

TRANQUIL CREEK - WARN BAY AREA

006717

(Ref. Map 18)\*

by  
W.J. Lynott

Location and Access.- The Tranquil Creek-Warn Bay Area is on the western coast of the island, about 15 miles northeasterly by water from Tofino, the nearest base for supplies and transportation.

Tofino is served on an eight day schedule three times a month by ships of the Canadian Pacific Steamship Company, intermittently by Frank Waterhouse ships and semi-weekly by Canadian Pacific Airlines. The M.V. "Uchuck" sails three times weekly from Port Alberni to Ucluelet and is met by motor vehicle carrying light freight and passengers to Tofino over some 26 miles of good gravel road. Motor boats may be chartered to run between Port Alberni and Ucluelet.

A launch or small boat may be taken from Tofino to the head of Tranquil Inlet or Warn Bay. ~~A launch or small boat~~, capable of passing the bars at the mouth of Tranquil Creek, where the depth of water at high tide is about 4 feet, may continue half a mile upstream to the beach camp. From the camp a tractor road extends a further two miles up the western side of Tranquil Creek. Rough trails extend from the end of the tractor road about 1½ miles farther up the valley to the Fandora and Coldflake properties, and about five miles up the valley towards the headwaters of the two main forks of Tranquil Creek.

One mile of truck road leads from the beach at the head of Warn Bay to the <sup>Maple Leaf</sup> Moscena campsite. Rough trails branch from the road

\*see p. 7

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PROPERTY FILE

bridge to various other discoveries near Bulson creek. Other rough trails extend from Warn Bay to the Freegold and Coldflake properties.

Topography.- The Tranquil Creek-Warn Bay area is rugged mountainous and heavily wooded on the steep bluffy slopes from the valley-bottoms to most of the ridge-tops. The highest peak in the area is just over 4,400 feet above sea level.

Tranquil creek is fed by tarn lakes at its headwaters and has a steep gradient down canyons to the junction of its two main forks about  $4\frac{1}{2}$  miles from the head of Tranquil inlet. The average gradient of the valley bottom from the forks to the mouth is less than 100 feet per mile. Downstream from a 50 foot waterfall about 2 miles from tidewater, the width of the valley floor increases gradually from a few hundreds of feet to half a mile.

Bulson Creek, within the area, flows through a narrow canyon and has an average gradient of 200 feet per mile to its mouth at the head of Warn Bay.

History.- Several mineral claims were staked, nineteen of them in the late 90's. Nineteen of them, on the eastern side of Tranquil Creek Valley about 3 miles north of the head of Tranquil Inlet, were crown-granted between forty and fifty years ago and were in good standing in 1946. On these claims Lenticular bodies of low-grade copper ore have been explored by surface and underground workings. Most of this work was done before 1904, but some further work has been undertaken from time to time. ~~Here, surface and underground development of isolated lenticular bodies of low grade copper ore on the B.C. Wonder Group continued until 1903.~~

In the late '30's several auriferous quartz veins were discovered, claims staked, trails put in, and development work undertaken. Development work continued for several years. Surface stripping and some underground development by the Maple Leaf Syndicate in 1941 disclosed interesting possibilities on a property, now owned by Moscena Mines Ltd., N.P.L., near Bulson Creek 1 mile north of Warn Bay. Surface stripping and underground development on the Pandora property by E.G. Brown and P. Donahue exposed two narrow but fairly rich and continuous veins in the strong sheared andesite dyke. Little was done during the later war years but work was resumed in 1946 on the Moscena and Pandora properties.

Production.- From the Hetty Green property on Tofino Creek just east of the present area of production was recorded in 1905 of 214 tons containing - gold 2 oz., silver 168 oz., copper 29,379 lb.

In 1940 production of approximately 35 ounces of gold and some silver was recorded from three properties, the Gold Flake, Maple Leaf and the Yankee Boy.

Geology.- Granitic rocks, cut by a few large andesitic dykes, underlie most of the area examined north of Warn Bay. Pendants and numerous small inclusions of older altered volcanics and/or sediments occur in scattered zones and patches. Altered andesitic volcanics, cut by fresh andesitic dykes and small bodies of feldspar porphyry, are found in the area northwesterly and easterly of Warn Bay.

A large area underlain mostly by granitic rocks, gneissic near the contact zone, lies immediately south of Virge Creek. The approximate greenstone-"granite" contact runs easterly from the mouth of Virge Creek, over the divide, down Goldflake Creek, and across Tranquil Creek at a point approximately two miles up from the head of Tranquil Inlet.

Altered volcanics with small scattered lenses of altered sediments, crystalline limestone and garnetiferous rocks ~~for the~~ <sup>almost</sup> ~~most part,~~ underlie the entire western valley-side of Tranquil Creek north of Goldflake Creek. The older rocks are cut by numerous andesitic to basaltic dykes, by numerous small bodies of fresh feldspar porphyry, and, along the ridge tops, by a few isolated bodies of granitic material. Northeasterly to southeasterly of the junction of Tranquil Creek forks granitic rocks predominate. Numerous pendants and breccia zones of altered volcanics and/or sediments in granitic material give evidence that much of the above area is near the roof contact of the underlying batholith. ~~Bodies of fresh feldspar~~ <sup>in dykes and small masses</sup> porphyry, found throughout the area, is believed to be a fine grained phase of the granitic rock, with which ~~it was~~ not seen in contact.

The volcanic rocks are cut by numerous steeply dipping to vertical fractures trending north 65 degrees east to due east reflected topographically by deep narrow gashes and gorges cutting transversely the northerly trending ridges and steep valley sides. Fairly flat lying fractures are numerous, often marked by cave-like openings under precipitous bluffs climbing step-like up the steep valley sides. Many fractures striking north 35 degrees west

and dipping are found in the area.

Gold quartz mineralization post-dates the granitic rocks and the fresh andesite dykes. It apparently occurred in two stages, first the introduction of quartz with sparse sulphides into narrow continuous fissures and secondly, after small movement parallel to the walls, the introduction of sulphides and gold into sheeted zones within the quartz.

Gold Deposits.- The Pandora, Goldflake and Tofino groups, held under option by Privateer Gold Mines Ltd., and the Moscena property, owned by Moscena Mines Ltd., (N.P.L.) were being developed in the summer of 1946. Other discoveries in the area lie within the following mineral claims: Freegold, Eldorado, 3 J's and King.

Strike Groups.- The gold quartz veins of the Moscena property in granitic rocks north of Warn Bay strike north 40 to 45 degrees west and dip 85 to 90 degrees northeastward.

The gold quartz veins on the Pandora property strike north 72 degrees east and dip 60 to 70 degrees northward.

Structural Types.- The veins all occur in narrow continuous fissures in granitic rock, andesite dyke, or altered volcanics. The veins are usually sheeted, have free walls, and often grade longitudinally into zones of gouge and small fragments of quartz and altered country rock.

A barren sheeted zone some 200 feet wide, of quartz within altered volcanics is exposed on the Leviathon No. 1 mineral claim. The quartz bodies, apparently up to 15 feet wide, appear to strike north 35 degrees west and dip steeply northeastward. The exposure outcrops on a steep bluff. Longitudinal extensions, if they exist, are covered by overburden.

Vein Texture.- The veins of the Pandora property consist of thin plates of quartz separated by thin partings of rust-coloured fine material. Finely disseminated sparse sulphides are visible in zones free of oxidation. Movement along the vein shear produces wide zones of gouge containing angular oxidized fragments of mineralized quartz and country rock.

The veins of the Moscena property are ribboned and contain varying amounts of sulphide often distributed in bands parallel to the walls, which <sup>are</sup> often separated from the vein by thin parting of gouge and iron oxide.

Vein Matter.- The vein matter consists of quartz, carbonates, occasional chloritic material, and sulphides. The sulphides include pyrite, chalcopyrite, arsenopyrite, sphalerite and galena.

The uncrushed ore material of the Pandora veins contains less than 1% of finely crystalline pyrite with occasional chalcopyrite, galena, and sphalerite. Small specks of free gold rarely visible in hand specimens <sup>even though</sup> ~~although~~ a panning of crushed material will show many small colours.

Sulphides are coarser and more abundant in the ore material of the Moscena property, and consist of pyrite, chalcopyrite,

sphalerite, galena, and, occasionally, small amounts of arsenopyrite. Small specks of free gold, associated with fine disseminated galena, were seen in one specimen from the shaft dump.

Mineralization in the form of sulphides is sparse in granitic wall rock although alteration close to the veins is evident. The andesite dyke wall-rock of the main Pandora veins is unaltered except between the two closely-spaced parallel veins where it is crushed and considerably softer than fresh material of the exterior walls.

Rocks associated with Gold Veins.— The gold-quartz veins are associated with granitic rocks, either massive or gneissic, fresh andesite, altered volcanics, or in breccia composed of granite and altered volcanics and/or sediments.

Veins in which the wall-rock is granitic are found on the Moscena group, where the vein shears also cut altered sediments and fresh andesite, on the Yankee Boy, and on showings in the following mineral claims: Eldorado No. 5, 3 J's, and King. Gold values in grab samples from the last 3 claims assayed trace to .02 oz. gold per ton.

Veins in which the wall-rock is fresh andesite are found on the Pandora property where two parallel veins, about 5.5 feet apart, are found in certain zones within a strong dyke.

Veins in which the wall-rock is altered volcanic are found on the Goldflake group and on the Pandora group and environs.

The vein shears in the area examined appear to have marked

continuity longitudinally in spite of their narrow width particularly when they fill fissures in competent fresh unaltered rock, either andesitic or granitic, rather than in altered volcanics or sediments.

Suggestions for Prospecting.- Two prospects of economic interest have already been found in the Tranquil Creek-Warn Bay Area; each is in a different geological setting, although both are near the contact zone of a large mass of granitic rock.

In view of the known facts the near-contact zone of the granitic rocks, both in the greenstone and in the granite, appear to be the most likely sites for new discoveries. The well-developed tributary drainage above the main valley-bottoms affords excellent opportunity for sampling the country by float and panning.

The northwesterly vein-bearing fractures in the Moscena showings are reflected topographically by long narrow parallel guts probably scoured out by glacial or fluvio-glacial erosion.

The east-north-easterly shear on the Pandora property is similarly marked by a straight, narrow, stream-worn, steep-walled gut.

Similar topographic features within the area of the near-contact zone might well mark the sites of other veins.

Draft 3 carbon

3200 47/1

TRANQUIL CREEK - WARN BAY AREA

(49° 125° 5' W)  
(Ref. Map 18)\*

92F/445E

92F-3940(4)205

by

J. Lynott

*John D. Lynott*

Location and Access. - The Tranquil Creek-Warn Bay Area

is on the western coast of the <sup>Island</sup> island, about 15 miles northeasterly by water from Tofino, the nearest base for supplies and transportation.

Tofino is served on an eight day schedule three times a month by ships of the Canadian Pacific Steamship Company, intermittently by Frank Waterhouse ships and semi-weekly by Canadian Pacific Airlines. The M.V. "Uchuck" sails three times weekly from Port Alberni to Ucluelet and is met by motor vehicle carrying light freight and passengers to Tofino over some 26 miles of good gravel road. Motor boats may be chartered to run between Port Alberni and Ucluelet.

A launch or small boat may be taken from Tofino to the head of Tranquil Inlet or Warn Bay. A ~~launch or small~~ boat, capable of passing the bars at the mouth of Tranquil Creek, where the depth of water at high tide is about 4 feet, may continue half a mile upstream to the beach camp. From the camp a tractor road extends ~~a further two miles~~ <sup>to a point two miles from the camp</sup> up the western side of Tranquil Creek. Rough trails extend from the end of the tractor road about ~~1 1/2 miles~~ <sup>1 1/2</sup> miles farther up the valley to the Pandora and Coldlake properties, and about five miles up the valley towards the headwaters of the two main forks of Tranquil Creek.

One mile of truck road leads from the beach at the head of Warn Bay to the Moscona campsite. Rough trails branch from the road

\*see p. 7

\* Report by J. S. Lynott.

PROPERTY FILE

bridge to various other discoveries near Bulson creek. Other rough trails extend from Warn Bay to the <sup>14</sup>~~Freegold~~ and <sup>F</sup>~~Goldflake~~ properties.

Topography.- The Tranquil Creek-Warn Bay area is rugged mountainous and heavily wooded on the steep bluffy slopes from the valley-bottoms to most of the ridge-tops. The highest peak in the area is just over 4,400 feet above sea level.

Tranquil creek is fed by tarn lakes at its headwaters and has a steep gradient down canyons to the junction of its two main forks about  $4\frac{1}{2}$  miles from the head of Tranquil inlet. The average gradient of the valley bottom from the forks to the mouth is less than 100 feet per mile. Downstream from a 50 foot waterfall about 2 miles from tidewater, the width of the valley floor increases gradually from a few hundreds of feet to half a mile.

Bulson Creek, within the area, flows through a narrow canyon and has an average gradient of 200 feet per mile to its mouth at the head of Warn Bay.

History.- <sup>Of numerous</sup> ~~Several~~ mineral claims were staked, ~~nineteen of~~ ~~them~~ in the late 90's, ~~nineteen of them~~, on the eastern side of Tranquil Creek Valley about 5 miles north of the head of Tranquil Inlet, were crown-granted <sup>On these claims</sup> between forty and fifty years ago and were in good standing in 1946. Lenticular bodies of low-grade copper ore have been explored by surface and underground workings. Most of this work was done before 1904, but some further work has been undertaken from time to time. ~~Here, surface and underground development of isolated lenticular bodies of low grade copper ore on the B.C. Wonder Group continued until 1905.~~

In the late '30's several auriferous quartz veins were discovered, claims staked, trails put in, and development work undertaken. Development work continued for several years. Surface stripping and some underground development by the Maple Leaf Syndicate in 1941 disclosed interesting possibilities on a property, now owned by Moscona Mines Ltd., N.P.L., near Bulson Creek 1 mile north of Warn Bay. Surface stripping and underground development on the Pandora property by E.G. Brown and P. Donahue exposed ~~to~~ <sup>near matter</sup> narrow but fairly rich and continuous veins in the strongly sheared andesite dyke. Little was done during the later war years but work was resumed in 1946 on the ~~Moscona and Pandora~~ <sup>by Moscona Mines Limited and on the Pandora by Private Gold Mines Ltd</sup> properties. ~~Gold-bearing veins have been discovered on the Free Gold, Eldorado, 31's and Yankee Boy claims but they were not being prospecting in 1946.~~ Production. - from the Hetty Green property on Tofino

Creek just east of the present area, ~~no production was recorded~~

<sup>production</sup>  
In 1905 of 814 tons containing - gold 2 oz., silver 168 oz., copper 29,379 <sup>1</sup> lb., was recorded

In 1940 production of approximately 35 ounces of gold and some silver was recorded from three properties, the Gold Flake, Maple Leaf and the Yankee Boy. *2 properties*

*For p3 to 5 see draft by JSS or modification thereof.*

Geology. - Granitic rocks, cut by a few large andesitic dykes, underlie most of the area examined north of Warn Bay. Pendants and numerous small inclusions of older altered volcanics and/or sediments occur in scattered zones and patches. Altered <sup>andesite</sup> andesitic volcanics, cut by fresh andesitic dykes and small bodies of feldspar <sup>and quartz</sup> porphyry, are found in the area northwesterly and easterly of Warn Bay. *feldspar*

*natural alteration*

The geology of the area is shown in Fig. ~~2~~, a map on a ~~half a mile to one inch~~, based on fieldwork done scale of ~~one inch equals half a mile~~, made by the writer in the summer of 1946.

### *Altered Volcanics*

Andesite and quartz-diorite are the main rock types found in the map-area. (Their distribution is shown in Fig. 1)

### *Volcanic rocks*

~~Andesite is found (as one continuous area) throughout the central part of the map area.~~ It extends north-westerly from the head of Warn Bay to the western edge of the map-area and easterly <sup>mapped</sup> ~~from the Bay~~ <sup>extend</sup> to a mass of quartz diorite east of Tranquil Creek. The ~~volcanics~~ <sup>volcanics</sup> continue ~~south-easterly beyond Clarke~~ over the ridges between Warn and Tranquil creek. A wide area bounded on the south by Virge and Gold Flake creeks extends northerly to the north edge of the map-area, and a narrow area <sup>south</sup> extends easterly across Tranquil Creek ~~to and beyond Clarke Creek~~ to the eastern side of the map-area.

### *Volcanic rock is*

The andesite, altered to a typical "greenstone", <sup>being composed</sup> contains largely ~~of secondary~~ <sup>minerals</sup> small, scattered lenses, up to a few hundred feet long by ~~20~~ <sup>200</sup> feet <sup>(no base)</sup> wide, of altered sediments, crystalline limestone, and <sup>soft red</sup> rocks characterized by an abundance of <sup>lime-silicate minerals such as</sup> brown garnet and ~~or~~ green diopside, etc. Small areas of massive amphibolite or <sup>of</sup> the schistose amphibolite that has been in part replaced along the schistosity by granitic material, are found in places near the quartz diorite. <sup>Small masses of quartz diorite and small masses of</sup>

Quartz diorite is found in four areas, mainly on the <sup>peripheries</sup> ~~properties~~ of the andesite areas. One area extends northerly from the head of Warn Bay for  $1\frac{1}{2}$  miles to the edge of the map ~~area~~. A second, small area is found between the headwaters of the Freegold and \_\_\_\_\_ creeks. A third area is found in the north-eastern corner of the map ~~area~~ along the East Fork <sup>of</sup> and Tranquil creek and along the ridges south-easterly from the creek. A fourth area extends

A large area underlain mostly by <sup>g.d.</sup> granitic rocks, gneissic near the contact zone, lies immediately south of Virge Creek. The approximate greenstone-<sup>g.d.</sup> "granite" contact runs easterly from the mouth of Virge Creek, over the divide, down Goldflake Creek, and across Tranquil Creek at a point approximately two miles up from the head of Tranquil Inlet.

Altered volcanics with small scattered lenses of altered sediments, crystalline limestone and garnetiferous rocks ~~for the~~ <sup>almost</sup> ~~most part~~, underlie the entire western valley-side of Tranquil Creek north of Goldflake Creek. The older rocks are cut by numerous <sup>andesitic & basaltic</sup> andesitic to basaltic dykes, by numerous small bodies of fresh feldspar porphyry, and, along the ridge tops, by a few isolated bodies of <sup>g.d. granitic</sup> granitic material. Northeasterly to southeasterly of the junction of Tranquil Creek forks granitic rocks predominate. Numerous pendants and breccia zones of altered volcanics and/or sediments in granitic material give evidence that much of the above area is near the roof ~~contact~~ of the underlying batholith. <sup>Fresh feldspar</sup> in dykes and small masses porphyry, found throughout the area, is believed to be a fine grained phase of the <sup>g.d.</sup> granitic rock, with which it was not seen in contact.

The volcanic rocks are cut by numerous steeply dipping to vertical fractures <sup>zones</sup> trending north 65 degrees east to <sup>east-south-</sup> ~~the~~ east reflected topographically by deep narrow gashes and gorges cutting transversely the northerly trending ridges and steep valley sides. <sup>Gently dipping</sup> Fairly flat lying fractures are numerous, often marked by cave-like openings under precipitous bluffs climbing step-like up the steep valley sides. Many fractures striking <sup>northwestward</sup> north ~~35 degrees west~~

Pages 1 to 4  
are used in map 25 M55  
about vertically # - 5 -

None taken  
for map 25 M55

and dipping <sup>about vertically</sup> are found in the area.

Gold quartz mineralization post-dates the granitic rocks and the fresh andesite dykes. It apparently occurred in two stages, first the introduction of quartz with sparse sulphides into narrow continuous fissures and secondly, after small movement parallel to the walls, the introduction of sulphides and gold into sheeted zones within the quartz.

The currently active properties in the area are:  
Gold Deposits. - The Pandora, Goldflake and Tofino groups, held under option by Privateer Gold Mines Ltd., and the Moscona property, owned by Moscona Mines Ltd., (N.P.L.) were being developed in the summer of 1946. Other discoveries in the area lie within the following mineral claims: Freegold, Eldorado, 3 J's and King.

Yankee Boy?  
Capet?

Strike Groups. - The gold quartz veins of the Moscona property in granitic rocks north of Warr Bay strike north 40 to 45 degrees west and dip 85 to 90 degrees northeastward.

The gold quartz veins on the Pandora property strike north 72 degrees east and dip 60 to 70 degrees northward.

Add? { The gold quartz veins of the Yankee Boy claims, apparently parallel to the trend of the migmatite foliation, strikes north 54 degrees east and dips 56 degrees northward.

Structural Types. - The veins all occur in narrow continuous fissures in <sup>g.d.</sup> granitic rock, andesite dyke, or altered <sup>andesite</sup> volcanics. The veins are usually sheeted, have free walls, and often grade <sup>along their strike</sup> longitudinally into zones of gouge and small fragments of quartz and altered country rock.

A barren sheeted zone some 200 feet wide, of quartz within altered volcanics is exposed on the Leviathan No. 1 mineral claim. The quartz bodies, apparently up to 15 feet wide, appear to strike north 35 degrees west and dip steeply northeastward. The exposure outcrops on a steep bluff. Longitudinal extensions, ~~if they exist,~~ are covered by overburden. *a/*

~~Vein Texture.~~ - The veins of the Pandora property consist of thin plates of quartz separated by thin partings of ~~rust-coloured~~ *rusty schistose* ~~fine material.~~ *small - rock* Finely disseminated sparse sulphides are visible in ~~unoxidized vein-matter~~ *unoxidized vein-matter* zones free of oxidation. Movement along the vein shears produces wide zones of gouge containing angular oxidized fragments of ~~mineralized quartz and country rock.~~ *small - rock &*

The veins of the Moscena property are ribboned and contain varying amounts of sulphide ~~often~~ distributed in bands parallel to the walls. ~~The walls are often~~ *The walls are often* separated from the vein by thin parting of ~~gouge and iron oxide.~~ *limonite*

~~Vein Matter.~~ - The vein matter consists of quartz, carbonates, occasional chloritic material, and sulphides. The sulphides include pyrite, chalcopyrite, arsenopyrite, sphalerite and galena.

The uncrushed ore material of the Pandora veins contains less than 1% of finely crystalline pyrite with occasional chalcopyrite, galena, and sphalerite. Small specks of free gold ~~rarely~~ *are* visible in hand specimens ~~although~~ *even though* panning of crushed material will show many small colours.

Sulphides are coarser and more abundant in the ~~ore material~~ *vein on >* ~~of the Moscena property,~~ *property* and consist of pyrite, chalcopyrite,

sphalerite, galena, and, occasionally, small amounts of arsenopyrite. Small <sup>particles</sup> specks of free gold, associated with fine, disseminated galena, were seen in one specimen from the shaft dump.

Mineralization in the form of sulphides is sparse in granitic wall rock although alteration close to the veins is evident. The andesite dyke wall-rock of the main Pandora veins is unaltered except between the two closely-spaced parallel veins where it is crushed and considerably softer than fresh material of the exterior walls.

~~Rocks associated with Gold Veins.~~ - The gold-quartz veins are associated with <sup>g.d.</sup> granitic rocks, either massive or gneissic, fresh andesite, altered volcanics, or in breccia composed of <sup>g.d.</sup> granite and altered <sup>andesite</sup> volcanics and/or sediments.

Veins <sup>of</sup> ~~in~~ which the wall-rock is <sup>g.d.</sup> granitic are found on the Moscona group, where the vein shears also cut altered sediments and fresh andesite, on the Yankee Boy, and on showings in the following mineral claims: Eldorado No. 5, 3 J's, and King. Gold values in grab samples from the last 3 claims assayed trace to .02 oz. gold per ton.

Veins <sup>of</sup> ~~in~~ which the wall-rock is fresh andesite are found on the Pandora property where two parallel veins, about 5.5 feet apart, are found in certain zones within a strong dyke.

Veins <sup>of</sup> ~~in~~ which the wall-rock is altered <sup>andesite</sup> volcanic are found on the Goldflake group and on the Pandora group and environs.

The vein shears in the area examined appear to have marked

continuity longitudinally in spite of their narrow width particularly when they fill fissures in competent fresh unaltered rock, either andesitic or granitic, rather than in altered volcanics or sediments.

Suggestions for Prospecting.- Two prospects of economic interest have already been found in the Tranquil Creek-Warn Bay Area; each is in a different geological setting, although both are near the contact zone of a large mass of granitic rock.

In view of the known facts the near-contact zone of the granitic rocks, both in the greenstone and in the granite, appear to be the most likely sites for new discoveries. The well-developed tributary drainage above the main valley-bottoms affords excellent opportunity for sampling the country by float and panning.

The northwesterly vein-bearing fractures in the Moscena showings are reflected topographically by long narrow parallel guts probably scoured out by glacial or fluvio-glacial erosion.

The east-north-easterly shear on the Pandora property is similarly marked by a straight, narrow, stream-worn, steep-walled gut.

Similar topographic features within the area of the near-contact zone might well mark the sites of other veins.

92F/465E

92F-3849  
4/205

WARN BAY - TRANQUIL CREEK AREA

Location and access - The Warn Bay-Tranquil Creek area lies approximately 15 miles north-easterly from Tofino and Clayoquot and may be reached by motor-boat from these places. The properties include the Maple Leaf and Free Gold on the Bulson River within one mile of the head of Warn Bay; the Fandora (formerly Fusilier) on Tranquil Creek  $3\frac{1}{2}$  miles from the head of Tranquil Inlet and the Maple Leaf on the ridge between Warn Bay and the mouth of Tranquil Creek.

History and production - Most of the properties in the area were staked in 1939 by men working out from the nearby Bedwell River area, where prospecting and mining development was very active at the time. From 1939 to 1945 development work on the properties was slight and intermittent with a few small shipments of ore being made from the Maple Leaf and the Free Gold. However, in 1945 Privateer Mines Ltd. acquired the old Fusilier property, re-named it the Fandora, and Moscena Mines Ltd. acquired the old Maple Leaf. Since then these companies have carried on active development work.

Geology - The ground covered by the properties is largely underlain by greenstone, but a small amount of limestone and some quartz-diorite are found on the Warn Bay properties and northerly from the Fandora. A considerable area of granodiorite adjoins the Gold Leaf on the south and extends some distance southward. Andesitic dykes are common in the greenstone area.

Veins - The gold values are found in quartz veins characterized by a marked ribbon structure and a small sulphide content.

PROPERTY FILE

92F041

The quartz ribbons are separated by thin partings of schistose greenstone, which, in the rich sections of the vein, have been replaced by finely disseminated, gold-bearing sulphides. These sulphides are mainly fine arsenopyrite, galena, pyrite and occasionally a little chalcopyrite. Free gold unaccompanied by sulphides is occasionally seen in the quartz. These features are well illustrated in the Fandora veins.

The quartz veins tend to be lenticular, ranging from a few inches to a maximum of 22 inches seen at one place on the main vein on the Fandora.

Many of the veins follow carbonatized shear-zones from a few inches to a maximum of 4 feet wide. The width of carbonatization is variable, it may be confined to a few inches of shear on either side of the quartz veins or it may spread with decreasing intensity for several feet on either side of the vein-shear. Where these shear-zones cut andesitic dykes the carbonatization of the dyke is usually very complete for several feet from the shear. One example of this is seen in the portal section of the 3 upper adits on the Fandora, where the main vein-shear cuts an andesite dyke at a small angle. Here the dyke is completely carbonatized for several feet from the vein-shear. Carbonatized rock is best seen on weathered surfaces where the iron of the carbonate has oxidized and imparted a yellow-brown colour to the rock. The yellowish-brown oxidation of a carbonatized rock is readily distinguished by its shade of brown from the more reddish-brown oxidation of a vein, vein-shear, or rock heavily charged with sulphides.

J.S. Stevenson

Oct. 1946.

92F/4; 5E

92F-39,49(4) 205

Notes re Tranquil m ss.

Have adequate descriptions of gtz. di  
& felspar porphyry but none of the other rocks: altered  
andesite, fresh andesite, basaltic dykes,  
sediments, shown be consistent.

Because of W. L.'s doubt about  
whether the granite rock is quartz diorite or  
granodiorite as expressed in his letter of  
Feb-17, he may not want to be as  
specific as I have been in calling it  
bluntly a gtz. diorite.

To be specific I have used term "andesite"  
for "volcanic"; this may not be warranted.

Descriptions of the Goldflak,  
Freegold, Colorado, B. J., & King  
are missing; however, this is O.K. if the  
report is to be a report of current activity  
only; if so, then only Frandora &  
Masena should be described, & all other  
properties omitted; at present descriptions &  
mineral properties are included - Frandora, Bag,  
Goldflak (incomplete).

In my statement "Colorado,  
B. J. & King were re-examined in 19  
correct? O.K. - see p. 7 1955 for Bag 20.

I have taken perhaps some  
liberties with the m ss, it might be  
advisable to soften or modify some of my  
arrangements.

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Altered volcanic rocks, and granitic rocks, principally quartz-diorite, are the chief rock types found in the area. Their distribution is shown in Fig. , a map on the scale of one mile to one inch, based on field work done in the summer of 1946.

The volcanics found in much of the northern two-thirds of the area, extend north from a ~~large~~ body of quartz-diorite, of which the northern contact runs easterly from Warn Bay just south of Virge Creek. Another incompletely mapped body of quartz-diorite is found in the vicinity of Bulson Creek and its principal tributary Free Gold Creek, ~~ex~~ which empty into the head of Warn Bay. The area east of Bulson Creek has not been traversed and this body of quartz-diorite may be found to extend east ~~far~~ to the divide between Freegold Creek and the west fork of Tranquil Creek, where a tongue of quartz-diorite about two-thirds of a mile wide has been mapped for a length of a mile and a quarter. A third considerable body of quartz-diorite is found in the north-eastern part of the area.

The volcanic rock is now altered to greenstone and is composed largely of secondary minerals. Probably the rock was originally andesitic in character. Lenses of crystalline limestone with a maximum length of a few hundred feet, lenses of other sedimentary rocks and of garnet diopside rock are found in the altered volcanics. Dykes and small masses of feldspar porphyry and some small masses of quartz-diorite are found in the areas of greenstone, which are also cut by later andesitic and basaltic dykes.

southerly from Virge and Gold Flake creeks. The contact <sup>r</sup>tends easterly from the mouth of Virge Creek over the divide, down Gold Flake Creek, across Tranquil Creek and thence south-easterly to the eastern edge. <sup>27 map</sup> Small bodies of quartz diorite, less than 400 feet across, intrude the andesite on both sides of Tranquil Creek, northerly from the mouth of Pandora Creek.

The quartz diorite bodies contain pendants and small masses of andesite and sediments. These included <sup>are</sup> rocks/ particularly abundant in an area about three quarters of a mile in diameter on the east side of the East Fork of Tranquil Creek, about one mile upstream from its junction with Tranquil Creek. The abundance <sup>of</sup> included rock here and brecciation of much of it, suggest that this area is close to the original roof of the batholith. ~~Bordering-andesite has-been-brecciated-and-the-fragments-sealed-by-quartz-diorite.~~

Most of the quartz diorite is massive but it is often gneissic along the quartz diorite side of contacts with <sup>older</sup> intrusive rocks. The most extensive area of gneissic quartz diorite is along the border zones of the large area lying south of Virge and Gold Flake creeks. Along the ~~andesite side of the contacts~~, breccia zones of varying width are found, in which the bordering <sup>volcanics have</sup> ~~andesite~~ has been brecciated and the fragments sealed by quartz-diorite.

The typical quartz diorite of the area is greyish white in colour and medium-grained in texture. The principal minerals are quartz, <sup>to</sup> 10/35 per cent.; feldspar, up to 70 per cent., of which less than 1/3 is orthoclase, and the remainder oligoclase, plagioclase; ~~and~~ hornblende and biotite. The <sup>minor</sup> accessory minerals include apatite,

magnetite, sphene, ~~and~~ pyrite and hematite, and the secondary minerals <sup>include</sup> ~~melnite~~, sericite, epidote, clinozoisite, & chlorite (~~perminite?~~). The feldspars are sericitized, the orthoclase usually more than the plagioclase and the hornblende and biotite <sup>are</sup> partly altered to chlorite. The moderate amount of quartz and an orthoclase-feldspar to plagioclase-feldspar ratio <sup>of</sup> ~~less than 1/3~~ <sup>1 to 3</sup>, serve to classify the rock mineralogically as a quartz diorite.

Dykes of several <sup>types</sup> ~~ages~~ and rock <sup>ages</sup> ~~types~~ are found in both the andesite and the quartz diorite. <sup>They</sup> ~~The dyke-rocks~~ include basalt, andesite and feldspar porphyry and quartz feldspar porphyry. Most of the dykes cut both the quartz diorite and andesite, but none were seen cutting the altered sediments and only one dyke, ~~qn~~ altered fine-grained andesite or basalt, was seen cutting limestone.

Isolated outcrops of feldspar porphyry were seen within

the area mapped as underlain by quartz diorite, but nowhere was the

*The feldspar porphyry consists of plagioclase feldspar (oligoclase-andesine) & some quartz phenocrysts in a fine-grained groundmass. It also contains some patches of hornblende, magnetite, ilmenite, sphene, hematite & pyrite. Secondary minerals include chlorite, epidote, clinozoisite & leucosage.*

rock seen in contact with the quartz diorite. <sup>These have a fresh</sup> ~~The rock has~~

~~appearance and are~~ thought to be a quickly cooled or low pressure phase of the quartz diorite. Similar rock has been seen in dykes cutting the andesite.

Three different strike and dip groups of fractures <sup>constitute</sup> ~~are~~ the main structural features of area.

~~found in the map-area.~~ One group strikes N 65° E and is approximately vertical in dip, a second group strikes NW and is also approximately vertical in dip, and a third group is nearly flat-lying. The northeasterly striking group of fractures is reflected in the topography by deep, narrow chimneys, and gorges, approximately transverse to the northerly trending ridges and steep valley sides. The flat-lying

fractures are marked by benches and small caves on the precipitous bluffs of the hillsides.

~~bearing~~ Gold <sup>so many</sup> quartz veins that follow well-defined shear-zones and sheeted zones in andesite or quartz diorite <sup>constitute</sup> comprise the main type of ore-deposit in the area. *such veins are found in the altered rocks in the quartz-diorite and in later andesite dykes.*

The time of mineralization <sup>was</sup> is later than the intrusion of the quartz diorite and of the andesite dykes that cut the quartz diorite. There were ~~apparently two periods of mineralization,~~ <sup>A mineralization,</sup> an early period characterized by the introduction of quartz with sparse sulphides into narrow shear-zones, <sup>was followed by,</sup> and after a smaller amount of movement along the shear-zone, <sup>by</sup> a later ~~period of~~ mineralization characterized by the introduction of sulphides and gold along sheated zones within the earlier quartz vein.