

Adelong gold

Mineral Resources

Adelong is situated 14 kilometres west of Tumut. Payable gold mineralisation, both reef and alluvial, was first discovered at Adelong in the year 1857, and the total yield of the Adelong field over a productive life of nearly 100 years is estimated to be about 21 234 kilograms. As such, Adelong ranks as one of the major gold-producing districts in NSW.

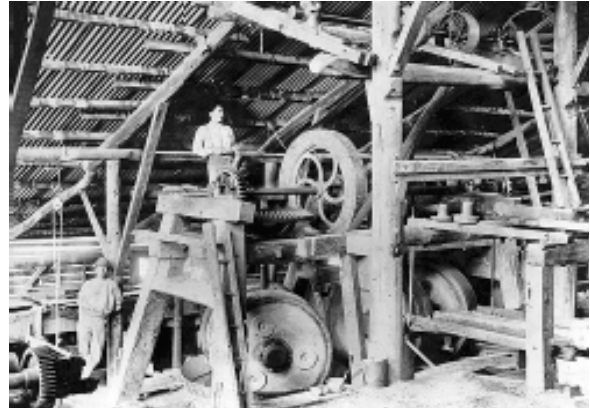
The only detailed description of the geology of the Adelong Gold Field is that by Harper (1916), based largely on a study of those underground workings accessible at the time of his survey. The history of mining operations at Adelong from 1875 to the present is outlined in successive Annual Reports of the NSW Department of Mines.

Historical outline

The initial discovery of gold at Adelong by a Mr Williams took place in 1857, the find being located on the crest of Victoria Hill and representing the weathered capping of the Old Hill Reef. Alluvial gold, both in Adelong Creek and Golden Gully is also believed to have been discovered at about the same time, and the field quickly developed into an important producer. By 1859 a number of prominent lines of mineralisation were being actively exploited. The two most prominent lines of mineralisation, the Old Reef and the Victoria, produced some 3 798 kilograms of gold during the period 1857-1876. The amount of gold obtained from alluvial sources during this time is not known, but it is believed to have been about 3 113 kilograms.

The rapid development of reef mining is shown by the fact that in 1877, the Great Victoria Gold Mining Co had received an award of \$2 000 from the Government for having produced payable gold ore at a vertical depth of 224 metres below surface.

1892 marked the beginning of active operations on the Gibraltar reefs and the Gibraltar mine during the period 1892-1916 yielded some 3 892 kilograms of gold. Large scale dredging operations on Adelong Creek downstream from Adelong itself



The Reefer Battery, Adelong. The Reefer Battery extracted over 92 000 ounces of gold from quartz it crushed between 1871 and 1904

commenced in the year 1901 and dredging operations were carried on intermittently until the Second World War. The major operations included Grahamstown Gold Estates (later Davies and Kiershaw Gold Estates Pty Ltd) during the period 1901-1914, Adelong Creek Dredging Company (1911-1928), Adelong Gold Estates (1913-1928) and the Golden Valley Mining Co (1933-1939). The closure of the Gibraltar Mine in 1916 marked virtually the cessation of active reef mining in the area, although sporadic attempts were made between 1928 and 1931 to reopen the Kurrajong line of mineralisation and a small production from the Gibraltar mine was maintained during the period 1928-1942.

Geology

The geological setting of the Adelong area is shown on the Wagga Wagga 1:250 000 sheet and the Tumut 1:100 000 map sheet. Much of the area is underlain by granitic rocks, forming part of the Maragle Batholith, and designated the Wondalga Granite, while at Adelong itself a prominent norite intrusive body occurs. To the west of Adelong is a belt of intermediate to mafic igneous rocks and sediments which extends from Batlow in the south to at least as far north as the Snowy Mountains Highway. Quaternary alluvial sediments are prominently developed along Adelong Creek.



Gold mineralisation

Both reef and alluvial gold deposits occur at Adelong.

Reef deposits

The known reef deposits at Adelong occur in the form of a series of discontinuous quartz veins within granite that are distributed along a number of prominent lines of mineralisation. These lines exhibit two prominent 'directional' trends.

The first, as represented by the Currajong, Caledonian, Victoria, Middle and Old Reefs, trends generally 340-350°, with a steep underlay to the east or west, and the second, which includes the Gibraltar and Lady Mary reefs, has a trend N30°E and steep south-easterly dip.

The major 340-350° trend corresponds also to the trend of the basic dykes and it has been suggested that the basic dyke/granite contacts provided the major physical control for mineralisation.

Reefs in the Wondalga Granodiorite and the Maragle Batholith Basic Dykes

By far the most important gold deposits in the Tumut sheet area have been those in the immediate vicinity of Adelong, and the majority are fissure lodes associated with basic dyke emplacement within the Wondalga Granodiorite.

Total reef production to 1916 from within an area of about 8 square kilometres around Adelong was estimated at 7900kg, and N.L. Markham (pers. comm.) has estimated reef production for the Adelong Gold Field to total 9066.04kg.

Since the mid 1960s the Adelong gold deposits have been explored by Planet Gold Ltd (EL 119), Central Pacific Minerals N.L. (EL286), and Carpentaria Exploration Co. Pty Ltd (ELs 1224, 2186). Between 1979 and 1984 the last company carried out extensive surface mapping, geochemical sampling, costeaning, and diamond drilling (58 boreholes).

Since 1985 they have concentrated on evaluating near-surface reserves, and have done a further 2 060m of drilling plus mapping, sampling of quartz reefs and interpretation of airborne geophysical data.

Reefs in the Wondalga Granodiorite

Free gold occurs in quartz veins in the Wondalga Granodiorite; arsenopyrite has also been observed. The reefs are up to 0.6m wide; recorded strikes/dips are northwest-southwest/underlie southwest, east-west/underlie north, north 80° east, and southwesterly.

Fissure Lodes associated with Basic Dyke Emplacement in the Wondalga Granodiorite

Gold occurs free and as fracture fill in pyrite. Associated minerals are pyrite, chalcopyrite, galena, arsenopyrite, sphalerite, scheelite, metallic bismuth and chrysocolla. "Evidence of movement along the main channelways is indicated by slickensiding and preferred orientation of micaceous minerals, while intense hydrothermal lateration effects are indicated by the development of a zone of quartz-muscovite alteration adjacent to the veins. The veins are reported to range from a few centimetres to 3-6 metres in width, but average about 1 metre".

The deposits occur in 12 main lines of reefs: the Gibraltar, Donkey Hill, Middle (Donkey Hill), Fletchers, Currajong, East Currajong, Poverty Point, Victoria, Middle Caledonian, Old Hill and Camp reefs. All but one of the main lines of reefs strike approximately 350°, roughly parallel to the strike of the Wondalga Shear Zone and of the foliation in the Wondalga Granodiorite. The reefs are quartz fissure lodes associated with basic dyke emplacement at the boundary between microgranite and granodiorite. On the Gibraltar line, which strikes approximately 055°M, the lodes are associated with basic dyke emplacement along joints striking 035°/dip 75°S, and 075°/dip 70°S (Langley 1972).

Source: Veins of the Wondalga Granodiorite

Adelong Creek and its tributaries have been by far the greatest source of alluvial gold within the sheet area. N.L. Markham has estimated the total production of alluvial gold from Adelong Creek and its tributaries at and below the township of Adelong to its junction with the Murrumbidgee River, to be of the order of 13 485.05kg. Some 7374kg were recovered from dredging between 1900 and 1942.

Gibraltar Reef

This reef was the most important and productive of the Adelong field. The main workings were at the Gibraltar mine and Sir Henry Parkes mine. The Gibraltar mine (O'Brien's Shaft) reached 365m depth. The lodes, which consisted of quartz reefs up to 0.5m wide, trended 040° to 060° and had a steep easterly dip (Pattinson 1971). The mine was worked until 1916, and then on a much reduced scale intermittently from 1921 to 1945. From 1908-1913 the average yield was 36.7g/t; total recorded production is 3732kg at an average grade of 30g/t.

Victoria Reef

The Victoria Reef dips east at 80°-90° and is up to 0.9m wide. Main workings were at the Great Victoria Gold Mining Co (closed in 1909) and

Williams Gold Mining Co (closed in 1888). At the Great Victoria Gold Mining Co. shafts reached 328m (other shafts on the reef reached 283m and 249m, and at least another six were over 100m deep). From 1867 to 1876, yield at the Great Victoria Mining Co. was 258.2kg (62.2g/t) and the Williams Gold Mining Co. had a yield of 795.9kg (163.0g/t).

Currajong Reef

The main mine on this reef was the Currajong Gold Mining Co., where shafts reached 97.5m in 1901, and bulk parcels from rich bundles yielded to 551g/t. In 1887 the yield at this deposit was 9979.6g. The mine was worked intermittently until 1902, and again in the 1920s. In 1926-1932 a tunnel was driven from Adelong Creek for "nearly 800ft (244m)" to intersect the lode, some 152m below the old workings.

Caledonian Reef

The Caledonian Reef underlies east. Main workings were at deposit 193 (R Trudgen and party/Caledonian Gold Mining Co.), which was worked intermittently till 1904. Shafts reached 195m in 1905, and to 1901 the yield averaged 69.9g/t. Total recorded production at deposit 193 is 54.2kg, according to Pattinson, and 95.58kg.

Old Hill Reef

The Old Hill Reef underlies west a 80°-85° and is up to 0.90m wide. The largest workings were at the Prowse and Woodwards, Crown of Old Reef/Challenger Gold Mining Co, Adelong Gold Mining Co and Our Own Gold Mining Co. These mines were worked intermittently in the late 19th Century, the Crown of the Old Reef being the last to close in 1905.

The shaft reached 335m at Prowse and Woodwards, and the yield for 1859 to 1863 was 274kg (232.9g/t). At the Challenger, the shaft reached 183m; the yield for 1859 to 1863 was 1152.6kg (229g/t) and from 1859 to 1876 was 1305kg (149g/t). The shaft reached 172m at the Adelong Gold Mining Co.

Middle Reef

The Middle Reef is vertical, and shafts reached about 60m.

Donkey Hill Line

Again, at least three separate quartz veins have been worked designated the Donkey Hill, Middle and Fletcher's Reefs. According to Central Pacific Mineral N.L. (GS1971/021), these occur within a

more mafic igneous rock, there being an intrusion of gabbroic composition present, as well as numerous lamprophyric dykes.

No descriptions of these workings on Donkey Hill are available in the early literature. More recent work has been at the Lady Clare mine, which was operated for a small production over the period 1904-1917.



Adelong township about 1870

Lady Mary Reef

These lie adjacent to the Adelong-Tumut Road.

Gadard Workings

These workings are situated about 3km to the east of Adelong, and are of very limited size.

Alluvial deposits

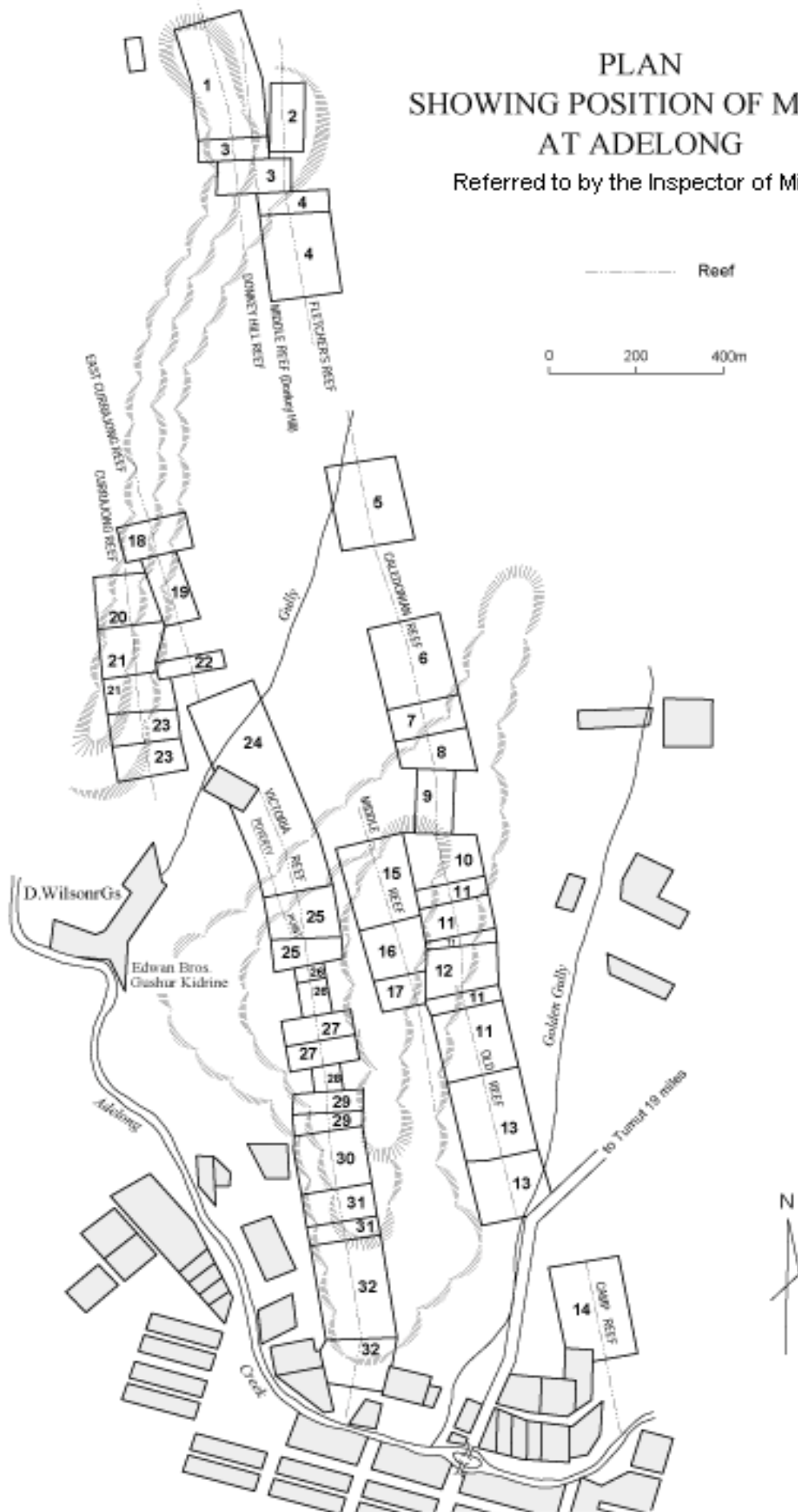
Little information is available concerning the alluvial deposits, other than their general distribution. Golden Gully, on the eastern flank of Victoria Hill, is reported to have been exceptionally rich, the gold here having been derived from weathering of the Old Reef line of mineralisation. Golden Gully was worked to its boundary with Adelong Creek.

Adelong Creek itself has been a prolific source of alluvial gold and the Creek was worked extensively from a point about 2km downstream from Adelong township, where the valley widens into a broad alluvial flat, to its junction with the Murrumbidgee River, a distance of some 26km. Initially the alluvial ground was treated by sluicing or by more primitive methods, subsequently by dredging. The main centre of alluvial mining appears to have been near Grahamstown and Shephardstown, opposite the Gibraltar line of mineralisation.

Few records exist of the thickness and nature of the gold-bearing sediments along Adelong Creek, but it is assumed that most of the gold was concentrated in coarser gravels towards the base of the fluvial sequence. Records concerning dredging operations along Adelong Creek show

PLAN SHOWING POSITION OF MINES AT ADELONG

Referred to by the Inspector of Mines



that four companies operated on a substantial scale. These are listed below.

1. Davies and Kershaw Gold Estates Pty Ltd (earlier Grahamstown Gold Estates) carried out dredging operations in the Grahamstown area from 1901-1914. The production of this company for the period 1906-1914 amounted to 1 904.39kg at an average grade of 4.7 grains/cubic yard.
2. Adelong Gold Estates N.L. began operations in 1913 with two dredges, one located near the railway viaduct and the second about a mile upstream. Two kilometres of auriferous wash on a granite-slate bedrock was stated to occur below some 6m of overburden. Production of this company over the period 1913-1928 is given at 2 653.06kg at an average of 3.5 grains/cubic yard.
3. Adelong Creek Dredging Company N.L. operated on Adelong Creek from 1911-1928 between Mt Horeb and Adelong Crossing. The depth of ground was stated to be 8-9 metres, consisting of 4 metres clay and loam overburden, 1.2 metres of sandy drift and 3.4 metres of gold-bearing wash, on a weathered slate bedrock. Between 1911-1928 the Company recovered 2 129.43kg of gold at a recovered grade of 2.6 grains/cubic yard.
4. Golden Valley Mining Co. N.L. first operated a dredge on the western side of Adelong Creek near Mt Horeb, the ground being 12-18m deep and comprising some 2m of alluvial wash, but later operations moved to an area just below Grahamstown, where the ground was 9-11 metres deep. Production for the period 1932-1942 is given as 244.41kg at an average grade of 3.6 grains/cubic yard.

The total production from dredging operations along Adelong Creek has been estimated by Cliff (1975) at 7 381.78kg. To this figure may be added an amount of 3 269.15kg, estimated by Harper (1916) to have been recovered from alluvial deposits between 1857-1876, and a further 1 836.95 kg between 1876-1900. The total production of alluvial gold from Adelong Creek and its tributaries at and below the township of Adelong, to its junction with the Murrumbidgee River, is of the order of 13 485.05kg.

More recent exploration drilling by Central Pacific Minerals N.L. on Exploration Licence 193 has sought to determine the presence of payable alluvial gold in the alluvium of the Murrumbidgee River downstream from its junction with Adelong Creek (GS1970/113). A number of percussion drill holes were completed, but gold values obtained were in all cases well below the defined cut off grade of 3 grains/cubic yard (GS1970/431, GS1971/023). A total of seven percussion drill holes to depths of up to 45m were completed, for a total footage of 238m. The sections intersected consisted mainly of fine to medium grained gravel and sand, with minor clay and silt. The distribution of gold values showed an upper zone between 12-18m below surface, and a lower zone of 9m down to bedrock, with gold values increasing with depth. Maximum gold values obtained in this drilling program were 0.5 grains/cubic yard, and the area was subsequently relinquished.

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ISSN 1832-6668

Replaces Minfact 54

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Job number 7512