COMMONWEALTH OF AUSTRALIA.

DEPARTMENT OF NATIONAL DEVELOPMENT.

# BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS.

**RECORDS:**

1963/83



## PERCUSSION DRILLING IN NEW GUINEA DURING 1961

by

D.B.Dow and M.D.Plane

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# PERCUSSION DRILLING IN NEW GUINEA DURING 1961


## SUMMARY

This report is a brief summary of percussion drilling carried out during 1961 in the Territory of New Guinea by the Division of Mines, T.P.N.G.


## INTRODUCTION

### General

The Division of Mines, T.P.N.G., has available for hire three percussion drilling rigs with crews; rentals are subsidized for approved exploratory programmes.

### Equipment

The drills used are one Bethune 400, and two Overall McCray rigs.

The Bethune 400 drill is a heavy duty machine capable of drilling to 400 feet. The drill is mounted on four wheels, and needs fairly well-graded roads to reach drill sites. The Overall McCray drills are light rigs with a wooden mast and are used on sites difficult of access. One of the rigs has been modified, and can be broken down into loads of maximum weight 300 pounds. This rig can be taken to advanced airstrips by light aircraft, then carried by native labour to the drill site. The drills have the disadvantage that they can drill to only 200 feet.

The Bethune 400 uses tools which drill either six-inch or five-inch holes; the Overall McCray uses four-inch or five-inch tools.

The drills are operated by three native crews under the supervision of one European driller, a system which has proved satisfactory when the three drills have been drilling in the one area.

### Limitations of the Drills

The drills were designed mainly to drill alluvial deposits, and have proved satisfactory for this type of work under New Guinea conditions. The only alluvial deposits not drilled to target depth since 1958 were on the Cleopatra Lease, Edie Creek, where two holes stopped on buried wood, and five others stopped after caving gravels jammed both the casing and the drill bits.

Many of the programmes undertaken by the Mines Division have entailed drilling in rocks other than alluvium. In general the drills have performed well, but wherever they have struck caving ground, the hole has had to be abandoned because it has proved impossible to drive the casing to block off the unstable ground. The writers consider that in such circumstances it would be worth attempting to drill a a hole below the jammed casing using smaller tools and flush-coupled casing within the jammed casing.

### Sampling

Under the drilling agreements the hirer is responsible for the testing of the samples from the holes, but in some cases the Resident Geologists have undertaken to do the work.

For alluvial gold prospects the complete samples are reduced by panning, and then agitated with mercury to amalgamate the gold. The amalgam is then separated from the heavy mineral concentrates by panning, the mercury dissolved by pure, concentrated nitric acid, and the gold residue weighed. Lode material is mechanically split in the wet state, dried, and sent for assay.

It is suggested that sampling for gold could be improved by the use of drums without internal crevices. The drums at present used are cut-down cyanide drums, and gold particles are likely to lodge in the crevides and become lost.

The mechanical splitter used on the Bethune 400 is unsatisfactory, and is no doubt the cause of the frequent anomalous assay results obtained from two quarters of the same sample. The wet sample is split into four parts directly from the drill pump, but a four-way split is not regarded as sufficiently representative, especially as the discharge from the drill pump is directional. A better method would be to discharge the sample into a drum, and then split it using a multi-compartment splitter.

## DRILLING PROGRAMMES

The following drilling programmes were undertaken in 1961:

| Programme | Locality | Date of Drilling | Rig Used |
|---|---|---|---|
| Barola Creek | Kainantu | July 1960 to January 1961 | Overall McCray |
| Prykes Face | Wau | January to February 1961 | Overall McCray |
| Golden Gates Leases | Wau | February to June 1961 | Overall McCray |
| Schraters Creek | Edie Creek | Commenced July 1961 | Overall McCray |
| Aifunka Hill | Kainantu | Commenced October 1961 | Overall McCray |
| Golden Peaks | Wau | Throughout 1961 | Bethune 400 |
| Namie Ridge | | | |

Reports on all the programmes, except the Aifunka Hill programme, which is in the preliminary stages, are given below.

## BAROLA CREEK

### Location and Access

The Barola Creek percussion drilling was carried out on the southern edge of a swamp between Nasananka Creek and Barola Creek, six miles west-south-west of Kainantu (see Plate 2). Access from the end of the road at Ubank's house was by way of the bed of Barola Creek. The creek is fairly flat in that area, and the drill was left on its wheels and pulled to the site by a team of about 30 local villagers.

### Tenure

The holes were drilled by the Administration Mines Division on ground not covered by mining lease.

### Equipment

An Overall McCray unit with five-inch tools was used, and the holes were cased with five-inch outside-coupled casing.

### Geology and Drilling Objectives

The drilling was done at the suggestion of the senior author to test auriferous gravels in the area.

The gravels belong to the Kainantu Beds which were deposited in an arm of a Pleistocene lake which extended from Ornapinka Creek to Nasananka Creek. Basement in this area consists of Miocene conglomerate. Mr. E. Ubank had previously sluiced the lake beds, about 500 feet to the north of the area drilled, using a small nozzle and water from Barola Creek, but gold values were uneconomic. The lake beds had also been worked by ground-sluicing in other places to the south and north of the area drilled, but values in these places were also uneconomic.

It was thought that these gravels continued under the swamp between Nasananka Creek and Barola Creek, and that if sufficient ground were proved, they might prove profitable to work on a large scale.

### Results

Seven holes were drilled, as shown on the map (Plate 2) and results were as follows:

| Hole | Depth in feet | Assay | |
|---|---|---|---|
| | | Interval | Progressive average |
| | | (pence per cubic yard) | |
| D8B1 | 0-20 | nil | nil |
| | 20-40 | nil | nil |
| | 40-60 | nil | nil |
| | 60-80 | 8.2 | 2.0 |
| | 80-95 | 0.4 | 1.7 |
| D9B2 | 0-20 | 0.1 | 0.1 |
| | 20-40 | 0.5 | 0.3 |
| | 40-60 | 44.0 | 14.2 |
| | 60-80 | 0.6 | 10.8 |
| D10B3 | 0-20 | 0.8 | 0.8 |
| | 20-40 | 1.2 | 1.0 |
| | 40-60 | 5.6 | 2.5 |
| | 60-80 | 2.1 | 2.4 |

| Hole | Depth in feet | Assay | |
|---|---|---|---|
| | | Interval | Progressive average |
| | | (pence per cubic yard) | |
| D11B4 | 0-20 | 0.1 | 0.1 |
| | 20-40 | 0.2 | 0.1 |
| | 40-60 | 3.0 | 1.0 |
| | 60-80 | 13.5 | 4.2 |
| | 80-85 | 18.0 | 5.0 |
| D12B5 | 0-20 | 0.5 | 0.5 |
| | 20-40 | 1.7 | 1.0 |
| | 40-60 | 12.4 | 4.8 |
| | 60-80 | 2.4 | 3.4 |
| D13B6 | 0-20 | trace | trace |
| | 20-40 | 0.2 | 0.1 |
| | 40-60 | 0.2 | 0.1 |
| D14B7 | 0-20 | 0.5 | 0.5 |
| | 20-40 | 44.2 | 22.3 |
| | 40-60 | 2.4 | 15.7 |
| | 60-80 | trace | 11.8 |

The values proved were disappointingly low, and are uneconomic, even if a large volume of ground were to be proved.

## PRYKES FACE

### Location and Access

The drilling at Prykes Face took place on the leases of Koranga Gold Sluicing Ltd (see Plate 1), about 1500 feet west of the site of the Lower Koranga drilling which was completed by the Mines Division in 1960. Access is by walking track from the old drilling road at the head of Burke Creek down the north-eastern face of Koranga Volcano.

### Tenure

The drilling was done at the request of Koranga Gold Sluicing Ltd.

### Equipment

An Overall McCray machine equipped with four-inch drilling tools was used. The holes were cased with four-inch, flush-coupled casing.

### Geology and Objectives

The drilling was done to find the continuation of rich auriferous gravels worked pre-war at Prykes Face. The area drilled (see Plate 3) consists of tuffaceous sandstone, gravel, and unconsolidated conglomerate of the Pleistocene Otibanda Lake Beds, which are overlain by massive rhyolite lava flows from Koranga Volcano. The lake beds are folded into a fairly tight north-east trending anticline.

The programme was originally laid out by Mr. G. Siedner, Resident Geologist, Wau, but recent landslips made it obvious that the line of holes as laid out would penetrate slipped rhyolite which has filled an old tributary of Koranga Creek. In addition, from discussions with Mr. R. McConnon, Manager of Koranga Gold Sluicing Ltd, it appears that the gravels worked were an old lead of Koranga Creek, and not part of the lake beds as suspected by Mr. Siedner.

It was agreed to continue with the drilling following an amended programme whose objectives were:

1. To find, if possible, the upstream continuation of the old lead of Koranga Creek.

2. To test the basal members of the Otibanda Lake Beds in an area where very little information was available.

Results

Concurrently with the drilling, a programme of costeaning and pitting to delineate geological boundaries was laid out with the object of testing for gold values in the lake beds for the siting of later holes.

No significant gold was found by this work.

Three percussion holes were drilled for the following results:

| Hole | Depth | Rock Type | Gold Values |
|---|---|---|---|
| P.F.1 | 0-40 | Rhyolite slip | nil |
| | 40-45 | Pebble conglomerate | trace |
| | 45-96 | Tuffaceous sst. pebble beds | nil |
| P.F.2 | 0-100 | Tuffaceous sst. pebble beds | nil |
| P.F.3 | 0-55 | Rhyolite slip | nil |
| | 55-100 | Tuffaceous sst. pebble beds | nil |

Conclusions

1. If any upstream continuation of the Koranga lead ever existed, it has been either covered by the Koranga Rhyolite or, more likely, it has been removed by erosion.

2. The lake beds in the area are almost barren.

Recommendations

Percussion drilling should be used in conjunction with other exploration work such as pitting, costeaning, and general prospecting. If such a programme had been completed before the drilling commenced it would have helped with the siting of the holes, and probably only one hole would have been needed to get the same results.

GOLDEN GATES LEASES

Location and Access

The Golden Gates drilling was carried out in the following two areas:

1. Eight holes were drilled on the Golden Gates Leases north of Reidy's Creek (see Plate 4). Access to the area is easy and a truck can be driven from Koranga native compound almost to the drill site.

2. Two holes were drilled about 300 feet west of the Lower Koranga drilling programme which was completed by the Mines Division in 1960 (see Plate 4). One other hole was drilled about 1000 feet to the south of hole GG9.

The drilling was done at the request of Koranga Gold Sluicing Ltd on their leases.

Equipment

An Overall McCray unit with four-inch drilling tools, was used, and the holes were cased with four-inch flush-coupled casing.

Geology and Drilling Objectives

The object of the drilling was to find the northerly extension of the auriferous bed at present being worked by the Company at Koranga Open Cut.

The rocks in the area are sandstone and conglomerate of the Pleistocene Otibanda Lake Beds. They strike approximately north, and dip eastwards at between 5° and 30°. The beds are auriferous, and are being worked for gold by Koranga Gold Sluicing Ltd about 1400 feet to the south of the Golden Gate leases, along the strike of the beds from the present drilling.

The first eight holes were drilled at the suggestion of Mr. R. McConnon, Manager of Koranga Gold Sluicing Ltd, and were sited by the writer (see Plate 5). The following drill logs were recorded:

| Hole | Depth feet | Formation | Gold Values pence per cu.yd. Est. | Gold Values pence per cu.yd. Assay | Amended Assay pence per cu.yd. |
|---|---|---|---|---|---|
| GG1 | 0-20 | | 30 | 8 | 15 |
| | 20-40 | | 18 | 6 | 9.4 |
| | 40-60 | | 3 | 1 | |
| | 60-85 | | 1 | 2 | |
| GG2 | 0-20 | | 6 | 2 | |
| | 20-40 | | 3 | 2 | |
| | 40-60 | Otibanda | 1 | 0.2 | |
| | 60-65 | | 18 | 9 | 19 |
| GG3 | 0-20 | | 6 | 8 | |
| | 20-25 | | 36 | 21 | |
| | 25-30 | | 18 | 2 | 11 |
| GG4 | 0-20 | | 6 | 4 | |
| | 20-35 | | 12 | 3 | |
| | | Lake | | | |
| GG5 | 0-20 | | 36 | 5 | 7 |
| | 20-40 | | 9 | 3 | |
| | 40-60 | | 6 | 3.4 | |
| | 60-70 | | 1 | 1 | |
| GG6 | 0-20 | | 2 | 2 | |
| | 20-40 | | 48 | 108 | |
| | 40-50 | Beds | 1 | 1 | |
| GG7 | 0-20 | | 4 | 3.4 | |
| | 20-40 | | 1 | 2 | |
| | 40-50 | | nil | 0.3 | |
| GG8 | 0-20 | | 2 | 2 | |
| | 20-40 | | 4 | 5.3 | |

The samples were panned by Mr. Hewlett, of Koranga Gold Sluicing Ltd, and sent to the assay office, Division of Mines, Konedobu, for assay. At the assay office the concentrates were agitated in water with mercury, using a mechanical shaker; the sands were then panned off the amalgam by means of beakers, the mercury dissolved by nitric acid, and the gold residue weighed.

The assay results, on conversion to pence per cubic yard, were generally found to be much lower than the visual estimates made by Mr. Hewlett and the Administration driller. In previous programmes the visual estimates had proved remarkably accurate, being slightly over-estimated for low values, and under-estimated for high values. It was thought possible that the mechanical shaker was not amalgamating the gold properly, so the sample from 20 feet to 40 feet in Hole GG6 was amalgamated by hand shaking in the Geological Office, and the amalgam sent to Konedobu for assay. The resultant assay was above the visual estimate. As a further check, residues from selected samples were re-amalgamated and the amended results were much closer to the visual estimated. The visual estimates have been accepted as approximately correct, with the reservation that they might be slightly over-estimated.

In hole GG1, several slugs of gold were recovered from 0 feet to 20 feet, but these were regarded as erratic and were rejected. It is possible that they came from an enrichment caused by re-working of the Lake Beds by the small stream which flows in the gully during wet weather. The gold recovered from Hole GG6 at 20 feet to 40 feet was very angular and unlike any of the other gold recovered; it probably resulted from the breaking up of a quartz/gold specimen by the drill, and this result must, therefore, be regarded as erratic.

The first seven holes proved the existence of an easterly dipping auriferous bed which is almost certainly the northern extension of the bed at present being worked by the company (see sections Plate 2).

If the visual estimates are accepted, it is seen that the auriferous bed is about 40 feet thick, and averages about 18 pence per cubic yard after reducing the erratic values in Hole GG6. This bed could be removed by sluicing down-dip to the line of the north-trending gully; very little overburden is present. In this section there are about 125,000 yards of probable ground averaging at least 18 pence per cubic yard. In addition there is an indicated extension of the bed 1400 feet along strike to the south as far as the Lower Koranga Area where the Company is now working. East of the gully, the auriferous beds dip under nearly barren beds, and it would be uneconomical to work that area. The bed undoubtedly extends to the north, but it is further from the source area and it is anticipated that the values will diminish in this direction.

Two holes were drilled about 400 feet to the west of the area where the lower Koranga Drilling Programme of 1960 proved payable values as far as 120 feet below the surface. The payable values are confined to an easterly dipping bed (see section, Plate 4), and two holes were sited where the bed was projected up-dip to the surface. The following results were recorded:

| Borehole | Depth feet. | Formation | Gold Values Est. pence per cubic yard | Gold Values Assay pence per cubic yard |
|---|---|---|---|---|
| GG9 | 0-20 | | 9 | 29 |
| | 20-40 | Otibanda | 30 | 48 |
| | 40-50 | | 72 | 120 |
| | 50-60 | | 16 | 21 |
| | 60-80 | | nil | no assay |
| | | Lake | | |
| GG10 | 0-20 | | 2 | no assay |
| | 20-40 | | 42 | 41 |
| | 40-50 | | 9 | 8 |
| | 50-80 | Beds. | 2 | no assay |

The concentrates were amalgamated in the Geological Office, and sent to Konedobu for assay. The results indicate additional reserves of 250,000 cubic yards of ground containing values of at least 20 pence per cubic yard.

The last hole was sited 900 feet to the south of GG10. The following results were recorded:

| Borehole | Depth | Formation | Gold Values Est. | Gold Values Assay |
|---|---|---|---|---|
| | | | pence per cubic yard | |
| GG11 | 0-30 | Otibanda | 3 | no assay |
| | 30-40 | | 12 | 13 |
| | 40-60 | Lake | 30 | 40 |
| | 60-80 | | 90 | 80 |
| | 80-90 | Beds. | 120 | 119 |
| | 90-95 | | 12 | 41 |
| | 95-115 | | 2 | no assay |
| | 115-130 | | 24 | 12 |

The values found in this hole belong to the main auriferous bed which can be expected to extend along strike to the south, and down-dip to the east.

Recommendations

It is recommended that further drilling be done to delineate the main auriferous bed. This drilling should be done to the south and east of the area tested in the Lower Koranga Drilling Programme, and to the north of the area covered by the Golden Gates Programme. The senior writer considers that the chances of finding additional reserves are good.

SCHRATERS CREEK

Location and Access

The Schraters Creek drilling was carried out near Schraters Creek, a tributary of Edie Creek, about 11 miles by road from Wau (Plate 6). The drill was towed by road to near the mouth of Schraters Creek, then dismantled and carried to the site of the first hole. It was hauled into position for the other holes by means of a winch. The programme was commenced in July 1961, and completed in March 1962.

Tenure

The drilling was done at the request of New Guinea Goldfields Ltd on consolidated leases held by them.

Equipment

The Overall McCray E-rig was used, equipped with four inch tools and four-inch, flush-coupled casing.

Geology and Drilling Objectives

The object of the drilling was to test for auriferous gravels in ancient channels of Edie Creek. Stream gravels were reputed to have been encountered in a pre World War II drive, and it was thought that these would have been the upstream continuation of gravels mined in 1952, when 710 cubic yards of gravel were extracted for a return of £8,501, an average of 239.8 shillings per cubic yard. The gravels in the pre-war drive were not tested at the time, and as the old workings had since fallen in, the company wanted to test them by percussion drilling.

The drill was unable to reach the gravels, and was then used to test auriferous gravels discovered by the senior author.

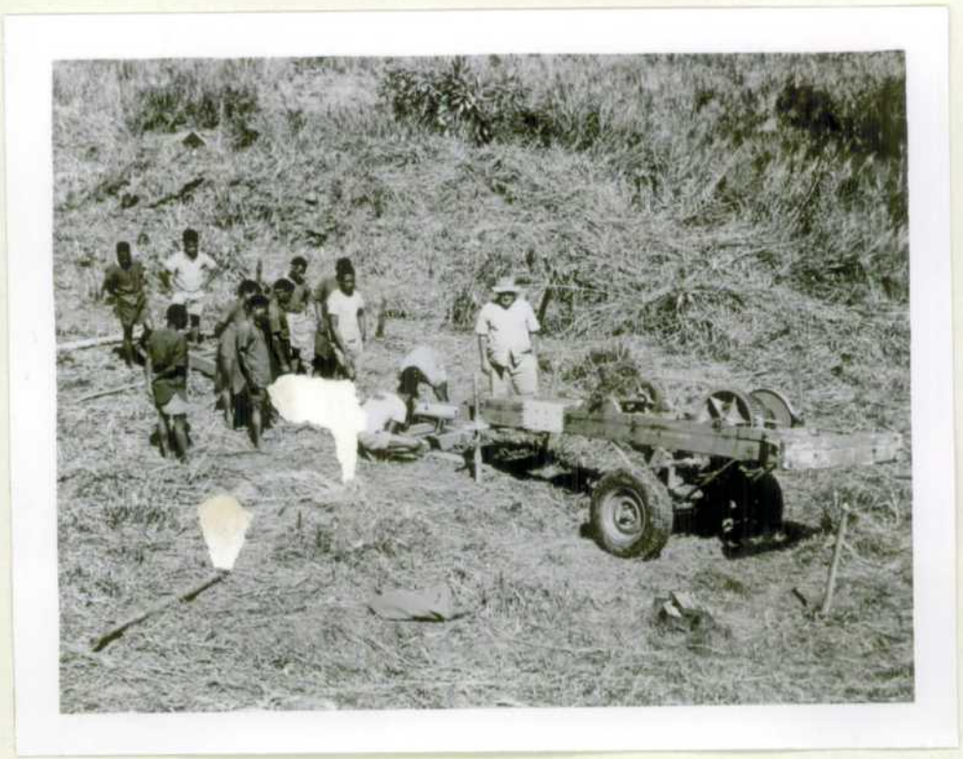


Fig. 1. Assembling Overall-MacCray Percussion Drill.

Results

Thirteen holes were drilled for the following results:

(1) Pre-war adit gravels:

The location of the gravels found by the pre-war adit was not known accurately. Four holes were drilled, but because of drilling difficulties the project was abandoned before the target was reached.

| Hole | Depth (feet) | Rock type | Assay mg. gold/5ft. run. |
|---|---|---|---|
| SH1 | 0- 5 | Upper Edie Porphyry | 16.69 |
| | 5-110 | | 0.60 average |
| - - - - - - - - - dropped bit at 110', and hole abandoned - - - - - - - - - | | | |
| SH2 | 0-142 | Upper Edie Porphyry | |
| | 142-160 | Breccia | not assayed |
| - - - - - - - - - - - stopped 20 ft. beyond target depth - - - - - - - - | | | |
| SH3 | 0-100 | Upper Edie Porphyry | trace |
| - - - - abandoned because of jammed casing and caving ground - - - - - | | | |
| SH4 | 0-100 | Porphyry with some quartz and calcite | |
| | 100-109 | Cavity, possibly the pre-war drive. | not assayed |
| - - - - - - - - - - - hole abandoned because of jammed bit - - - - - - - | | | |

(2) Ridge-top Gravels:

During the drilling of the first four holes, the senior writer found evidence for a narrow auriferous lead cutting across the top of the prospect ridge. Five holes were drilled in this lead for the following results (see Section A-B, Plate 6).

| Hole | Depth (feet) | Rock type and Formation | Assay Values pence per cubic yard |
|---|---|---|---|
| SH5 | 0- 5 | | 0.46 |
| | 5-10 | deeply | 1.84 |
| | 10-15 | | 16.97 |
| | 15-20 | weathered | 75.78 |
| | 20-25 | | 735.62 |
| | 25-30 | gravels | 46.84 |
| | 30-35 | - - - - - - - | 3.44 |
| | 35-40 | | |
| | 40-45 | porphyry | |
| | 45-50 | | |

Average value to 30 feet 146.20 pence per cubic yard.

| | | | |
|---|---|---|---|
| SH6 | 0- 5 | | 8.85 |
| | 5-10 | deeply | 0.13 |
| | 10-15 | | 143.92 |
| | 15-20 | weathered | 1301.50 |
| | 20-25 | | 6.15 |
| | 25-30 | | 22.03 |
| | 30-35 | gravels | 69.69 |
| | 35-40 | | 17.17 |
| | 40-45 | | 18.11 |
| | 45-50 | - - - - - - - | 0.27 |
| | 50-55 | porphyry | 8.24 |

Average value to 45 feet 176.39 pence per cubic yard.

| | | | |
|---|---|---|---|
| SH7 | 0- 5 | Red clayey | 1.0 |
| | 5-10 | | 5.5 |
| | 10-15 | decomposed | 26.8 |
| | 15-20 | | 27.8 |
| | 20-25 | wash. | 105.2 |
| | 25-30 | | 68.3 |
| | 30-35 | - - - - - - - | 14.7 |
| | 35-40 | (Yellow clay, rounded quartz | |
| | 40-45 | grains, and schist.) | |
| | 45-50 | Upper Edie | |
| | 50-55 | Porphyry. | |
| | 55-60 | | |

| | | | |
|---|---|---|---|
| SH8 | 0- 5 | | |
| | 5-10 | Upper | 2.8 |
| | 10-15 | | |
| | 15-20 | | 4.50 |
| | 20-25 | Edie | |
| | 25-30 | | |
| | 30-35 | | |
| | 35-40 | Porphyry. | |
| | 40-45 | | |
| | 45-50 | | |
| | 50-55 | | |

| Hole | Depth (feet) | Rock type and Formation | Assay Values pence per cubic yard |
|---|---|---|---|
| SH9 | 0- 5 | Decomposed wash. | 81 |
| | 5-10 | | |
| | 10-15 | | 93 |
| | 15-20 | | 152 |
| | 20-25 | Upper Edie Porphyry | 10 |
| | 25-30 | | - |

The lead proved smaller than hoped; it contains about 4000 cubic yards of gravel averaging about 73 pence per cubic yard; 800 cubic yards of these gravels, averaging about 353 pence per cubic yard could be selectively mined, but the gravels are almost completely weathered to clay, and recovery of the gold would be very poor.

We think that these gravels are an upfaulted remnant of the gravels mined in 1952. They are similar both in type and degree of weathering (Mining Superintendent New Guinea Goldfields Ltd, pers. comm.), and the gold values are comparable.

(3) Deep Lead Gravels:

"Deep lead" was the name given to a buried channel which was profitably mined before the war. The lead was filled with relatively unweathered and unconsolidated gravels, but because the bottom was below the present level of Edie Creek the gravels had to be worked by means of an elevator. The "Deep Lead" is exposed several miles downstream down Edie Creek at the El Dorado leases, and again at Cleopatra leases where the gravels were also mined before the war.

The senior writer traced the "Deep Lead" in Schraters Creek area, and as the drill was on the site recommended that four holes be drilled across the lead. These were drilled with the following results:

| Hole | Depth (feet) | Rock type and Formation | Assay Values pence per cubic yard |
|---|---|---|---|
| SH10 | 0- 5 | Porphyry slip. | 21 |
| | 5-10 | Wash | ) |
| | 10-15 | | ) 54 |
| | 15-20 | | ) |
| | 20-25 | | 108 |
| | 25-30 | | 38 |
| | 30-35 | | 25 |
| | 35-40 | | 143 |
| | 40-45 | | 61 |
| | 45-50 | | 2460 |
| | 50-55 | | 702 |
| | 55-60 | | 140 |
| | 60-62 | Green schist. | |
| SH11 | 0- 5 | Wash. | |
| | 5-10 | | |
| | 10-15 | | |
| | 15-20 | | 46 |
| | 20-25 | | 4 |
| | 25-30 | | 18 |
| | 30-35 | | 56 |
| | 35-40 | | 84 |
| | 40-45 | | |

Abandoned because of drilling difficulties.

| Hole | Depth (feet) | Rock type and Formation | Assay Values ~~pounds~~ pence per cubic yard |
|---|---|---|---|
| SH12 | 0 - 5 | | 0.4 |
| | 5 -10 | | 0.3 |
| | 10-15 | | 0.2 |
| | 15-20 | | 23.0 |
| | 20-25 | | 488.0 |
| | 25-30 | Wash | 131.0 |
| | 30-35 | | 688.0 |
| | 35-40 | | 209.0 |
| | 40-45 | | 320.0 |
| | 45-50 | | 106.0 |
| | 50-55 | | 192.0 |
| | 55-60 | | 39.0 |
| | 60-65 | 62-65 Bottom. | |
| | | Weathered porphyry. | |
| SH13 | 0 - 5 | | 0.5 |
| | 5 -10 | | 0.2 |
| | 10-15 | | 30.0 |
| | 15-20 | | 0.2 |
| | 20-25 | | 32.0 |
| | 25-30 | Wash | 16.0 |
| | 30-35 | | 40.0 |
| | 35-40 | | 157.0 |
| | 40-45 | | 67.0 |
| | 45-50 | | 583.0 |
| | 50-55 | | 242.0 |
| | 55-60 | | 87.0 |
| | 60-65 | | 153.0 |
| | 65-70 | 68-72 feet porphyry. | |
| | 70-72 | Weathered bottom. | |

The drilling was inconclusive, but the "Deep Lead" was proved to contain interesting gold values in this area, and further drilling of the lead is recommended.

## GOLDEN PEAKS

### Location and Access

The drilling was carried out near the Golden Peaks open-cut gold mine, which is situated 3½ miles from Wau by all weather road (see Plate 7). The drill was towed to the area by truck, and moved from site to site by a bulldozer.

### Tenure

The holes were drilled on New Guinea Goldfields Ltd, "Special Area".

### Equipment

The Bethune 400 rig with six-inch tools was used, and the holes were cased with six inch outside-coupled casing.

### Geology and Drilling Objectives

The drilling was done to explore possible extensions of the Golden Peaks lode.

The orebody, which has been worked since 1953, had been tested by only nine scattered holes. In view of the declining underground reserves of hard ore it was decided to percussion drill the Peaks deposit

so that the economics of the purchase of a new plant could be assessed. Concurrently with this drilling programme a geological survey of the deposit was made. (The Geology of Golden Peaks : M.D. Plane. Bur.Min. Resour.Aust. Record 1962/86.)

Briefly, the deposit is a body of oxidised, mineralised breccia which averages 0.17 ounces of gold per ton. The mineralisation generally consists of thin ramifying veins of manganese-stained quartz, wad, and mangano-calcite.

Results

The drill logs and assay results are set out in Appendix I; a more detailed treatment of the drilling results is given in "The Geology of Golden Peaks", by M.D. Plane. The drilling to date has served to delineate the orebody along its eastern and western boundaries. The northern boundary was already known, and it remains for the southern extension of the body to be evaluated and delineated by further drilling.

Recommendations

If salting is to be avoided great care is needed in the sampling of this type of deposit which consists of randomly oriented stringers of high grade friable material in a low grade non-friable matrix. Casing should be kept as close behind the bit as is practicable, and the sludge samples should be accurately split. Neither of these precautions has been closely observed at all times. The bit has on occasions been twelve feet ahead of the casing. The sample splitter in use at the moment, although far more convenient than the conventional Jones sample splitter, does not ensure an accurate split of the sample.

NAMIE RIDGE

Location and Access

The Namie Ridge percussion drilling programme was carried out on Namie Ridge, which is between Whitburns Creek and Andersons Creek. The ridge is about 1500 feet south-west of Golden Peaks open-cut, which is 3½ miles from Wau by an all-weather road (see Plate 1).

Tenure

The holes were drilled on a "Special Area" held by New Guinea Goldfields Ltd.

Equipment

A Bethune 400 rig with six-inch tools was used, and the holes were cased with six inch outside-coupled casing.

Geology and Drilling Objectives

The drill was used to prospect for lodes of the Golden Peaks type (see above). One such lode had been discovered by a percussion drill hole put down in 1959, and this had since been uncovered by sluicing. As an aid to the present prospecting operations several access roads were bulldozed, and these also served as costeans (Plate 8).

Previously unsuspected valley-fill deposits were uncovered by the testing across Namie Ridge. The valleys are at least 200 feet wide, and have steeply dipping walls. They are filled with lens-shaped deposits, up to 30 feet thick and 300 feet long, which are composed of angular fragments of schist, volcanic breccia, and porphyry, in varying proportions. There are lenses of auriferous cobble and boulder conglomerate within the valley fill, generally near the base.

All the valleys trend towards the north-east quadrant: at Whitburns Creek there is a succession of three valleys, each later one cutting the earlier ones.

The valleys have probably resulted from a cycle of rapid erosion during an orogenically active period, and the lenses of valley-fill were probably emplaced by slips during this period. These slips caused rapid changes in the drainage of the area and were this responsible for the complicated system of valleys.

The valley-fill generally contains some alluvial gold; where the fill is composed mainly of volcanic breccia components, it contains sparse ramifying manganiferous veins. These veins are thin, seldom more than one inch thick - but in places they are very rich in gold. However, the average grade of the most highly mineralised lens is not economic.

Results (see Appendix II)

Drill holes D2, 3, 4, and 8 proved the existence of a body of mineralised Golden Peaks Breccia of marginal grade, which is probably a continuation of the lode at Whitburns Creek. It is recommended that further drilling of this body be postponed until the deep soil cover is stripped by sluicing.

## APPENDIX I

## PERCUSSION DRILL LOGS

## GOLDEN PEAKS DRILLING

Note: The gold content of the lode material is given as ounces per ton. Where gravels were encountered one half of the sample was fire-assayed; the other half was amalgamated (see Introduction above), and the results are given as grains per cubic yard.

Borehole C33. Depth - 106 feet.

| Depth (feet) | Rock type and Formation | Assay (ounces per ton) |
|---|---|---|
| 0- 5 | Surface contamination; some coarse stone | 0.81 |
| 5-10 | | 0.07 |
| 10-15 | Golden Peaks Lode | 0.01 |
| 15-17½ | | tr. |
| 17½-20 | | tr. |
| 20-25 | | tr. |
| 25-30 | | 0.01 |
| 30-35 | Upper | 0.015 |
| 35-40 | | tr. |
| 40-45 | | tr. |
| 45-50 | Ridges | tr. |
| 50-55 | | 0.01 |
| 55-60 | | tr. |
| 60-65 | Breccia. | tr. |
| 65-70 | | tr. |
| 70-75 | | tr. |
| 75-80 | | tr. |
| 80-85 | | tr. |
| 85-90 | (Brown colour for 2'; some clay and rhyolite; remainder blue breccia.) | tr. |
| 90-95 | | tr. |
| 95-100 | Upper Ridges Breccia | tr. |
| 100-105 | | 0.01 |
| 105-106 | Hole caved in at 106', still in Upper Ridges Breccia; sample taken before caving. | 0.01 |

Borehole C34. Depth - 90 feet.

| | | |
|---|---|---|
| 0- 2 | Filled surface from bulldozing etc. | 0.09 |
| 2- 5 | | 0.03 |
| 5-10 | | tr. |
| 10-15 | | tr. |
| 15-20 | Golden | 0.06 |
| 20-25 | | 0.14 |
| 25-30 | Peaks | 0.08 |
| 30-35 | | 0.07 |
| 35-40 | Lode. | 0.26 |
| 40-45 | | 0.07 |
| 45-50) | calcite | 0.31 |
| 50-55) | stringers | 0.13 |
| 55-60 | Upper | tr. |
| 60-65 | | 0.03 |
| 65-70 | | 0.01 |
| 70-75 | Ridges | 0.01 |
| 75-80 | | 0.01 |
| 80-85 | | tr. |
| 85-90 | Breccia. | tr. |

| Depth (feet) | Rock type and Formation | Assay (ounces per ton) |
|---|---|---|
| **Borehole C35.** | **Depth - 45 feet.** | |
| 0- 2 | Bulldozed fill. | 0.12 |
| 2- 5 | | 0.15 |
| 5-10 | | 0.16 |
| 10-15 | Golden Peaks Lode. | 1.42 |
| 15-20 | | 0.31 |
| 20-25 | Upper Ridges Breccia. | 0.29 |
| 25-30 | | 0.23 |
| 30-35 | | 0.05 |
| 35-40 | | 0.08 |
| 40-45 | | 0.01 |
| **Borehole C36.** | **Depth - 52 feet.** | |
| 0- 2 | Fill. | 0.21 |
| 2- 5 | Golden Peaks Lode. | 0.65 |
| 5-10 | | 0.02 |
| 10-15 | | 0.01 |
| 15-20 | | 0.07 |
| 20-25 | | 0.13 |
| 25-30 | | 0.01 |
| 30-35 | | 0.02 |
| 35-40 | | 0.02 |
| 40-45 | | 0.11 |
| 45-50 | Upper Ridges Breccia. | 0.03 |
| 50-52 | | 0.01 |
| **Borehole C37.** | **Depth - 74 feet.** | |
| 0- 2 | Fill. | 0.14 |
| 2- 5 | Golden Peaks Lode. | 0.06 |
| 5-10 | | 0.02 |
| 10-15 | | 0.17 |
| 15-20 | | 1.83 |
| 20-25 | | 0.10 |
| 25-30 | | 0.44 |
| 30-35 | | 0.05 |
| 35-40 | | 0.63 |
| 40-45 | | 0.74 |
| 45-50 | | 0.04 |
| 50-55 | | 0.52 |
| 55-60 | | 0.26 |
| 60-65 | | 0.30 |
| 75-70 | Upper Ridges Breccia. | 0.06 |
| 70-74 | | 0.01 |
| **Borehole C38.** | **Depth - 110 feet.** | |
| 0- 2 | Golden Peaks Lode. | 0.07 |
| 2- 5 | | 0.17 |
| 5-10 | | 0.57 |
| 10-15 | | 1.12 |
| 15-20 | | 0.25 |
| 20-25 | | 0.09 |
| 25-30 | | 0.11 |
| 30-35 | | 0.01 |
| 35-40 | | 0.01 |
| 40-45 | | 0.01 |
| 45-50 | | 0.01 |

| Depth (feet) | Rock type and Formation | Assay (ounces per ton) |
|---|---|---|
| **Borehole C38.** (contd.) | | |
| 50-55 | Golden | 0.02 |
| 55-60 | | 0.03 |
| 60-65 | Peaks | 0.01 |
| 65-70 | | 0.22 |
| 70-75 | | 0.05 |
| 75-80 | Lode. | tr. |
| 80-85 | | 0.01 |
| 85-90 | | 0.03 |
| 90-95 | | 0.16 |
| 95-100 | ---------- | 0.02 |
| 100-105 | | 0.01 |
| 105-110 | Upper Ridges Breccia. | tr. |
| **Borehole C39.** | **Depth - 74 feet.** | |
| 0- 2 | | 0.15 |
| 2- 5 | Valley | 0.01 |
| 5-10 | | 0.01 |
| 10-15 | | 0.06 |
| 15-20 | Fill. | 0.09 |
| 20-25 | | 0.27 |
| 25-30 | | 0.01 |
| 30-35 | ---------- | 0.04 |
| 35-40 | | 0.10 |
| 40-45 | Golden | 0.05 |
| 45-50 | | 0.03 |
| 50-55 | Peaks | 0.02 |
| 55-60 | | 0.03 |
| 60-65 | Lode. | 0.02 |
| 76-70 | | 0.02 |
| 70-74 | ---------- | 0.03 |
| | Upper Ridges Breccia. | |
| **Borehole C40.** | **Depth - 125 feet.** | |
| 0- 2 | Fill. | 0.08 |
| 2- 5 | ---------- | 0.08 |
| 5-10 | | 0.07 |
| 10-15 | Golden | 0.01 |
| 15-20 | | 0.03 |
| 20-25 | | 0.36 |
| 25-30 | | 0.06 |
| 30-35 | Peaks | 0.03 |
| 35-40 | | 0.06 |
| 40-45 | | 0.02 |
| 45-50 | Lode. | 0.03 |
| 50-55 | | tr. |
| 55-60 | | 0.13 |
| 60-65 | | 0.04 |
| 65-70 | | 0.02 |
| 70-75 | | 0.02 |
| 75-80 | | 0.03 |
| 80-85 | | 0.04 |
| 85-90 | ---------- | tr. |
| 90-95 | | 0.01 |
| 95-100 | Ctibanda | 0.07 |
| 100-105 | | 0.05 |
| 105-110 | Lake | 0.03 |
| 110-115 | | tr. |
| 115-120 | Beds. | tr. |
| 120-125 | | tr. |

| Depth (feet) | Rock type and Formation | Assay (ounce per ton) |
|---|---|---|
| **Borehole C41.** | **Depth - 135 feet.** | |
| 0- 2 | Otibanda | 0.07 |
| 2- 5 | | 0.23 |
| 5-10 | | 0.15 |
| 10-15 | Lake | 0.28 |
| 15-20 | | 0.34 |
| 20-22½ | | 0.11 |
| 22½-25 | Beds. | 0.07 |
| 25-30 | | 0.06 |
| 30-35 | | 0.13 |
| 35-40 | | 0.06 |
| 40-45 | | 0.10 |
| 45-50 | | 0.42 |
| 50-55 | Golden | 0.42 |
| 55-60 | | 0.38 |
| 60-65 | | 0.35 |
| 65-70 | | 0.33 |
| 70-75 | Peaks | 0.08 |
| 75-80 | | 0.06 |
| 80-85 | | 0.065 |
| 85-90 | | 0.06 |
| 90-95 | Lode. | 0.10 |
| 95-100 | | 0.05 |
| 100-105 | | 0.22 |
| 105-110 | | 0.04 |
| 110-115 | | 0.02 |
| 115-120 | Upper | 0.03 |
| 120-125 | Ridges | 0.01 |
| 125-130 | | tr. |
| 130-135 | Breccia. | 0.01 |
| **Borehole C42.** | **Depth - 65 feet.** | |
| 0- 2 | Golden | 0.10 |
| 2- 5 | | 0.04 |
| 5-10 | | 0.43 |
| 10-15 | | 0.02 |
| 15-20 | Peaks | 0.03 |
| 20-25 | | 0.02 |
| 25-30 | | 0.02 |
| 30-35 | | 0.03 |
| 35-40 | Lode. | 0.02 |
| 40-45 | | 0.01 |
| 45-50 | | 0.03 |
| 50-55 | | 0.02 |
| 55-60 | | 0.01 |
| 60-65 | Upper Ridges Breccia. | 0.02 |
| **Borehole C43.** | **Depth - 68 feet.** | |
| 0- 2 | Golden | 0.17 |
| 2- 5 | | 0.14 |
| 5-10 | | 0.25 |
| 10-15 | | 0.11 |
| 15-20 | Peaks | 0.17 |
| 20-25 | | 1.91 |
| 25-30 | | 1.38 |
| 30-35 | | 0.46 |
| 35-40 | Lode. | 1.60 |
| 40-45 | | 0.64 |
| 45-50 | | 0.25 |
| 50-55 | Upper | 0.05 |
| 55-60 | Ridges | 0.01 |
| 60-65 | | 0.02 |
| 65-68 | Breccia. | tr. |

| Depth (feet) | Rock type and Formation | Assay (ounces per ton) |
|---|---|---|
| **Borehole C44.** | **Depth - 75 feet.** | |
| 2- 5 | Probably | |
| 5-10 | Valley | Not |
| 10-15 | | assayed. |
| 15-20 | Fill. | |
| 20-25 | | |
| 25-30 | | 0.07 |
| 30-35 | Golden | 0.03 |
| 35-40 | | 0.02 |
| 40-45 | Peaks | 0.07 |
| 45-50 | | 0.08 |
| 50-55 | | 0.14 |
| 55-60 | Lode. | 0.05 |
| 60-65 | | 0.03 |
| 65-70 | | 0.05 |
| 70-75 | Upper Ridges Breccia. | 0.07 |
| **Borehole C45.** | **Depth - 65 feet.** | |
| 2- 5 | Valley | 0.02 |
| 5-30 | fill. | No assay. |
| 30-35 | | 0.09 |
| 35-40 | Golden | 0.05 |
| 40-45 | Peaks | No assay. |
| 45-50 | | 0.01 |
| 50-55 | Lode. | 0.02 |
| 55-60 | | 0.02 |
| 60-65 | Upper Ridges Breccia. | 0.01 |
| **Borehole C46.** | **Depth - 105 feet.** | |
| 2- 5 | Overburden | 0.06 |
| 5-10 | | 0.03 |
| 10-15 | Valley | 0.02 |
| 15-20 | | 0.01 |
| 20-25 | Fill. | 0.01 |
| 25-30 | | 0.09 |
| 30-35 | | 0.70 |
| 35-40 | Golden | 0.33 |
| 40-45 | | tr. |
| 45-50 | | 0.03 |
| 50-55 | | tr. |
| 55-60 | Peaks | 0.02 |
| 60-70 | | 0.02 |
| 70-75 | | 0.03 |
| 75-80 | Lode. | 0.16 |
| 80-85 | | 0.11 |
| 85-90 | | 0.07 |
| 90-95 | | 0.05 |
| 95-100 | | 0.11 |
| 100-105 | Upper Ridges Breccia. | 0.06 |

Borehole C47. Elevation 4265 feet. Depth - 95 feet.

| Depth (feet) | Rock type and Formation | Values Est. Grains per cu.yd. | Values Assay Ounces per ton |
|---|---|---|---|
| 2- 5 | | | 0.01 |
| 5-10 | Overburden | | 0.02 |
| 10-15 | | | 0.01 |
| 15-20 | | 1.5 | 0.03 |
| 20-25 | Otibanda | 4.1 | 0.02 |
| 25-30 | | 9.0 | 0.07 |
| 30-35 | Lake | 16.0 | 0.24 |
| 35-40 | | 11.7 | 0.28 |
| 40-45 | Beds. | 9.1 | 0.12 |
| 45-50 | | 4.4 | 0.07 |
| 50-55 | | 4.9 | 0.02 |
| 55-60 | | 4.7 | 0.19 |
| 60-65 | Golden | | 0.19 |
| 65-70 | | | 0.06 |
| 70-75 | Peaks | | 0.09 |
| 75-80 | Lode. | | 0.24 |
| 80-85 | | | 0.11 |
| 85-90 | Upper Ridges Breccia. | | 0.07 |
| 90-95 | | | 0.02 |

Borehole C48. Elevation 4158 feet. Depth - 70 feet.

| | | |
|---|---|---|
| 2- 5 | | 0.01 |
| 5-10 | Fill. | 0.01 |
| 10-15 | | 0.02 |
| 15-20 | | 0.01 |
| 20-25 | Otibanda | 0.01 |
| 25-30 | | 0.02 |
| 30-35 | | 0.01 |
| 35-40 | Lake | 0.01 |
| 40-45 | | 0.02 |
| 45-50 | Beds. | 0.04 |
| 50-55 | | - |
| 55-60 | | - |
| 60-65 | | - |
| 65-70 | | - |

Borehole C49. Elevation 4270 feet. Depth - 50 feet.

| | | | |
|---|---|---|---|
| 2- 5 | Surface slip material | | 0.02 |
| 5-10 | | | 0.05 |
| 10-15 | Coarse gold. | Otibanda | 0.05 |
| 15-20 | | | 0.03 |
| 20-25 | | | 0.03 |
| 25-30 | | Lake | 0.02 |
| 30-35 | | | 0.05 |
| 35-40 | | Beds. | 0.02 |
| 40-45 | | | 0.03 |
| 45-50 | | | 0.01 |

| Depth (feet) | Rock type and Formation | Values Est. Grains per cu.yd. | Values Assay Ounces per ton |
|---|---|---|---|
| **Borehole C50. Elevation 4276'. Depth - 95 feet.** | | | |
| 2- 5 | Otibanda Lake Beds. ---------- Probably Golden Peaks Lode. | 20.3 | 0.02 |
| 5-10 | | 4.4 | 0.04 |
| 10-15 | | 6.6 | 0.04 |
| 15-20 | | 6.4 | 0.12 |
| 20-25 | | 6.5 | 0.14 |
| 25-30 | | 3.6 | 0.08 |
| 30-35 | | 4.8 | 0.05 |
| 35-40 | | 27.4 | 0.38 |
| 40-45 | | 5.8 | 0.04 |
| 45-50 | | 3.4 | 0.07 |
| 50-55 | | 6.3 | 0.07 |
| 55-60 | | 3.3 | 0.13 |
| 60-65 | | 30.1 | 0.12 |
| 65-70 | | 40.7 | 0.19 |
| 70-75 | | 98.8 | 0.46 |
| 75-80 | | 14.9 | 0.39 |
| 80-85 | | 33.8 | 0.20 |
| 85-90 | | 4.6 | 0.05 |
| 90-95 | | 16.5 | 0.13 |
| **Borehole C51. Elevation 4270 feet. Depth - 100 feet.** | | | |
| 2- 5 | Otibanda Lake Beds | | 0.01 |
| 5-10 | | | 0.02 |
| 10-15 | | | 0.01 |
| 15-20 | | | 0.02 |
| 20-25 | | | 0.02 |
| 25-30 | | | 0.09 |
| 30-35 | (some possible petrified wood) | | 0.05 |
| 35-40 | | | 0.02 |
| 40-45 | | | 0.05 |
| 45-50 | | | 0.03 |
| 50-55 | | | 0.04 |
| 55-60 | | | 0.04 |
| 60-65 | | | 0.02 |
| 65-70 | | | 0.05 |
| 70-75 | | | 0.06 |
| 75-80 | | | 0.06 |
| 80-85 | | | 0.06 |
| 85-90 | | | tr. |
| 90-95 | | | 0.02 |
| 95-100 | | | 0.01 |

## APPENDIX II

## PERCUSSION DRILL LOGS

## NAMIE RIDGE DRILLING

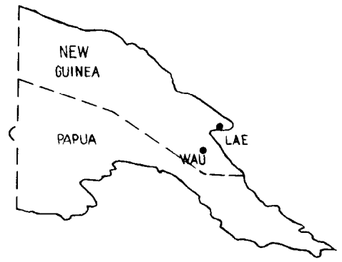
| Borehole | Depth (feet) | Rock type | Gold Values (ounces per ton) |
|---|---|---|---|
| D1 | 0- 2 | | 0.03 |
| | 2- 5 | | 0.05 |
| | 5-10 | Valley | 0.06 |
| | 10-15 | | 0.03 |
| | 15-20 | | 0.07 |
| | 20-25 | | 0.01 |
| | 25-30 | | 0.02 |
| | 30-35 | | 0.01 |
| | 35-40 | Fill. | tr. |
| | 40-45 | | tr. |
| | 45-50 | | tr. |
| | 50-55 | | tr. |
| | 55-60 | | tr. |
| | 60-62 | | tr. |
| D2 | 2- 5 | | 0.03 |
| | 5-10 | Surface scree. | 0.01 |
| | 10-15 | | 0.03 |
| | 15-20 | | tr. |
| | 20-25 | | 0.01 |
| | 25-30 | Golden | 0.02 |
| | 30-35 | | 0.01 |
| | 35-40 | | 0.04 |
| | 40-45 | | 0.22 |
| | 45-50 | | 0.09 |
| | 50-55 | Peaks | 0.03 |
| | 55-60 | | 0.05 |
| | 60-65 | | 0.06 |
| | 65-70 | | 0.08 |
| | 70-75 | | 0.57 |
| | 75-80 | Lode. | 0.14 |
| | 80-85 | | 0.09 |
| | 85-90 | | 0.03 |
| | 90-95 | | 0.02 |
| | 95-100 | | 0.01 |
| | 100-105 | | tr. |
| | 105-110 | | tr. |
| | 110-115 | Upper Ridges Breccia. | tr. |
| D3 | 2- 5 | | 0.12 |
| | 5-10 | Surface scree. | 0.03 |
| | 10-15 | | 0.01 |
| | 15-20 | | 0.02 |
| | 20-25 | | 0.04 |
| | 25-30 | Golden | 0.03 |
| | 30-35 | | 0.03 |
| | 35-40 | | 0.70 |
| | 40-45 | Peaks | 0.01 |
| | 45-50 | | 0.05 |
| | 50-55 | | 0.01 |
| | 55-60 | Lode. | 0.01 |
| | 60-65 | | 0.05 |
| | 65-70 | | 0.05 |
| | 70-75 | | 0.04 |

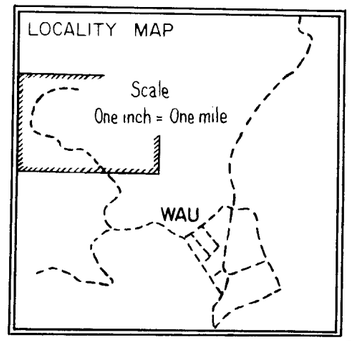
| Borehole | Depth (feet) | Rock type | Gold Values: Amalgamation (Grains per cu.yd.) | Gold Values: Assay (ounces per ton) |
|---|---|---|---|---|
| D3 (contd.) | 75-80 | Golden | | 0.03 |
| | 80-85 | Peaks | | 0.04 |
| | 85-90 | | | 0.05 |
| | 90-95 | Lode. | | 0.02 |
| | 95-100 | | | 0.16 |
| | 100-105 | | | tr. |
| | 105-110 | Upper | | 0.05 |
| | 110-115 | Ridges | | 0.23 |
| | 115-120 | Breccia. | | 0.01 |
| | 120-125 | | | 0.01 |
| D4 | 2- 5 | | | 0.01 |
| | 5-10 | Surface | | 0.08 |
| | 10-15 | scree. | | 0.32 |
| | 15-20 | | | 0.05 |
| | 20-25 | | | 0.30 |
| | 25-30 | Golden | | 0.01 |
| | 30-35 | | | 0.02 |
| | 35-40 | | | 0.01 |
| | 40-45 | Peaks | | 0.05 |
| | 45-50 | | | 0.01 |
| | 50-55 | | | 0.01 |
| | 55-60 | | | 0.09 |
| | 60-65 | Lode. | | 0.11 |
| | 65-70 | | | 0.03 |
| | 70-75 | | | 0.04 |
| | 75-80 | Upper | | 0.04 |
| | 80-85 | Ridges | | 0.01 |
| | 85-90 | Breccia. | | 0.05 |
| D5 | 2- 5 | | 0.46 | 0.06 |
| | 5-10 | | 0.97 | 0.03 |
| | 10-15 | Valley | 0.21 | 0.02 |
| | 15-20 | | 0.57 | 0.02 |
| | 20-25 | | 3.1 | 0.04 |
| | 25-30 | Fill. | 0.86 | 0.02 |
| | 30-35 | | 0.93 | 0.07 |
| | 35-40 | | 2.4 | 0.14 |
| | 40-45 | | 7.6 | 0.11 |
| | 45-50 | Golden | 12.5 | 0.05 |
| | 50-55 | | 17.7 | 0.13 |
| | 55-60 | | 11.9 | 0.10 |
| | 60-65 | Peaks | 10.0 | 0.07 |
| | 65-70 | | 6.8 | 0.04 |
| | 70-75 | | 5.0 | 0.06 |
| | 75-80 | | 23.5 | 0.05 |
| | 80-85 | Lode. | - | tr. |
| | 85-90 | | - | 0.07 |
| | 90-95 | | - | 0.02 |
| | 95-100 | | - | |
| D6 | 0-10 | | 0.005 | 0.01 |
| | 10-20 | | 0.007 | 0.01 |
| | 20-30 | Probably | 0.76 | 0.02 |
| | 30-40 | | 1.4 | 0.02 |
| | 40-45 | | 1.4 | 0.06 |
| | 45-50 | Valley | 1.0 | 0.03 |
| | 50-55 | | 0.32 | 0.01 |
| | 55-60 | | 5.2 | 0.01 |
| | 60-65 | Fill. | 10.8 | 0.14 |
| | 65-70 | | 3.0 | 0.04 |
| | 70-75 | | 1.0 | 0.02 |
| | 75-80 | | 1.0 | 0.01 |
| | 80-93 | Upper Ridges Breccia. | - | tr. |

| Borehole | Depth (feet) | Rock type | Gold Values: Amalgamation (Grains per cu.yd.) | Gold Values: Assay (ounces per ton) |
|---|---|---|---|---|
| D7 | 0- 5 | Surface scree. | 5.20 ) | |
| | 5-10 | | 2.40 ) | 0.10 |
| | 10-15 | | 5.70 ) | |
| | 15-20 | | 0.84 | 0.05 |
| | 20-25 | | 0.81 | 0.02 |
| | 25-30 | | 0.49 | 0.01 |
| | 30-35 | Golden | 1.33 | 0.03 |
| | 35-40 | | 3.50 | 0.01 |
| | 40-45 | | 12.20 | 0.12 |
| | 45-50 | | 7.30 | 0.06 |
| | 50-55 | | 10.20 | 0.09 |
| | 55-60 | Peaks | 18.90 | 0.20 |
| | 60-65 | | 20.70 | 0.07 |
| | 65-70 | | 51.80 | 0.08 |
| | 70-75 | | 3.80 | 0.02 |
| | 75-80 | | 6.90 | 0.02 |
| | 80-85 | Lode. | 0.63 | 0.03 |
| | 85-90 | | 0.76 | 0.02 |
| | 90-95 | | 0.84 | 0.01 |
| | 95-100 | | tr. | 0.01 |
| | 100-105 | | tr. | 0.01 |
| | 105-110 | | tr. | 0.01 |
| | 110-115 | | tr. | tr. |
| | 115-120 | | tr. | tr. |
| | 120-125 | | tr. | tr. |
| | 125-130 | | tr. | tr. |
| D8 | 0- 5 | Surface scree | 1.26 | 0.01 |
| | 5-10 | | 1.54 | 0.06 |
| | 10-15 | Alluvium | 0.72 | 0.06 |
| | 15-20 | | 1.84 | 0.06 |
| | 20-25 | | 1.65 | 0.06 |
| | 25-30 | | - | 0.02 |
| | 30-35 | Golden | 6.46 | 0.12 |
| | 35-40 | Peaks | 12.7 | 0.24 |
| | 40-45 | | 22.64 | 0.23 |
| | 45-50 | Lode. | 14.65 | 0.20 |
| | 50-55 | | - | 0.07 |
| | 55-60 | Upper | - | 0.04 |
| | 60-65 | Ridges | - | 0.04 |
| | 65-70 | Breccia. | - | 0.10 |
| | 70-75 | Golden | 5.37 | 0.13 |
| | 75-80 | Peaks | 4.26 | 0.22 |
| | 80-85 | Lode. | 1.28 | 0.15 |
| | 85-90 | Upper | 1.52 | 0.07 |
| | 90-95 | Ridges | 1.52 | 0.04 |
| | 95-100 | | 3.77 | 0.10 |
| | 100-105 | Breccia. | 6.02 | 0.09 |
| | 105-110 | | 10.73 | 0.09 |

| Borehole | Depth (feet) | Rock type | Assay (ounces per ton) |
|---|---|---|---|
| D9 | 0- 5 | Surface | 0.09 |
| | 5-10 | scree. | 0.06 |
| | 10-15 | | 0.10 |
| | 15-20 | | 0.10 |
| | 20-25 | | 0.15 |
| | 25-30 | Valley | 0.23 |
| | 30-35 | | 0.05 |
| | 35-40 | | 0.04 |
| | 40-45 | | 0.04 |
| | 45-50 | fill. | 0.04 |
| | 50-55 | | 0.03 |
| | 55-60 | | 0.05 |
| | 60-65 | | 0.07 |
| | 65-70 | | 0.04 |
| | 70-75 | | 0.03 |
| | 75-80 | | 0.07 |
| | 80-85 | | 0.02 |
| | 85-90 | | 0.05 |
| | 90-95 | | 0.03 |
| | 95-100 | | 0.03 |
| D10 | 0- 5 | | 0.05 |
| | 5-10 | Valley | 0.03 |
| | 10-15 | | 0.02 |
| | 15-20 | | 0.05 |
| | 20-25 | | 0.02 |
| | 25-30 | | 0.04 |
| | 30-35 | fill. | 0.06 |
| | 35-40 | | 0.02 |
| | 40-45 | | 0.03 |
| | 45-50 | | 0.05 |
| | 50-55 | | 0.02 |
| | 55-60 | | 0.04 |
| | 60-65 | | 0.02 |
| | 65-70 | | 0.08 |
| | 70-75 | | 0.09 |
| | 75-80 | | 0.05 |
| | 80-85 | | 0.10 |
| | 85-90 | | 0.15 |
| | 90-95 | | 0.12 |

Plate 1




GOLDEN GATES DRILLING PLATE 4

PLATE 5

PRYKES FACE DRILLING PLATE 3

PLATE 7

NAMIE RIDGE DRILLING PLATE 8

GOLDEN PEAKS DRILLING

Namie Creek

Koranga Creek

Otibanda Lake Beds

Lower Edie Porphyry

Lake Beds

Namie Breccia

Withburns Creek

Anderson's Creek

Drilling Road

Kaindi Metamorphics

Lower Edie Porphyry

Koranga Volcanics

Mag. N

# LOCALITY MAP

# WAU DISTRICT

SCALE

500 0 500 1000 1500 Feet.

Geological Office, Wau, N.G

To accompany Records 1963/83

B55/14/3

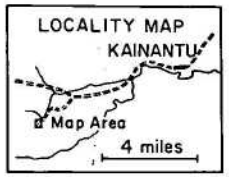
L.K.

Plate 2

# PERCUSSION DRILLING
# BAROLA CREEK

Scale
100 0 200 400 Miles

REFERENCE
- Geological boundary
- 7 Percussion drill hole







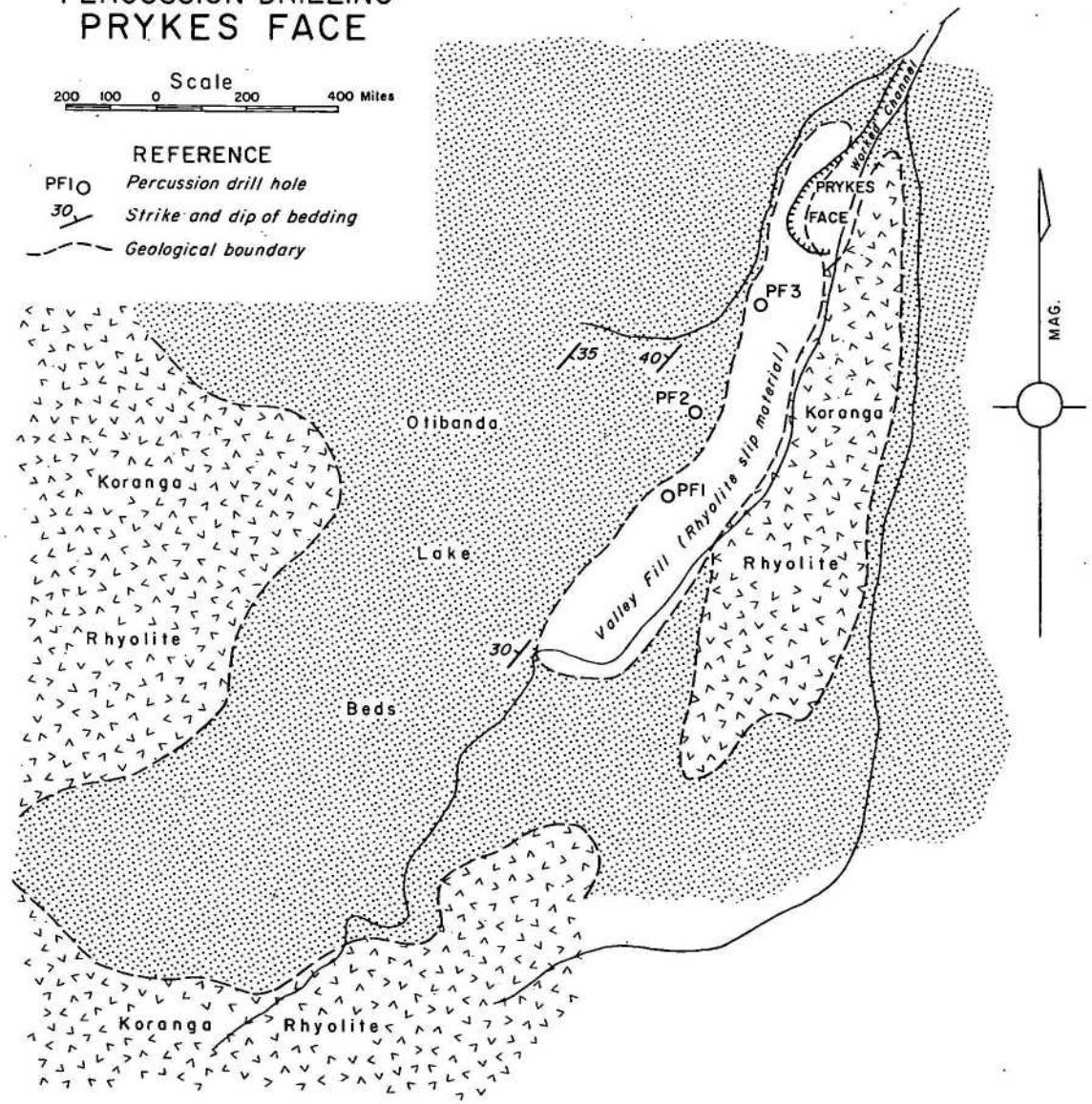
Geological Office, Wau, N.G. To accompany Record 1963/83. B55/14/4

Plate 3

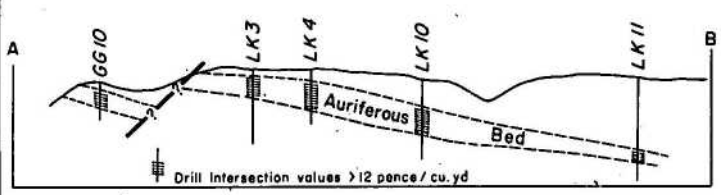
# PERCUSSION DRILLING
# PRYKES FACE

Scale
200 100 0 200 400 Miles

REFERENCE
- PF1 Percussion drill hole
- 30 Strike and dip of bedding
- Geological boundary




Geological Office, Wau, N.G. To accompany Record 1963/83. B55/14/5 EJ




SECTION A-B

Vertical and Horizontal Scales 1" = 200'




# PERCUSSION DRILLING
# GOLDEN GATES LEASES

SCALE

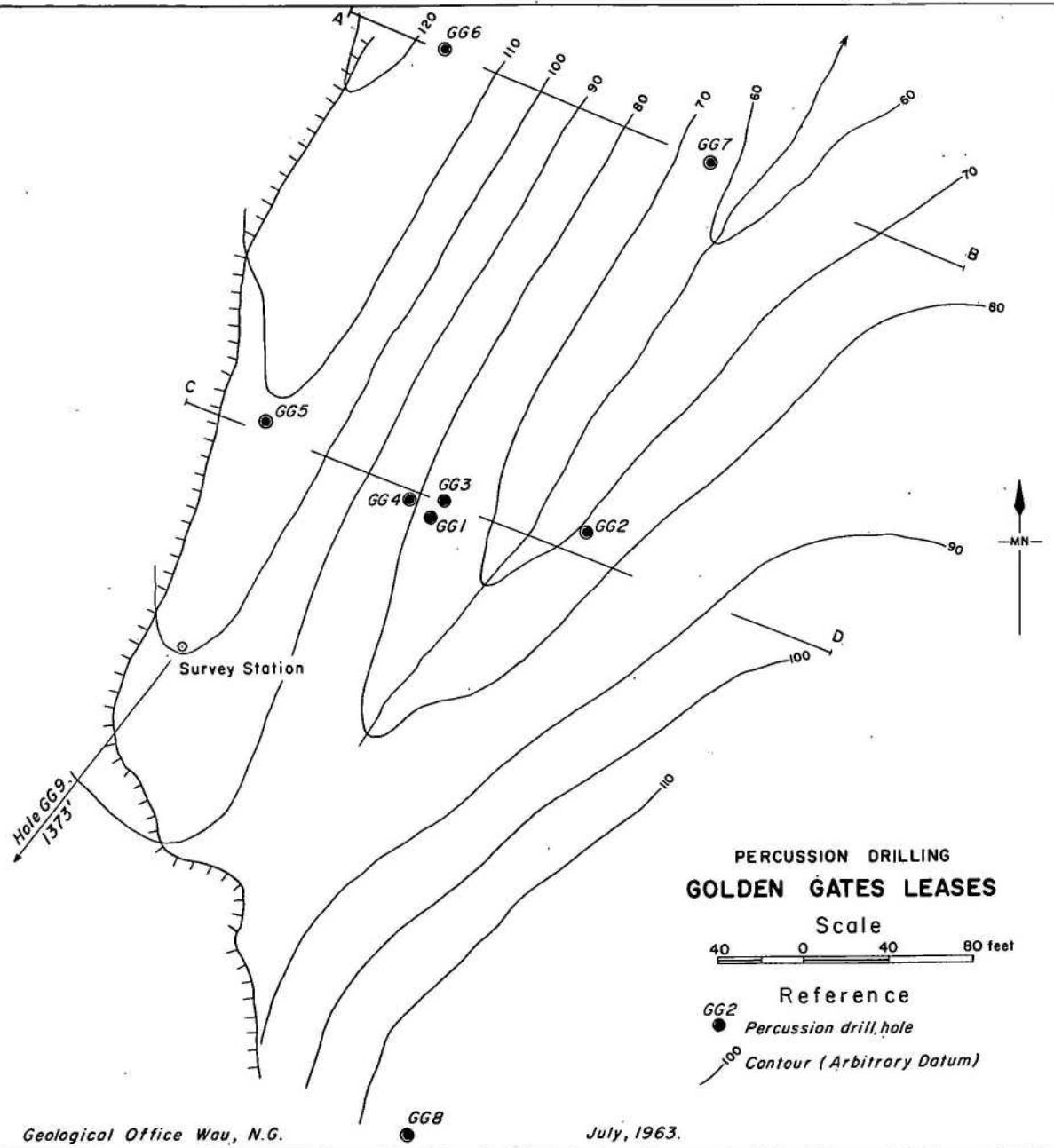
200 0 200 400 feet

## REFERENCE

GG3 — Hole drilled during Golden Gates Programme.

LK2 — Hole drilled in 1960 during the Lower Koranga Programme.

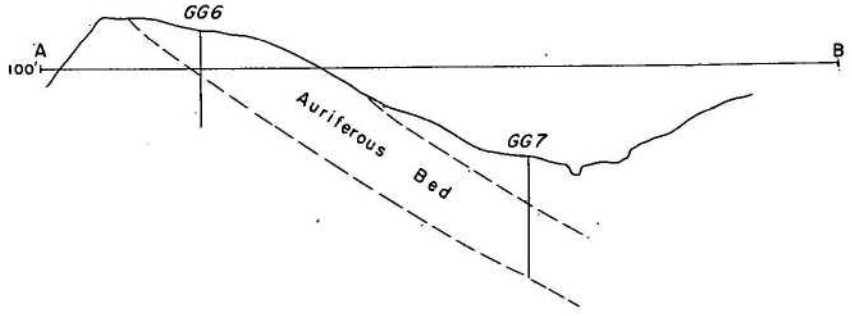
Geological Office, Wau, N.G July 1963 To accompany Record 1963/83 B55/14/6



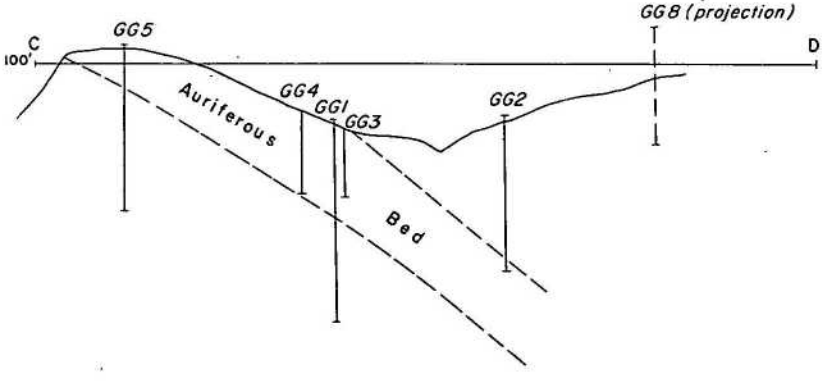

Geological Office Wau, N.G. July, 1963.

Plate 5

# SECTIONS




Scale
40 0 40 80 feet




To accompany Record 1963/83.

B 55/14/7

PLATE 6

# PERCUSSION DRILLING
# SCHRATERS CREEK

SCALE

40 0 40 80 feet

MN

6660 6670 6680 6690 6700 6710 6720

To Wau

Gravels Mined in 1952

45

35

6654

6660

6637'

Pre-War Adit

"RIDGE TOP" GRAVELS

SH1 SH2 SH3 SH4 SH5 SH6 SH7 SH8 SH9 SH10 SH11 SH12 SH13

Reputed Gravels (Approx. Pos.)

SLIP

footpath

6800 6790 6780 6770 6760 6750 6740 6730 6720 6710

Possible Schraters Creek Fault

Tunnel

Edie Creek

© SURVEY PEG

"LEAD" "DEEP"

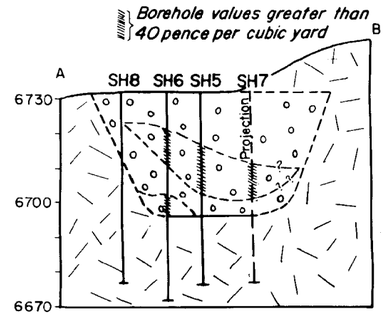
6640 6650 6660 6670 6680 6690 6700

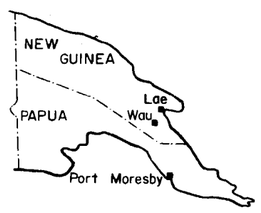
## REFERENCE

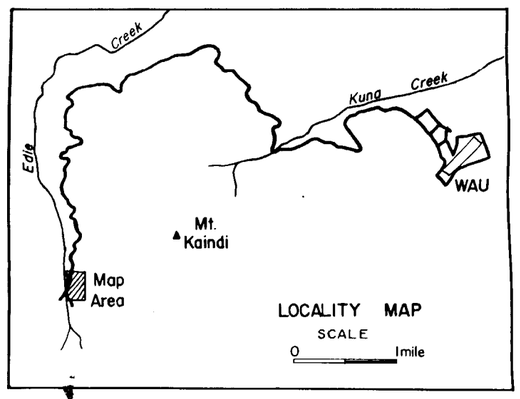
- Upper Edie Porphyry
- Alluvium, mainly gravels
- ? Inferred fault
- Geological boundary
- Footpath
- 6710 Contour. Reduced Level of Datum peg chosen arbitrarily
- Road
- SH9 Percussion Drill Hole
- Strike and dip

## SECTION A-B
(Ridge-Top Gravels)

Borehole values greater than 40 pence per cubic yard




Geological Office, Wau, N.G.

To Accompany Records 1963/83

B55/14/8 L.K.

Reduce AB to AC (18")

# PERCUSSION DRILLING GOLDEN PEAKS

PLATE 7

Namie Creek

Anderson's Creek

Bourke Creek

GOLDEN PEAKS OPEN CUT

4317 4265 4283 4305 4328

1 2 3 4 5 6 7 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48

45° 55° 40° 40° 20° 25°

N

SCALE

0 50 100 200

FEET

## REFERENCE

PLEISTOCENE-RECENT
- Rhyolitic breccia
- Rhyolite flow
- Lake beds

UPPER MIOCENE ? — Namie Breccia
- Oxidized
- Unoxidized

PALAEOZOIC ? — Kaindi Metamorphics

IGNEOUS INTRUSIONS TERTIARY UPPER MIOCENE ?
- Lower Edie Porphyry

Geological boundary, pos. approx.

Geological boundary inferred

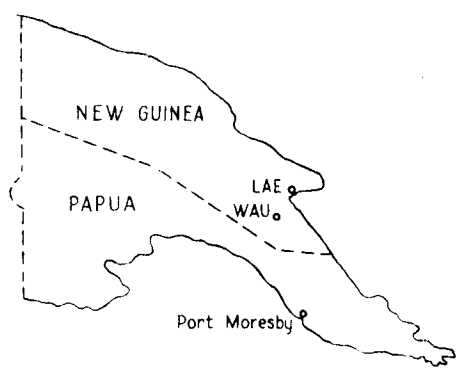
Strike and dip of bedding (T 40)

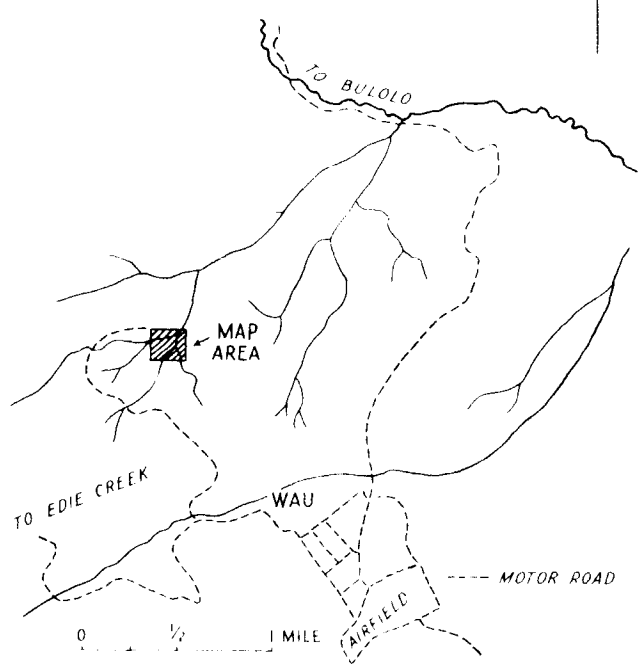
Fault

Shear zone

Percussion drill hole

Spot height

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To accompany Records 1963/83

B 55-14-9

G.M.

PLATE 8

# PERCUSSION DRILLING

# NAMIE RIDGE

SCALE

40 0 80 160 Feet

## Reference

D3 ● *Percussion Drill Hole*

*Bulldozed Costean*

MAG. N

Kaindi Metamorphics

COVER

SOIL

DEEP

RIDGE

Creek

Whitburns

Mineralised

GR2 (1959)

Breccia (?ore)

Valley Fill

Probable Valley_Fill

Possible Shear Zone

Lower Edie Porphyry

No 3 DAM

Andersons Creek

D1 D2 D3 D4 D5 D6 D7 D8 D9 D10

GR3 (1959)

GR1 (1959)

Road

To Wau

NEW GUINEA

PAPUA

LAE

WAU

Port Moresby

LOCALITY MAP

Map Area

1 inch to 1 Mile

WAU

*Geological Office, Wau, N.G.*

*To accompany Record 1963/83*

B55/14/10

L.K.