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CHEVRON CANADA RESOURCES LIMITED

840526

PROJECT FILE

Title Wayside
Author J.S.S. Stevenson
Date and Typist May 13/53 cs 1

Wayside (L.A.P. Mining Company Limited)

Company office, 626 Pender Street West,

Vancouver, L.A. Prosser, manager;

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W.H. Clarke, superintendent in 1951. Capital: 3,000,000

shares, \$1 par value. This is a private company that owns seventeen claims on the north side of the Bridge River, about half way between Minto Mines Post Office and Gold Bridge.

The property was formerly owned by Wayside Consolidated Gold Mines Limited. The principal workings, mill, camp, and mine office are on the north side of the main Bridge River road, 1½ miles downstream from the bridge at Gold Bridge. In August 1951 a fire destroyed the machine-shop, compressor-house and compressor, but these have been replaced.

Workings .--The workings include nine adits on the principal vein and its branches; the Pa^xton adit, Nos. 0, 1, 150, 2, 3, 4 West, 4, and 5 adits, and three levels, Nos. 7, 8, and 9 from an internal shaft. Two other adits, 3T, 750 feet northwest from No. 5 adit and another short

- Fig. 1 Property Plan 300'
- Fig. 2 Mine Plan 40'
- Fig. 3 Long. sect.
- Fig. 4 Cross sect.
- Fig. 5 Cross sect.

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*#3 old logs
 3 prints*

shown on job map

Company office, 626 Pender

Wayside (L.A.P.
 Mining Company
 Limited)

Street West, Vancouver. L.A.

Prosser, manager; M. Retan,

superintendent; 1946

Capital: 3,000,000

shares, \$1 par value. This is a private company that owns (seventeen M.M. 1950) claims on the north side of the Bridge River, about a mile downstream from the village of Gold Bridge. The principal workings, mill, camp, and mine office are on the north side of the main Bridge River road, 1½ miles downstream from the bridge at Gold Bridge.

level 1

Workings.---The workings include nine adits on the principal system, the Paxton adit, Nos. 0, 1, 150, 2, 3, 4 West, 4, and 5 adits, and three levels, Nos. 7, 8, and 9 from an internal shaft. Two other adits, 3T, 750 feet northwest from No. 5 adit and another short

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one, 375 feet northwest of 3T, explore parallel veins.

No. 5 level is only about 25 feet above the road and

has been made the main haulage level with the mill

and camp buildings near the portal. An internal

inclined shaft extends from No. 5 to No. 9 level.

Stoping has been done on all levels from Nos. 1 to 8.

Recent diamond drilling, that done by the present L.A.P. company on the property, has been confined to the lower levels, where sixteen holes, Nos. 801, 802, and 901-914 inclusive, aggregating 5,755 feet have been drilled. Their distribution is as follows. No. 8 level, two holes totalling 442 feet and No. 9 level, fourteen holes totalling 5,313 feet.

Data about these holes and their logs are shown in

Figure 2 . As seen on old plans, diamond drilling

by the previous owners, Wayside Consolidated/^{Gold}Mines

Limited, consisted of a group of six drill-holes,

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Nos. 2, 3, 4, 5, 8, and 10, fanned from the face of the crosscut that goes east from the shaft station on No. 5 level, three down holes, Nos. 9, 12, and 13 in easterly and westerly directions from near the face of the crosscut that goes farther east on the level, and one flat hole, No. 7, in a southeasterly direction from the drift south drift on No. 1 Hangingwall vein. Drill-hole No. 11 appears to have been drilled down from the surface. All the information in the L.A.P. holes is given in Figure 2 and as much as was obtainable on the Wayside Consolidated holes in the same figure.

Early History.---The original claims, the Wayside, Helium, Argon, Radium, and Queen City Fraction were staked in 1900 by John C. Patterson. By 1910, considerable surface prospecting and a little underground work had been done on three of the upper levels.

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In 1911 the property was acquired by D.C. Paxton and associates of Cincinnati who acquired additional claims and did the first extensive work on the property. By 1922 [?] (~~McCann~~) and probably 1924 [?] (~~Cairnes~~), there were eight adits on the property, the present Nos. 1, 2, 3, 4 West, 3T, and two short ones, ^{now} ~~more~~ completely caved, in the sediments about 1,250 feet northerly along the hillside from the present No. 5 adit. The ore mined during that time was treated in a one-stamp mill, ^{about} ~~erected in~~ 1914[†] ~~(Cairnes)~~; previously a small amount of ore had been treated in an arrastra^e.

In 1924 the property was acquired by Wayside Consolidated Gold Mines Limited of Vancouver. This company started No. 5 level, and did most of the work as it exists at the present time below

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that level. They also built ^{two} mills, a 40-ton pilot mill that operated from November 1934 to May of the following year and late in 1935 built a 100-to 150-ton Hadsel mill, the ore for which came chiefly

from the upper levels. *Start after Recent History*
Considerable work was done in 1936; this consisted of 820 feet of raising, 415 feet of sinking, and 2,225 feet of drifting and crosscutting. The mill operated throughout the year and treated 37,535 tons of ore. However, the mine was closed down that year and was not re-opened until May 1946 when it was acquired by Recent History. *lc* The present owners, the L.A.P.

Mining Company Limited, ~~acquired the Wayside~~

This company
~~property in 1946 and~~ immediately cleared away the

remains of the old camp; enlarged the camp-site on

the hillside above the road and by the spring of 1947

had rebuilt the camp, including office to accommo-

date eighteen men.

This company rehabilitated the pipe-line from Sucker Lake to the power-house and the power-line from the power-house to the mine.

In 1947 the company cleared out No. 5 adit,

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put a concrete collar around the portal and drove a rope-raise at the level station for a larger sheave wheel above the collar of the shaft. In the period from 1948 to 1949 the company drove a raise from No. 9 to No. 8 level on slopes ranging from 25 to 55 degrees and measuring 163 feet from the floors of the levels. On No. 9 level this company drove the first crosscut east, south of the shaft, its full length of 80 feet extended the main drift 25 feet southerly and slashed the walls of the drift to the foot of the raise and for diamond-drill set-up. Other than these items all the work on this level had been done previously by Wayside Consolidated. During this same period the L.A.P. Company started a programme of diamond drilling from No. 9 level.

In 1950 the company sank the shaft a further 72 feet below No. 9 level and retimbered some old stopes. They also built a wooden water tank, 35,000-gallons capacity, for camp and mill use at the level of No. 4 adit and built a new transformer station

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across the road from the mill. At the same time,
they made changes in the mill preparatory to actual
milling, the principal change being substituting for
the Hadsel mill, (used by the former owners) a
Hardinge mill, as redesigned, the mill uses corduroy
blankets, flotations cells, a cyanide circuit, and
has a capacity of 100 tons.

In 1951 the company built a small ore-
bunker at the mill-level (No. 5) ~~xxxxxxkxxxxxx~~
and a timbered ^{ore-chute} ~~oreshoot~~ that extended from the
bunker to within 75 feet of the portal of No. 3 adit.
Using a tugger and slusher they moved a considerable
quantity of development muck from the dump at No. 3
into the ^{chute} ~~chute~~ and thence to the mill. During the
year, the company cleaned out and retimbered the
portal of No. 4 adit. Some muck was drawn during the
year from the stope below this level, by way of No. 5
level.

Production: The total production recorded amounted to 40,761 tons
and the gold recovered averaged less than 0.13 ounce per ton of ore milled.

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~~GEOLOGY~~

The Wayside mine is in a northerly trending body of augite diorite that extends for 4,000 feet northerly from the highway and for about 2,000 feet in an easterly direction. The extent of the diorite southerly is unknown as the river-fill begins at the highway and no outcrops are found until the south bank of the river is reached about 2,000 feet distant of the Fergusson group where chert and greenstone/outcrop. The known depth of the diorite, as measured from the highest outcrop, elevation 3,050 feet, to the deepest intersection of diorite, at elevation 1,500 feet, in a diamond-drill hole, No. 902, is 1,550 feet. The workings are centrally located with respect to the width of the diorite, but (with respect to the length of the body they) are near its southern end.

Greenstone, argillite, and argillaceous chert

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CS
(belonging to the Ferguson series,) outcrop in the area
surrounding ^{the area} ~~that~~ of augite diorite ^{outcrops} ~~mass~~. As ~~none of~~
^{sedimentary} ~~these~~ rocks are found ~~neither~~ underground nor within
the area of augite diorite they will not be discussed
further.

The diorite body at Wayside is very
heterogeneous. It includes, in addition to diorite
and closely related phases, bodies of greenstone and
of granite.

Greenstone that appears to belong to the
Pioneer formation occurs underground ~~but~~ in a few
widely separated masses. ~~all~~ the greenstone has been UC
replaced in varying degrees by diorite, and large
areas that are uniformly greenstone are absent. The
extent of the greenstone or of greenstone plus
diorite is best observed in drill ^{where greenstone} ~~core~~ ~~sections~~
sections 5 to 100 feet long may be seen.
~~5 to 100 feet of greenstone may be seen, although~~

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UC ~~less well defined,~~ the ~~size of~~ greenstone masses
underground appear[≡] to be of a ^{size} similar order of
~~magnitude~~ to that cut by drill-holes. The green-
stone may contain diorite as a few isolated patches,
as replacement dykes or as the matrix for a replace-
ment breccia of greenstone fragments in diorite.
Because of the heat effects of the replacing diorite
the greenstone, where recognizable as such, has
been completely recrystallized and possesses the
uniform, fine-grained hornfelsic texture that
characteristically results from recrystallization.

Because this greenstone lacks any evidence
of having contained small or large bodies of limestone
and shows no sign of extensively developed pillow
structure it probably does not belong to the
Fergusson ^{group} ~~series~~. Although, recrystallized, its
general uniformity in grain size and the occurrence

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of greenstone outcrops ^{that are} reported to be Pioneer* ~~greenstone~~

*Cairnes, p. 133

lc North of the augite diorite, ^{all} suggest that the greenstone within the augite diorite, also belongs to the Pioneer formation.

Augite Diorite.--The average diorite seen on the surface and underground is a medium-grained rock with about equal amounts of plagioclase and hornblende that has a blotchy appearance because of a marked tendency of the plagioclase to gather into bunches or knots.

In addition to this average diorite the diorite rock mass includes types ^{of} hornblendite and "gabbro" that may be considered variants of the average diorite. Hornblendite comprises the principal rock found in the Paxton and No. 0 adits and in the last crosscut west in No. 5 adit. Smaller sections of this rock

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are found elsewhere in the mine and in ~~core-sections~~ ^{diamond-drill holes}.

~~The hornblendite is medium to coarse grained in texture and as its name implies, consists principally of hornblende.~~ The contact between hornblendite and diorite is not sharp and, particularly in the crosscut mentioned on No. 5 level, a gradation may be traced from hornblendite through hornblend^e-rich diorite to the average diorite. This feature suggests that the hornblendite is a stage in the alteration of greenstone to diorite. Because of its possible value in correlation of bodies of diorite it may be noted that the Wayside hornblendite, though much less extensive, is similar to that found in the long Arizona crosscut on the B.R.X. property.

Another variant ^{from the average diorite} is a very coarse-grained phase, although still with about equal amounts of plagioclase and hornblende. This phase occurs on

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diorite surfaces as irregular patches from a few inches to several feet across. ^{Because of} their extremely coarse grain as compared with the average diorite they inspire the term "gabbro." Mineralogically, however, they consist of albite plagioclase and not labradorite and of hornblende and not pyroxene, and therefore, strictly speaking, should not be called ~~gabbro or gabbroic.~~ In places there appears to be a gradation from coarse-grained diorite to granite, and it may be that the coarse-grained phase is a stage in the alteration of the diorite to granite.

In its relation to other rocks, diorite dykes brecciates and in general replaces greenstone and is in turn cut and replaced by granite in much the ~~xxx~~ same way.

Several small bodies of granite occur within the larger body of diorite, both on the

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surface and underground. Granite outcrops on the surface at four places, on the Commodore, ^{claim at two places} ~~twice~~ on the Wayside ^{claim} and on the Camp Dennison, ~~claims~~. These areas of granite measure about 150 feet by 75 feet.

Underground,
Mappable bodies have been found ~~underground~~ principally on Nos. 5 and 9 levels and in several drill-holes. The body of granite on No. 9 level has been reasonably well explored by the level and drill-holes and it appears to be a northerly trending body about 350 feet long by 150 feet wide; this is larger than any of the outcrop areas and may indicate an increase in amount of granite with depth in the diorite body. It may be also noted that there is much more granite on No. 9 level and in drill-holes at the same level, or deeper, than elsewhere in the mine. The average granite is even, medium grained and light-grey colour. In the drift on No. 9 level and in drill-holes 905

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and 906 the granite is whiteⁱⁿ colour; this appears to be largely due to a varying degree of silicification of the granite when forming the wallrock of the vein. Some drill-hole intersections are at a considerable distance from the vein matter and there the granite has not been silicified and is a much darker grey in colour. Although most of the granite is medium grained some is fine grained and as a result of this fine grained texture, ^{it possesses} a ^{jointing} faulting that appears in all the ^{igneous} ~~gneiss~~ rock underground occurs along sets of fracture that in this granite are only a few inches apart, rather than one or more feet apart as in the coarser grained rocks.

In general, the granite at Wayside is fine^N grained and apart from silicification contains more quartz than the granite from Bralorne and Pioneer.

As previously noted the granite intrudes

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and replaces bodies of greenstone ^{plus} ~~also~~ diorite,
hornblendite, the average diorite, and its coarse-
grained phases. It intrudes and replaces these
rocks as small amoeba-like masses of granite from
one inch to a few inches across as dykes from 6
inches to 4 feet wide and, in areas from one to
several feet in diameter, as a breccia filling
for 1- to 6-inch fragments of greenstone and diorite.
The direct control of the intrusion of the granite
by fracturing and general absence of textural and
mineralogical gradation between the granite and any
one of these rocks suggest that the emplacement of
the granite was more of the forceful injection type
than was the emplacement of the diorite, whose for-
mation seems to have been by a more passive replace-
ment of the earlier rock, the greenstone.

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The granite is cut by quartz-zoisite veinlets as is the diorite, but in much less amount.

Minor intrusives outcrop within the area of augite^{diorite} and although not seen underground, ^{they} because the workings are old and much begrimed, ^{they} have been seen in diamond-drill core. A feldspar porphyry dyke, 20 feet wide, strike northwesterly and dip 75 degrees northeast outcrops along the west wall of the veins in 3T adits and other dykes. Both feldspar porphyry and felsite outcrop elsewhere within the area of diorite. Hornblende porphyry was intersected between 324 feet and 330 feet in drill-hole 902, and in the same hole white albitites between 581 and 618 feet. Feldspar porphyry was noted between 485 and 486 feet in drill-hole 912, in drill-hole 914 between 94 and 99 feet.

DEVELOPMENT WORK

The principal development work on the

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DEVELOPMENT WORK

The principal development work on the Wayside has been directed towards the exploration of one set of veins. These include a parent vein, the Main vein; two footwall veins, Footwall Nos. 1 and 2; and a hangingwall vein, Hangingwall No. 1, also known as the *Netman*. Two small veins, too distant from the main workings and not obviously related to the Main vein have been explored by 3T adit and by the adit 375 feet northwest of this adit.

The Main vein maintains a reasonably uniform strike and dip ranging in strike from north 10 degrees to north 25 degrees west and ranging in dip from 45 to 60 degrees northeast. However, on No. 9 level where the vein is largely in granite it makes a major swing and for much of the drift length strikes north 45 degrees west and in general depends

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dips at a flatter angle, from 30 to 45 degrees
northeast. The two footwall veins and the hang-
ingwall vein ^{roughly} parallel the Main vein in strike but
dip at a flatter angle, dips between 40 and 50
degrees northeast being most common.

The vein matter in all the veins consists
of vein quartz usually accompanied by a zone of
carbonate rock, from 1 to several feet wide. The
vein quartz is usually massive, but in places may
be conspicuously ribboned. Intra vein fracturing
has been responsible for a band of vein breccia,
2 inches to 1 foot wide and consisting of angular
fragments of quartz from one-quarter of an inch to
1 inch in diameter set in a dark-grey matrix of
pulverized quartz and sulphides ^{and} has been developed
on one wall of the vein at several places in the
main vein in particular. Because of the angularity

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of the quartz fragments, their great range in sizes, and contrast in shade as between the white of the quartz fragments and the dark-grey to black of the matrix, this breccia may aptly be called a headache breccia and will be referred to as such from here on. The interest in this breccia is in the observation that gold values tend to be higher in the breccia than the average for other parts of the vein. Post-vein faulting has developed zones of vein breccia in some places, and nearly everywhere the vein quartz is sliced by post-vein slips that in some spots are responsible for a doubling of the true vein width and in others for an absence of vein quartz from the shear where the vein is in granite, as in No. 9 level, the massive or ribbon vein quartz is accompanied by highly silicified

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granite wallrock breccia. The several types of quartz and vein silicification contain sparse sulphides, the principal of which is pyrite, although minute amounts of arsenopyrite and chalcopyrite occur. Visible gold occurs locally in the vein quartz. Mariposite although not characteristic has been seen in the altered wallrock and in sheared inclusions of this wallrock in the vein.

Evidence found in the drifts indicates that the main vein occupies a reverse fault in which the hangingwall has moved up with respect to the footwall. Steeply dipping to vertical quartz stringers and associated slips that occupy shear rather than tension openings occur within much of the carbonate zone of the main vein.

It is generally conceded that a branch shear

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steeper than its parent fault, indicates reverse movement along the parent shear. Occasional gash veins, characterized by single, sharp-walled and short quartz stringers have been found on Nos. 7 and 8 levels; ^{they} ~~then~~ dip into the main vein at angles flatter than those of the main vein ~~and here it is~~ generally ~~concede~~ that where veins, such as gash veins, occupy tension fractures that are steeper than the parent break, the movement along the parent break has been of the reverse type. The principal branch veins of the Main shear, the Nos. 1 and 2 Footwall veins and the No. 1 Hangingwall or Notman vein, are reasonably persistent quartz veins and are accompanied by very little shearing and therefore the breaks they occupy appear to have formed largely by tension. If that is so, and as the dip of all these veins is flatter than that of the parent vein, they also

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indicate a reverse movement along the parent or Main vein. The direction of movement appears to have been principally directly up the dip, as most of the mullions seen in the vein walls pitch in the plane of the vein at very steep angles.

This
~~An attempt has been made~~ to determine the direction of movement of one wall with respect to the other ^{has been made} because ore shoots are frequently related to variations in the strike and dip of the vein.

If the direction of movement is known it may be possible to predict where openings and therefore ore-shoots, will occur along a curved fissure when one wall is moved with respect to the other wall. ~~Where~~

~~the principal component of the movement is in the~~

~~direction of dip, openings occur where the dip~~
In those reverse faults, where the principal component of the movement is in the direction of dip, openings occur where the dip

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flattens, and therefore in the Main vein ore shoots would be expected where the dip is flatter than usual. The distribution of the stopes bears out this conception, for the dips are somewhat less, 45 to 55 degrees in the stoped areas than in the sections not stoped, where the dips are 60 to 65 degrees.

As has just been indicated, the diorite wall-rock of all the veins except the Hangingwall or Notman vein, has been altered to a conspicuously cream-coloured, carbonate rock. The width of the altered zone ranges from a few inches to as much as 15 feet. The alteration persists, particularly along the Main vein, even where vein quartz is narrow and intermittent and in such places the vein will be marked by a well-defined zone of carbonate rock. In some places the transition from completely altered to unaltered rock

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is gradational over several feet, in others it is very sharp; the sharpness of the ^{contact} ~~contact~~ is so pronounced that it is similar to that of a dyke.

Because of its fine-grained, almost dense texture, much of the carbonate rock possesses a massive igneous-like structure and breaks with a conchoidal fracture; for these reasons the carbonate may sometimes be mistaken for a dyke. However, its ~~xxx~~ spatial relation to vein fractures and great variations in extent from these fractures is indicative that ^{it} is formed by alteration of the wallrock of these vein fractures. Mineralogically this cream-coloured rock consists principally of ankeritic carbonate and quartz with minor amounts of sericite. Occasionally a few spots of mariposite may be seen.

The carbonatization process responsible for the cream rock appears to have been one of a

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normal hydrothermal ^{alteration} of wallrock and caused by pre-
quartz vein solutions that found their way along the
Main vein shear and its branch fractures. A
relative absence of wallrock alteration along the
flat-dipping hangingwall vein, the Notman, may be
due to a greater tendency of the altering solutions
to rise along footwall fractures then to reverse their
direction of flow to follow hangingwall fractures.

At The most recent work has been on the lower levels and
the veins in these levels will be described first.

The hangingwall and footwall veins join the Main
vein at places above No. 6 level and the lower levels
are therefore all on the Main vein.

On No. 9 level the vein consists of a well-
defined band 4 to 14 inches wide of white and in
places ribboned quartz plus a varying width, from
1 to 5 feet, of silicified breccia. The silicified

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breccia, now largely quartz, represents granite that has been cross-fractured to a breccia and subsequently silicified and mineralized to the extent that it may also be considered as vein matter.

From the shaft southeasterly for 180 feet the vein consists of a hangingwall band of quartz from a few inches to 14 inches wide, and an irregular footwall zone of silicified breccia from 1 to 5 feet wide. The vein matter is sliced by a strong hanging-wall fault that leaves the vein at 180[✓] feet. At this point the vein bends to a more southerly strike, and is followed by a strong fault on the footwall from here to the south face. The vein in this section contains less of the massive white quartz; ^{the vein quartz is} a few inches wide from 180 to 220 feet and a foot for a length of 12 feet near the face.

The silicified breccia is strong in this section

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and ranges from 1 to 3 feet wide. Diamond-drill holes Nos. 905 and 906 indicate that this same silicified breccia continues for at least 200 feet beyond the present face. At the north end of the drift, i.e. at the shaft, the granite peters out and the silicified breccia disappears, however, the hangingwall fault or shear, here 6 inches to 1 foot wide continues and carries a 1 to 2-inch ribbon of white quartz.

On No. 8 level the vein is entirely in diorite, altered however near the vein to cream coloured carbonate rock. The vein on this level consists of a reasonably persistent band of white, massive quartz, occasionally ribboned. A band of headache breccia 2 to 12 inches wide has been developed along the hangingwall of the vein in a section of the drift north of the shaft, and along the footwall of the vein

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in the stoped section south of the shaft. The width of the vein quartz north of the shaft averages about 2 feet near the stopes; northerly beyond the stopes and to the face the vein pinches to 2 inches of slightly ribboned quartz. South of the shaft the vein is on the whole wider, ranging from a few inches to 2 feet to ^{d point} 60 feet from the shaft, and from here to the south end of the stope at 210 feet, widening in places to 5 feet of ribboned quartz; at the south face of the drift it pinches to 6 inches. There has been considerable post-vein movement along the vein shear as evidenced by a strong slip that follows the hangingwall of the vein along much of the drift.

The vein on No. 7 level is much the same as on No. 8 level. In the portion of the drift south of the shaft the vein quartz is reasonably continuous, from 1 to 3 feet ^{wide} ~~west~~ and pinches to about 2

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inches in the south face. As on No. 8^{level} the hanging-wall of the vein is followed by a strong slip that induces sloughing from the back. Sloughing from this slip has been responsible for a bad cave that prevented examination of the drift beyond a point 40 feet north of the shaft, however, in the face of this north drift the vein shear is reported to *tighten*.

In going up the shaft from No. 7 level to No. 6 level station and up to No. 5 level, the shear zone^{and} quartz vein matter decreases considerably *in this section* and the Main vein consists principally of a strongly sheared carbonate zone containing one or ^{in places,} ~~up to~~ 3 stringers or lenses of vein quartz, usually less than 1 foot wide^{zone} that tend to follow vertical shearing within the shear^{zone}. The vein maintains this habit all along No. 5 level, ^{where} ~~when~~ short crosscuts across the

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sheared carbonate zone, with its ~~m~~ included quartz

stringers, reveal widths that range from 5 to 25 feet.

At the north and south ~~development~~^{drift} faces on No. 5 level,
the vein shear has narrowed to 5 ~~to~~^{and} 10 feet respectively.

Prominent along this shear zone are strong fault zones,

1 to 5 feet that consist of soft, sheared carbonate rock;

~~and~~^{these fault zones} where they follow the hangingwall, they have in-
duced
~~considerable~~ considerable sloughing from the back of the

drift.

The branch veins, as well as the Main vein,
are found on No. 5 ~~level~~ and in levels above No. 5.

The station, rope-raise, and a short raise
on No. 5 level explore No. 2 Footwall vein. This vein
was intersected by the shaft at a point where it leaves
the Main vein 100 feet below No. 5 level.

No. 2 Footwall vein is best developed in the
rope-raise, where it consists of a well-ribboned band

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of quartz from 18 to 30 inches wide, below the level it is somewhat ~~and~~ narrower. Towards the north the carbonate zone that accompanies the vein ~~but~~ the *continues* quartz narrows to a few inches. It behaves similarly towards the south, but it swings easterly and work would probably show that it joined the Main vein shear within a short distance.

Nos. 450 and 425 levels also known as the Turnover and 4-Subdrift levels respectively, have been driven from the main ore-pass and as all the stopes underground are caved, they were not accessible to the writer. However, they appear to be on the extension of the Main vein below No. 4 level.

No. 4 adit is wholly a drift on the Main vein. It is the longest drift in the mine and its straightness indicates the relative constancy in

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strike of the original shear followed by the Main vein. Unfortunately the drift was caved at the first stope about 335 feet from the portal and inaccessible. Along this section of the drift the vein shear is strong, from 4 to 8 feet wide, but contains practically no quartz. It lacks the strong carbonatization as seen elsewhere. A zone of carbonate rock about 8 feet wide is ^{found} ~~formed~~ at the portal, but this dies out about 100 feet in, and from here to the cave the rock, diorite, is relatively unaltered. Quartz first appears at the cave; from here 2 feet of well-ribboned grey quartz can be seen to extend into the stoped section of the vein. Beyond the stoped area and at the extreme north end of the drift the vein shear is reported to tighten.

No. 4 West adit, also known as 4 "M", is a drift on No. 2 Footwall vein. This is caved at

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the portal and inaccessible and the *plotting* vein as shown on Figure (2JSS), has been taken from the company plant. Mappable vein quartz appears to have been present in the vein shear, and old company assay plans show that of some thirty-eight samples taken along the drift six of them assayed over an ounce in gold.

No. 3 adit follows, from the portal in, a section of No. 2 Footwall vein that curves easterly to join the Main vein at a point 310 feet in. Unfortunately, a stope extends up and down on the Main vein at this point and an impassable cave has formed. Within 40 feet of the portal, two flattish, hangingwall veins of quartz, 2 to 6 inches wide, branch from the vein shear. However, the drift follows the principal vein shear from the portal to the junction with the Main vein; and in this section the vein is seen to consist of a carbonate rib 0 to

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1 ~~xxx~~ foot wide containing occasionally quartz stringers until the first crosscut to the east where a strong lens of well-ribboned quartz, 3 feet wide, starts. This quartz extends northerly, ranging in width from a few inches to 2 feet to its ^{junction} ~~formation~~ with the main vein. The quartz at the junction is about 2 feet wide and is strongly brecciated.

UC
This section of No. 2 Footwall vein from the first crosscut in is accompanied by a well-defined zone of fine-grained carbonate rock from 5 to 30 feet wide. At the junction with the Main vein the width of the composite zone of carbonate rock is about 50 feet. The Main vein on No. 3 level has been intersected by three crosscuts to the east ^{end,} ~~as~~ seen on company's plans, has been followed by a long drift northerly. In the crosscuts the vein consists of the same strongly sheared carbonate zone

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from 15 to 25 feet wide; and contains a small amount of quartz, ^{that occurs} as a few stringers up to half an inch wide that follow vertical shearing within the main zone of shearing. However, as mentioned above, quartz comes in at the junction with the No. 2 Footwall vein, and judging from the company's plans, must continue northerly for some distance as a strong vein, for a section 120 feet long has been stoped, both above and below the drift. It is to be presumed that the Main vein shear continues on strike northerly ^{to} and the face of the drift, but as no stopes are shown on the plans, either very little quartz was found or if found, it was too low grade to be considered as ore.

No. 2 adit, also known as 2 M, explores both the No. 2 Footwall and the Main veins. The portal is on No. 2 Footwall and the drift from here

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follows this vein northerly for about 350 feet to the face. In this drift the vein consists of a reasonably persistent band of quartz usually from 1 to 6 inches wide, but occasionally wider, ^{e.g.} as at 190 feet from the portal ^{where} it is 1 foot wide and 290 feet where it is 2 feet wide. It is accompanied by only a slight amount of carbonate rock and by very little shearing. In this respect ^{possesses the features of a} ~~it is like a~~ gash vein formed as a result of reverse movement along the Main vein shear. Old company assay plans indicate that the first 60 feet of this drift yielded samples assaying over an ounce in gold. A short section of this vein, between 80 feet and 125 feet from the portal, has been stoped above the level. In this section the vein quartz is well-ribboned and averages about 1 foot wide. The Main vein in this adit has been intersected by the first cross-

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cut to the east and from here has been explored by
about 450 feet of drift, where intersected by the
crosscut, the vein consists of a carbonate zone
with vertical stringers of quartz, the whole cut by
strong strike faults from which much sloughing has
occurred and produced an impassable cave. The vein
appears to have been stoped up from a section of the
drift for about 60 feet north of the crosscut, and a
stope appears to extend upwards from No. 3 adit and
to within about 10 feet of the drift.

The portal of 150 adit is close to the
north side of Glory Hole and ^{because of} ~~has been so destroyed~~
~~by sloughing into the Glory Hole, that the adit is~~
inaccessible.

No. 1 adit is a drift on the Main vein.
This working is caved at a point 20 feet from the
portal but in this section the vein was seen to consist

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of 5 feet of slightly sheared carbonate rock that contains a few stringers of quartz; other mineralization includes fine-grained pyrite and a little sphalerite. From company plans the vein appears to have been stoped above and below this drift.

No. 0 adit starts as a drift on No. 1 Footwall vein. This is a branch of the Main vein that comes off the footwall farther up the dip than does No. 2 Footwall. In this drift, No. 1 Footwall vein consists of a tabular quartz vein 8 to 12 inches wide that is accompanied by about 1 foot of carbonate rock. Old assay plans indicate that of twenty-seven samples taken along this drift fourteen assayed one or more ounces in gold per ton, including two that assayed over 20 ounces. Judging from assay plans, this is about one of the best vein sections found in the mine. At the first crosscut to the east

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55 feet from the portal, the drift intersects a diagonal vein that appears to cut No. 1 vein, and the drift follows the diagonal vein 80 feet in a westerly direction. This diagonal vein consists of a ~~drill~~ well-defined quartz vein 6 to 12 inches wide that grades from ribbon quartz in the hangingwall, through a silicified quartz breccia into a footwall zone 3 feet wide of stockwork veinlets of quartz in the hornblende diorite wallrock. The quartz is mineralized with fine pyrite, and it is reported ^{to} ~~contained~~ visible gold in places. At both western and eastern ends of the drift the diagonal vein peters out to a narrow ^{crush} ~~crest~~ zone, about 3 inches wide that contains very little quartz. At 60 feet from where first intersected, the diagonal vein cuts another vein, parallel in strike and dip ~~as~~ to No. 1 Hangingwall and possibly the faulted continuation of that vein in

the hangingwall of the diagonal vein. This vein contains as much as 14 inches of quartz in places but towards and in the north face of the drift the shear has weakened and the quartz dwindled to a few stringers. On this level the Main vein has been intersected by the first crosscut east from the portal and followed southerly for 75 feet by a drift that breaks through ^{*the hillside*} to the surface. The Main vein in this drift consists of the usual carbonate zone about 10 feet wide, containing a few vertical stringers of quartz, and cut by strong, post-vein strike faults. The main vein was also intersected by the second crosscut east ^{*where*} ~~when~~ it was similar in width and content to ^{*that*} ~~this~~ in the drift just described.

The uppermost adit on the property, the Paxton, was started on a carbonate zone that appeared to be part of the No. 1 Footwall vein. At 15 feet

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from the portal the working intersected^a well-
defined quartz veins, 6 inches wide, that appears
to be the upward extension of No. 1 Footwall as
found in No. 0 adit. The drift then follows this
vein plus its accompanying 1 foot of sheared^o rock.
However, after about 50 feet the vein quartz peters
out, the shear narrows to 2 inches and at 130 feet
from the portal dies out against a ^{transverse} transition shear
2 feet wide that contains a few 2-inch carbonate
stringers. This adit has been so driven that it
should intersect the Main vein, but the evidence is
not too convincing. At a point 200 feet from the
portal the working intersects a strong fault, dip
60 degrees east, containing 8 inches of gouge. For
about 15 feet in the footwall of this fault, the
rock is strongly sheared, but not altered; however,
the rock in the hangingwall is completely *altered* to

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carbonate rock, but it lacks shearing and vein
quartz. Although this fault and carbonate zone
lie about 40 feet in the hangingwall of the projection
of the main vein, dip 50 to 55 degrees east, from No.
0 level up to this level, it is nevertheless possible
that the principal shearing and consequent carbon-
atizing solutions were diverted at some place be-
tween the two levels into a steeper hangingwall
fracture that is seen on the Paxton level as the
fault and carbonate zone just described.

The Notman, or as the writer has called it,
the No. 1 Hangingwall vein, has only been explored
by a drift, 320 feet long, on No. 5 level. This
vein is well defined and reasonably continuous. It
strikes northerly, approximately parallel to the
Main vein, but towards the south end of the drift on

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the vein, it curves gently westward toward the Main vein. It ranges in dip from 30 to 50 degrees eastward, somewhat flatter than ~~that~~ of the Main vein. The vein matter consists of quartz, 1 to 2 feet wide in the central section of the drift, but petering out to about 2 inches at either end of the drift; the quartz is accompanied by a few inches of sheared rock on either wall. None of the carbonate wallrock alteration characteristic of the Main vein is seen in the Hangingwall vein.

The 3T adit is caved at the portal, but it appears to have been started on a shear zone that follows the contact between granite on the east and a 25-foot feldspar porphyry dyke on the west, strike north 70 degrees west and dip 75 degrees northeast. Some vein quartz is reported to have been found in the shear.

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The adit 375 feet northwest of 3T adit has been driven in a direction north 30 degrees west for 38 feet, north 53 degrees east for 15 feet, and north 30 degrees west for 10 feet. It was started on and follows for 40 feet a quartz/calcite vein up to 6 inches wide that, at 40 feet dies out to a 1-inch shear, strike north 30 degrees west and dip 50 degrees northeast containing one-quarter of an inch of quartz and calcite. From here to the face the working explored two flattish calcite-filled joints, strike northwest and dip 20 degrees northeast. No sulphides were seen in any of the vein matter, but some green copper stain was seen in vein quartz at the portal suggesting that tetrahedrite or chalcopyrite had been present.

Oreshoots.--The oreshoots found in the Wayside veins are indicated in Figures 2 and 3. Values found in

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these shoots are reported* to have averaged from

*Cairnes, p. 135

half an ounce to over an ounce in gold a ton for lengths of 50 or 60 feet and over widths of from 1 to 2 feet. Some of the best values have been reported from the portal sections of No. 2 Foot-wall vein in Nos. 2, 3, and 4 West adits. The largest block of ore was found on the Main vein where a body of quartz forms an almost continuous shoot, from 50 to 100 feet long, that extends from a point halfway between No. 0 and No. 1 adits to about 10 feet below No. 450 level; a total dip length of about 600 feet. The quartz is reported to have been up to 16 feet ^{wide} at spots in this stoped area, but was usually ~~much~~ narrower. The values from this quartz have been generally low, but occasionally high

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assays and some visible gold ^{have} ~~has~~ been reported.

The footwall zone of headcheese breccia described on No. 8 level has been reported from this stoped area and, as on No. 8, appears to have carried higher than average values in gold.

The part of this shoot above No. 2 level ^{by Cairnes (1937, p. 136)} is reported ^{consisted of} to have ~~contained~~ quartz 3 to 9 feet ^{he calculated it to contain} wide, ~~amounting to~~ about 12,000 tons averaging about an ounce of gold per ton. The rake of the footwall of this shoot is about 35 degrees to the southeast. The outline of the upper part of the stoped area also rakes to the southeast, but as the stopes have either broken through the surface or are very close to it, this outline may not represent the true hangingwall of the oreshoot.

The second principal area of stoping is between Nos. 8 and 7 levels where four widely separated

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stopes have been ~~xxx~~ started on sections of the
vein containing well-ribboned quartz up to 5
feet wide and in the largest stope, also in-
cluding a zone of headcheese breccia.

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