

NOTES REFERRING TO THE GEOLOGICAL MAP OF THE BALLARAT GOLD-FIELD.

1. About 17 chains north of this point is the Golden Well shaft, sunk through the following:—
 Basalt 109 feet. Water.
 Clay resembling a mass of pipe stems, white on the outside and red within when broken .. 4 .. with water.
 Honeycombed basalt .. 37 ..
 Blue clay containing fragments of basalt .. 9 .. No water.
 Thence bored into solid basalt .. 50 .. No water.
 Total 209 feet.
 (From information supplied by Mr. Bullery, owner of the land.)

2. Bore in Racecourse—(Information supplied by Mr. Gorm).
 Surface soil and first rock (basalt) .. 29 feet.
 Pure brownish clay .. 15 ..
 Mixed clay and boulders (basalt) .. 18 ..
 Second rock 83 ..
 Clay 7 ..
 Third rock 79 ..
 Clay 33 ..
 Fourth rock (bore discontinued) .. 32 ..
 Total 233 feet.

3. Outcrop of Silurian. Much-scattered angular quartz from intersecting reef. Unexpected; but gold reported to have been found in a fragment of the quartz.

4. MOUNT PRIGAL.—Volcanic point of eruption. Crater faintly traceable on north side. Hard tough blue lava.

5. MOUNT ROWAN.—Volcanic point of eruption. Crater traceable on north side. Vesicular lava and scoriae.

6. GREAT NORTH-WEST SHAFT No. 1.
 (Compiled from "Gold Fields and Mineral Districts of Victoria," page 472.)
 Surface soil and first rock 33 feet.
 Clay 11 ..
 Second rock 144 ..
 Clay 28 ..
 Third rock 57 ..
 Clay 11 ..
 Fourth rock (proved by bore) .. 48 ..
 Clay resting on bed rock (ditto) .. 23 ..
 Total 355 feet.

7. ROXBURGH CASTLE SHAFT.
 Surface soil 9 ..
 First rock 6 ..
 Red and grey clay 38 0 ..
 Second rock 35 0 ..
 Black clay 2 0 ..
 Sandy clay 2 0 ..
 Strong clay, various colors .. 24 0 ..
 Drift 1 6 ..
 Yellow and red clay 6 0 ..
 Hard cemented sand and quartz .. 1 6 ..
 Clay and quartz mixed 10 0 ..
 Total 139 feet to bed rock.

At a depth of 155 feet a drive put in south-westerly was carried on for between 500 and 700 feet, when the wash-dirt (a "reef wash") was about 14 feet under foot; rise in drive from shaft not exceeding 3 feet; color of gold seen, but gutter not reached. Deepest ground reached was dry. Water in the rocks very heavy.—(From information supplied by Mr. R. V. Brown.)

8. Near ROXBURGH SHAFT. An old shaft at this point shows the basalt to extend beneath the "recent" clay deposits.

9. RODNEY SHAFT.
 Surface soil and clay 26 feet.
 First rock (basalt) 20 ..
 Clay 4 ..
 Second rock 39 ..
 Clay, drift, and wash (with a little gold) .. 59 ..
 False bottom (like broken reef) .. 6 ..
 Water-worn quartz wash on bed rock .. 2 ..
 Total 156 feet.

10. ROSE HILL SHAFT No. 1.
 Thin covering of surface soil and clay ("recent") and basalt 80 feet.
 Various clays and drifts, with heavy water-worn quartz wash on bed-rock 180 ..
 Total 260 feet.

No. 2 shaft similar, the basalt being 100 feet, and the total depth 250 feet.

11. NORTHERN JUNCTION SHAFT.
 Similar to Rose Hill, but somewhat deeper. In the workings was discovered a fossil, pronounced by Baron Von Mueller to be a fungus of the genus Xylaria or a closely allied genus.

12. UNITED SUBURBAN SHAFT.
 Depth of gutter about 320 feet. Sinking similar to Rose Hill and Northern Junction.

13. BALLARAT EXTENSION.
 No. 1 Shaft. Surface soil, clay ("recent"), and basalt, 80 feet.
 No. 2 Shaft. Ditto, 30 feet.
 Both bottomed through strata similar to those of the Rose Hill. Total depth, 260 feet.

14. The edge of the basalt, about 10 feet in thickness, is reported to have been passed through in one of these shafts.

15. DAUNTLESS AND OPHER SHAFTS.
 Dauntless Shaft.—Total depth, 140 feet; through various clays and drifts; no basalt. Quartz reef in bed rock a little east of shaft.
 Opher Shaft.—145 feet. Similar to Dauntless.

16. Several shafts; 60 feet; all clay to bed rock.

17. Shaft. Clay, with few intervening layers of gravel; small angular wash on bottom, which dips to the northward. No gold found. Depth, 110 feet.

18. Shaft bottomed at 30 feet. All clay ("recent"). Bottom dipping north-easterly.

19. Shafts 50 to 72 feet. Red, yellow, and black clays to bed rock. No wash.

20. CYPRUS SHAFT.—155 feet. No basalt. A considerable thickness of black clay, approaching lignite in character, was passed through.

21. Strike N. 14° E.

22. HEAD OF SULKY GULLY LEAD.
 Depth of sinking 70 feet. Clay and angular quartz drift. Erosion of lead channel due to forces acting prior to lava flows. Since covered by recent deposits, so that the existence of the lead does not here affect the contour of the hill.

23. LOTHAIR SHAFT.
 Surface 49 feet.
 Loose shingly drift, with brown clay .. 4 ..
 Various clays to hard rocky bottom
 Total 110 feet.

24. GREAT NORTH-WEST No. 2 SHAFT.
 From Mr. Wheelton's report, a bore near this shaft, after penetrating the basalt, passed through dark clay 1 foot, black clay 2 feet, fine white drift 3 feet, quartz and clay 3 feet, cement and quartz 2 feet, red and blue clay 1 foot, clay and quartz 2 feet, blue and red clay and quartz 5 feet, quartz drift like washdirt 1 foot, bottoming on yellow and white soft pipeclay reef. Total depth, 200 feet 1 inch.

25. EAST SIDE MOUNT ROWAN.
 Two shafts, now filled, reported to have bottomed at about 20 feet, through surface soil and loose fragments of basalt.

26. Very thin covering of "recent" on the silurian, which is fully exposed a short distance N.W.

27. Brown fissile sandstone. Strike N. 3° 40' E. Dip easterly, and nearly vertical.

28. Thick bedded coarse sandstone.

29. Thick bedded sandstone. Dip easterly at 75°.

30. Strike N. 6° E.

31. Yellow and brown soft fissile sandstone and shales.

32. Light grey sandstone.

33. Moderately coarse yellow and brown sandstone.

34. Soft yellow sandstone. Strike N. 10° E. Dip nearly vertical.

35. Sandstone and shales.
 Tunnel exposing alternate bands of soft yellow and dip westerly, at 80°.

36. Yellow fissile shales and sandstones. Dip easterly.

37. NEAR BRIDGE AT MINERS' REST.
 Quarry in hard dense light-blue basalt.

38. NEAR UNITED SUBURBAN SHAFT.
 Quarries in hard light-blue basalt, both dense and vesicular, showing rudely columnar structure.

39. WEST OF WOMBAT HILL.
 Hard dense blue basalt.

40. WOMBAT HILL.
 Hard dense dark-blue tabular basalt, enclosing occasional fragments of quartz.

41. Much ferruginous matter (apparently efflorescent) covers the surface of the basalt.

42. Hard fine-grained fissile sandstone.

43. SUBURBAN LEAD.
 Sinking 37 feet on lead, through a little basalt. Eastern shaft 17 feet without basalt.

44. NEAR MOPOKE.
 Depth of sinking 40 feet, through reddish clay and heavy rounded quartz drift.

45. MOPOKE.
 Basalt, 5 feet; clay 10 feet; clay and quartz drift, heavy and rounded on bottom, 20 feet. Total, 35 feet.

46. BRITANNIA LEAD.
 Depth of sinking 90 feet, through clay and partially-rounded quartz drift.

47. ROSSER'S FREEHOLD.
 Surface soil, clay, and basalt, 10 feet; water was opened out at total depth of 160 feet, driving eastward to the gutter.

48. KNEESHAW SHAFT.
 Basalt, 120 feet, to bed rock. No drift. Drove to eastward for the gutter at 150 feet.

49. Shafts showing over 40 feet clay and drift ("recent") covering the silurian.

50. WATERMAN'S REEF.
 Well-defined lode, with two slate walls. Thickness, from 6 inches to 4 feet. Westerly underlay. Worked to about 35 feet. Gold in floors about 8 feet apart, the intervening bands of stone being unremunerative. General yield exceeding 1 oz. per ton.

51. DONNELLY'S SHAFT.
 Basalt, 40 feet; clay, 36 feet; sand and drift (quartz) heavily water-worn on bottom. Total, 76 feet.

52. Shaft. Basaltic clay and boulders, 11 feet; solid basalt, 10 feet; quartz drift, 5 feet, to bed rock. From a depth of 48 feet drove easterly, striking drift a distance of 90 feet from shaft, bottom still dipping eastward.

53. Dark-grey micaceous shales.

ALBION CONSOLS SHAFT.
 Shaft bottomed at 210 feet, through three rocks, and sunk 100 feet in bed rock. Total, 310 feet. Drove north 400 feet, and bored up 90 feet without change. Drove west, and struck tributary lead containing very little gold. Work stopped.

PRINCE IMPERIAL SHAFT.
 Total depth to bed rock, 272 feet, with four rocks. Dip in shaft when bottomed, 5 feet S.E. Work stopped.

SILURIAL SHAFT.
 Soil and clay ("recent"), 10 feet; first rock, 50 feet; red clay, 1 foot; second rock, 41 feet. A few feet of clay and wash on to bed rock.

55. EAST OF VALE PARK.
 Irregular quartz leaders, taking the "saddle" form of some of the Sandhurst reefs. An anticlinal is shown in the workings.

56. EAST OF VALE PARK.
 Fissile micaceous sandstone. Strike, N. 2° 10' E. Dip, E. 2° 10' S., at about 70°.

57. NEAR HEAD OF CALEDONIA LEAD.
 Shaft through basalt (probably a dyke), 84 feet, into silurian. At 100 feet a drive north struck basalt at 16 feet.

58. Uncertain whether basalt exists here beneath the "recent."

59. NORTH OF GONG-GONG RESERVOIR.
 Near the granite boundary the silurian rocks are altered, and are harder, more micaceous, and exhibit a slightly crystalline structure. The quartz in the few reefs differs from that in those to the westward, being more vitreous externally, and showing a sugary fracture when broken.

60. Bluish-grey altered micaceous shales or mudstones.

61. NORTH OF GONG-GONG RESERVOIR.
 Fine-grained altered micaceous sandstone.

62. IN YARROWEE, BELOW GRANITE BOUNDARY.
 Hard micaceous silt.

63. NORTH OF KIRK'S DAM.
 Quarry in hard grey slightly vesicular basalt.

64. Extremely hard dense dark-blue basalt.

65. NORTH OF MOUNT WARRENHEIP.
 Scoria and highly vesicular lava containing olivine.

66. PINCOCK'S DAM.
 Extremely hard dense dark-blue and grey basalt.

67. Shaft; 30 feet volcanic ash on hard basalt.

68. Quartz wash reported in sinking cellar of brewery.

69. Quarry in granite of good quality.

70. Railway cutting, showing decomposed granite capped by a flat vein and intersected by numerous smaller veins of quartz.

71. Hard light-brown micaceous sandstone.

72. Indications of the presence of a granite dyke.

73. RAILWAY CUTTING, WARRENHEIP.
 Soft decomposed basalt alternating with hard bands of concretionary structure resting on soft altered silurian shales intersected by granitic veins.

74. MOUNT WARRENHEIP.
 The "foot hills" for a radius of about a mile round Mount Warrenheip are composed of scoria, volcanic ash, and lava, varying from highly vesicular to a dense tough character, apparently the latest lava flow.

75. RAILWAY SOUTH OF WARRENHEIP.
 Beds of ironstone nodules cemented with ferruginous matter.

76. Numerous detached blocks of hard ferruginous quartz cement.

77. Soft yellow, white, and grey shales and sandstones, dipping easterly.

78. WESTWARD FROM PRINCE IMPERIAL SHAFT.
 Basalt in bed of watercourse.

79. Fine rounded quartz drift and reddish cement.

80. Soil and clay on mixed angular and rounded quartz drift.

81. Dark-grey vesicular tabular basalt.

82. Mixed angular and rounded quartz drift on clay on basalt.

83. Hard ferruginous cement, with angular quartz in bed of creek.

84. Hole showing mixed angular and rounded quartz drift underlying clay and soil.

85. Shaft showing mixed angular and water-worn quartz drift (principally the latter) underlying clay and soil.

86. A few water-worn quartz pebbles (probably vestiges of "oldest") scattered among the angular blocks.

87. Nuggets found in clay several feet above bed rock.

88. Hard dense brittle dark-grey basalt, showing rudely columnar structure.

89. Yellow and brown fissile sandstones and shales.

90. HARD HILLS, BUNINYONG.
 The "oldest" occupies a basin shallowly north, south, and west. A branch of Scotchman's Lead heads from the S.E. portion, where the "oldest" and "older" are almost indistinguishably blended. The three quartz reefs shown are the supposed continuation of Hiscock's line of reef. Dip, easterly.

91. Depth of sinking, 50 feet, through clay, sand, and a little drift on to wash-dirt of clay and quartz gravel.

92. Dip, west. Soft yellow and white sandstone and shale.

93. Shaft showing angular quartz drift beneath basalt.

94. Shallow workings, about 15 feet sinking, with no defined gutter.

95. Conglomerate of ironstone nodules, basaltic fragments, and granitic detritus cemented with ferruginous matter.

96. Hard siliceous cement enclosing fine angular and rounded quartz pebbles.

97. Capping of partially-rounded and angular quartz and brown clay on decomposed granite.

98. Quarries in extremely hard dense dark-blue basalt.

99. Hard ironstone with fine angular and rounded quartz.

100. Ferruginous cement of sand and rounded quartz pebbles.

101. Altered micaceous sandstone and shale.

102. Shaft sunk in volcanic ash; not bottomed.

103. Hard siliceous and ferruginous conglomerate, containing both rounded and angular quartz.

104. DEVONSHIRE COMPANY'S SHAFT.
 Clay and sandy drift, 70 feet; basalt, 40 feet; clay, 6 feet. Depth of gutter near shaft about 130 feet.

105. Shaft bottomed at 70 feet, through clay without basalt.

106. Water-hole showing volcanic ash, scoriae, and vesicular lava.

107. Numerous large blocks of very hard ferruginous cement, containing large and small water-worn quartz pebbles.

108. Extremely hard quartzose sandstone.

109. Hard white siliceous and brown ferruginous cement, containing large and small water-worn quartz pebbles.

110. Hard white gritty sandstone.

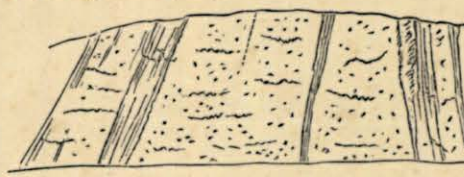
111. Hole 15 feet deep, through clay and quartz gravel on to soft white sandstone.

112. Hard ferruginous cement containing angular and water-worn quartz.

113. Thick deposit of rounded quartz gravel on basalt.

114. Strike, N.; dip, E., at about 80°.

115. Quarry in light-brown sandstone, about 20 feet thick, between bands of shale and sandstone, intersected by small horizontal quartz veins. Strike, N. 3° W.; dip, anticlinal. The sandstone is used for building, but is of only medium quality.



116. Cutting, showing angular surface quartz, cemented with ferruginous matter deposited from water percolating the basalt.

117. Gold is reported to have been found in sinking a well near the saw-mill.

118. Shaft now sinking in basalt of a dense dark quality intermixed with some of a reddish scoriaceous character.

119. The presence of granite is indicated by the soil and the altered character of the adjacent silurian rocks. The boundary is indistinct, and can only be shown approximately.

120. The section of the Princess Louise shaft, a short distance south of this point, is as follows:—Loam, 4 feet; yellow sandy clay, 12 feet; white clay, 4 feet; yellow sandy clay, 20 feet; hard red clay, 5 feet; wet drift, 2 feet; rotten rock (1 basalt), 4 feet; grey clay, 10 feet; dark-grey clay, 15 feet; black clay, 10 feet; lignite, 2 feet; black clay, 4 feet; dark-grey clay, 6 feet; red marly clay, 15 feet; blue clay, 6 feet; blue clay, 5 feet; black clay, 15 feet; impure lignite, 8 feet; white 4 feet. Bottomed at total depth of 151 feet on soft green sand. Dip in shaft, 4 feet to the north.—(Information supplied by Lee).

121. Brick works. About 15 feet tough clay on basalt.

122. Shaft showing basalt beneath; flat.

123. WATSON'S LEAD.
 The gutter is reported to have been thoroughly tested and proved quite unremunerative north of this point.

124. EMPEROR SHAFT.
 Surface soil and first rock, 110 feet; clay, 10 feet; sand, 7 feet; bottomed at 227 feet. Driving operative since of extensive but unremunerative wash, probably to the west of the Bonshaw gutter.

125. ONE-EYE GULLY.
 The basalt is traceable over the lead only a short distance. It appears to have existed continuously from the gutter, the intervening portion has been removed by denudation, narrow course hidden by the "recent" and "most" drifts.

126. A narrow flow of lava is proved by shafts to occur gully from its source downward.

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