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Copy for Chief Geophysicist

COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF NATIONAL DEVELOPMENT.

BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS.

RECORDS:

1962/86

THE GEOLOGY OF GOLDEN PEAKS
TERRITORY OF PAPUA & NEW GUINEA

by

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CONTENTS

CONTENTS (CONTD)

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SUMMARY

The Golden Peaks open-cut gold mine, 3½ miles from Wau has produced to date, 165,224 tons of ore for a return of 44,497.98 ounces of fine gold. Reserves (June 1961): 245,000 tons at 0.17 ounces per ton.

Altered and oxidized Namie Breccia with stringers of broken and randomly oriented manganiferous material comprises the orebody. At present no entirely satisfactory answer as to the origin of the orebody can be advanced but three possibilities are; Mineralization after oxidation, Selective Mineralization and the Slip Hypothesis. It is suggested in conclusion that the area on the western bank of Andersons Creek to the south-east of the present workings be drilled.

INTRODUCTION

Location and Access.

Golden Peaks, New Guinea Goldfields' open cut gold mine, is a triangular area, bounded to the west by Namie and Whitburns Creek and to the east by Andersons and Bourke Creek. It is reached from Wau by 35 miles of all weather road.

Tenure.

The area held includes portions of G.M.L's 96, 98, 540, and 687, also D.S.L. 299 all of which, excluding G.M.L. 450 which has only recently been acquired, are consolidated into a "Special Area" in terms of Section 44a of the Territory of New Guinea Mining Ordinance.

Field Method.

The investigation was made as part of the program to map geologically in detail, all operating mines in order that a better understanding of the geology of the deposit and mode of ore genesis might be obtained. At the same time an attempt to correlate all previous borehole, underground and surface exploration was made in order that some assistance could be given to the company in the planning of future exploration for the extension of the ore body.

The investigation was commenced during October and November 1960 and continued to the present as new exposures were revealed and drill cuttings examined. The map was compiled from a basic theodolite triangulation on which topographical and geological details were filled in by plane table survey.

Flora.

The entire area, apart from the actual workings, is covered with a secondary growth of kunai grass. Scattered native gardens are found on the hill side in the vicinity of pipe lines and dams.

Climate.

The average annual rainfall is 73.38 inches, the lowest year recorded was 1950 with 50.11 inches and the highest year 1960 with 92.25 inches which fell over 191 days. Rain falls throughout the year but there is a marked dry season from May to October. Day time temperatures are never in excess of 90°F, and most nights are cool.

Previous Investigations.

In 1930 H.M. Kingsbury (1932) wrote geological notes on Golden Peaks ore and in 1940 N.H. Fisher (1944), Government Geologist, incorporated mapping done in the area, in a report on the Morobe Goldfield.

MINING.

Development.

Few early records are available but it is known that New Guinea Exploration Limited prospected the area in early 1929 and that the number 1 and 2 adits and cross-cuts were completed prior to January, 1930. These adits and cross-cuts and those completed later were exploratory and the deposit has never been mined from underground. By the end of 1930 Dickenson's shaft had been sunk and high values were encountered in a drive west from the shaft. In 1935 E. Broughton-Jensen, the mining superintendent at Golden Ridges, made a test cut in the Peaks deposit. No information on the results of this testing is available, but it is known that the ore was considered too colloidal and with too high a clay content for the mill in use at that time. In 1956 New Guinea Goldfields Limited drilled nine percussion drill holes in the vicinity of Golden Peaks in an attempt to find an extension of the orebody. No geological drill logs are available for these holes.

Methods.

Clay overburden is sluiced away and any gold in it is caught in a box 108 feet long with 12 feet of undercurrents at its lower end. The open cut faces are then drilled by natives with long steel jumper bars, the holes are allowed to cool, then charged with gelegnite and fired. The broken material feeds by gravity down the face to the floor below where a front-end loader loads it into trucks. Any broken material which does not feed down the face by gravity is assisted by hand. (see figure 1). The ore is trucked a ¼ mile to the mill. As the floor level is lowered below the level of Andersons Creek, increased seepage from the creek can be expected. It is proposed to counteract this by using the disused Peaks shaft as a sump connected to the seepage area, out of which the water can be pumped.

Production

Open cut production from this orebody commenced on the 14th. February, 1953. Initially very rich patches of ore were selected and worked but over the last three years the grade has been fairly constant at a figure which is considered to be the true overall grade for the deposit. To date, 30th. June 1961, 45,170 ounces of fine gold have been produced from 165,282 tons of ore.

Mining cost for the past three years and part of the current year are tabulated overleaf. Development and ore production costs are for the Golden Peaks operation but the Indirect Mining costs are an average for all the Company's open - cut activities. As Golden Peaks is by far the largest of these and the other open cuts are worked only when water supplies permit it is safe to take this figure as being a fair average for Peaks operation. Both Indirect Mining and Development and Ore Production costs are quoted in shillings per ton mined.

Ore Reserves.

Some sampling of this orebody was done in pre-war days, and prior to 1930 the number 1 and 2 drives and cross cuts had been chip sampled. In January 1930, G.A. Harrison, the General Manager, instigated re-sampling of these adits and cross-cuts. The walls of the adits and cross-cuts were cleaned, a skin of material stripped from them, and the material was then thoroughly mixed, quartered and assayed. Results from this re-sampling gave an average grade for the deposit of 0.18 oz. per ton which was well below the average grade as determined by conventional sampling. Examination of the production figures shows that the lower figure is remarkably accurate. The sample method in use at present has proved satisfactory and consists of taking grab samples from every truck which leaves the working faces. Exploratory sampling methods are determined as the circumstances indicate; bulk, chip and pot hole sampling methods are all used.

Ore Reserve figures, calculated at the end of January this year reveal that there are 245,000 tons of positive ore with an average grade of 0.17 ounces per ton. This is a fairly conservative figure as it does not take into consideration any ore on the western bank of Andersons Creek nor sixty or more feet below the level of the present lower floor. The figures given above are obtained from a long section drawn down the centre of the deposit, and thirty cross-sections almost at right angles to the long section. All bore hole information both past and present is plotted on the sections and all early assays, e.g. Harrison's sheet sampling, are incorporated. It seems likely that the area on the western bank of Andersons Creek, and an extension below sixty feet from the present lower level will provide some probable ore. Further possible ore may be found to the south-west of the present open cut face.

Treatment.

The ore has, up to the present, been treated at the Golden Ridges cyanidation mill in conjunction with hard calcite ore from Upper Ridges Mine. This mill, described diagrammatically in the flow sheets (overleaf) uses stamps which although well suited to hard ore, are completely unsuitable for Peaks ore. As the underground production declines and soft ore production increases the need to modify the mill becomes more pressing. In order to find the most suitable and economic way of eliminating high maintenance costs on stamps the following tests were made. Beneficiation was tested as earlier work had proved that little gold was recovered from fine slimes in the mill. A small benefecation plant was constructed (see figure 2) and several tests were run. The plant consisted of a large bin into which ore from the face was introduced. It was then washed by a powerful jet of water and flowed, with the water, over screens which held back any fragments greater than 1 inch in diameter. The material which passed through the screens then

FIGURE 1
Upper Face Golden Peaks Open Cut

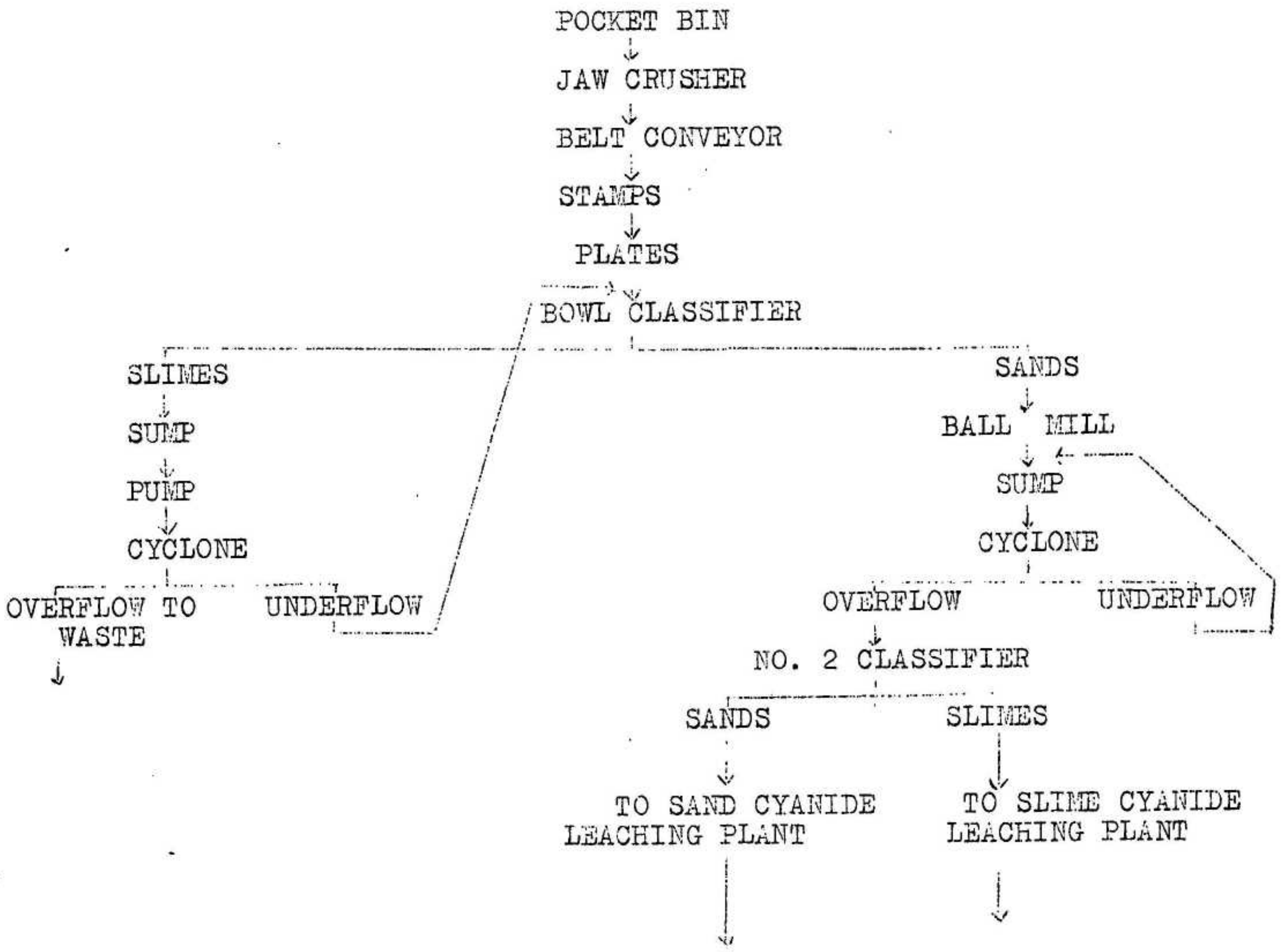
FIGURE 2
Field Beneficiation Plant Golden Peaks Open Cut

gravitated into a large settling tank where the heavier and larger fraction settled while all fine material in suspension passed over a weir and into another tank. This fine overflow was then passed through a cyclone which separated very fine colloidal material from the coarser material. The fine colloidal material was discarded and the coarser material fed back into the large settling tank. This then gave three products, the oversize material, the sands in the settling tank and the fine cyclone discard. All three and the original ore were sampled and it was found that provided mangano-quartz and mangano-calcite were hand picked from the oversize, all remaining oversize could be discarded as could the fine cyclone discard. The remaining sands and hand picked oversize material comprised 60% by weight of the original ore.

These results, although most encouraging would not have provided an economic way of eliminating the stamps in the mill and it has therefore been decided that a red mill, which will eliminate the cost of installing a beneficiation plant and at the same time cut out the large maintenance costs on the stamps, be purchased. The plant will be modified to deal effectively with the increase in open-cut ore, in that the stamps will be replaced by the rod mill and the pocket bin and crusher will have increased capacity.

It is not possible to give separate milling costs for the Golden Peaks operation as ore from all mining is put through the mill and costs cannot be itemised for separate operations. However, treatment costs given below give a good guide.

GOLDEN RIDGES MILL



TREATMENT COSTS FOR THE CURRENT YEAR

MONTH		COST PER TON TREATED
JULY	1960	20.6/-
AUGUST	"	24.1/-
SEPTEMBER	"	19.9/-
OCTOBER	"	21.3/-
NOVEMBER	"	20.1/-
DECEMBER	"	22.7/-
JANUARY	1961	22.6/-
FEBRUARY	"	33.6/-
MARCH	"	29.3/-
APRIL	"	23.4/-
MAY	"	19.2/-
JUNE	"	25.0/-

YEARLY PRODUCTION
(Year ending June 30th)

PERIOD	TONS	RECOVERY (OZ. PER TON)	OZ.GOLD
1953 Feb. to Sept.	1732	1.380	2390
Oct. 1953 - Sept. 1954	2884	.798	2302
Oct. 1954 - June 1955	2817	.968	2727
July 1955 - June 1956	13675	.646	8840
July 1956 - June 1957	20959	.346	7267
July 1957 - June 1958	29728	.194	5777
July 1958 - June 1959	37967	.189	7175
July 1959 - June 1960	27694	.173	4795

MONTHLY PRODUCTION FIGURES 1960-1961

MONTH	TONS	RECOVERY (OZ.PER TON)	OZ. GOLD
July	2645	.137	362
August	1868	.162	303
September	2256	.170	384
October	2573	.268	690
November	2318	.246	570
December	2578	.214	551
January	2525	.100	252
February	1622	.145	235
March	1834	.205	376
April	2776	.150	416
May	2582	.154	398
June	2249	.160	360
TOTAL	27826	Av. for year .176	TOTAL 4897

To date, 30th June, 1961 165,282 tons of ore have yielded 46,100 ounces of fine gold.

YEARLY COSTS

YEAR	DEVELOPMENT & ORE PRODUCTION SHILLINGS PER TON	INDIRECT MINING COSTS SHILLINGS PER TON	TOTAL /-per ton
1957-58	6.4	2.29	8.69
1958-59	8.7	2.31	11.01
1959-60	7.5	3.92	11.42
These figures give an average for the three years of	7.53	2.84	10.37

MONTHLY COSTS

for the current year

MONTH	DEVELOPMENT & ORE PRODUCTION SHILLINGS PER TON	INDIRECT MINING COSTS SHILLINGS PER TON	TOTAL /- per ton
July	7.2	3.73	10.93
August	12.2	6.01	18.21
September	11.1	4.37	15.47
October	8.1	3.42	11.52
November	10.0	3.53	13.53
December	8.3	3.78	12.08
January	9.5	2.23	11.73
February	14.1	4.90	19.00
March	11.3	4.27	15.57
April	9.5	3.16	12.66
May	11.9	4.00	15.90
These figures give an average for the eleven months of	10.3	3.94	14.24

The indirect mining costs are made up of the following items -

Loading, power and compressed air, tracks and pipes, survey and geological services, sampling and assaying, supervision, water supply and miscellaneous.

STRATIGRAPHY

General

The oldest rocks exposed in the area are schist and phyllite of the Kaindi Metamorphics which are probably of Palaeozoic Age. Namie Breccia and Lower Edie Porphyry are thought to be Upper Miocene or Lower Pliocene and the Upper Edie Porphyry is referred to the late Pliocene or early Pleistocene. Recent rhyolites are represented by two or possibly three phases, the last of which probably overlies the Peaks boulder deposit.

Kaindi Metamorphics

Rocks of the Kaindi Metamorphics crop out in Whitburns

Creek and to the east of the present workings, between Andersons and Namie Creeks. These rocks were named by Fisher (1944) after Mount Kaindi, near Wau.

In the map area the main rock type is quartz biotite schist which is a fine-grained dark grey schistose rock with its bedding partially obliterated by secondary foliation. The principal constituents are ;

"quartz granules, mica minerals (chiefly biotite) with subordinate plagioclase and varying amounts of chlorite, pyrite, titanite, magnetite, illmenite, and rutile, (Donnay 1931).

The schist is altered, in part, to chloritoid schist which is grey-green when fresh, often massive rather than schistose, and containing white megascopic porphyroblasts of feldspar which occassionally produce a porphyritic effect. In thin section the rock is seen to consist of ;

"feldspar, chloritoid and quartz with subsidiary biotite, moscovite and magnetite." (Noakes 1941).

Calcite veining is not common in the schist and phyllite, but was observed in outcrops in Whitburns Creek. No fossils have been found in the Kaindi Metamorphics in the Wau area but recent work by Dow (1961) has demonstrated that they are probably Palaeozoic.

Namie Breccia.

Igneous breccia which occurs throughout the Wau-Edie Creek area (Fisher 1944) has been named here the Namie Breccia. At Golden Peaks unaltered breccia is fairly well exposed and from these exposures and drill cuttings it is seen to be very similar in composition to the breccia at Upper Ridges Mine. The breccia consists of randomly oriented fragments of schist and Lower Edie porphyry in a dark fine-grained matrix. In hand specimens the breccia is blue-grey with prominent white porphyry fragments and fine pyrite disseminated throughout. In some localities fragments of schist up to four or five feet long have been observed but at Peaks the fragments are mostly small, the largest fragment being six to eight inches long. Some sorting or preferred orientation of components has been observed in Namie Creek and below the Homestead workings where many fragments, particularly schist, are rounded, and the breccia is well bedded, and exhibits sedimentary features. The breccia has been observed intruding Kaindi Metamorphics in the Upper Ridges Mine. (Dow 1961). Petrographic work has shown (Fisher, 1938) that in the porphyry components, fragments of feldspar are partially replaced by calcite and have a fine quartz-feldspar matrix. Partial replacement of schist by quartz is common and unaltered schist fragments which have alternating dark and fine quartz-feldspar bands have been observed.

The origin of the breccia body is still uncertain but it is postulated that it was formed by the intrusion of an igneous breccia with subsequent explosive activity and later sorting and sedimentation of the extruded material.

The ore mined at Golden Peaks is altered and oxidized breccia which is black, brown or yellow in colour depending on the amount of included manganese. All components are oxidized and stained and all the pyrite has been re-

FIGURE 3

Torrentially Bedded Lake Beds

"Boulder" Open-cut

FIGURE 4

Ill Sorted Boulder Conglomerate

"Boulder" Open-cut

moved by oxidation This altered breccia is veined throughout by broken and randomly oriented stringers of manganese material. Manganiferous quartz and calcite together with manganese wad, which is the end product of oxidation, make up these stringers. Quartz has replaced calcite in many places. High concentrations of gold are associated with the manango-quartz and manango-calcite.

Lake Beds.

Lake beds of limited extent crop out on the eastern bank of Andersons Creek and in Lower Bourke Creek. They are well exposed in the sluiced open-cut called "Boulder" where they are seen to be a coarse illsorted torrentially bedded boulder conglomerate with interbeds of fine-grained materials (see Figs [illegible] & 4). The conglomerate consists of boulders of rhyolite and subordinate schist and porphyry in a clay matrix. The deposit rests on a blue basal clay which contains much carbonaceous material. Gold from these beds is coarse when contrasted with the fine powder-like gold from Peaks.

In the basal clay whole carbonised trees have been found lying apparently where they fell. Nodular pyrites has been deposited on the tree remains indicating that the floor of this shallow lake was a non-oxidizing environment. These trees have been identified as "Bishoffra" a tree which to-day grows in swampy or marshy ground and it is assumed that this was the type of environment which formed the shallow lake when deposition commenced. The torrential bedding and ill-sorted nature of the deposit suggest it was formed during a period of rhyolite vulcanism and the lake was probably formed when Andersons Creek was blocked off by volcanic material.

Rhyolite.

As noted by Fisher (1944) there are both rhyolite lava flows and rhyolite breccia in this area. The former probably cap the lake beds in the "Boulder" area and the latter overlie Peaks deposit and Kaindi Metamorphics. Another phase of rholite intrudes Peaks deposit in the vicinity of the Hoyle workings in Andersons Creek.

The flows are white to pale grey, hard, brittle vitreous rocks which weather to a distinctive mass of clay minerals which at Peaks ranges from white to pale red in colour. The breccia is blue and red and weathers to a soft crumbly mottled mass.

IGNEOUS INTRUSIVES.

Lower Edie Porphyry.

Porphyry belonging to the Lower Edie Porphyry intrudes the Kaindi Metamorphics near the Golden Ridges Mill. This porphyry was mapped as an early porphyry of probable Upper Miocene, or Lower Pliocene age by Fisher (1944) and again by Siedner (1959).

It is well crystallized quartz biotite porphyry which appears to have been intruded at some depth. Appreciable assimilation makes it difficult to distinguish the exact contact of the porphyry with the metamorphics.

Upper Edie Porphyry.

Porphyry probably belonging to the Upper Edie Porphyry intrudes Namie Breccia in the Golden Peaks area (Kingsbury 1932, Fisher 1944). The name "Upper Edie Porphyry" was proposed by Fisher (1944) to describe andesite porphyry which is light grey in hand specimen with abundant white feldspar, occasional large phenocrysts of quartz, and biotite phenocrysts which have been bleached and altered to anauxite. Microscopicially the rocks are seen to be composed of phenocrysts of quartz, andesine plagioclase and hornblende in a fine-grained ground mass. The feldspar is generally altered to sericite and kaolin, calcite replaces biotite in the ground mass, and pyrite is abundant in veins around the edges of other minerals. These rocks as a whole are not well crystallised.

These porphyries had a very different mode of intrusion from that of the Lower Edie Porphyry in that they were intruded much nearer the surface and the intrusion margin is well marked. Little contact metamorphism of the country rocks is evident but pyritization of the host rocks near the margins is noticeable, and the contact is usually marked by gouge and clearly defined except where it is deeply weathered (Fisher 1938).

All outcrops of porphyry in the Peaks area are deeply weathered to a mottled mass of clay minerals, and are too small to be shown on the accompanying plan (Plate I).

ORE GENESIS

The orebody consists of leached and altered Namie Breccia with disseminated and randomly orientated stringers and veins of mangano-calcite, mangano-quartz and manganese wad. No one theory of origin for the orebody fits all the facts and at present no combination of theories gives a wholly satisfactory answer.

The following are the three main theories of origin:

(1) Mineralization after oxidation: It is believed that the orebody could have been mineralized laterally, the upper oxidized portion of the breccia providing an easier channel for mineralizing solutions which emanated from porphyry intrusions.

(2) Selective Mineralization: It is possible that the upper portion of the once homogeneous breccia body could have been more mineralized than the lower portion. The reasons for this are obscure but possibly a dipping shear zone allowed free passage of mineralizing solutions.

(3) Slip Hypothesis: It is believed that the movement which emplaced the Peaks deposit was a slow glacier-like progression down the pre-existing depression in which Andersons Creek now flows. This idea presupposes a highly mineralized and possibly oxidized deposit higher up, the remains of which have been removed by erosion.

In general Mineralization after oxidation and Selective Mineralization are the hypotheses favored by the writer.

Mineralization after oxidation

Lateral mineralization would entail the oxidation of the breccia to about 200 feet below the surface. Subsequent emanations would mineralize this oxidized body in preference to the lower compact unoxidized portion. Leaching and oxidation during later erosion of the orebody would remove all the iron sulphides, and faulting and movement due to gravity would cause the orebody to fracture on a small scale. The maximum thickness of the Peaks deposit, as proved by drilling, is 225 feet. This indicates a termination at a certain depth below the original surface and could be explained by weathering and oxidation.

Selective Mineralization

This hypothesis entails the selective mineralization of what is now the upper portion of the breccia body. The control of this mineralization is not known but it is suggested that it might have been controlled by a shear zone such as has controlled the mineralization at Upper Ridges Mine.

The mineralized zone would be far more susceptible to oxidation than the lower unmineralized portion of the breccia. The contact, as exposed on the northern side of the Peaks deposit between the ore and the unoxidized footwall, is sharp and roughly parallels the main shear direction at the Upper Ridges Mine.

Best (Misc. 1956) noted that the principal lenses of mangano-calcite and quartz were parallel to the strike of the contact between the orebody and the breccia footwall. No parallel orientation of stringers is apparent now but the earlier observations would tend to favor the idea of the development of a shear zone with subsequent mineralization. The contact between the orebody and the unoxidized breccia would then be the footwall of the mineralized shear zone, and the mineralization could be expected to continue down dip and along the strike of the hypothetical shear. Drilling on the western side of Andersons Creek to the South of the present workings should elucidate this.

Slip Hypothesis

The slip hypothesis is well illustrated by a present day slip in the Bourke Creek vicinity. Here trees are standing and growing while the whole mass slowly slips downwards. This hypothesis would explain the broken nature of the veins and stringers which do not appear to have undergone large displacement. The ore is found only over unoxidized and unmineralized breccia. This relationship is not well exposed but every borehole which has passed through Peaks deposit has bottomed in blue unoxidized breccia. If the blue unoxidized breccia and the oxidized ore body are an entity and moved into their present position together then drilling through the breccia should be conclusive. Two holes were drilled in an attempt to do this but drilling difficulties caused both holes to be stopped at 100 feet and the drilling was inconclusive.

CONCLUSIONS & RECOMMENDATIONS

It is concluded that at the present time and with the data which has been collected it is impossible to give a wholly satisfactory answer as to the genesis of this orebody. However the present investigation has served to stimulate thought on this problem and has been instrumental in collecting together all the pertinent information on one readily accessible record. Further exploration and development of this deposit may well throw light on its origin and it is recommended that all information from drilling programs or any other form of exploration be carefully recorded. It is further suggested that future drilling be concentrated in the area to the west of Andersons Creek where recent sluicing has revealed an extension of the orebody.

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GEOLOGICAL DRILL LOGS

BOREHOLE C 33

LOCATION Lower Bench Golden Peaks DATE COMMENCED April-May, 1960
DEPTH 106'

DEPTH Ft.	ROCK TYPE AND FORMATION	VALUES		REMARKS
		EST.	ASSAY (ozs/ton)	
0 - 5	Surface contamination. Some coarse stone		0.81	
5 - 10)	Peaks Formation		0.07	
10 - 15)			0.01	
15 -17½)			trace	
17½- 20	Contact with Breccia 17½' Decomposed Breccia		trace	
20 - 25	Blue Breccia		trace	
25 - 30	"		0.01	
30 - 35	"		0.015	
35 - 40	"		trace	
40 - 45	"		trace	
45 - 50	"		trace	
50 - 55	"		0.01	
55 - 60	" Limit of casing		trace	
60 - 65	" Uncased		trace	
65 - 70	" Contaminated, Reaming		trace	
70 - 75	"		trace	
75 - 80	"		trace	
80 - 85	"		trace	
85 - 90	(Brown colour for 2') Some clay & Rhyolite. Remainder Blue Breccia		trace	
90 - 95	Blue Breccia		trace	
95 -100	"		trace	
100-105	"		0.01	
105-106	Hole caved in at 106'. Still in Blue Breccia. Sample taken before caving.		0.01	

BOREHOLE C 34
LOCATION LOWER BENCH GOLDEN PEAKS DATE COMMENCED 16-5-60.
DATE COMPLETED 27-5-60 DEPTH 90'

DEPTH Ft.	ROCK TYPE AND FORMATION	VALUES		REMARKS
		EST.	ASSAY (ozs/ton)	
0 - 2)	Filled surface from Bulldozing etc.		0.09	Spudded in May 16
2 - 5)			0.03	Drilling May 17
5 - 10	Part Fill		trace	
10 - 15	Peaks Formation		trace	
15 - 20	"		0.06	
20 - 25	"		0.14	Slightly darker
25 - 30	"		0.08	27' became darker
30 - 35	"		0.07	Darker
35 - 40	"		0.26	Much darker
40 - 45	Blue Breccia at 41'		0.07	May 19-20
45 - 50	Hard Breccia Calcite		0.31	Limit of casing 50'
50 - 55	Hard Breccia less Calcite		0.13	Uncased
55 - 60	" "		trace	"
60-65	" "		0.03	"
65 - 70	" "		0.01	"
70 - 75	Softer Breccia		0.01	"
75 - 80	" "		0.01	
80 - 85	" "		trace	"
85 - 90	" "		trace	May 27

BOREHOLE C 35

LOCATION GOLDEN PEAKS DATE COMMENCED 2-6-60 DEPTH 45'
DATE COMPLETED 13-6-60

DEPTH	ROCK TYPE AND FORMATION	VALUES		REMARKS
		EST.	ASSAY (ozs/ton)	
0 - 2	Surface spudding in		0.12	
2 - 5	Dozed Fill		0.15	
5 - 10	Dozed Fill & Peaks Ore		0.16	
10 - 15	Peaks Formation		1.42	Dark heavy Manganese
15 - 20	"		0.31	Not so dark, contact Breccia 20'
20 - 25	Breccia (brown) some calcite		0.29	Rather dark
25 - 30	" " "		0.23	" "
30 - 35	Breccia (blue & brown) some calcite		0.05	Harder slightly dark
35 - 40	Breccia (blue) some calcite		0.08	Tinge of dark limit of casing.
40 - 45	Breccia (blue) some calcite		0.01	True blue breccia colour

BOREHOLE C 36

LOCATION GOLDEN PEAKS DATE COMMENCED 17-6-60 DEPTH 52'
DATE COMPLETED 28-6-60

DEPTH	ROCK TYPE AND FORMATION	VALUES		REMARKS
		EST.	ASSAY (ozs/ton)	
0 - 2	Spudding in Clay, stone & heavy manganese		0.21	Black
2 - 5	Heavy Manganese		0.65	"
5 - 10	Peaks Formation		0.02	Brown
10 - 15	" "		0.01	Yellow
15 - 20	" "		0.07	Dark
20 - 25	" "		0.13	Rather Dark
25 - 30	" " with some Breccia		0.01	" "
30 - 35	Peaks Formation with more Breccia		0.02	Dark
35 - 40	" " " "		0.02	"
40 - 45	" " " "		0.11	Rather dark
45 - 50	" " Breccia at 47'		0.03	Mixed
50 - 52	Blue Breccia		0.01	Hole stopped at Blue Breccia.

BOREHOLE C 37

LOCATION GOLDEN PEAKS 48' E of C 34 DATE COMMENCED 4-7-60
DEPTH 74' DATE COMPLETED 3-8-60

DEPTH	ROCK TYPE AND FORMATION	VALUES		REMARKS
		EST.	ASSAY (oz/ton)	
0 - 2	Bulldozed Peaks		0.14	Spudding in
2 - 5	Peaks		0.06	Brown
5 - 10	"		0.02	Light Brown
10 - 15	"		0.17	Yellow
15 - 20	Some calcite		1.83	Light brown
20 - 25	Peaks		0.10	" "
25 - 30	"		0.44	Darker
30 - 35	"		0.05	"
35 - 40	Peaks with MnO_2		0.63	Dark
40 - 45	" " "		0.74	Very dark
45 - 50	" " "		1.04	Black
50 - 55	Peaks with MnO_2 & Breccia. Some calcite		0.52	Drill engine broke down at 52'. Idle for 16 days. Possible contamination. Ore Dark.
55 - 60	Peaks ore with Breccia boulders & MnO_2		0.26	Dark
60 - 65	Heavy Breccia Boulders & MnO_2		0.30	Rather dark. Blue colour appearing.
65 - 70	High proportion of Breccia A little MnO_2. Solid Blue Breccia at 68'		0.06	Much more blue, dark stain
70 - 74	Blue Breccia		0.01	Blue with tinge of brown colour.

BOREHOLE C 38

LOCATION 48' E of C37 Approx. 8'-10' N of line C35, C34, & C37,
5' higher than C 37. DATE COMMENCED 9-8-60
DEPTH 110' DATE COMPLETED 25-8-60

DEPTH	ROCK TYPE AND FORMATION	VALUES		REMARKS
		EST.	ASSAY (ozs/ton)	
0 - 2	Peaks		0.07	Spudding in
2 - 5	"		0.17	Brown
5 - 10	Peaks with MnO_2 from 7½'		0.57	Dark
10 -15	" " "		1.12	Very dark
15 - 20	" " " to 17½'		0.25	Dark
20 - 25	Peaks		0.09	Brown
25 - 30	"		0.11	"
30 - 35.	"		0.01	Yellow
35 - 40	"		0.01	"
40 - 45	Peaks mostly Breccia		0.01	"
45 - 50	Peaks with heavy yellow clay		0.01	"
50 - 55	Peaks with much sticky clay		0.02	Darker
55 - 60	Peaks		0.03	Brown
60 - 65	Peaks with Breccia		0.01	"
65 - 70	Peaks and MnO_2		0.22	Dark
70 - 75	Peaks and heavy Breccia		0.05	Brown
75 - 80	Peaks		trace	Light brown
80 - 85	Peaks		0.01	Brown
85 - 90	"		0.03	"
90 - 95	"		0.16	Black
95 - 98	"		0.04	Dark
98 -100	"		0.02	Brown, blue appearing
100-105	Dark clay & Breccia		0.01	Blue & Brown
105-110	Blue Breccia at 105'		trace	Blue

BOREHOLE C.39

LOCATION 100' N of C37, Lower Bench, Golden Peaks. DEPTH 74'
DATE COMMENCES 31-8-60 DATE COMPLETED 6-9-60

DEPTH	ROCK TYPE AND FORMATION	VALUES		REMARKS
		EST.	ASSAY (ozs/ton)	
0 - 2	Fill		0.15	
2 - 5	Yellow clay & Breccia		0.01	Yellow
5 - 10	- do -		0.01	"
10 - 15	- do -		0.06	"
15 - 20	- do -		0.09	"
20 - 25	- do -		0.27	"
25 - 30	- do -		0.01	Slightly darker
30 - 35	Mainly yellow clay & Breccia to 33' then darker.		0.04	Slightly darker. Darker from 33'
35 - 40	Peaks with some MnO_2		0.10	Darker
40 - 45	Peaks		0.05	Brown
45 - 50	"		0.03	"
50 - 55	"		0.02	"
55 - 60	"		0.03	"
60 - 65	"		0.02	Darker
65 - 70	"		0.02	Brown
70 - 74	Peaks & Breccia		0.03	Blue appearing from 72'

BOREHOLE C 40

LOCATION 50' N of C 39 DATE COMMENCED 15-9-60 DEPTH 125'
DATE COMPLETED 5-10-60

DEPTH	ROCK TYPE AND FORMATION	VALUES		REMARKS
		EST.	ASSAY (ozs/ton)	
0 - 2	Surface		0.08	Spudding in
2 - 5	Peaks		0.08	Brown
5 - 10	"		0.07	Yellow
10 - 15	"		0.01	Getting dark at 13'
15 - 20	Peaks with some MnO_2		0.30	Much darker
20 - 25	Peaks with MnO_2		0.36	Very dark
25 -30	Peaks		0.06	Dark brown
30 - 35	"		0.03	Brown
35 - 40	"		0.06	Light brown
40 - 45	"		0.02	Darker
45 - 50	"		0.03	Brown
50 - 55	"		trace	"
55 - 60	Peaks with MnO_2		0.13	Dark
60 - 65	" " "		0.04	"
65 - 70	Peaks		0.02	Brown
70 - 75	"		0.02	Reddish brown
75 - 80	"		0.03	Brown
80 - 85	"		0.04	"
85 - 90	Yellow clay, Breccia and Lake Series		trace	Yellow
90 - 95	- do -		0.01	A little Blue, balance green.
95 -100	- do -		0.07	- do -
100-105	- do -		0.05	Green
105-110	Lake Series		0.03	"
110-115	" "		trace	"
115-120	" "		trace	"
120-125	" "		trace	Greenish Yellow

BOREHOLE C.41

LOCATION LOWER PEAKS FLOOR DEPTH 135 Ft.

DEPTH	ROCK TYPE AND FORMATION	VALUES		
		EST.	ASSAY (ozs/ton)	REMARKS
0 - 2	Some MnO_2		0.07	
2 - 5	Lake Beds ?		0.23	
5 - 10	"		0.15	
10 - 15	"		0.28	
15 - 20	"		0.34	
20 - 22½	"		0.11	
22½- 25	"		0.07	
25 - 30	"		0.06	
30 - 35	"		0.13	
35 - 40	"		0.06	
40 - 45	"		0.10	
45 - 50	MnO_2		0.42	
50 - 55	"		0.42	
55 - 60	"		0.38	
60 - 65	"		0.35	
65 - 70	"		0.33	
70 - 75	"		0.08	
75 - 80	"		0.06	
80 - 85	"		0.065	
85 - 90	"		0.06	
90 - 95	"		0.10	
95 -100	"		0.05	
100-105	"		0.22	
105-110	"		0.04	
110-115	Breccia + Clay		0.02	
115-120	" "		0.03	
120-125	" "		0.01	
125-130	" "		Tr	
130-135	Breccia		0.01	

BOREHOLE C.42

LOCATION LOWER PEAKS FLOOR DEPTH 65 Ft.

DEPTH	ROCK TYPE AND FORMATION	VALUES		
		EST.	ASSAY (ozs/ton)	REMARKS
0 - 2			0.10	
2 - 5	Peaks Formation		0.04	
5 - 10	"		0.43	
10 - 15	"		0.02	
15 - 20	" + MnO_2		0.03	
20 - 25	" "		0.02	
25 - 30	" "		0.02	
30 - 35	" + "		0.03	
35 - 40	" + clay		0.02	
40 - 45	" "		0.01	
45 - 50	" + MnO_2		0.03	
50 - 55	" "		0.02	
55 - 60	" "		0.01	
60 - 65	Breccia + Clay		0.02	

BOREHOLE C. 43

LOCATION LOWER PEAKS FLOOR DEPTH 68 Ft.

DEPTH	ROCK TYPE AND FORMATION	VALUES		
		EST.	ASSAY (Ozs/ ton)	REMARKS
0 - 2	Clay + Tailings		0.17	
2- 5	" "		0.14	
5 - 10	Peaks Formation		0.25	
10 - 15	" " + MnO_2		0.11	
15 - 20	Heavy MnO_2		0.17	
20 - 25	"		1.91	
25 - 30	"		1.38	
30 - 35	Some MnO_2 + Clay		0.46	
35 - 40	Heavy MnO_2		1.60	
40 - 45	" "		0.64	
45 - 50	MnO_2 + Clay		0.25	
50 - 55	Clay & Breccia		0.05	
55 - 60	" "		0.01	
60 - 65	" "		0.02	
65 - 68	" "		Tr.	

BOREHOLE C.44

LOCATION ABOVE PEAKS NO. 1 FACE TO TEST GROUND BEHIND FAULT
DEPTH 75 Ft.

DEPTH	ROCK TYPE AND FORMATION	VALUES		
		EST.	ASSAY (ozs/ ton)	REMARKS
2 - 5	Heavy Clay not assayed			
5 - 10	- do -			
10 - 15	- do -			
20 - 25	- do -			
25 - 30	Peaks Formation + Clay		0.07	
30 - 35	" " "		0.03	
35 - 40	" " "		0.02	
40 - 45	" " "		0.07	
45 - 50	" " "		0.08	
50 - 55	" " "		0.14	
55 - 60	" " "		0.05	
60 - 65	" " "		0.03	
65 - 70	" " "		0.05	
70 - 75	Blue Breccia		0.07	

BOREHOLE C. 45

LOCATION APPROX. 50' SOUTH OF HOLE 44 AND DRILLED FOR SAME PURPOSE.
DEPTH 65 Ft.

DEPTH	ROCK TYPE AND FORMATION	VALUES		
		EST.	ASSAY (ozs/ ton)	REMARKS
2 - 5	Clay O/burden		0.02	
5 - 30	" "		No Assay	
30 - 35	Peaks Formation		0.09	
35 - 40	" "		0.05	
40 - 45	" "		No Assay	
45 - 50	" "		0.01	
50 - 55	" "		0.02	
55 - 60	" "		0.02	
60 - 65	Blue Breccia		0.01	

BOREHOLE C. 46

LOCATION IN ADVANCE OF NO. 1 WORKING FACE NEAR OLD BOREHOLE NO. 7

DEPTH 105 Ft.

DEPTH	ROCK TYPE AND FORMATION	VALUES		REMARKS
		EST.	ASSAY (ozs/ton)	
2 - 5	Clay O/burden		0.06	
5 - 10	" "		0.03	
10 - 15	" "		0.02	
15 - 20	" "		0.01	
20 - 25	" "		0.01	
25 - 30	" "		0.09	
30 - 35	Peaks Formation		0.70	
35 - 40	" "		0.33	
40 - 45	" "		Tr	
45 - 50	" "		0.03	
50 - 55	" "		Tr	
55 - 60	" "		0.02	
60 - 70	" "		0.02	
70 - 75	" "		0.03	
75 - 80	" "		0.16	
80 - 85	" "		0.11	
85 - 90	" "		0.07	
90 - 95	" "		0.05	
95 - 100	" "		0.11	
100 - 105	Blue Breccia		0.06	

BOREHOLE C. 47

LOCATION WESTERN BANK ANDERSONS CREEK

ELEVATION 4265

DEPTH 95 Ft.

DEPTH	ROCK TYPE AND FORMATION	EST. OZ. PER TON	ASSAY GRAINS/ YARD	REMARKS
2 - 5	Surface material	0.01	-	
5 - 10	" "	0.02	-	
10 - 15	" "	0.01	-	
15 - 20	Lake beds	0.03	1.5	
20 - 25	" "	0.02	4.1	
25 - 30	" "	0.07	9.0	
30 - 35	" "	0.24	16.0	
35 - 40	" "	0.28	11.7	
40 - 45	" "	0.12	9.1	
45 - 50	" "	0.07	4.4	
50 - 55	" "	0.02	4.9	
55 - 60	Breccia MnO_2	0.19	4.7	
60 - 65	Peaks deposit	0.19	-	
65 - 70	" "	0.06	-	
70 - 75	" "	0.09	-	
75 - 80	" "	0.24	-	
80 - 85	" "	0.11	-	less MnO_2
85 - 90	Unoxidized Breccia	0.07	-	Heavy pyrite
90 - 95	" "	0.02	-	" "

BOREHOLE C. 48

LOCATION EAST OF ANDERSONS & BOURKE CREEK JUNCTION

ELEVATION 4258 DEPTH 70 Ft.

DEPTH	ROCK TYPE AND FORMATION	VALUES		REMARKS
		GRAINS PER CU. YD. (Assay)	ASSAY OZ. PER TON	
2 - 5	Rock pile, little clay schist, breccia etc.	.33	0.01	
5 - 10	Rock pile as above	.08	0.01	
10 - 15	Rock pile, as above	.32	0.02	
15 - 20	Clay and angular schist		0.01	Qtz. & sulphides
20 - 25	Heavy clay, schist		0.01	Fine Au. No Sulp.Black sand, fine Au.
25 - 30	" " "		0.02	
30 - 35	" " "		0.01	As above
35 - 40	" " "		0.01	Black sand, Au.
40 - 45	Heavy clay & angular schist		0.02	" " "
45 - 50	" " " "		0.04	" " "
50 - 55	Schist + some Qtz.		-	" " "
55 - 60	" " "		-	
60 - 65	" " "		-	
65 - 70	" " "		-	

BOREHOLE C. 49

LOCATION EASTERN BANK OF BOURKE CREEK
ELEVATION 4270 DEPTH 50 Ft.

DEPTH	ROCK TYPE AND FORMATION	VALUES		REMARKS
FEET		EST.	ASSAY OZ. PER TON	
2 - 5	Surface slip material		0.02	
5 - 10	Schist, Qtz., Porphyry		0.05	Coarse gold
10 - 15	Schist & Porphyry		0.05	" "
15 - 20	" "		0.03	
20 - 25	" "		0.03	
25 - 30	Schist & heavy sulphides		0.02	
30 - 35	Schist & Quartz		0.05	
35 - 40	" "		0.02	
40 - 45	Schist, Qtz. & sulphides		0.03	
45 - 50	Schist		0.01	

BOREHOLE C. 50

LOCATION NEAR DICKENSONS SHAFT

ELEVATION 4276 Ft. DEPTH 95 Ft.

DEPTH FEET	ROCK TYPE AND FORMATION	VALUES GRAINS PER CUBIC YARD (Assay)	ASSAY OZ. PER TON	REMARKS
2 - 5	Clay, schist & porphyry	20.3	0.02	Coarse & fine Au.
5 - 10	Heavy clay, porphyry	4.4	0.14	" "
10 - 15	Heavy clay	6.6	0.04	
15 - 20	Clay, schist, Qtz. breccia	6.4	0.12	Coarse & fine Au.
20 - 25	Qtz.	6.5	0.04	
25 - 30	Qtz.	3.6	0.08	
30 - 35	Clay, slate, Qtz., Rhyolite	4.8	0.05	Coarse & fine Au.
35 - 40	Schist, Qtz. Rhyolite	27.4	0.38	Mn. Qtz.,
40 - 45	Qtz.	5.8	0.04	
45 - 50	Qtz.	3.4	0.07	Coarse &
50 - 55	Coarse Breccia	6.3	0.07	Mn. Qtz. fine Au.
55 - 60	Qtz.	3.3	0.13	
60 - 65	Typical Peaks deposit	30.1	0.12	Mn.Qtz.Mn.wad. Au.
65 - 70	Schist, Qtz. porp, breccia	40.7	0.19	Mn. Qtz. Au.
70 - 75	Qtz. porp, breccia	98.8	0.46	Dark Mn. Qtz. Au.
75 - 80	Schist, Qtz. porp, breccia	14.9	0.39	Less Mn. Qtz. Au.
80 - 85	Qtz.	33.8	0.20	Mn. Qtz. Au.
85 - 90	Qtz.	4.6	0.05	Mn. Qtz. Au.
90 - 95	Qtz. porp. plentiful schist	16.5	0.13	Heavy sulphides

BOREHOLE C. 51

ELEVATION 4270 Ft. DEPTH 95 Ft.

DEPTH FEET	ROCK TYPE AND FORMATION	VALUES EST.	ASSAY OZ. PER TON	REMARKS
2 - 5	Breccia & Schist, & Qtz. little por.		0.01	
5 - 10	As above		0.02	Little Mn. Qtz.
10 - 15	Breccia, schist, Qtz.		0.01	
15 - 20	" " "		0.02	
20 - 25	" " "		0.02	
25 - 30	" " "		0.09	
30 - 35	Schist, Qtz.		0.05	Possibly some petrified wood
35 - 40	Schist		0.02	
40 - 45	Schist		0.05	
45 - 50	Porp, schist, rhyo, Qtz.		0.03	
50 - 55	Schist & Qtz.		0.04	
55 - 60	" "		0.04	
60 - 65	Schist, Qtz. & rhyolite		0.12	
65 - 70	Schist, breccia & Qtz.		0.05	
70 - 75	Schist, breccia, rhyolite		0.06	
75 - 80	Schist, porphyry		0.06	
80 - 85	Schist, porphyry		0.06	
85 - 90	Schist, Qtz.		Trace	
90 - 95	Schist, porphyry, Qtz.		0.02	
95 - 100	Schist.		0.01	

GEOLOGICAL DRILL LOGS (AS LOGGED BY N.G.G. LTD.)

BOREHOLE NO. 1

LOCATION LOWER PEAKS FLOOR

ELEVATION 4258 DEPTH 81 Ft.

DEPTH	ROCK TYPE AND FORMATION	VALUES		REMARKS
		EST.	ASSAY OZ. PER TON	
FEET				
0 - 8	Recent wash		-	
8 - 10	Peaks deposit		0.02	
10 - 15	Peaks deposit		0.01	
15 - 16	Peaks deposit		0.03	
16 - 20	Peaks deposit		0.50	
20 - 23	" "		0.21	
23 - 25	" "		0.12	
25 - 30	" "		0.09	
30 - 35	" "		0.06	
35 - 40	" "		0.06	
40 - 45	" "		0.06	
45 - 50	" "		0.07	
50 - 55	" "		0.03	
55 - 60	" "		0.04	
60 - 65	" "		0.03	
65 - 70	" "		0.02	
70 - 75	" "		0.02	
75 - 81	Blue Breccia (footwall)		-	

BOREHOLE NO. 2 (Logged by N.G.G. Ltd.)

LOCATION EASTERN BANK OF ANDERSONS CREEK

ELEVATION 4275

DEPTH 190 Ft.

DEPTH	ROCK TYPE AND FORMATION	VALUES		REMARKS
FEET		EST.	ASSAY OZ. PER TON	
0 - 5	Tailings		0.03	
5 - 10	Lake Beds		0.01	
10 - 15	" "		0.02	
15 - 20	" "		0.04	
20 - 25	" "		0.02	
25 - 30	" "		0.02	
30 - 35	" "		0.02	
35 - 40	" "		0.01	
40 - 45	" "		0.01	
45 - 50	" "		0.02	
50 - 55	" "		0.01	
55 - 60	" "		0.06	
60 - 65	" "		0.01	
65 - 70	" "		0.04	
70 - 75	" "		0.02	
75 - 80	" "		Trace	
80 - 85	" "		"	
85 - 90	" "		0.01	
90 - 95	" "		0.01	
95 - 100	" "		0.01	
100 - 105	" "		0.01	
105 - 110	" "		0.02	
110 - 115	" "		0.03	
115 - 120	" "		0.04	
120 - 125	" "		0.06	
125 - 130	" "		0.05	
130 - 135	" "		0.07	
135 - 140	" "		0.14	
140 - 145	" "		0.06	
150 - 155	" "		0.06	
155 - 160	" "		0.03	
160 - 165	" "		0.02	
165 - 170	" "		0.01	
170 - 190	" "		-	

BOREHOLE NO. 3 (Logged by N.G.G. Ltd.)

LOCATION WESTERN BANK OF BOURKE CREEK, 240 FEET UPSTREAM FROM BOURKE/ANDERSONS JUNCTION.

ELEVATION 4300

DEPTH 95 Ft.

DEPTH	ROCK TYPE AND FORMATION	VALUES		REMARKS
FEET		EST.	ASSAY PENCE PER YARD	
0.- 5	Lake beds		-	
5 - 10	" "		9d.)	Samples panned, then concentrates assayed.
10 - 15	" "		5d.)	
15 - 20	" "		6d.)	
20 - 25	" "		35/-)	
25 - 30	" "		0.3d.)	
30 - 35	" "		1/9)	
35 - 40	" "		0.04)	whole sample assayed (Oz. per ton)
40 - 45	" "		0.02)	
45 - 95	Blue Schist.		-	

BOREHOLE NO. 4 (Logged by N.G.G. Ltd.)

LOCATION EASTERN BANK OF ANDERSONS CREEK APPROXIMATELY 100 FEET NORTH OF 'BOULDER'

ELEVATION 4285 DEPTH 95 Ft.

DEPTH FEET	ROCK TYPE AND FORMATION	VALUES EST.	 ASSAY OZ. PER TON	REMARKS
0 - 5	Tailings		-	
5 - 10	Alluvium		-	
10 - 15	Material similar to Peaks		0.01	
15 - 20	" " "		0.02	
20 - 25	" " "		0.02	
25 - 30	" " "		0.02	
30 - 35	" " "		0.01	
35 - 40	" " "		0.01	
40 - 45	" " "		0.02	
45 - 50	" " "		0.02	
50 - 55	" " "		0.01	
55 - 60	" " "		0.01	
60 - 65	" " "		0.01	
65 - 70	" " "		0.01	
70 - 75	" " "		0.01	
75 - 80	" " "		0.01	
80 - 85	" " "		0.05	
85 - 90	" " "		0.01	
90 - 95	" " "		0.01	

BOREHOLE NO. 5

LOCATION EASTERN BANK OF ANDERSONS CREEK, SOUTH OF ENTRANCE TO 'BOULDER'

ELEVATION 4297 DEPTH 115 Ft.

DEPTH FEET	ROCK TYPE AND FORMATION	VALUES EST.	 ASSAY OZ. PER TON	REMARKS
0 - 5	Aluvium		0.02	
5 - 10	"		0.04	
10 - 15	"		0.09	
15 - 20	"		0.04	
20 - 25	"		0.02	
25 - 30	"		0.01	
30 - 35	Similar to Peaks lode		0.14	
35 - 40	" " "		0.04	
40 - 45	" " "		0.07	
45 - 50	material similar to Peaks		0.05	
50 - 55	"		Trace	
55 - 60	"		0.01	
60 - 65	"		0.01	
65 - 70	Blue pug, heavy pyrites		0.01	
70 - 75	"		-	
75 - 80	"		0.02	
80 - 85	"		0.04	
85 - 90	Similar to Peaks Lode		0.01	
90 - 95	"		0.02	
95 - 100	"		0.01	
100 - 105	"		-	
105 - 110	"		-	
110 - 115	"		-	

BOREHOLE NO. 6 (Logged by N.G.G. Ltd.)

LOCATION IN PEAKS OPEN CUT

ELEVATION 4338 Ft. DEPTH 178 Ft.

DEPTH FEET	ROCK TYPE AND FORMATION	VALUES		REMARKS
		EST.	ASSAY OZ. PER TON	
0 - 5	Tailings		-	
5 - 10	Alluvium		0.02	
10 - 15	"		0.01	
15 - 20	"		0.02	
20 - 25	"		0.05	
25 - 30	"		0.02	
30 - 35	"		0.07	
35 - 40	Lode material (Peaks)		0.01	
40 - 45	"		0.08	
45 - 50	"		0.57	
50 - 55	"		0.21	
55 - 60	"		0.42	
60 - 65	"		0.11	
65 - 70	"		0.08	
70 - 75	"		0.02	
75 - 80	"		0.02	
80 - 85	"		0.01	
85 - 90	"		0.31	
90 - 100	"		0.12	
100 - 105	"		0.04	
105 - 110	"		0.08	
110 - 115	"		0.04	
115 - 120	"		0.01	
120 - 125	"		0.09	
125 - 130	"		0.10	
130 - 135	"		0.03	
135 - 140	"		0.02	
140 - 145	"		0.02	
145 - 150	"		0.01	
150 - 155	"		0.37	
155 - 160	"		0.06	
160 - 165	"		0.03	
165 - 170	"		0.01	
170 - 175	"		0.03	
175 - 178	"		0.03	

BOREHOLE NO. 7 ((Logged by N.G.G. Ltd.)

LOCATION SOUTH WEST OF PEAKS UPPER FACE

ELEVATION 4346 DEPTH 125 Ft.

DEPTH	ROCK TYPE AND FORMATION	VALUES		REMARKS
FEET		EST.	ASSAY OZ. PER TON	
0 - 5	Alluvium		-	
5 - 10	"		0.02	
15 - 20	"		Trace	
20 - 25	"		0.01	
25 - 30	"		0.01	
30 - 35	"		0.01	
35 - 40	Lode material (Peaks)		0.08	
40 - 45	"		0.15	
45 - 50	"		0.11	
50 - 55	"		0.03	
55 - 60	"		6.01	
60 - 65	"		Trace	
65 - 70	"		Trace	
70 - 75	"		0.01	
75 - 80	"		0.01	
80 - 85	"		Trace	
85 - 90	"		0.01	
90 - 95	"		0.02	
95 - 100	"		0.01	
100 - 105	"		0.22	
105 - 110	"		0.25	
110 - 115	"		0.81	
115 - 120	"		0.14	
120 - 125	"		0.10	
125 - 126	"		0.09	

BOREHOLE NO. 7A (Logged by N.G.G. Ltd.)

LOCATION ABOVE PRESENT SLUICING ON WESTERN BANK OF ANDERSONS CREEK

ELEVATION DEPTH 170 Ft.

DEPTH	ROCK TYPE AND FORMATION	VALUES		REMARKS
FEET		EST.	ASSAY OZ. PER TON	
0 - 5	Surface material		-	
5 - 10	Over burden		0.01	
10 - 15	"		0.13	
15 - 20	"		Trace	
20 - 25	"		Trace	
25 - 30	"		0.01	
30 - 35	"		0.01	
35 - 40	"		0.01	
40 - 45	"		0.01	
45 - 50	Similar to Peaks		0.01	
50 - 55	"		0.02	
55 - 60	"		Trace	
65 - 70	"		Trace	
70 - 75	"		0.07	
75 - 80	"		0.07	
80 - 85	"		Trace	
85 - 90	"		0.01	
90 - 95	"		0.06	
95 - 100	"		0.06	
100 - 105	"		0.02	
105 - 110	"		0.01	
110 - 115	"		0.04	
115 - 120	"		0.03	
120 - 125	"		0.02	

(BOREHOLE NO. 7A)
(CONTINUED PAGE 25)

DEPTH FEET	ROCK TYPE AND FORMATION	VALUES		REMARKS
		EST.	ASSAY OZ. PER TON	
125 - 130	Similar to Peaks		0.04	
130 - 135	"		0.04	
135 - 140	Lode Material		0.03	
140 - 145	"		0.04	
145 - 150	"		0.02	
150 - 155	"		0.01	
155 - 160	"		0.01	
160 - 165	"		0.01	
165 - 170	"		0.01	

<u>BOREHOLE</u> NO. 8 (Logged by N.G.G. Ltd.)

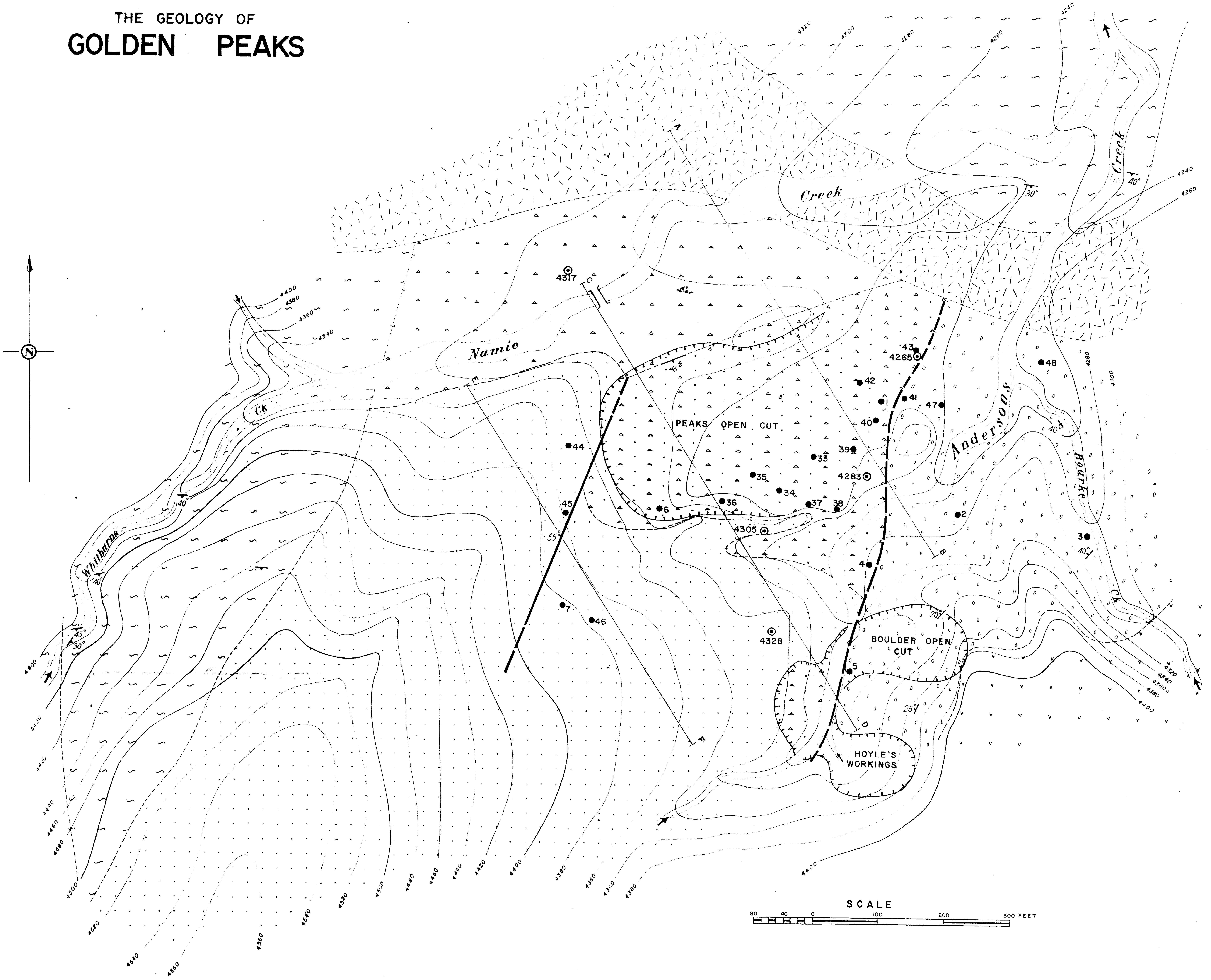
LOCATION RIDGE ABOVE PEAKS UPPER FACE

DEPTH 145 Ft.

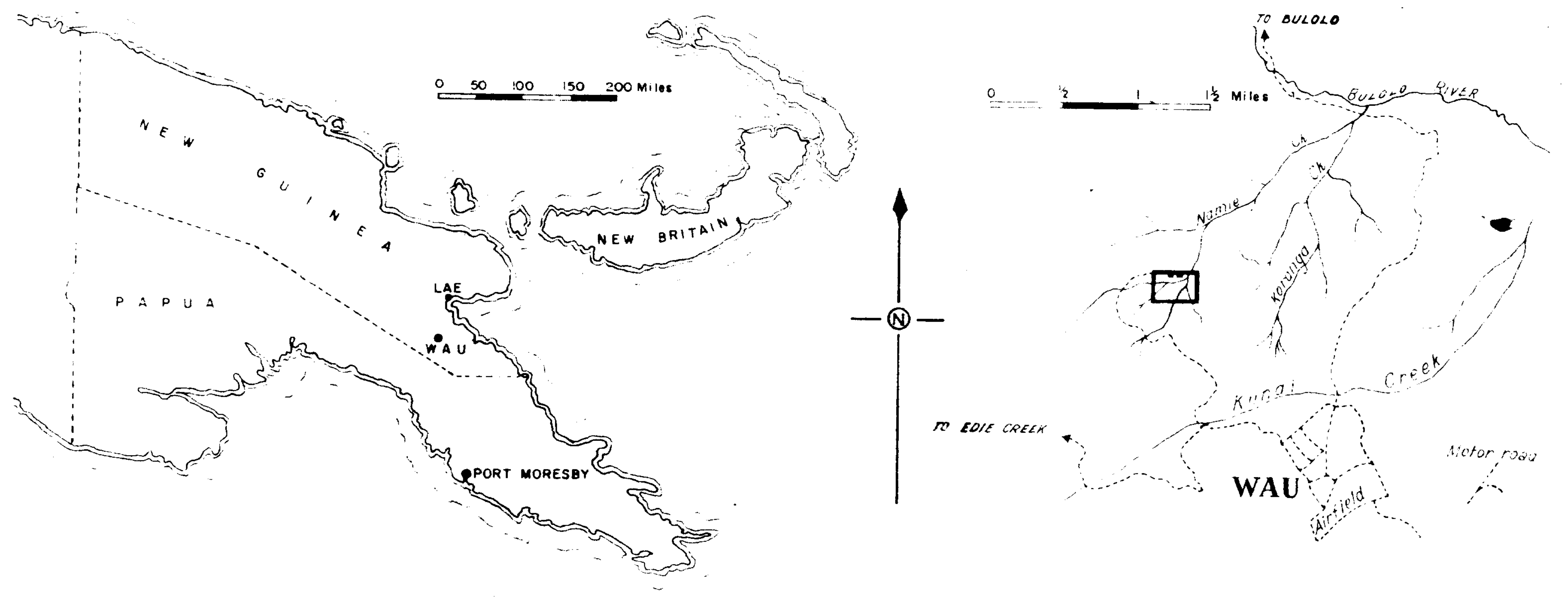
DEPTH FEET	ROCK TYPE AND FORMATION	VALUES		REMARKS
		EST.	ASSAY OZ. PER TON	
0 - 5	Overburden		-	
5 - 10	"		Trace	
10 - 15	"		"	
15 - 20	"		"	
20 - 25	"		"	
25 - 30	"		0.02	
30 - 35	"		Trace	
35 - 40	Schist		"	
40 - 45	"		"	
45 - 50	"		0.01	
50 - 55	"		0.01	
55 - 60	"		0.03	
60 - 65	"		0.01	
65 - 70	"		0.01	
70 - 75	"		0.01	
75 - 80	"		0.01	
80 - 85	"		0.08	
85 - 90	"		0.07	
90 - 145	"		-	

PLATE 1

THE GEOLOGY OF
GOLDEN PEAKS



LOCALITY MAPS



LEGEND

QUATERNARY	PLEISTOCENE	v v v	*Rhyolite flow*	
		⁚⁚⁚	*Rhyolitic breccia*	
TERTIARY	PLIOCENE	o o o	*Lake beds*	
	UPPER MIOCENE?	△ △ △	*Oxidized*	NAMIE BRECCIA
		△ △ △	*Unoxidized*	
? PALAEOZOIC		∽ ∽	*Kaindi Metamorphics*	
IGNEOUS INTRUSIONS				
	UPPER MIOCENE?	⁄ ⁄ ⁄	*Lower Edie Porphyry*	

- - - - -	*Approximate geological boundary*
—?—?—?—	*Inferred geological boundary*
━━━	*Fault position accurate*
━ ━ ━	*Fault position approximate*
∫∫∫	*Shear zone*
●	*Percussion drill hole*
⊙ 4283	*Spot height above arbitrary datum*
┬ 20	*Strike and dip of bedding*
▼ 40	*Strike and dip of foliation*

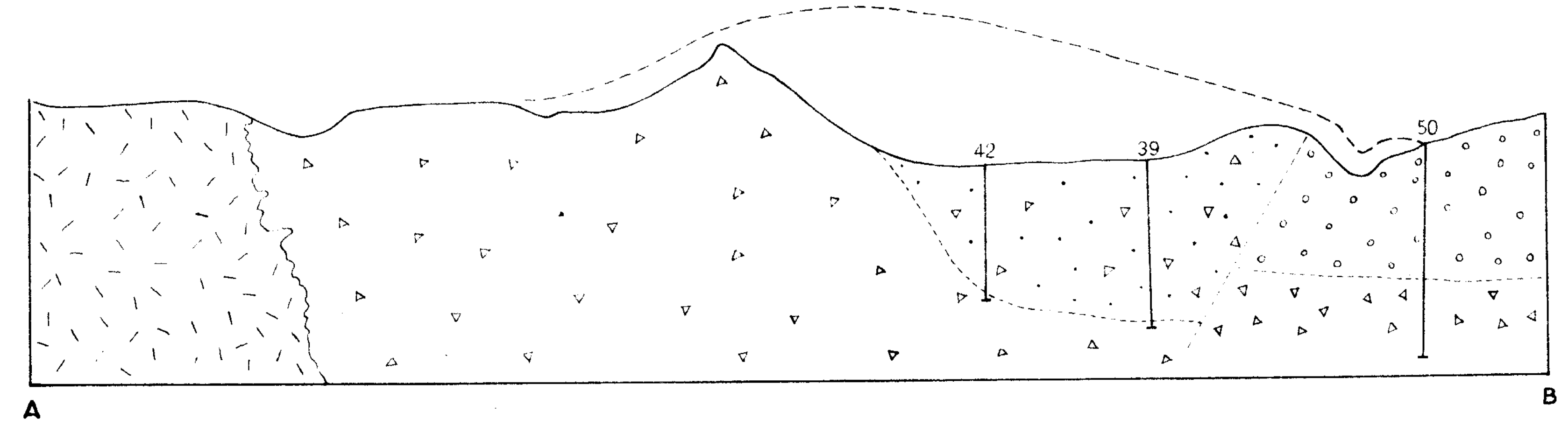
Bureau of Mineral Resources, Geology & Geophysics. April 1963.

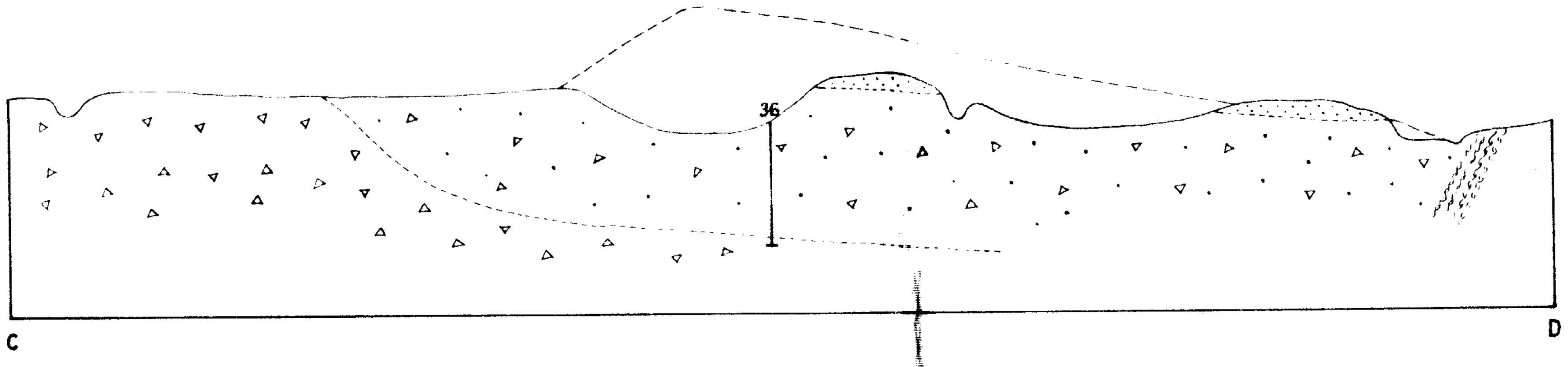
To accompany Record No 1962/86

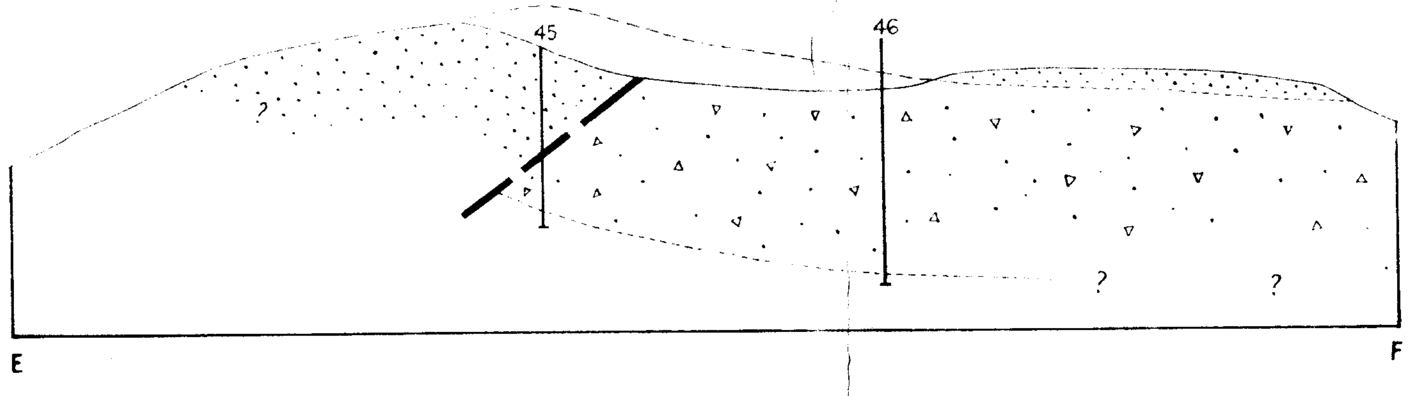
Resident Geologists' Office, Wau, T.P.N.G.
B55/14/1
G.M.

Plate 2

THE GEOLOGY OF
GOLDEN PEAKS
P. N. G
CROSS SECTIONS (Looking East)







SCALE
(NATURAL)
60 40 0 80 FEET

LEGEND as for Plate 1

Bureau of Mineral Resources, Geology & Geophysics. April 1963.

To accompany Record No 1962/86.

Resident Geologists' Office, Wau, T.P.N.G.
B55/14/2