

See Fig. 3. Conditions beneath the eroded surface resembling saddle reefs (a) might also occur.

In prospecting the area it is a good rule to first locate the alkali porphyry, then run the trenches north from it. This is evident from the ideal section, Fig. 1.

This type of deposit is very irregular as to width, from the fact that the width is governed by the different degrees of permeability of the sedimentaries through whose slickensided bedding plane channels the mineralized solutions flowed.

In places the strata do not preserve their regular average dip, but stand quite steeply. This may be regarded as strictly local and effecting but a small area. An example of almost vertical strata is seen in the Burnside shafts, but this may be accounted for as follows: About 200 feet north of the shaft is a great lamprophyre intrusion, which by squeezing in between the strata, turned up in almost vertical position all strata to the south of it. See Fig. 2.

The ore deposits, i.e., the economic deposits of the camp to date are not true veins, but impregnations of the sedimentaries introduced by mineralized solutions along the slickensided bedding planes. This is quite evident from the nature of the ore on either side of the slickensided surface, which preserves its lithological character throughout, many places showing the conglomerate pebbles in the very midst of the ore. This impregnation extends back into the formation for several feet on either side of the "main channels," and at times much further by following small fractures across the bedding plane. The mineralization consists of quartz, molybdenite, graphite, pyrite, gold and tellurides of lead, silver and gold. The quartz for the most part fills small fractures along the channels, and is dark coloured, having many wavy bands of dark metallic-looking mineral running through it. As a rule a small percentage of the gold content is found in the quartz. For the most part the gold and tellurides are associated with the "impregnated" portion of the country near the slickensides. The gold content here is very high, ranging about 50 ounces per ton. The molybdenite and a small quantity of graphite give the ore a bluish black lustre, and this in conjunction with the millions of minute pyrite crystals give the ore a very rich appearance. Much free gold is disseminated throughout this mass, as well as are the tellurides. The common telluride is altaite, and to a much less degree the silver and silver-gold tellurides. There is every evidence that after the deposition of the ore the whole was subjected to slight movements at various times, which shattered the deposit. These cracks, which are very numerous and some large, but as a rule nearly microscopic are filled with secondary quartz and sometimes with calcite. At times this calcite filling encloses the pieces of native gold, which happened to be located on the fracture plane.

Deposits Within the Porphyry.

Another class of deposit is the deposit within the porphyry itself. Of this class there are two types so far seen in the field. Firstly a fissure caused by movement of the solidified porphyry and filled with quartz and brecciated porphyry. This type seldom exceeds 8 inches, and is usually two or three inches wide. The other type suggests the flow structure, while the porphyry magma was in semi-plastic state, where the strain of the flow is almost sufficiently severe to shear, thus leaving a weakened drawn out zone, which was subsequently filled with quartz emanating from the porphyry itself, thus mineralizing the weak zone. This type is often over 18 inches wide, with much quartz filling throughout, alternated by long drawn out bands of porphyry. Again, where certain flow strains with-

in the porphyry have not been so severe as to suggest flow structure, but nevertheless to cause lines of weakness, quartz again derived from the flow is deposited with mineralization in the strained zone. These deposits resemble very much differentiations from the porphyry, as they have no definite delineation, grading apparently insensibly into the porphyry. Deposits of this kind are usually narrow and short. Both types often carry spectacular gold.

The outcropping ore deposit in the sedimentaries is usually covered by more or less of a gossan, due to oxidation of the sulphides in the impregnated outcrop, and this often helps to locate the ore body, especially in trenching operations. The outcrop in the trench may be but a fraction of an inch in width, yet the rusty gossan will serve to locate it. Work may then be continued on the deposit along the strike or dip.

From Fig. 1, which is of course an ideal section, the conditions are such that it is not at all improbable that the mineralization extends also into the underlying Archean in the neighbourhood of the porphyry intrusives.

As development work progresses in the district, no doubt many new conditions will arise which will throw more light on the nature of the different deposits. This article is based practically on surface observations and is merely a summary of such observations.

ASIATICS IN VANCOUVER ISLAND COAL MINES.

Our British Columbia correspondent writes: Reference has frequently been made, especially by those advocating the cause of the coal miners who stopped work and declared a strike at coal mines on Vancouver Island, British Columbia, to the number of Asiatics employed at those mines, and there have been attempts made to give the impression that very many of the non-union miners who have worked at the mines of the Canadian Collieries (Dunsmuir), Limited, are Asiatics. If reference be made to the "Annual Report of the Minister of Mines for British Columbia," 1912, p. K. 246, there will be found a table showing the "number of hands employed" at the Coast collieries for the year, namely, 4,720, of which 4,090 were employed at Vancouver Island coal mines, including: Japanese—miners 55, labourers, 62, total 117; Chinese—miners 85, labourers 537, total 622; total Orientals or Asiatics, 739, as compared with 3,351 whites, the latter including all white employees of the coal mining companies. It should be noted that 416 of the Orientals were employed above ground and but 323 underground, and of the latter number 183 were labourers. Prior to the strike, white (union) miners employed Oriental labourers underground. Five years ago—in 1908—there were employed at Vancouver Island collieries 864 Orientals out of a total of 3,460 hands; ten years ago—in 1903—there were 865 Orientals out of a total of 2,993 employed; twenty years ago—in 1893—there were 442 hands employed at the Comox (now Cumberland) coal mines, and of them 150 were Orientals. It will be seen, then, that the employment of Orientals at Vancouver Island coal mines is by no means a new departure. It is true that there are now both Chinese and Japanese certificated miners (there were shown to be 140 in 1912), but there is no law in British Columbia, nor has there been, debarring Orientals from mining coal underground after they have passed the examination prescribed by law. No official figures are available for the current year, but I have unequivocal assurance that the number of Oriental miners—that is those who do work that only certificated men may do—is this year not much, if any, larger proportionately than in 1912.