belong to the same company, the lead opened up appears to follow the bedding of the rocks in seams and reticulating veinlets. The rocks here are folded into a canoe-shaped syncline. The strike changes from easterly with a northerly dip, to northerly with a westerly dip. Successive portions of the ore following the beds turn northward from their original course. The ore consists of quartz heavily mineralized with tetrahedrite, galena blende and some copper and iron pyrites. When weathered, wire silver is occasionally found. Zinc blende has been the first of the sulphides to be found. It is replaced and veined by tetrahedrite. Copper pyrite veins the latter; galena is newer than the copper pyrites. Some quartz and calcite have been developed after the sulphides. Sericite is found sparingly in the quartz gangue. The

vein matter may form a solid mass or may occur as numerous reticulating veins or stringers in the rock. Replacement of the country rock by vein material has often occurred. Beside the silver and lead values some gold is obtained from this ore.

The Silver Cup mine is also to the south of Lardeau Creek near the crest of the Silver Cup Mountain. About 5,000 feet of work has been done on the property, mostly in the Silver Cup and Sunshine claims. The country rocks consist of carbonaceous slates or phyllites, with the usual strike and dip, and dykes of the altered rusty weathering diabase schist, which while almost parallel to the slates, sometimes cuts them.

Two main leads occur running almost parallel to the formation. One of these is "blind." Connecting these parallel leads are numerous cross veins, one of which makes a large body of ore. The veins present the same characteristics as the Nettie L. vein. The ore is localized in chutes of lenticular form, some of which are of large size—one slope being 275 feet long. The chutes occur where cross fissures meet the leads. Sometimes some of the numerous slips form apparent walls to the lead, but vein matter is usually found beyond such walls. So far the ore is confined to the slate band between two parallel dykes of the diabase, although the latter rock has been mineralized with pyrite.

The character of the ore is similar to that of the Nettie L.: argentiferous tetrahedrite has been taken out in blocks up to 18 inches in diameter. Some of the richest tetrahedrite yet found has been obtained in considerable quantities in the deepest workings, 600 feet below the highest, indicating that the values are not the result of mere superficial alteration and enrichment of the vein. The first grade ore carries \$12 per ton in gold in addition to its silver and lead values.

Since these Nettie L. and Silver Cup ores have up to the present been shipped to the smelters at Trail or Nelson, the costs of smelting or mining having amounted to about \$50 per ton, so that only the richest ore could be handled. Consequently large dumps of second grade ore have accumulated.

To treat these and other low-grade ores in the mines the Silver Mill at Five-Mile has been constructed.\*\*\*

The Triune mine is situated a short distance south-east of the Silver Cup, separated from it by a gulch and a small ridge. The tunnels enter the face of a cliff under a small glacier. The mode of occurrence and character of the ore is very similar to that of the Silver Cup. Indeed from the course and dip of the Silver Cup lead it is highly probable that the Triune is on the extension of the same leads. There is, however, this difference, the northern vein sometimes traverse the southern diabase dykes, and the southern vein occurs outside this dyke, with the dyke as a sort of hanging wall.

In the upper part of the mine, near the bed of the glacier, the ground is frozen throughout the summer.

\*\*\*A description of this mill was published in the MINING RECORD for November, 1903, p. 857.