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REPORT OF GEOLOGICAL SURVEY OF THE DIP GROUP, ELK 1 GROUP, ELK 5 GROUP, ELK 8 GROUP, Kamloops M.D.

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82M/4E

CLAIMS DIP 1-4, 6-8, 12-18, 25, R.D. 1-2,
ELK 1 FR., 2 FR., 3, 4 FR, 5-8.

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GEOLOGY OF CERTAIN WESTVILLE MINING COMPANY CLAIMS ON ADAMS PLATEAU.

INTRODUCTION

Certain claims - Dips 1 to 25, RD's 1 to 3, and Elks 1 to 8 - owned by the Westville Mining Company, were mapped in detail during the summer of 1949. The geological map was drawn up on a scale of one inch = 200 feet. The geology was also plotted to a scale of one inch = 500 feet together with the geology of the Pip claims and the results of traverses made in the surrounding area. A more general picture of the regional geology was obtained by Mr. W. Bacon of the British Columbia Department of Mines during his visit to the area.

The claims lie immediately to the north of the Pip claims owned by Pioneer Gold Mines of B.C. Ltd., and between the east fork of Gold Creek and the tributary of Scotch Creek known as Gash Creek.

TOPOGRAPHY

The Adams Plateau appears to be a partially dissected remnant of an uplifted peneplain. The comparatively flat surface of the Plateau is 5200 to 5600 feet above sea level. In the area of the claims it is almost completely covered by balsam and spruce, the exception being a grassy meadow more than a mile long called Henstridge Prairie. There are also numerous willow swamps.

Overburden is not unusually deep, but it is extensive and presents a great obstacle to prospecting and geological mapping.

AREAL GEOLOGY

The Westville claims - and all the others in the vicinity - lie within the Eagle Bay series just to the north of the Salmon Arm Map-Area described by Rice and Jones of the G.S.C.

Stratified Rocks

Nearly all the bedded rocks on the Plateau strike in the northeast quadrant and dip gently to the northwest. Some division of these rocks can be made quite easily.

Across the north end of the Plateau runs the Tshinakin limestone (Daly, G.S.C. Mem.68). It forms Mt. Pisima, and from there can be seen extending across the canyon of Spillman Creek and across Adams Lake where it forms great cliffs running up to the crest of the Samatosum Mountain. To the east, however, it is eliminated in some manner before reaching Scotch Creek where it was not observed by Mr. Mylrea, of Pioneer Mines, on a trip up the creek some twenty miles.

South of the Tshinakin limestone is a band of greenstone. It is a bedded chlorite schist which contains an appreciable percentage of scattered magnetite octahedra. The bedded appearance and some arenaceous lenses suggest that this rock is an altered tuff.

The next formation is a thin-bedded quartzite with argillaceous partings and some argillite. The partings make this rock somewhat schistose. On the Westville claims this formation is thin and not very easily distinguished from the limy argillite formation below it, but on the west side of the Plateau it is thicker and much more conspicuous.

The limy argillite formation consists of thin-bedded strata, most of which consist of mixtures of argillite and calcium carbonate in all proportions. Many bands of pure black argillite, black and white limestone, quartzitic argillite, and schist also occur. This formation contains all the lead-zinc mineralization found so far.

The lowest rocks observed are massive, dark, fine-grained greenstones.

Intrusive Rocks

Intrusives are very numerous, especially on the Scotch Creek slope and near the west fork of Gold Creek. They vary from granite to hornblendite in composition and

from coarse grained to aphanitic in texture. Both acid and basic types occur as dykes and sills.

Structure

Within the area of the Plateau there does not appear to be any large-scale sharp folding. The bedded rocks nearly all dip gently with some rolling and warping.

Faults are the main structural feature. A northerly-striking one of moderate displacement appears to run between the east and west forks of Gold Creek. Its presence is indicated by a sharp cutting-off of the greenstone.

The possibility exists of a similar fault between the Westville and Mosquito King showings. None of the dark greenstone has been noticed along the road for at least two miles south of the C.M. & S. camp, whereas it occurs in Gold Creek one mile below the Pioneer-Westville camp. The difference, however, could be caused by topography if the dips remain flat enough.

CLAIM GEOLOGY

Stratified Rocks

The magnetite greenstone underlies Dip 17 and parts of Dips 16 and 18. It remains quite uniform throughout.

Dip 16 is underlain by the thin-bedded quartzite which grades into the argillaceous rocks somewhere on Dip 13. It would scarcely be worthwhile differentiating it but for the much greater thickness seen on the west side of the Plateau.

Limy argillite formation underlies the remaining Westville claims. It is all thin-bedded, the average thickness being about one-eighth of an inch. The composition of the beds varies from pure argillite to pure limestone. There are also quartzitic bands and bands of sericite schist, quartz sericite schist, and chlorite schist. Very noticeable are beds up to 15' thick of laminated black and white limestone. These seem to be more numerous in the upper portion

of the formation, whereas in the lower portion the carbonate content seems to be more distributed.

The large amount of $CaCO_3$ would scarcely be suspected from the external appearance of the rock. It is nearly all rusty-weathering and most of it is silicified.

Intrusives.

On the claims west of Henstridge Prairie only a few igneous bodies were found. Three were small sills of medium composition and porphyritic texture. The other was a larger body of sphanitic rock, probably near a quartz diorite in composition.

Similar dykes and sills of intermediate to basic composition were seen on Dip 2, Dip 25 and RD 2. The predominant intrusives on the eastern claims, however, are various phases of granitic rock - varying from aplite to porphyritic granite. Most of these bodies appear to be northerly-striking dykes.

Structure

With very few exceptions, outcrops show a northeast strike and a gentle dip to the northwest. The exceptions cannot be given too much weight since many observations had to be made on small surfaces bared by digging a foot or more. Fold structures of any size are confined to gentle rolling and warping. These flat folds seem to be concentrated on an east-west axis, but axes striking north-south are not uncommon.

Drag folding can be seen almost anywhere. The amplitude of the folds is very seldom over one foot. Complex contortion on a scale of two or three folds to the inch is frequently observed. All the minor folding seems dependent on the larger shallow folds.

Nearly all the rock exhibits some degree of schistosity. The parting is always parallel to the schistosity, and occurs mainly on the more argillaceous planes where sericite and graphite have developed. Lineation, consisting of 8 to 12 corrugations to the inch, is often found on the parting planes. Its characteristic strike is S 80° W.

Fractures are concentrated in the north-south and N 20° E directions. The dips, respectively, are steeply east and steeply north or south.

No large fault shows on the claims, but one or more could easily be present. A series of scarps on the slope on Dips 13, 14, 16, 17 and Elks 5 and 8 suggests a number of small normal slips along north-south fracture planes. A draw on Elks 5 and 8 is probably a fault. Breccia and chalcedonic quartz occur along it.

Metamorphism

All the rocks in this area have been metamorphosed to some extent. The chlorite-magnetite schist was very likely an andesitic tuff. The argillite is somewhat slaty in places, and on the west side of the Plateau has been reduced to a graphitic schist.

Silicification is the most noticeable form of alteration in the limy argillite formation. It also affects the quartzite, but has not yet been observed in the greenstone. The bands of limy argillite appear to have been most altered. Much pure black argillite remains little affected, and the black and white laminated limestone is not touched. In many places it is difficult to estimate how much silica is original and how much is introduced. Bleaching accompanies the silicification.

Pyrrhotite and pyrite have been formed extensively in the limy argillite. They occur disseminated and, especially in the case of the latter, along bedding planes and fractures. The iron sulfides seem to be associated with the silicification.

The amount of alteration varies from place to place, but as yet no control is apparent. Further study may reveal control by faults or proximity of igneous bodies.

Mineralization

The greenstone has very little metallic mineralization besides the magnetite. Some pyrite was found in a quartz-siderite vein on Dip 16 and in a small sheared band on Dip 17. In both these places some talc was developed.

Quite a few lenses and veinlets of barren quartz occur, some of which contain a little epidote.

In the quartzite only barren conformable quartz veins were found.

All important mineralization occurs in the limy argillite formation. It is nearly all more or less silicified and bears some pyrite, pyrrhotite, magnetite, and epidote. Quartz veinlets, lenses, and eyes are common. Lime silicates occur in some of the argillaceous limestone. Small amounts of lead and zinc sulfides are found over a wide area.

Westville Showings

On the Elk 5 and Elk 8 there is a zone 1200 feet long in which considerable amounts of sphalerite and galena have been found. Certain of the beds have been extensively replaced by quartz, pyrite, pyrrhotite, sphalerite, and galena. More than one bed is mineralized, but work so far has not indicated that any one is mineralized throughout the length of the zone.

The southernmost pits have disseminated sphalerite and galena in a partially silicified argillaceous limestone. Pyrite is also present. Between these pits and the centre showings sphalerite and galena have been found in many thin bands of the formation.

A considerable quantity of massive galena was found in the centre pits. It is accompanied by quartz, pyrite, and sphalerite. The sulfides have replaced argillite which, near the best galena, has been extensively altered to sericite. The mineralization has apparently been localized by drag folding and east-west fractures in which it occurs as veins. A considerable amount of work failed to reveal continuation of any structure except the bedding, along which the heavy mineralization did not extend far.

In the northern pits the mineralization is heavy pyrite with quartz, pyrrhotite, and sphalerite in highly silicified argillite - or possibly limy argillite. The top 18" of the 7½' band is far higher in sphalerite than the rest. The amount of galena is negligible.

Control of the mineralization appears to be chemical and structural. Certain beds have been preferentially replaced. The composition of the favoured beds is suspected to be limy argillite. Fracturing and folding are conspicuous where the massive galena occurs. It both fills the fractures and appears to have spread from them.

SUMMARY

The Westville claims are largely underlain by a limy argillite formation which has been altered considerably by the introduction of silica and the formation of pyrite and pyrrhotite. In some places certain beds have been extensively replaced and sphalerite and galena have been introduced, probably along fractures.

REMARKS

Further study of the data may reveal a fuller picture of the geology of the Westville claims. Such a study, however, cannot be completed soon enough to be included in an assessment work report.

D. H. James
Sept. 26, 1949.

WESTVILLE MIN

ADAMS PLATE

GEOLOGICAL M

Scale 1" = 200'

D.H. JAMES

WESTVILLE MINING CO

ADAMS PLATEAU

GEOLOGICAL MAP

Scale 1" - 200'

D.H. JAMES Sept 1949

LEGEND

- Greenstone 6
- Argillite 5
- Quartzite 4
- Limestone 3
- Acid Intrusives 2
- Basic Intrusives 1
- Pb or Zn (vein (v))
- Silicification
- Iron Sulfides

Willow Swamp

Henstridge Prairie

NB: MOST OF THE COLOURING IS CONFINED TO THE STRIKE SYMBOL AREA

DIP 19

DIP 10

DIP 20

DIP 21

DIP 9

DIP 22

DIP 8

DIP 23

DIP 24

DIP 25

DIP 12

DIP 4

DIP 3

DIP 2

RD 2

RD 3

DIP 1

PIP 16

PIP 15

PIP 14

PIP 6

PIP 4

PIP 2