

of business are well represented in the new mining camp, the supply of labor both in the town and at the mines has at all times been equal to the demand.

FORMATION OF THE DISTRICT.

The writer is indebted to Mr. J. D. Sword, M.E., of Rossland, for the following remarks on the mineralogical and geological formation of the district:—

"Up to the present little or no geological or mineralogical exploration has been done, and the eruptive rocks which form the country rock of the district have not been identified with any particular epoch, and no sedimentary rocks, altered or otherwise, have been noticed within a considerable distance from the camp. The eruptives which form the country rocks of the camp are, however, very similar to those of some parts of eastern Canada, notably Sudbury. The prevailing rock is a greenstone in all its various refinements of nomenclature, but mostly diorite, syenite, porphyry-diorite of all shades and textures, owing to its constituents, viz., feldspar, pyroxene and hornblende being variously proportioned. At a distance from the veins, the country rock appears to have a lighter color and a coarser texture. The whole of the country rocks have a jointage more or less distinct. The lines of jointage or cleavage appear to be more numerous near a vein, and the rocks there have a short, sharp, blocky appearance, which does not obtain so much as at a distance from the ledges. A large portion of the country rock, particularly near the veins, on a fracture, shows iron in small flecks, in the form of magnetic pyrites, with a few specks of chalcopryrite. Several eruptive dykes, very similar to the adjacent rocks, though lighter in color, owing to excess of feldspar, which traverse different sections of the country. The general contour of the country is by no means abrupt, but the hills appear to have rounded off by nature, and luxuriant timber and undergrowth cover the greater part of it. Winter does not set in till late in the year, and although there is an almost continual downfall of snow the winter is mild, and there is but a very short period of excessive cold, such as we experience in eastern Canada. The general strike of the veins is east and west, and their dip near the surface between 60 and 70 degrees, though on sinking on some of them, notably the Le Roi, the veins become almost perpendicular."

THE VEINS AND ORE.

In all places these veins are strong, true and very easily traceable, throwing considerable "float" in the shape of capping mixed with ore. They vary in width from 3 to 50 ft.; in some places veins as wide as 200 ft. have been found, but they are unusual. These veins are, as a rule, heavily covered with a strong greenstone capping, impregnated to a greater or less degree with pyritic and white iron. The lines of jointage of the "cap" rock are usually filled with a decomposed mass of red oxide of iron, very dark in color. The ore is generally found under this capping at a depth of a few feet. The general opinion among mining engineers is that these veins are true fissures. The ore is a massive mixture of copper and iron sulphide, consisting of pyrite, a chalcopryrite, pyrrhotite, arseno-pyrite, and mispickel, with a quartz and calcspar gangue. This ore is not often crystallized, but is usually in a solid amorphous mass. It carries 1 to 3 oz. in gold, 3 to 10 per cent. copper, and a small varying amount of silver, usually less than 10 oz. to the ton. The ore occurs in chutes, short, but with an unusual frequency and width, though one continuous solid chute of ore 147 ft. in length has been found in the Centre Star mine. This ore generally, though not always, lies on the hanging wall, and the absence of any "talc" seam or "gouge" between the walls and the vein matter has been remarked. Although numerous experiments have been made, as yet it is a debatable question, in what combination the greatest gold value occurs, but assayers who have had considerable experience with the ore, aver that the chalcopryrite and arseno-pyrite carry the most gold.

Trail Creek ore is especially desirable in silver-lead smelting, as it carries a heavy excess of iron, about 25 per cent., thus making it a very valu-

able fluxing agent in the smelting of "dry" or silicious silver ores. For this reason the smelting charges on the ore are generally low, about \$5 to the ton. The ore bodies in the shipping generally average about 10 ft. in width, though in some places, notably in the Le Roi and Centre Star, lenticular-shaped bodies of pay ore 30 ft. wide have been uncovered.

NATURAL SUB-DIVISIONS.

Geographically, the camp proper is divided into two parts, the claims situated on Red, Monte Cristo and Columbia mountains on the north side of Trail Creek, and those situated on Lake Lookout and Deer Park mountains on the south side of Trail Creek. For distinction's sake those claims situated to the south of the creek are termed the "South Belt".

Development work during the past winter and early spring has proved the existence of a very valuable area of mineral country which extends north as far as Rock creek, five miles. Not enough development has as yet been done, to accurately determine the exact extent and value of this region. Remarks of the same character apply to many claims situated on the range of mountains west of Sheep creek, upon which development has been going on steadily all winter. Development work, principally in the case of the Jumbo, has proved the existence of wonderful bodies of auriferous sulphide ore. These claims do not really belong to the Trail Creek district, but they are all directly tributary to Rossland, and all ore will go via this town to the Smelter.

The camp proper, i.e. that part lying to the north of Trail Creek, is traversed nearly on east and west lines, by four main parallel veins. They are known as the Ontario, Cliff, War Eagle and Le Roi veins. On the Le Roi vein, starting to the east are situated the Copper Jack, Kootenay, Columbia, Iron Colt, Enterprise, Idaho, Centre Star, Le Roi and Black Bear claims. The North Star, Iron Horse, Virginia, Iron Mask, War Eagle, Pilgrim, Number One and Gertrude lie on the War Eagle vein. The Jumbo, Nevada, Mountain View, St Elmo, Con St. Elmo, Cliff, Eddie J. Monte Cristo and Georgia, are supposed to be on the same lead—supposed to be—because not enough continuous development work has as yet been done to accurately determine the true course and trend of the vein. There is still another large east and west vein farther north that runs through the Ontario, but the camp is yet too much in its infancy to speak authoritatively on this vein. There are other veins, distinct from these, on which the Josie, Golden Queen, Grant, Red Mountain, City of Spokane, Con. West Le Roi, and Josie, Eldorado, Commander, Great Western, Evening Star, Nickel Plate and Colonna are situated. The South belt was practically an unknown quantity until last summer, when some large bodies of high-grade auriferous ore were discovered. As far as known at present there is one main vein in this section, on which are situated The Sovereign, Crown Point, Iron Queen, Oriental, Celtic Queen, R. E. Lee, Maid of Erin, Gopher and Homestake claims. As is the case on the north side of the creek there are a number of claims with meritorious showings that have strong veins, but their continuity has not been traced so far. The exact confines of this great mineral belt are not known, but it is generally supposed to be ten miles square extending westward from the Columbia river. The claims on the west bank of Sheep Creek are all developing very nicely. A curious feature in this section is the vein of free milling quartz found on the O. K. and I. X. L. Some of the finest specimens of gold quartz in the world have been taken from these claims. There is a five stamp mill in constant operation on the property. A mill of ten stamps has been ordered. The concentrates from this property will average nearly \$300 per ton.

PROGRESS OF A YEAR.

The best criterion of the advance of a new camp is the statement of the ore shipped and its value, although it is hardly a better indication of the feeling of confidence manifested by capital and mining men of experience, in the permanency of its ore bodies, than the installation of heavy mining machinery and the construction of adequate lines of transport-