report. The walls of the East and West lode are somewhat well defined, and though the workings are not up to the present sufficient to enable a decisive opinion being given, there is every appearance so far of a continuance of the lode at depth. The gold bearing portion has a distinct cleavage and contains much gold-bearing iron pyrites. Free crystalline gold is visible. The returns for 250 tons of ore crushed from the East and West lode are 75ozs. of gold, or at the rate of 6dwts. of gold per ton.

Eaton's Claim (Shaft C).

Lode stuff was struck in Eaton's claim at the 98ft. level, and followed in a drive for a distance of 110 feet. The course of the drive is to the West of North and East of South following approximately the course of the wash in the lead above. The lode, which consists of much altered schist rock, was first struck at the 78ft. level. There is no apparent change in the lode stuff at the two levels, except that water is soaking in slightly at the lower level. On the foot of the lower drive auriferous lode stuff is being taken out in the drive for a width of 50 feet. The gold is very crystalline, minute free cubes of gold being of common occurrence.

Soden's Claim (Shaft B).

The vertical depth of the shaft is about 96 feet, when the water level is reached. A drive extends from the bottom of the shaft for a distance of 80 feet to the North-East. Sedimentary strata extend in the shaft to the 82ft. level, when a dark decomposed rock is passed through for a distance of 14 feet. This rock is altered schist. It extends into the drive for a distance of six feet, when it is replaced by a much altered granite dyke 14 feet in thickness. This acid rock contains many quartz leaders. Its strike is about North-East, with an underlie to the East. For the next 60 feet lode stuff has been cut. The appearance of the lode stuff is identical to the country rock except that is does not carry gold. Altered non-auriferous schist rock is seen in the face of the drive. Both country rock and lode stuff are full of cubical cavities, apparently the old receptacles of iron pyrites.

Sims' Claim (Shaft G).

A vertical depth of 150 feet has been attained in this shaft. For a depth of 41 feet sedimentary deposits were pierced. After this the shaft passed through decomposed rock which gradually changed into a compact hard felsitic rock containing numerous quartz leaders. This rock contains gold in payable quantities. The occurrence of gold in this instance is similar to that of the Wycheproof (G.M.L. 325w), in the Bardoc Mining District, where a similar dyke rock is found to contain sufficient gold to render it payable to mine and treat. This is the one instance on the North lead of an undoubted fissure lode.

Return showing the Yield of Gold from Kanowna.

The following are the figures showing the gold yield of the Kanowna district as compiled from the "Gold Mining Statistics," published by the Department of Mines. Owing to circumstances beyond our control it has been found impossible to prepare a table giving the production of that portion of the district dealt with in the preceding pages.

LODES.

Date.	Quantity of Stone Crushed.	Yield of Gold.	
		Total Yield.	Rate per ton.
	tons cwts. qrs.	ozs. dwts. grs.	ozs. dwts. grs.
Previous to 1898 ...	27,365 11 0	28,243 15 11	1 0 5
1898	24,838 2 0	20,892 0 0	0 16 19
1899	20,735 10 0	19,680 0 14	0 18 23
Total	72,939 3 0	68,815 16 1	...

ALLUVIAL DEPOSITS.

(*a*) *Gravels.*

Previous to 1898 ...	Alluvial ...	10,611 18 10
1898	,, ...	63,548 0 10
1899	,, ...	17,492 15 2
Total	...	91,652 13 22

(*b*) *Cement.*

1898	45,983 4 2	68,183 10 22
1899	51,098 14 2	71,839 18 11
Total	97,081 19 0	140,023 5 9

KANOWNA GREAT BOULDER G.M.L. 885x.

The position of this lease is as marked on the accompanying plan, Plate VI. Much of the area to be embraced within the boundaries of the proposed lease (G.M.L. 885x), was originally taken up as alluvial ground, and prospected by means of the shafts as shown on Plate VI. Such claims, however, as were taken up within the boundaries of G.M.L. 885x, were soon abandoned, and on the 1st November, 1898, Messrs. Holroyd and party made an application for two gold mining leases, including an area of 30 acres, which comprised most of the area taken up in the proposed G.M.L. 885x.

G.M.L. 885x.—Little can be said about the workings of this lease. Two shafts, known as Ritchie's and the Italian's, have been sunk to some considerable depth* in the country rock, but are now partly fallen in, and were inaccessible to me. So far as I could ascertain, both these shafts pierced an alluvial deposit, not exceeding 10 feet in thickness. The country rock, as seen on the dumps of the two shafts (Ritchie's and the Italian's), is very much decomposed, and belongs, probably, to the diorite family of rocks. The other shafts on the property are insignificant, and more or less filled in; no one of them has a vertical depth exceeding eight feet.

At the "Rock Breaker"† an excavation has been made, in which the underlying rock is clearly exposed, and is seen to be a much altered rock, probably a felspar porphyry or felsite.

On G.M.L. 530x (which lies to the South of G.M.L. 885x) several shafts, whose vertical depths are unknown to me, have been sunk at, or near, the junction of the granitic and dioritic rocks. The strike of this contact line is a little to the East of North and West of South. The workings are in the granitic rock, and have been carried on in the pursuit of the quartz leaders which are auriferous. These workings are now abandoned, and I was consequently unable to descend the shafts. The granitic rock here (on G.M.L. 530x) shows numerous cubical cavities, which formerly have probably been filled with crystals of iron pyrites. No distinct lines of quartz reefs or lodes are visible, the quartz occurring more in the form of a stock work in the granite rock. Both the granitic and the dioritic rocks outcrop at the surface on G.M.L. 530x.

The dumps of the shafts in the vicinity of the North-Eastern boundary of G.M.L. 885x show the underlying rocks to be as marked on the accompanying plan, so that the probable contact line, the granite and diorite, can be approximately traced out, and will be found to strike somewhat in the direction of Soden's and Eaton's claims on the North Lead.

The South-Western portion of G.M.L. 530x is unprospected, but as the country in this locality has a considerable slope to the North-West, it is probable that the surface deposits have not attained any great thickness.

As the principal point of this report is to decide whether there is any possibility of a lode underlying the surface accumulations, I next proceeded to examine the claims where supposed lodes existed.

Soden and Party's Claim.—The vertical depth of the shaft from the surface on this claim is about 90 feet, when the water level is reached. The following is a description of the strata passed through in sinking the shaft‡:—

Description of Strata.	Thickness of Strata.	Depth of Strata from Surface.
	ft. in.	ft. in.
Ironstone and clay mixed with quartz	25 0	...
Kaolin	20 0	25 0
Cement (barren)	17 6	45 0
Wash (payable)	2 6	62 6
Wet kaolin and quartz leaders	25 0	65 0
Total thickness	90 0	...

At the 90ft. level a drive was put into the North-East for a distance of some 50 feet. For the first 18 feet wet kaolin, in which are well defined quartz leaders was passed through, and then the lode was struck and crosscut for a distance of some 32 feet. The junction line of the kaolin and lode is well defined, and has a more or less North and South strike, and an underlie of some 60 degrees to the West. From this level the lode has been followed up, by overhead stoping, for a distance of some 15 feet into kaolin resembling that in the drive. A junction line of these two kaolins is not discernible in the shaft. The overlying kaolin rests on the much denuded surface of the lode material. The workings at present do not show the presence of an Eastern wall.

Some 200 tons taken from the lode have averaged 22dwts. of gold per ton.

Eaton's Claim (late Saunder's Claim).—In Eaton's claim a similar lode has been opened out at the 98ft. level. From here 385 tons crushed have yielded 615ozs. of gold. In appearance the lode stuff resembles that of Soden's claim, only crystalline gold is visible in several places in the mine. The order in which the overlying sedimentary deposits occur is similar to that of Soden's, only the auriferous wash is not payable. In both of these lodes numerous cubical holes are visible.

Of the other claims I inspected, the most important is that of Moorhead and Party, lying to the South-West of the South-West corner of G.M.L. 1054E. The vertical depth of the shaft on this claim (Moorhead's and Party's) is 139 feet. At this level a drive has been put in to the West for a distance of 39 feet. At the bottom of the shaft a distinct junction line between two very much altered hornblende rocks is visible, the junction being easily traced by following a distinctly defined serpentine "dig." The strike of this "dig" is North 10 degrees West, with an underlie to the East at a high angle. Payable gold is found in the "dig" and in most of the rock taken from the drive. The rock to the West of the shaft contains numerous pseudemorphs of iron pyrites, but does not contain gold in any appreciable quantity. In the rock lying to the East in the drive numerous cubical holes are present, as in Eaton's and Soden's lodes.

* Vertical depth not exceeding 100 feet in either case. † Situated on M.A. 21.

‡ The measurements as given in the following were given to me by one of the workmen on the claim, and are not taken from personal observations.

Taking the evidence as it stands, we have the following :--

(1.) Lease 885x is for the most part covered with a shallow superficial deposit.

(2.) In the two shafts, "Ritchie's" and "The Italian's," which have pierced this overlying deposit, the country rock has been seen to be diorite.

(3.) The excavation at the "Rock Breaker" (situated between the above-mentioned) granitic rock has been exposed.

(4.) The lease has been prospected for alluvial gold, and abandoned for several months past.

(5.) Similar rocks to that seen in the excavation on G.M.L. 885x has been mined on G.M.L. 530x, to obtain the gold from quartz leaders which intersect this rock (on G.M.L. 530x).

(6.) Undoubted lode stuff has been opened out in Soden's and Eaten's claims, which lie to the North of G.M.L. 885x.

(7.) The strike of the lode in Soden's claim is North and South, and would, if continuous, pass through the Eastern portion of G.M.L. 885x.

(8.) In Moorhead's claim another distinct lode is found, also with a strike North and South, *i.e.*, running parallel to the lode in Soden's claim.

My reasons for considering these auriferous bodies to be true fissure lodes and not alluvial deposits, are the following :—

(1.) There is no evidence of stratification in the lodes.

(2.) The lode material is homogenous, and is intersected by numerous quartz and ironstone veins.

(3.) In Soden's and Moorhead's claims a distinct junction line, more or less well defined, is found between the lodes and surrounding rocks.

(4.) In Soden's claim the country rock is entirely different in composition to the lode, and contains quartz leaders.

(5.) In Moorhead's claim, the country rock, though similar in appearance to the lode, contains no gold, but an abundance of pseudemorphs of hematite.

(6.) In all cases the gold is not water-worn but distinctly crystalline.

(7.) The junction lines between the lodes and encasing rocks in Soden's and Moorhead's, claims are pertaining to the vertical and not horizontal.

TORRINGTON BLATCHFORD, B.A., F.G.S.,
Assistant Geologist,

The Government Geologist. 1st December, 1899.