REPORT ON THE ALLUVIAL TIN BEARING AREA HELD BY PORTLAND HOLDINGS PTY. LTD. ON THE GREAT NORTHERN PLAIN NEAR GLADSTONE IN NORTH-EASTERN TASMANIA

By P.B. Nye.

1. INTRODUCTION

Portland Holdings Pty. Ltd. is a prospecting company and Mr. W. St.C. Manson is the principal shareholder.

The company holds an area of 1687 acres either under mineral leases or applications for mineral leases.

The leases are situated in the Great Northern Plain and during the past 18 months Portland Holdings has carried out testing operations, mainly of an exploratory type, on the alluvial tin deposits.

This report has been prepared primarily to describe the testing operations of Portland Holdings and the results thereof. The results of the testing were shown by Portland Holdings in tabular form and also on a plan based on the mineral chart Tomahawk 2 and showing the positions of the test holes and their depths and grades. It was essential to show the testing on a map showing other features and particularly the old tin workings.

The writer has visited some, but not all, of the test holes and places. Some positions have been checked in the field and others discussed at length with Mr. W. St.C. Manson. The depths and grades in the test holes as given by Mr. Manson have been adopted for the purposes of this report.

This report should be read in conjunction with the writer's 1932 report which described the old workings and the earlier drilling campaigns, but which are not described in this report.

The geological map has been altered slightly in accordance with information on a map of the Fosters Marsh - Great Northern Plains Area supplied by the Tasmanian Department of Mines, and information obtained by the writer in the field during the past two years.

2. LOCATION AND ACCESS

The Great Northern Plain is situated in north-eastern Tasmania. The Plain is a considerable tract of country to the north and east of the Ringarooma River and a few miles to the north-west of the township of Gladstone. The leases are situated between 2.5 and 4.5 miles from Gladstone.

Gladstone is connected with the road system of Tasmania. Its main connection is with the city, port and air centre of Launceston. It is connected by road, 18 miles long, with Herrick, the terminus of the railway from Launceston. Gladstone is connected also by road with the small port of St. Helens on the eastern coast, and situated some 60 miles by road to the south.

3. MINING TENEMENTS

The Tasmanian Department of Mines mineral chart Tomahawk 2 shows that Portland Holdings has 27 leases with an aggregate area of 1687 acres. Of these six with an aggregate area of 345 acres are mineral leases.

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3. MINING TENEMENTS (Contd.)

The other 21 leases with an aggregate area of 1342 acres are shown as lease applications.

4. PREVIOUS LITERATURE

The two most important reports on the area are

Twelvetrees W.H. The Gladstone Mineral District, Tas. Geol. Sur. Bull No. 25, 1916.

Nye, P.B. Report on Proposed Restoration of Syphon at Site of old No. 6 Syphon. Mount Cameron Water Race, Tas. Mines Dept. 4/7/32 (typewritten).

5. GEOLOGY

SILURIAN-DEVONIAN. These rocks were formerly regarded as being of Cambro-Ordovician age and consisting of slates and quartzites. They are now regarded as the arenite-lutite association which is part of the Mathinna Beds and of Silurian-Devonian age (Jour. Geol. Soc. Aust. Vol. 9 Part 2, 1962).

These rocks crop out in the southern part of the area and form the bedrock of that part of the Plain.

GRANITE. The granite is intrusive into the Silurian-Devonian sedimentary rocks and in common with similar granites in N.E. Tasmania, is considered to be of Upper Devonian to Lower Carboniferous in age (Tas. Geol. Surv. Bull. No. 50, 1967).

Granite crops out to a small extent, but has been exposed in the bottom of the group of workings including the Canary and Roy, in the south-eastern part of the area under review.

PERMIAN. Permian sedimentary rocks crop out to the north-east of the area. Within the area under review, cemented grits and fine conglomerates are present in the north-eastern portion of lease 120M/70 and in the adjacent portions of the leases to the north. These rocks could be part of the Permian System of the region. Alternatively, they could be part of the upper portion of the Lower Tertiary drifts.

JURASSIC. Dolerite crops out in two places in the south-western and north-eastern parts of the area. It crops out also outside the south-western part and on a more extensive scale to the north-east of the area. Dolerite has been exposed in the bottom of Higgs workings, and has been intersected in Carey's line of bores, in Minefields Exploration bore-holes Nos. 1 to 4 and in Portland Holdings back-hoe holes B.I.A., B.I.B. and B.3 in the same locality.

The above outcrops, etc. probably indicate the south-eastern portion of a body of dolerite extending in a general north-easterly direction along the north-western part of the area.

In the area where the dolerite bedrock was intersected by Minefields Exploration and Portland Holdings back-hole holes, the upper part of the dolerite is completely weathered, but the amount of weathering decreases fairly rapidly with depth as far as the dolerite has been penetrated. The

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5. GEOLOGY

JURASSIC (Contd.)

completely weathered dolerite is whitish with a light green tinge and shows a grain like that of the unweathered dolerite.

LOWER TERTIARY. In lower Tertiary time, the land subsided relative to the sea, and sediments were deposited in the valleys of streams flowing easterly and northerly from the eastern flank of the Mount Cameron Range. Gravels, grits, sands clays and carbonaceous material were deposited and these form the "drifts" of the Great Northern Plain. The sediments filled the valleys of the streams and either covered or nearly covered the ridges between many of the streams.

In the area under review, one in-filled valley with a north-westerly trend has been proved by the old workings and past drilling campaigns to pass through the MacGregor workings. Another in-filled valley trends northerly through the western end of the Aberfoyle workings and another trends north-westerly through the eastern end of the Aberfoyle workings. The latter two probably unite and the combined valley trends north-westerly either parallel to that through the MacGregor workings or becomes a tributary to the latter. An in-filled valley revealed on a seismic survey line about one mile to the north-west of the MacGregor workings probably represents the continuation of that passing beneath the MacGregor workings.

The northern part of the area under review probably contains the ridge between the above in-filled stream system and that to the east, because there seems to be an absence of drifts and possibly outcrops of bedrock (dolerite and probably Permian and Silurian-Devonian sedimentary rocks) in that part. The next in-filled valley to the east, namely the Scoloch deep lead has been proved by boring for about four miles.

At the heads of the in-filled valleys, the sediments are fluviatile, but further down the valleys, sand becomes common and it is possible that estuarine or marine conditions existed during at least part of the period of sedimentation.

PLEISTOCENE AND RECENT. Similar conditions of subsidence and sedimentation occurred in Lower Tertiary time in the Ringarooma River stream system. After the basalt flows which followed the sedimentation in the latter system, the Ringarooma River developed its course on the south-eastern side of its former valley and broke through a low saddle at the southern end of the Mount Cameron Range and entered the catchment of the stream system east of that Range. The river established its course generally along the western side of the in-filled valleys east of the Range.

The Ringarooma River eroded its course through the Lower Tertiary sediments and by the Pleistocene time had become established more or less in its present course. Beds of shingle were deposited along the Ringarooma River for most of its length and including the area under review.

Later, Recent alluvium, etc. were formed along the present course of the River.

6. ECONOMIC GEOLOGY

The main mineral deposits are those of tin, but gold is present to a slight extent. The main tin deposits are secondary ones and include the Lower Tertiary drifts and deep leads. Some primary tin and gold deposits occur but have been worked to only a slight extent.

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6. ECONOMIC GEOLOGY (Contd.)

The primary tin deposits are not numerous or large as so far known. They would probably not account for a large proportion of the tin ore (cassiterite) in the secondary deposits, and it is possible that much of the tin ore has been derived from primary deposits that have been eroded. The primary tin deposits include

(a) Quartz reefs, E.G., the Royal Standard reef at Gladstone and a possible reef near Curnows workings as indicated by boulders of tin-bearing quartz in those workings.

(b) Greisen veins in granite

(c) Tin bearing aplitic granite, e.g., Fly-by-Night near Gladstone

The only primary gold deposit within or close to the area is the Royal Standard reef at Gladstone.

The main secondary deposits worked to date are the upper parts of the drifts of the Great Northern Plains. Pleistocene to Recent deposits along the Ringarooma River have been worked by the Storey's Creek Company's dredge until recently, and also to a slight extent by sluicing in the past.

In-filled valleys or deep leads exist in the district in general and also in the area under review. They have not been tested as deep leads or worked as such except in the upper and shallowest portions of such leads as the Lochaber, Scotia and Doone outside the area under review, and the Black Duck lead (Wainwright and Richardson's workings) within the area under review.

The deep leads within the area will be described in the next section.

7. DEEP LEADS

The largest workings in the area under review are Beltz, MacGregor, Mallinsons or Higgs and Aberfoyle. In general the depth worked ranged from 10 to 16 feet and the bottom of the working was fine sand. In the western part of the Aberfoyle workings, and in Curnows workings, the ground is 35 and 50 feet deep respectively. Deep ground has also been proved elsewhere in this vicinity. The No. 6 line of Government bores in 1902 put down in the bottom of the MacGregor workings had depths ranging from 10 to 58 feet, thus proving ground up to a maximum depth of 70 feet. Further to the north the north-western-most hole in Carey's line proved ground 47 feet deep.

The in-filled valleys at the MacGregor and Aberfoyle have been described in Section 5 (Geology). In this report that through the MacGregor workings will be termed the MacGregor Lead and those through the Aberfoyle workings the Aberfoyle lead. These leads may trend parallel to the north-west, but more likely join. The combined lead will be termed the MacGregor lead, and its probable north-western continuation was probably that deep lead cut on the seismic survey line.

To the south-east, the upper part of the MacGregor lead could be that shown in Richardson's workings, but its course could be very different from that shown on Plate 1. A large portion of the lead has been eroded between the two places.

The MacGregor and Aberfoyle leads have not been tested as deep leads. The Government No. 6 line of drill holes crossed part of the MacGregor lead. Some of the other old drilling campaigns may have been in the leads, but the depths of the holes are not shown.

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7. DEEP LEADS (Contd.)

The grades in the leads are not known beyond the depths of the old workings, and could be proved only by systematic drilling.

8. PAST WORKINGS AND PAST AND PRESENT CONDITIONS ON THE AREA

There are many old workings on the portion of the Great Northern Plain under review. Tin mining started in the late 1870's but was greatly hindered by lack of water supplies. The best means of getting water by gravitation was found to be the Great Mussel Roe River to the south-east. Such a scheme was started by a private company but exhaustion of capital prevented its completion. The Tasmanian Government took over the scheme and completed the race (the Mount Cameron Water Race) in 1887. In 1921 the northern end of the race was disconnected and the water taken across the Ringarooma River to the land on its western side. In 1933 or slightly later, the northern part of the race on the eastern side was restored and water became available again to the Great Northern Plain. Between 1921 and 1933 or 1934 there was little or no working on the Plain, and only a small amount has been carried out since 1934.

The workings on the Great Northern Plain were generally small and were apparently the results of sluicing by individuals, parties and small companies. Most, if not all, of them had to obtain their water for sluicing and elevating from the Mount Cameron water race. It is probable that at times the amount of water available from the race to the operators was limited. Moreover, the pressure heads at the workings were not large because the water races had to be brought across the surface of the Plain. These two factors played a large part in limiting the size of the workings.

Most, if not all, of the workings started at the foot of the slope from the Plain to the alluvial flats along the Ringarooma River. They probably started where the best tin prospects were obtained by prospecting, but at the foot of the slope and in valleys and gullies so that satisfactory tail races could be constructed. Working was conducted by ground sluicing methods. As working progressed, the tail races were above the bottom of some of the tin deposits and elevating became necessary in those places.

In 1932, the writer made a comprehensive survey of the workings in connection with the restoration of the northern part of the Mount Cameron race on the eastern side of the river. At that time it appeared that the conditions would be similar to previous periods of workings and be suitable for individuals and parties. However, the writer's survey showed possible deep leads at the Scotia and Lochaber mines and their continuation across the Great Northern Plain and the Department of Mines subsequently carried out drilling and testing over many years and proved the existence of the Scotia and Lochaber leads and, after their junction, the Scoloch lead over about four miles. The drilling proved also that the lead was tin-bearing. These results showed that the prospects for tin mining on the Plain were considerably greater than before.

Conditions for working are now much more favourable than in the past. The Hydroelectric Commission of Tasmania has extended its system to Gladstone and a transmission line extends onto the easternmost leases of Portland Holdings. Instead of breaking the ground with water from nozzles, many types of equipment are now available for breaking and transporting the ground. Mechanical concentrators are also available. Further, as a

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8. PAST WORKINGS AND PAST AND PRESENT CONDITIONS ON THE AREA (Contd.)

considerable area (1687 acres) are now held by one organisation and includes many of the old workings, instead of the former condition in which many small areas were held by different leases, some consideration may have to be given to the possibility of dredging the area providing of course that experienced dredging engineers decide that such is possible and that sufficient ground with suitable grade is proved to exist in the area.

The only additional workings after the restoration of the water supplies to the Great Northern Plain seem to be small extensions to Beltz workings and probably extensions to Taylor's workings.

9. TESTING CAMPAIGN OF PORTLAND HOLDINGS

Mr. Manson planned and supervised an exploration and testing campaign over the area held by Portland Holdings Pty. Ltd. The campaign included

Channel sampling of faces of old workings (25 samples)

Digging of holes by a back-hoe to depths of 8 to 10 and 10 to 12 feet followed by channel sampling of the sides of the holes (45 samples)

Auger holes (8)

Drill holes with a power percussion plant (10)

The campaign was largely a scout exploration one, but in one area (Beltz) testing on a 5-chain grid was conducted over at least 35 acres, and in three other areas some close testing was conducted over much smaller areas. Testing was carried out at 80 places and 74 samples were taken.

The results were given in a table and also shown on a plan based on mineral chart Tomahawk 2. The plan did not show the old workings or other features and the test holes were not always connected to lease boundaries or old workings. The test holes were, however, shown generally near their correct positions, and these positions have been discussed with Mr. Manson and some investigated in the field and corrected as far as possible.

The back-hoe holes were limited in depth by the equipment used.

10. AREAS AND PLACES TESTED

The results of the testing are given separately for each small area, old working, etc. in which the testing was conducted. The test holes, face samples, etc. are shown on the attached map (Plate 1) and the different test places will be readily identified from the map.

BELTZ AREA

This area is on lease 12M/70 and to the east of the Beltz workings. The group of test holes included 21 back-hoe holes one of which was in the end of old workings and a channel sample from the face of Taylors workings to the south. The last sample is not on lease 12M/70, but on the adjacent Storey's Creek lease. Two of the southernmost test holes (52 and an un-numbered one not included in the above 21) are also on the Storey Creek lease, and one other is on the boundary line.

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10, AREAS AND PLACES TESTED

BELTZ AREA (Contd.)

The back-hoe holes included 12 holes in three lines and on a 5-chain grid (A. B. & C. lines). The other holes were on a similar spacing but the distance apart of the holes ranged from 170 to 300 feet.

The holes were dug to depths of 8 to 10 feet and averaged 9 feet on lines A.B. & C. and to depths of 10 to 12 feet for the others and averaged 11 feet. They bottomed on a false bottom of sand. The positions are shown on Plate 1 and the depths and grades in Table 1.

The average grade and depth and the quantity of ground depend mainly on the number of holes included in the calculations as determined by the minimum grade. If the 12 holes on lines A.B. & C. are taken as a group they represent an area of 17 by 13 chains or about 23 acres. The average depth is 9.0 feet and the average grade 0.54 lb. per cubic yard. The quantity of ground is 304,000 cubic yards.

If holes C.3, C.4 and C.5 are excluded, the area would be 18.5 acres, the average grade 0.66 lb. per cubic yard and the quantity 276,000 cubic yards.

If in addition to the 12 holes the 6 holes south of the 3 lines (50-54 and 57) are taken into consideration the area would be 27 acres, the average depth would be 9.7 feet and the quantity would be 420,000 cubic yards. The average grade would be 0.45 lb. per cubic yard.

In the above calculations, the face sample in the Taylor workings (0.9 lb. per cubic yard) has not been taken into consideration.

In general, the ground to the south-east and east of the Beltz workings might be regarded as containing 300,000 to 400,000 cubic yards with an average grade of 0.5 lb. per cubic yard.

MACGREGOR WORKINGS

The MacGregor workings are situated in the north-eastern part of lease 15M/70 and the northern end extends into lease 11M/70 and very close to the Beltz workings. The south-western part of the workings is Higgs or Mallinson's workings.

The old workings have a depth of 16 feet or more and had a false bottom of sand except in Higgs workings where the bottom was mainly weathered dolerite. In 1902, the Government No. 6 line of 4 bores was put down in the MacGregor workings. The holes ranged from 10 to 58 feet and were reported to have a granite bottom.

Portland Holdings had six channel samples taken down the western face of the MacGregor workings. From north to south these were 16c, 15c, 14c, 13c, 3c and 17c. The positions are shown on Plate 1 and the depths and grades in Table 1.

Sample 3c was taken from the bottom 3 feet of the face, and had a grade of 2.1 lb. per cubic yard. The other five samples had depths ranging from 10 to 22 feet and grades from 0.1 to 1.1 lb. per cubic yard. The area immediately to the west was not tested. On the assumption that the grades extend

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MACGREGOR WORKINGS (Contd.)

one chain to the west of the workings along 26 chains the strip would have an area of 2.6 acres and contain 63,000 cubic yards. The average grade of the six samples is 0.74 lb. per cubic yard, and the average depth is 15.0 feet. Drilling would be required to determine whether the above assumption is correct or not and to prove the amount and grade of the ground.

ABERFOYLE WORKINGS (SEA SHELL FACE)

This group was termed the Boomerang Face by Portland Holdings. In either case, the sampling would be on the Storey Creek lease.

In a small area in the north-eastern part of the main workings, 7 channel samples (6c to 12c) were taken and 4 auger holes drilled. The channel samples represented tests at 5 places. No grades were given for the auger holes, and these cannot, therefore, be included in any estimates.

Sample 7c is under 6c and 8c is stated to be at the same place but it is not stated whether it is under 7c or parallel to 6c and 7c. Assuming that 8c is under 7c, the average (weighted for depth) of the 5 sample places is 1.13 lb. per cubic yard, and the average depth is 8.1 feet. If 8c is parallel to 6c and 7c, the weighted average of the 5 sample places is 1.37 lb. per cubic yard over 6.65 feet.

The area tested would be about 9.5 acres, and the volume 12,000 or 10,000 cubic yards dependent on whether the average depth is 8.1 or 6.65 feet.

No information is given about the bottom, but it was possibly not reached in any of the testing. The greatest depth tested was 13.5 or 10 feet.

The possibility of such grades extending to the adjacent leases of Portland Holdings (116M/70 and 113M/70) could be proved only by test holes.

Percussion drill holes B.7 and B.8 were drilled about 2 chains north of the old workings to a depth of 43 feet with grades of o.1 lb per cubic yard. They are about 5 chains easterly from Curnows workings.

CURNOW'S WORKINGS.

Samples were taken from the northern side (4c) and the southern side (5c). These samples were taken from 1.5 and 2.0 feet of wash respectively, and had grades of 1.2 and 5.6 lb. per cubic yard respectively. The workings are situated in the north-western part of lease 116M/70. Percussion drill hole B.10 is situated to the east of these and was drilled to 43 feet. Part of the sample was lost but in general the grades are stated to be 0.1 to 0.2 lb. per cubic yard.

ABERFOYLE HILL.

Testing was conducted to the south-east of Aberfoyle Hill and situated in the north-eastern corner of lease 116M/70 and the adjacent south-eastern part of lease 114M/70. Samples were taken from two old shafts, and three percussion drill holes were put down. The three samples (18b/c, 18a/c and 20c) and drill hole B.9 gave grades of 0.45, 0.57, 0.4 and 1.2 lb. per cubic yard over depths of 7, 7, 2 and 17 feet respectively. The shafts and drill holes are in an east-west line about 4 chains long.

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ABERFOYLE HILL (Contd.)

Two holes (B.5 and B.6) were drilled to the south of the above line. Hole B.5 was drilled to 45 feet through 15 feet of gravels overlying mud with carbonaceous material. The gravels had a grade of 0.1 lb. per cubic yard. Hole B.6 was drilled to 55 feet in mud and yielded only a trace of tin ore.

The above testing proved a small area, but the results indicate that further testing would be justified.

WEST OF BELTZ AND MACGREGOR WORKINGS.

Eight back-hoe holes were dug, but with the exception of 63 and 64, their positions have not been fixed accurately. The positions are not shown on Plate 1 (except for 63 and 64) but the depths and grades are shown in Table 1. Hole 63 had a depth of 14 feet and a grade of 0.5 lb. per cubic yard. The other seven holes had grades of nil to trace of tin oxides over depths ranging from 7.5 to 13 feet except for hole 59 which is reported to have had a grade 0.1 lb. per cubic yard from 1 foot of gravel overlying brown clay. The seven holes were not bottomed, however, as was hole 63.

The above results suggest low grade ground to the west of Beltz workings, but the westernmost hole (63) has a grade of 0.5 lb. per cubic yard over 14 feet.

TAYLOR'S WORKINGS.

Two channel samples were taken from the eastern end of Taylor's workings. Except for the extreme eastern end (which is on lease 13M/70), the workings are on the Storey's Creek lease. These samples were referred to as S. Long's workings and that may be correct for the eastern end of Taylor's workings.

The samples were partly channel samples and partly from auger holes. Sample 1C had a grade of 0.26 lb. per cubic yard over 25 feet, and sample 2C was 0.35 over 15 feet. A face sample (un-numbered) further to the west in Taylor's workings has already been referred to when discussing Beltz workings; it had a grade of 0.9 lb. per cubic yard over a depth of 14 feet.

The above holes, though off or near the boundary of Portland Holdings leases, give a general indication of the depth and grade of ground in their vicinity especially 1C and 2C as indicating the grade of ground some distance to the east of the Beltz workings.

WEST, SOUTH AND SOUTH-EAST OF GOVERNMENT RESERVOIR.

Testing was carried out in this locality by both back-hoe and percussion drill, and each testing will be described separately.

Back-hoe holes. These were dug mainly on leases 132M/70 and 120M/70 with one hole on 13M/70. Nine holes were dug along a south-easterly trending tract of country.

The easternmost three holes intersected little or no gravels. Holes 41 and 43 intersected slate bottom at 3 feet and hole 42 intersected 6 feet of clay and light wash between 2.5 and 8.5 feet. It would appear that the summit of a buried ridge is present at holes 41 and 43.

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Back-hoe holes (Contd.)

The other six holes (44 to 49) were between 10 and 13.5 feet deep. Three of them (44, 46 and 48) contained no tin ore, but holes 45, 47 and 49 had grades of 0.6, 0.8 and 0.12 lb. per cubic yard respectively.

Percussion Holes. Four holes (S.1 to S.4) were drilled along a south-easterly line situated more or less centrally along the tract of country tested by the back-hoe holes. They were drilled to a bottom of granite and the depths ranged from 14 to 32.5 feet. The grades (in lb. per cubic yard) were S.1 0.22, S.2 0.25, S.3 0.25 and S.4 a trace.

General. The results from the two sets of testing prove that there are low to moderate grade ground present as well as barren ground. There could be two small areas containing tin-bearing ground with a barren area between, and a ridge of high bottom on the eastern side.

CANARY OR ROY WORKINGS.

They are situated in the south-western part of lease 16M/70. Two channel samples were taken one on the northern side and the other on the western side. The depths were 30 feet and the northern sample had a grade of 0.33 lb. and the western one a grade of 0.43 lb. per cubic yard.

RICHARDSON'S AND WAINWRIGHT WORKINGS.

These workings are situated on the lease of the Storey Creek Company but were examined to give an indication of the grade of ground likely to occur in the adjacent lease 120M/70. In Wainwright's workings two samples (R.1 and R2) were taken. Sample R.1 was from the bottom 4 feet of gravels and had a grade of 0.2 lb. per cubic yard. Sample R.2 was from a thickness of 8 feet of sand and gravel and had a grade of 0.4 lb. per cubic yard.

In Richardson's workings, two places (6 and 7) were examined but not sampled. At place 6 there were 4 feet of clay on a slate bottom. At place 7, the lower part of a 6-foot section consisted of 3.5 feet of fine sand on a slate bottom.

NORTH-EASTERN CORNER OF PORTLAND HOLDINGS BLOCK OF LEASES

Four auger holes were drilled on lease 125M/70, and a fifth on lease 132M/70, about 40 chains to the south. The holes at 1X to 4X intersected clay on a slate bottom without any gravels and "panned" samples showed no tin ore. These four holes are east of a mapped outcrop of dolerite.

The fifth hole (5X) is on the eastern side of the Government Reservoir. It had a depth of 15 feet with 12.5 feet of fine sand and 0.5 feet of drifts containing a trace of tin.

SUMMARY AND CONCLUSIONS.

Portland Holdings Pty. Ltd. hold 1687 acres of land on the Great Northern Plain partly under mineral lease and partly under applications for mineral leases.

Alluvial tin deposits occur in the area and there are numerous old workings of small to moderate extent. Some of the workings were worked to a false bottom of sand, and not to the bedrock. In 1932 the writer surveyed the workings and prepared a typewritten report with map.

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SUMMARY AND CONCLUSIONS (Contd.)

Portland Holdings have, during the past two years, tested parts of their area (formerly under licence and now under lease or lease application). The testing included the digging of holes by back-hoe, drilling of holes by percussion plant and also by auger, and channel sampling of faces of old workings (and also of the back-hoe holes). The depths of the back-hoe holes were limited by the plant available, and few went deeper than the false bottom of sand and reached bedrock.

The testing campaign was mainly of an exploratory type, and only one area (east of Beltz workings) was on a grid pattern.

Portland Holdings presented the results of the testing mainly in the form of a tabular statement and a plan showing the depths and grades in the test holes and sample. The plan showed the positions of the test holes and samples generally and not accurately because of lack of recent lease surveys (their own leases were surveyed later), to which connections could be made.

This report deals primarily with the testing operations of Portland Holdings. The writer has visited some, but not all, of the test holes and samples, and has used the information produced by Portland Holdings. The writer has endeavoured to prepare a map showing the old workings, with the test holes and samples of Portland Holdings on it as accurately as possible. For this purpose, positions were discussed orally and in correspondence with mr. Manson, and the writer made a few surveys and investigations in the field.

The results of the testing campaign have been described, each area, group of test holes and working being described separately. This reportgshould be read in conjunction with the writer's 1932 report in which descriptions of the workings and of earlier drilling campaigns were given.

The most important results of Portland Holdings' testing campaign were:

(1) The higher grade ground to the east of Beltz workings had an area of 14.7 acres, an average depth of 9 feet, and a volume of 210,000 cubic yards with an average grade of 0.67 lb. per cubic yard.

(2) If lower grade ground were included with that described in (1) above, the area would be 45 acres with an average depth of 9.8 feet and a volume of 710,000 cubic yards with an avarage grade of 0.47 lb. par cubic yard.

(3) At least a narrow strip of ground down the west side of the MacGregor workings may, from the sampling results of the western face, have an area of 2.6 acres and an avarage depth of 15 feet, and a volume of 63,000 cubic yards of an average grade of 0.74 lb. per cubic yard.

(4) Small areas of tin-bearing ground exist at

(a) south-east of Aberfoyle Hill
(b) south and south-east of Government Reservoir

(5) small areas of tin-bearing ground on land outside Portland Holdings leases, and indicated by limited sampling of workings either on, or adjacent to, Portland Holdings leases, are present at a few places. The places are -

North-eastern corner main Aberfoyle Workings
Curnow's workings
Hole 63
Taylor's workings
Roy workings
Wainwright's workings

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The whole of the 1687 acres was not tested by the recent campaign. One important area not tested is that adjacent to Higgs workings and especially to the west. One back-hoe hole (B.3) was dug to the west of Higgs but was not sampled; washed prospects indicated an appreciable tin content.

Further testing should include -

(1) around the Higgs workings
(2) adjacent to the areas referred to in (3), (4) and (5) above.
(3) places within the leases not already tested
(4) the deep leads indicated on the map (Plate 1)
(5) the deeper ground in the areas already tested to shallow depths (the false bottom of sand).

MELBOURNE
25th OCTOBER, 1971.

(P.B. NYE)

TABLE 1

DETAILS OF SAMPLES OBTAINED FROM GREAT NORTHERN PLAIN, GLADSTONE, TASMANIA

(Based on table prepared by Portland Holdings with a few minor alterations)

Area or Working	Number of Sample	Details	Grade (lb per cubic yard)
Beltz workings area to east and south-east thereof	A.3	All holes were dug by back-hoe, and all	0.53
	A.4	samples were channel samples from the	0.66
	B.1	sides of the holes. All holes were dug	1.1
	B.2	to 8 to 10 feet to false bottom of sand	1.8
	B.3	The materials in each hole and sample	0.57
	B.4	were similar, the section being	0.77
	B.5	Soil 0.5 to 1.5 feet	0.22
	C.1	Cemented wash 1 to 2 feet	0.88
	C.2	Sand and wash	0.33
	C.3	Drilling to greater depths or bottom would	0.15
	C.4	be necessary to determine the total	0.24
	C.5	quantity and grade of ground.	0.13
Taylors or S. Longs	1C	Channel sample 0 to 25 feet (8 ft. with auger)	0.26
	2C	" " 0 to 15 feet (4 ft. " ")	0.35
Canary or Roy	North	" " 0 to 30 feet sand and wash	0.33
	West	" " 0 to 30 feet " "	0.43
MacGregor	3C	" " 3 feet at bottom	2.1
	17C	" " 0 to 19 feet, sand and wash	1.0
	13C	" " 0 to 10 feet, " "	0.1
	14C	" " 0 to 18 feet " "	0.6
	15C	" " 0 to 19 feet " "	1.15
	16C	" " 0 to 22 feet " "	0.4
Area west of Beltz workings	59 to 66	Back-hoe holes. All with sand and wash All except 63 Hole 63 0 - 14 feet, sand and wash	Nil to 0.1
Area to east and south of Beltz area	50		0.3
	51	Back-hoe holes 10 to 12 feet deep	0.25
	52	Sand and wash. None bottomed	0.17
	53		0.22
	54		0.26
	55		Nil
	56		trace
	57		0.3
	58	At N.E. Corner of old lease 7037, clay at surface	not sampled
North-east part of block of leases	1X	Auger hole. Clay to 7 feet, slate bottom)	not sampled
	2X	" " " 4 " " ")	
	3X	" " " 2 " " ")	
	4X	" " " 2 " " ")	
	5X	Eastern side of Govt. Reservoir, 15 feet deep with 1.5 ft. soil, 0.5 ft. cement, 12.5 feet fine sand, 0.5 ft. of drift containing trace of tin ore.	not sampled

TABLE 1 (Contd.)

Government Reservoir and east of lease 63M/69	49	0 to 10 feet. Sand and wash	0.12
	48	0 to 13 " " "	Nil
	47	0 to 12 " " "	0.8
	46	0 to 13.5 " " "	Nil
	45	0 to 12 " " "	0.6
	44	0 to 13 " " "	Nil
	43	3 feet soil and clay, slate bottom	not sampled
	42	2.5 feet soil and cement, 0.5 feet clay and light wash	Nil
	41	1 foot soil, 2 feet cement, slate bottom	not sampled
	6	5 chains S.W. of junction Dorset - MacGregor road, 4 feet clay, slate bottom	not sampled
	7	9 chains S.W. of junction Dorset - MacGregor road, 1 chain from creek, 1 foot soil, 2.5 feet cement, 3.5 feet fine sand on slate bottom.	not sampled
Wainwrights	R.1	Bottom of old workings, 4 feet of sand	0.2
	R.2	" " " 8 " " and wash	0.4
South-east of Government Reservoir and near lease 63M/69		Percussion drill holes	
	S.1	0 - 32.5 feet. Fine sand with minor fine wash	0.22
	S.2	0 - 23.5 " " " " " " " " **	0.25
	S.3	0 - 15.5 " " " " " " " " **	0.25
	S.4	0 - 14.0 " " " " " " "	tr.
		S.1 to S.4 drilled to granite bottom ** higher grade to 10 feet	
Curnows	4C	Northern side of old workings, 1.5 feet of wash	1.2
	5C	" " " " 2.0 " "	5.6
	B.10	Percussion drill hole, 43 feet deep. Part of sample lost	
South-east of Aberfoyle Hill	18b/c	0 to 7 feet wash. 2 chains west of B.5	0.45
	18a/c	" " " " " "	0.57
	20C	0 to 2 " " 3 " " "	0.4
	B.9	Percussion drill hole near 18 & 20, 17ft.deep.	1.2
	B.5	" " 0 to 15 ft. gravels 45ft.deep.	0.1
	B.6	" " 55ft.deep.	tr.
Aberfoyle workings	6C.	1-5 feet of top level wash, North side	0.94
	7C.	2.0 " wash under 6C	3.96
	8C.	10.0 " " same place as 6C and 7C	1.48
	9C.	9.0 " " and sand 1.5 chains S.W. of 8C	0.95
	10C.	0-9 " 3 chains west of 8C	0.58
	11C.	0-8 " 1.5 " south of 10C	0.55
	12C.	1 foot wash near bottom 2.5 chains south-west of 11C	3.5
	8	Auger hole 0 to 6 feet. 0.5 chains north of 9C	
	9	" " 0 to 3.5 " 2 " " "	
	10	" " 0 to 7 " 1.5 " west of 8	
	11	" " 0 to 6 ") 2 chains north of old work. south-west of 10	0.1
	B.7	Percussion drill hole 43 feet deep	0.1
	B.8	" " "	