

TR8-10-22

Section 1—Economic and General Geology

1. NOTES ON AURIFEROUS DEPOSITS,
BEACONSFIELD GOLDFIELD

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INTRODUCTION

The Beaconsfield township is situated 26 miles by road northerly of Launceston, 2 miles west of the Tamar estuary. The main auriferous deposits occur immediately west of the township on the crest and eastern flank of the Cabbage Tree Hill with smaller deposits occurring to the north and south along a narrow belt of country centred on the Cabbage Tree Hill-Blue Tier ridge line. The belt is approximately 5 miles long by $\frac{1}{2}$ mile wide and has been subject to small scale mining over the entire length. Only the Tasmania quartz reef proved to be payable to any depth.

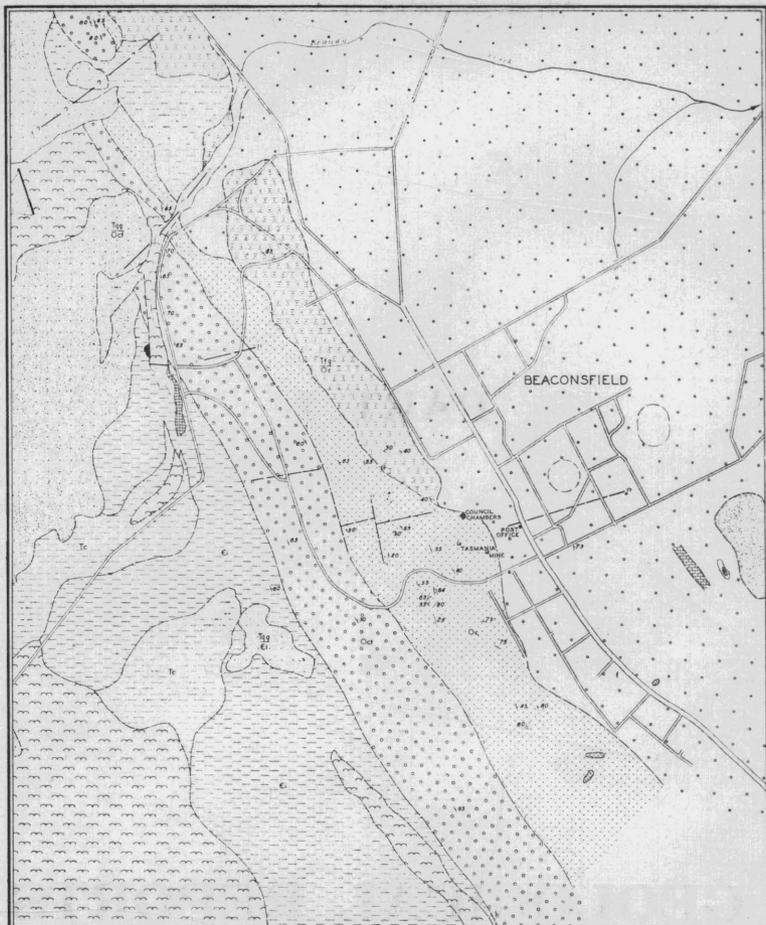
Topographically the main feature of the immediate area is the long strike ridge formed by the Blue Tier and Cabbage Tree Hill prominences. The ridge rises to about 650 feet above sea level at the Blue Tier (southern) end descending gradually to about 350 feet at the Cabbage Tree Hill to the north. The township of Beaconsfield is located on the lower slopes of the eastern flank of the Cabbage Tree Hill at an elevation of 100 feet above sea level.

The ridge loses its character rather abruptly at both northern and southern ends where it loses elevation and disappears under younger rock successions. The line of the ridge is broken at its approximate centre by the Blythes Creek water gap and towards the northern end by the less conspicuous Brandy Creek water gap. The creeks cut the ridge along prominent fault lines and similar faulting has caused off-setting of the southern spurs of the Blue Tier ridge.

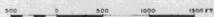
Easterly of the township a gently undulating plain descends gradually to sea level at Middle Arm. Easterly of Middle Arm and southerly of the township, the plain rises into a series of low hills and ridges. Westerly of the ridge Blythes Creek drains a gently undulating plain which also rises to the south and west into low foothills. To the north this plain is flanked by high level (approximately 200 feet) terrace-like gravel beds. Blue Peaked Hill forms a prominent landmark on the SW edge of the valley.

GEOLOGY

The crest of the Cabbage Tree Hill-Blue Tier ridge is composed of rocks of Cabbage Tree Conglomerate. These beds are conformably overlain by members of the Caroline Creek Sandstone. Correlation of these beds with the type formations of the West Coast areas is based mainly on lithological similarities in conjunction with the reported occurrence of brachiopods, trilobites, and casts of a species of *Orthis* found in a member of the Caroline Creek Sandstone in the workings of the Tasmania mine. These rocks are of Ordovician age.



GEOLOGICAL MAP
BEACONSFIELD AREA



GEOLOGICAL

- QUATERNARY**
- BATTERY BANDS
 - RECENT ALLUVIUM
- TERTIARY**
- SILICEOUS CONGLOMERATE
 - SILICEOUS CLAY
 - QUARTZ GRAVEL
 - FERRUGINOUS GRAVEL
 - RESIDUAL BOULDS
 - CLAY

LEGEND

- SILURIAN?**
- LIMESTONE NODULE
- ORDOVICIAN**
- CARRAGE TREE HILL CONGLOMERATE
 - CAROLINE CREEK SANDSTONE
- CAMBRIAN**
- ILFRACOMBE SLATE

STRUCTURAL

- FAULT
- STRIKE & DIP OF BEDDING
- STRIKE & DIP OF FOLIATION
- STRIKE & DIP OF JOINTING
- VERTICAL JOINTING

TOPOGRAPHICAL

- ROAD
- DAM
- SWAMP

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GEOLOGIST 1963



FIGURE 2.

5 cm

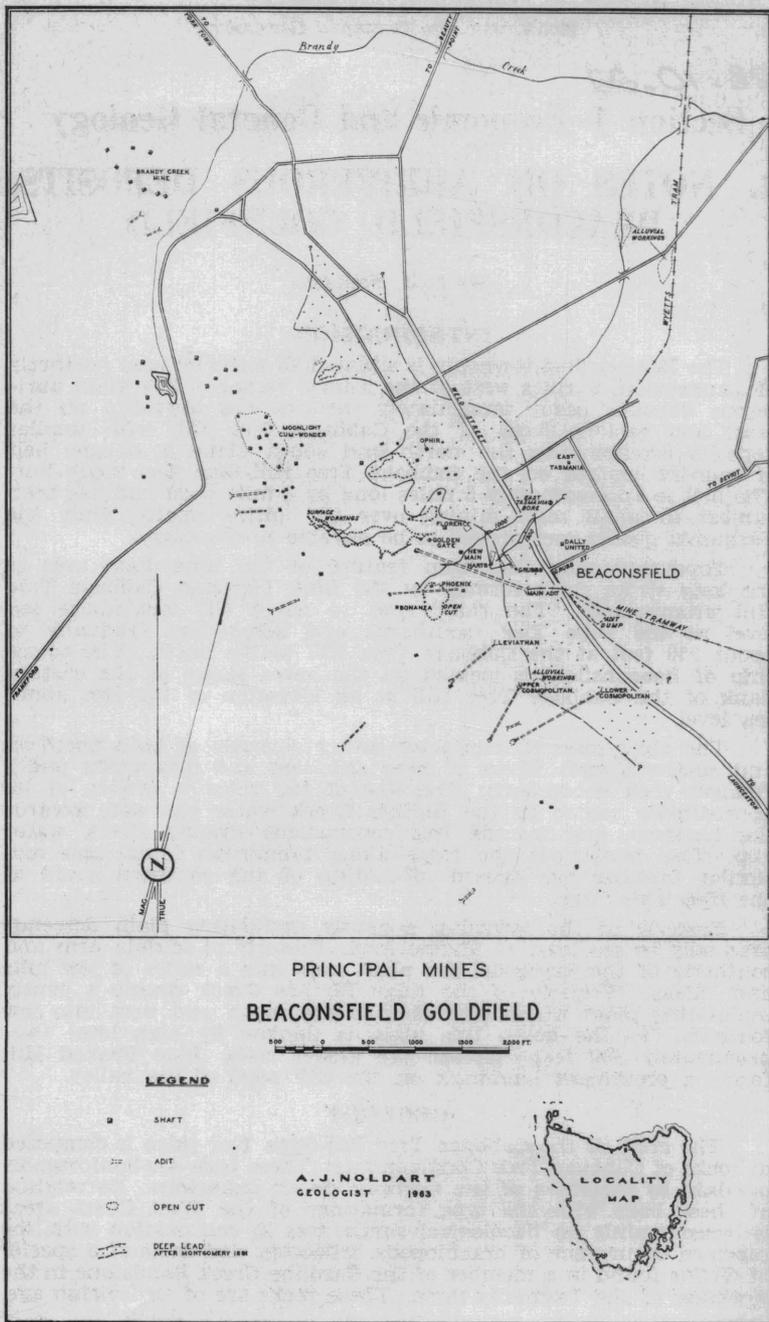
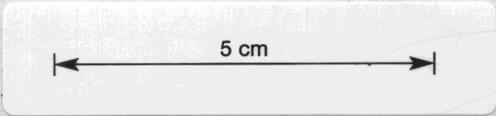


FIGURE 3.



Black slate, greywacke, sub-greywacke, siltstone &c., of the Ilfracombe Slate of Cambrian age underlie Cabbage Tree Conglomerate to the west. The contact is obscured but the two sequences appear to be concordant.

The Cabbage Tree Hill-Blue Tier ridge is a strike ridge, trending about N35°W dipping 50°-60° NE. Local internal folding in the Ordovician succession is indicated by local reversals of dip noted on the northern spur and flanks of Cabbage Tree Hill and reported from mine workings.

Similar rocks of probable Ordovician age form the prominent ridge of Blue Peaked Hill.

SE of the range the lower Palaeozoic rocks are unconformably overlain by gently dipping rocks of Permian age. These rocks are in turn overlain by sand, clay, conglomerate, quartz, gravel, &c. of Tertiary age composing the undulating plain easterly of the township. The higher level terrace-like deposits north and NW of Cabbage Tree Hill are composed of white quartz gravel, also of Tertiary age.

Immediately east of Cabbage Tree Hill, and underlying portion of Beaconsfield township, a deep channel of probably early Tertiary age has been eroded into Gordon Limestone. The channel is filled with varicoloured clay interbedded with sand, semi-consolidated conglomerate, loose gravel, scree &c., to a known depth of more than 400 feet. The upper horizons are reported to be composed of compact, semi-consolidated clay and siltstone with unconsolidated sand, scree and gravel filling the lower portion of the channel. Specimens of fossil fruits, timber, leaves, &c., referred to the older Tertiary, have been recorded from intermediate clay horizons in the channel.

TASMANIA MINE

General

Discovered in 1877, the Tasmania auriferous quartz reef remained in production until 1914 when economics of mining forced closure of the underground workings. Subsequent operations were concentrated on the retreatment of mine tailings dumps until the final plant shutdown in 1924. Overall production from the Tasmania reef (inclusive of tailings retreatment) was 854,600 oz. from 1,067,556 tons of ore, for an average recovery of 16.01 dwts of gold per ton. The gold won was valued at £3,613,000 of which £772,671 was distributed in dividends to the shareholders. No dividends were paid after 1905.

With few exceptions the underground workings are now inaccessible and the following information has been obtained from old literature. A list of the principal references is attached.

Closure of the mine was due to a combination of factors involving fall in grade, economics associated with depth, excessive water intake, &c. It was reported in 1912 that about 17,275,000 gallons was pumped from the mine per week, with an additional 21,000,000 gallons storage encountered for each foot of extra sinking undertaken.

In the latter stages of the life of the mine employer-employee relations deteriorated rapidly and, with final closure threatened, the then Government of Tasmania assumed control of the mine

and plant in an endeavour to avoid shut down. On the employees' assurance that mismanagement was mainly responsible for the projected closure the Tasmanian Government then subsidized a tributing party of about 150 mine employees to carry on mining activities. The venture proved unsuccessful and the mine closed after a short period.

It is apparent that irrespective of gold values still obtaining in the bottom (1500 foot) level, the then prevailing economic limits of mining, as applicable to the circumstances peculiar to the Tasmania mine, had been reached.

THE WORKINGS.

Underground mine plans, cross sections and longitudinal sections of the mine are available at the Department of Mines and a full description of the underground workings is not considered warranted here. Briefly, the Tasmania reef was worked from the surface to about 480 feet from the "Golden Gate" and "Florence Nightingale" shafts. Subsequent to the amalgamation of the original companies, mining activities were extended to 1500 feet by a succession of deeper shafts: namely the "New Main shaft" (1,000 feet) "Hart's Shaft" (1,375 feet), and "Grubb's Shaft" (1,500 feet). The last named shaft was sunk partly in the deep lead and, due to movement in this section, was later restricted to use as a general service shaft. All heavy haulage operations were directed through the more stable "Hart's Shaft".

Stoping was consistent over the full 1,300 feet of the ore body to a depth of 1250 feet but below that level the stoping limits, as indicated on the longitudinal sections, were progressively reduced on the 1375 foot and 1500 foot levels to a final stope length of 940 feet. This sharp reduction in stope length is probably due to the economics of mining at depth and does not necessarily represent an actual decrease in the size of the ore body.

THE OREBODY.

The Tasmania reef is a fissure reef striking about N50°E with the quartz emplaced in a pre-existent fault zone. The movement on the fault is shown on old plans as about 100 feet north side east. The reef has been itself displaced by two major fault zones and numerous smaller movements. The major faults were termed the "main cross course" (easternmost fault) with a strike of N30°W dipping steeply SW and No. 2 fault striking N45°W also dipping steeply SW. Easterly of the "main cross course" the reef maintains a fairly constant strike of about N50°E with a slight swing to N45°E westerly of the fault. The reef in these sections of the mine transgresses almost all members of the Caroline Creek Sandstone and lies entirely within that succession. The overall dip of the reef here is about 50°-55°SE and the two sections are obviously dislocated portions of the same reef.

Westerly of the No. 2 fault, however, the reef as mined shows a marked swing northerly to about N55°W with a dip to the SW. This section of the mine lies entirely within Cabbage Tree Conglomerate. The sharp swing in strike together with a marked change in the mineralization pattern and strength has raised strong doubts as to this section actually being the western continuation of the Tasmania reef.

Movement on the "main cross course" appears to be west side north with a displacement of about 240 feet on the ore body. However, a simple lateral movement cannot fully explain the displacement as the enclosing strata appear to have been displaced by some 1,000 feet as distinct from the smaller movement in the ore body. It is apparent that a considerable west side up movement has occurred with a lateral component of about 500-600 feet. A similar type movement appears to have occurred in the "No. 2 fault" but the displacement here cannot be ascertained due to the doubtful identity of the reef mined westerly of this fault.

A comprehensive discussion of the effects of the faulting on the Tasmania reef is given by Montgomery (1891) together with an outline of the possible positions that the reef could have assumed westerly of the "No. 2 fault".

The main Tasmania reef has an overall length of about 1300 feet. The strike averages N50°E with a dip of 50°-60° to the SE. Stopping outlines as shown on the mine longitudinal sections and plans indicate an overall plunge of the ore body to the NE at 55° with individual richer "shoots" within the ore body also trending NE but with shallower plunges varying from 35° to 50°. With the overall plunge indicated, the 300 feet of main reef lying to the west of the "main cross course" at the surface thus becomes progressively shorter with depth, finally plunging away from the between faults block at about the 600 foot level. Below this level the entire stope length of the ore body lies to the east of the "main cross course".

The reef varies in width from a few inches to upwards of 25 feet in some lenses with an overall stoping average of about 7-8 feet. Gold values in the reef are reported to have been fairly consistent along the length of each individual level but varied considerably with depth. From the surface to about the 400 foot level an average grade of 25 dwts. per ton was maintained but average grades over the next 300 feet dropped to about 16-17 dwts. per ton. Still further reductions in grade occurred with greater depth dropping to as low as 2½ dwts. per ton at the 1370 foot level. A considerable improvement to an average grade of up to 13 dwts. per ton over a stoping length of 940 feet was reported from the bottom (1500 foot) level.

Gold quality is also reported to have changed with depth, the gold obtained from the richer upper levels consisting mainly of free milling, auriferous quartz, readily amalgamated. Changes in mineralization below about the 400 foot level showed the presence of pyrite, chalcopyrite, sphalerite, galena, &c., in increasing amounts with a considerable proportion of the gold intimately associated with the sulphides necessitating more specialized and expensive treatment methods.

Westerly of the "No. 2 fault" mining operations were only continued to about the 100 foot level. The ore body in this portion of the mine proved to be inconsistent and very "bunchy" varying in size from mere threads to lenses up to 3 feet in width. Mineralization was weak with values considerably lower than in the main Tasmania reef.

OTHER MINES**Moonlight-cum-Wonder Mine**

This mine comprises the old "Moonlight", "Little Wonder", "Olive Branch" and "Amalgamated West Tasmania" mines, all of which operated to some extent on the same line of lode.

Situated near the crest of the Cabbage Tree Hill, the mine was developed entirely in Cabbage Tree Conglomerate. The overall strike of the ore body is N55°-60°W. The general dip is to the SW although a reversal of dip is reported from the deeper levels in the northern section.

The auriferous quartz in these workings was not confined to one ore channel with occasional splitting of the reef, as was the case in the Tasmania reef, but was reported to have been distributed in a number of parallel or sub-parallel veins, often in broken ground and subject to rapid variation in size both along strike and down dip. In some areas, as in the "Olive Branch" section, the veins were too small to be mined individually but were rich enough and numerous enough to encourage attempts at bulk open cut mining.

Generally good values were obtained in the older shallow workings to depths of about 250 feet but values diminished rapidly below this depth. The ore body was tested to the 800 foot level with exploration drives at the 400, 500, 600 and 800 foot levels without success. The ore channels are reported as varying from threads up to 18 inches in width with occasional lenses up to 9 feet in thickness. Values did not improve with size of the reefs and were often reported as richer in the narrower zones. Thureau (1883) recorded: "very rich 'shoots' of gold in the reef dip as from a common centre both east and west . . ." in the 130 foot level of the "Little Wonder" mine. It is probable that these are small saddle reefs reflecting one of the minor flexures in the strata of Cabbage Tree Hill.

The mineralization pattern in these reefs is almost identical with that in the western section of the Tasmania mine and it is probable that the two reef systems are located on the same fissure zone.

Tonnage and grades of ore from these reefs are not available but records of the Department of Mines show a gross recovery of 1,044 oz. of gold from these mines.

Ophir Mine

The deep lead along the eastern flank of Cabbage Tree Hill has been investigated by several shafts and drill holes. Most of the workings were concentrated on the western slope of the lead, or at intermediate levels in the lead. No records are available of any testing having been carried out on the true bottom of the lead except by drill holes which penetrated to close proximity of the bottom. Of these prospect shafts the "Ophir" mine was the only one in which any attempt was made to test the bottom of the lead.

The last information available on this mine was that a shaft had been sunk to a depth of 405 feet with the upper 275 feet (about) sunk through the material of the deep lead. Levels were driven easterly into the deep lead at depths of 300 feet and 400 feet. From the 400 foot level a winze was sunk in the wall of the lead to a depth of 60 feet (460 feet from the surface) and a

level driven east below the deep lead. Future intentions to rise from this 460 foot level into the bottom of the lead did not eventuate.

Other portions of the lead were tested in the Tasmania mine adit (300 feet of drive); the lower "Cosmopolitan" adit (412 feet of drive) and from the Nos. 4 and 5 levels of the old "Florence Nightingale" workings at depths of 270 feet and 330 feet respectively. No payable values are reported from any of these workings but it is probable that any enrichment from southerly of the Tasmania reef would necessarily be weak, and that the drives would be too far south to intersect any enrichment from the main Tasmania reef.

Salisbury Mining Centre

The Salisbury mining centre is located at the southern end of the Blue Tier ridge. The main workings were the "Salisbury", also known as the "Victoria"; and the "Duchess of York", also called the "Gladstone" and "Santa Claus", mines. Both mines were explored by a combination of shafts and adits from the eastern flank of the ridge. The workings are roughly in the same position respective to the strata as the "Cosmopolitan" mine on the eastern flank of Cabbage Tree Hill. Some open cut, hydraulic sluicing workings are located in the nose of the southern spur of the ridge.

The mineralization in these mines differs markedly from that of the Cabbage Tree Hill mines in that the majority of gold occurrences in the near surface workings occurred as "coarse lumps of gold" and "patches of free gold met with in sugary quartz and soft seams of pug". In several instances the gold had a superficial coating of black manganiferous oxides giving rise to the so called "black gold" of the locality.

In the deeper levels of the adits all the gold was reported to be intimately associated with sulphide mineralization. Occurrences of nickel and chromium minerals are recorded from the main adits closely associated with an intrusive body of basic rock.

High grade concentrations or "pockets" of eluvial/alluvial gold occurred in the talus on the crest of the south spur and in the talus/alluvium admixture at the foot of the spur. Gold values in these deposits was also reported to be extremely "patchy" with high grade pockets interspersed with large areas of almost barren material.

No production figures can be given from the centre.

Smaller Mines

Very little is known about the smaller mining operations in the district. Innumerable small shafts and costeans cover the eastern slopes of Cabbage Tree Hill but only a very small proportion of the smaller workings encountered payable reefs.

Travelling north along Cabbage Tree Hill from the Blythes Creek water gap the more significant of these workings southerly of the Tasmania reef are:—The "Rising Sun" mine immediately above Blythes Creek, and the "Cosmopolitan", "Leviathan", "Bonanza", "Star" and "Phoenix" mines, all located on the eastern flank of the ridge. The "Garfield" mine is also located on the eastern flank of the ridge but is northerly of the Tasmania reef towards the northern spur of Cabbage Tree Hill.

All these mines were designed to test possible occurrences of the "Moonlight-cum-Wonder" type reef formations with but little success. Some minor copper/silver type mineralization was encountered in the "Rising Sun" mine, and small irregular auriferous reefs were encountered in the other mines. The gold values in each case were insufficient to encourage further exploration. The "Phoenix" mine, though originally worked on a reef similar to the other small mines, was ultimately deepened to intersect the Tasmania reef to become part of the main workings.

Immediately to the north of Brandy Creek, on a low ridge extension of Cabbage Tree Hill, moderately payable gold reefs of the "Moonlight-cum-Wonder" type were worked in the "Brandy Creek" mine but again values did not persist with depth. A similar type mineralization also occurred in the "North Tasmania" mine located some 1300 feet further north along the strike.

These two mines appear to have been the only ones other than the Tasmania and Moonlight-cum-Wonder mines where payable gold mineralization was encountered. Full records of production are not available but the North Tasmania is recorded as having produced 987 oz. of gold.

As far as can be determined the mineralization in all of the smaller mines was similar in all respects to that of the Moonlight-cum-Wonder reefs; i.e. surface enrichment in narrow, irregular quartz veins, rapidly diminishing in value with depth.

Alluvial Workings

With the exception of the Salisbury locality, auriferous deposits of an alluvial nature have not been a significant feature of the district. Occasional small patches have been worked but the majority of the so called "alluvial" deposits were in fact remnant pockets of Tertiary gravels of a semi-deep lead nature partially uncovered by subsequent erosion.

ORE PROSPECTS

Tasmania Reef

Unfortunately no geological information is available on the Tasmania reef after 1903 so that nothing is known of the limiting factors controlling the extremities of the ore body at depths below about 700 feet. A summary of such information as is available to that depth is given below.

On the eastern end the Tasmania reef is reported to have feathered out into a series of thin stringers on entering brecciated zones in Caroline Creek Sandstone close to the footwall of Gordon Limestone. Twelvetreves (1903), discussing the 700 foot level, wrote as follows:—

"Behind the limestone, conformable with it and underlying it, the level passed through a bed of dense, tenacious clay This clay band is known in the mine as 'the dyke'. Westwards it merges gradually into a zone of what can best be described by the term 'broken formation', or 'broken country'. This consists of sandy material showing lines of false deposition, and containing angular fragments of sandstone, giving place to the west to more solid shattering and disintegration *in situ*. Hard blocks of sand-

stone are met with, having the sandy material between them for a length of about 60 ft. It is noteworthy that the reef in this section of the level became irregular, splitting and jumping up and down. The reef tails out just where the broken formation begins; its track goes into the broken (sic) for a little way and then disappears.

"In the level above the 600 feet, the reef behaves in the same way when the broken country is entered".

And further with reference to the 700 foot level, the deepest then being worked, he recorded the following:—

"The actual appearance of the reef in the east end of the 700 foot level is sufficient to cause anxiety. It feathers out when entering the broken country. It has no appearance of having been sheared off by a fault, and there is no track or channel in the limestone".

The limiting factor on the eastern end of the ore body down to the 700 foot level is evidently lack of continuity of the reef through zones of brecciation and it is probable that similar conditions restrict the ore body at depths below that level. Longitudinal sections of the mine do in fact show a marked steepening of the eastern stope limits between the 700 foot and 1250 foot levels suggesting that the bounding control at this end of the ore body is structural and not lithological.

On the western margin of the ore body a different set of conditions exists. As mentioned previously the western extension of the Tasmania reef past the "No. 2 fault" is questionable, but from the information available it is doubtful if the main Tasmania reef as such ever extended any distance into the up faulted members of the Cabbage Tree Conglomerate west of the fault. It is apparent from the longitudinal sections that the western limit of the Tasmania ore body fairly closely follows the attitude of the bedding planes of the country rocks. At no stage were the workings continued into the underlying Cabbage Tree Conglomerate, the mineralization dying out on all levels at a point where it could be expected to approach these beds.

It would appear that the members of the Cabbage Tree Conglomerate are not in themselves very favourable to ore deposition and that they have acted as a bounding influence on the western limits of the ore body.

Montgomery (1891), with reference to the country rocks, made the following observations:—

"The Tasmania reef has been auriferous throughout all the strata traversed by it. The richest stone is found in a number of distinct 'shoots' or 'chutes', Outside of the 'shoots' however, the quartz has been generally payable The strata that have proved 'favourable country' for gold in the mine may be said to be all those between the lower beds of grits and conglomerates and the main limestone bed. . . . In the mines on the Moonlight line of reef rich stone has been got in the upper levels of all, and as long as the quartz was found in the light coloured grits and sandstone, but on getting down into the black country the stone has become unpayable in every case"

The inconsistency of the reefs in Cabbage Tree Conglomerate is due in a large measure to the relative competencies of the beds involved, resulting in poorly defined fissures in the harder beds with the development of multiple fracture patterns and consequent dispersal of mineralization along a number of more or less poorly defined channels.

These rocks then cannot be considered as offering good prospects for extensive gold mineralization.

With regard to the Tasmania mine at depth, it is known that good values recurred on the bottom (1500 foot) level over a stopping length of about 940 feet. Whether or not this represents the true length of the ore body at this depth or whether the ore body continues to maintain an overall length of about 1300 feet is questionable, but the possibility must be considered that the restriction indicated on the mine plans is due to economic limits rather than mineralization limits. If so, a good gold prospect lies below the present known workings with good chances of permanency with further depth.

If, however, the bounding controls of lithology on the western limits and country fracturing on the eastern limits, continue to control the ore body at depth, then the limits of the ore body below the 1500 foot level could be expected to contract fairly quickly with depth. Any such contraction would greatly reduce the potential of the ore body, possibly to the extent of unpayability.

The Deep Lead

All payable material obtained before 1903 appears to have come from the western wall or "high reef" zone of the lead, and from minor workings on false bottoms at intermediate levels. Both the western wall zone and a false bottom of "black ligneous clay" at 112 feet depth were reported as "fairly payable".

Two bores sunk to bedrock through the deep lead by the Ophir Company were reported to give good values. This report, submitted to the Company by one of the Directors, stated that the first bore, to a depth of 375 feet on the western wall, encountered:—"gravel containing gold at two ounces to load" at 240 feet, and "9 feet of wash with gold at the rate of 4 ounces to the load" at the bottom of the bore. In the second bore to a depth of 286 feet in the eastern wall, "about 12 feet wash, giving returns at 2 ounces to load" was reported from the bottom. The term "load" as used is not defined in the reports available.

Very little core was obtained in the course of the drilling and the above reported values can be taken only as indicative that the deep lead is auriferous in part, particularly in the lower levels. It is pointed out that the 270 foot and 330 foot levels of the older workings on the Tasmania reef penetrated the deep lead but no values were reported. These penetrations would be too far south to encounter any enrichment from the surface outcrop of the Tasmania reef.

Since the proven depth of the deep lead in the vicinity of the Ophir bores is in excess of 400 feet as shown by the Ophir mine workings, the actual bottom of the deep lead has not been tested and must be considered to be a reasonable gold prospect.

Other Mines

The prospects of the smaller mines on the field are not promising. The Moonlight-cum-Wonder reef system was fairly extensively prospected during the life of the mine, particularly at depth, with no success. Too little is known about other mines such as the North Tasmania and Brandy Creek mines, to be able to suggest any exploration programme, and the still smaller mines such as the Leviathan, Cosmopolitan, &c, are too small to warrant testing. Any mineralization on this belt would be small and patchy and restricted to near surface depths. The best exploration for this type of mineralization would be surface costeaning over large areas, a method commonly used by early prospectors in the district.

Mineralization at the Salisbury end of the Blue Tier ridge is also too irregular for any deep exploration programme to be successful.

Two mines not previously mentioned due to their position are the "East Tasmania" mine and "Dally's United" mine. Neither of these mines were active producers but were sunk as prospecting ventures attempting to intersect any extension of the Tasmania reef easterly of the Gordon Limestone. Should the line of fissure persist east of the Gordon Limestone then comparatively small "shoots" of ore could occur in the sandstone members of the succession overlying the Gordon Limestone, but any mineralization found would be repetition on a small scale and not a continuation of the Tasmania ore body as such.

Some small quantities of "alluvial" gold may still be won from the thin Tertiary gravel beds on the lower slopes of Cabbage Tree Hill, and on the plain easterly of the Beaconsfield township, but large accumulations cannot be expected.

CONCLUSIONS

I. The only auriferous prospect of any size in the field is the continuation of the Tasmania reef at depth below the abandoned workings. Dependent on the bounding controls at the eastern end of the ore body, a large tonnage of medium grade ore could exist. A diamond drilling exploration programme to test this prospect is warranted.

II. Testing of the bottom of the deep lead may give favourable results. All gravel horizons in the deep lead northerly of the strike of the Tasmania reef are potential zones of enrichment. Accurate assessment of the deep lead would require a maximum recovery of the unconsolidated strata penetrated in any drilling programme attempted.

III. A limited amount of "wild cat" drilling could, if necessary, be carried out on the western flank of Cabbage Tree Hill in the vicinity of the old Britannia Shaft, and easterly of the Gordon Limestone in the vicinity of the East Tasmania-Dally's United mines.

IV. No other prospecting can be recommended in the area with the exception of small localized surface activities by small parties.

It should be noted that even though the testing of III above may be only a case of "proving the absence" of payable mineraliz-

ation, the deflections occurring in shallow diamond drill holes in these localities could be used to assess the influence of the strata on any deeper penetration attempted on the deeper Tasmania reef prospect should such drilling be attempted.

RECOMMENDATIONS

1. The Tasmania auriferous quartz ore body should be tested for continuity at a depth of 500 feet (vertical) below the old workings. Testing at shallower depths would not be satisfactory as considerable ore reserves would be a prerequisite to any attempt at future mining.

Testing should be initially by two diamond drill holes designed to intersect the ore body at the 2000 foot level (vertical) below the following surface datum points:—

- A. A point 382 feet from the centre of the Grubb Shaft on a bearing of N33°E (mag.).
- B. A point 762 feet from the centre of the Grubb Shaft on a bearing of N32½°E (mag.).

2. Subsidiary testing of the deep lead would be most effective by exploratory drilling at a point 150 feet on a bearing of S55°E from the old Ophir Shaft.

3. Diamond drilling is not recommended on the "wild cat" prospects on the western flank of Cabbage Tree Hill or in the vicinity of the East Tasmania-Dally's United mines at this juncture unless drill deflection data from these holes would have a bearing on the collar locations of the deeper holes.

Geological plans of the Beaconsfield area (Figure 2) and the deep lead (Figure 3) showing recommended prospects accompany this report. Subsurface mine level plans, mine cross sections, mine longitudinal sections, &c., of the Tasmania mine may be inspected at the Department of Mines, Hobart.

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