

**NORTH CENTRAL GOLDFIELDS PROJECT**

**HISTORIC MINING SITES  
IN THE  
RUSHWORTH-WARANGA NORTH  
MINING DIVISION**

**PART TWO: SITE GAZETTEER**

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North West Area**

**May 1993**

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**SITE NO. & NAME**                    **1.1    DUNLOP HILL WORKINGS**

**LOCATION:**                                **Dunlop Hill, Rushworth**

**HI NO:**                                    **H7924-0010**

**DIRECTIONS:**                        Off Tatura-Rushworth Road, Allotment Reserve, Moora

**MUNICIPALITY:**                      Campaspe Shire

**LAND STATUS:**                        Unreserved Crown Land

**HISTORY:**

1857 onwards. Dunlop Hill Reef was discovered in 1857 by A.B. Dunlop. Dunlop and Smith began prospecting. After Smith left for Bendigo, Dunlop kept working and found a north-south reef near the surface on the crown of the hill. Dunlop dug to 90 ft--the depth allowed by the Act at that time. The reef was rich, 3 ft thick. A bucket yielded 16 oz of gold.

[The mine] then sold to Cox and Routledge. They in turn sold to Westlake and Atkinson for £50. The new partners followed the reef down to 80 ft without success so they amalgamated with Stephen Hilburn and James Wilson who opened the adjoining claim. They went down 100 ft, the stone reef being 1 ft to 3 ft in bulges, but not payable. The mine was abandoned. After some years, Digby Heily and Simon Fraser found a 2 inch thick reef carrying nice gold on the north-west--going down 130 ft but the reef narrowed and was not payable.

Digby Heily formed a company of five--J.V. Heily, W.C. Walbran, T.W. Benbow, G. Cracknell and himself--tunnelling Dunlop's Hill 350 ft on the straight with success. Then 100 ft to the west on the angle without much success, after spending £1000.

The tunnel was one of great interest in the district. The lease consisted of 14 acres, the Dunlop mine worked to a depth of 450 ft.<sup>1</sup> [NB: "depth" = aggregate length of tunnels!!!]

Late 1850s. Hilburn, William McDonald and Wilson lived in log and slab huts. Simon Fraser, who owned a crushing machine, lived there too.<sup>2</sup>

1880s. The tunnel remained a point of speculation, with occasional news reports on promising signs discovered within its depths during the 1880s.<sup>3</sup>

1914. During the 1914 war, the tunnel through Dunlop Hill was considered as a fortress if the Germans took Australia. Britain had Gibraltar, Rushworth had Dunlop Hill tunnel--both were strategic places of an impregnable nature ... It is unfortunate that the tunnel has been filled in by the Mines Department.

19th/20thC. Dunlop Hill in the north [of Rushworth district] was a big mining venture and the site of the present town reservoir.<sup>4</sup>

1918 [history]. This reef, the position of which is so well known to Rushworth residents from the fact of its being associated with the tunnel of that name, was discovered in the year 1857 by A.B. Dunlop ... Dunlop ... kept on working, and shortly afterwards found a north and south reef near the surface of the crown of the hill, for which he immediately obtained a prospecting claim of 90 feet ... Dunlop then set to work to prospect the ground on his own account, employing wages men for the purpose, but the good gold had run out, and though he followed the stone down to a depth of 30 feet it did not improve, his last crushing only yielding 1 oz to the load. This was not providing sufficiently remunerative at that time, he disposed of the claim to Messrs Cox and Routledge, who kept the ground for a time, but without doing much work ... sold to Messrs Westlake and Atkinson for the sum of £50. The new proprietors followed the stone down to a depth of 80 feet on the underlay without finding anything to compensate them for their toil, so they amalgamated with Stephen Hilburn and James Wilson, who opened the adjoining claim, and who sank the shaft another 20 ft, making it 100 feet from the surface, which is about the deepest working on this portion of the reef ... Westlake and Atkinson then prospected on the west end of the hill and discovered a thin east and west vein which gave them 5 oz to the load near the surface, as well as 15 oz from a bucket of specimens. Westlake and Atkinson abandoned the ground after working some of these small spurs and it stood idle for years until Digby Heily and Simon Fraser found a small leader on the north-west of the reef ... carrying nice gold. They opened out on it for some distance and followed it down about 130 feet perpendicularly, where it was about an inch wide ... They then let the ground on tribute to Ned Button and Ernest Hicks, who put the shaft down 15 feet and managed to get three or four loads which returned them 7 oz to the load. The smallness of the stone and the depth of the shaft (145 feet) proved too much for them also, and the claim stands at present as they left it years ago. Mr Digby Heily then formed a company of five shareholders ... and they started to tunnel the hill, Heily and Simon Fraser being the working party. After the tunnel had been driven 350 feet on the straight without meeting with any success, a second drive of 100 feet was put in to the westward on an angle, but in this also they were unsuccessful in procuring payable stone. This made the total tunnelling to be about 450 feet, but much of the ground was prospected also, the size and character of the workings being sufficient proof of the determination of the company to thoroughly try the hill ... in no case was anything worthy of special remark recovered ... About the time of the completion of the tunnel,

the Spring Creek rush broke out, and interest was centred there for a time to the detriment of home ventures, and the ground since then has remained idle. The company failing to comply with the conditions of the lease, which was 14 acres in extent, it became forfeited, and was finally abandoned.<sup>5</sup>

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*DESCRIPTION OF PHYSICAL REMAINS:*

Dunlop Hill quartz workings (main mining period was between 1850s to 1890s).

On the summit of the hill are two open cuts, one 30 m, the other 60 m long. The summit is also the location of the township of Rushworth's water supply.

At the base of Dunlop Hill, on its S side, is a collapsed adit. The tunnel appears to have been driven NNE into the hill. A track runs between the adit and its mullock heap. This heap (22x 18 m. and about 1.5 m. high at its S end) has radiating lines of mullock-dumping. The S end of the dump has been partially quarried.

There are also signs of ground sluicing on the S side of the hill, to both sides of the adit.

Near the summit, on the hill's S side, is a small section of surface stoping.

*INTEGRITY/CONDITION:* Poor.

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*CULTURAL SIGNIFICANCE:*

Integrity of mine workings is poor. Site holds little cultural significance.

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Hammond, 1978, p. 21
- 2 Hammond, 1978, p. 5
- 3 Waranga Conservation Study (1988), vol 3, p16
- 4 Hammond, 1978, p. 10
- 5 'The Rushworth Gold Mines', 1918

**SITE NO. & NAME**                    **MAIN/BALACLAVA GULLY CYANIDE WORKS**  
**2.1**    **Brick-lined cyanide vats**  
**2.2**    **Galvanised iron cyanide vats**

**LOCATION:**                            **MAIN/BALACLAVA GULLY, WHROO**

**HI NO:**                                **H7924-0011**

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**DIRECTIONS:**                    30 m W of the main Whroo-Rushworth road, S of Balaclava mine dam

**MUNICIPALITY:**                Campaspe Shire

**LAND STATUS:**                 Whroo Historic Reserve

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**HISTORY:**

1900. "Balaclava Hill" is a low elongated hill, almost 150 feet high above the surrounding country. There is a 6 feet by 12 feet shaft down 444 feet, but 110 feet of this is full of water, and from this shaft there are several extensive levels. The work that I saw was the surface quarry 80 feet deep, with tunnels into it from the hillside. Much of one side of this quarry came in some years ago owing to a heavy blast and the mine has been to a certain extent interfered with by the result, leaving even at the present time a large amount of ground that will have to be removed or secured before any but very deep operations were safe.

I noted that the old machinery at the mine has not been entirely removed and the engines remain at the winding shaft. Two cyanide works exist at Whroo, one of which is out of work. They appear to be treating old tailings only.

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**DESCRIPTION OF PHYSICAL REMAINS:**

Associated with an extensive dumps of battery sand and the main Balaclava mine dam are two phase of cyaniding operations which would have taken place between the years 1900 to 1930s/40s.

2.1. Cyanide works--earliest phase

Three brick cyanide vats. 22 m further W along the track from the most westerly galvanised cyanide vat are three brick vats, located approx 5 m apart, running in an E-W direction. They are located 10 m S of the track. The middle vat has had its brick lining removed. Each vat has an internal diameter of 26 ft 6-in (8.1 m) and a depth of 8 ft (2.5 m). The walls of the two intact vats are 9 in (24 cm) thick, comprising two rows of red bricks. The bricks are hand-made and appear to have no frog. The inner surface of the brick walls is rendered with cement. An outlet is located on the S sides, draining into Main Gully.

2.2. Cyanide works--latest phase.

Four galvanised cyanide vats. The vats run along either side of a track that leads off the main road. Two vats, placed 2.7 m apart, are located along the S side of this track: both have a diameter of 22 ft. Only the concrete base of the E vat survives, whilst the W vat is completely covered, visible only as a slight depression. The two vats on the N side have the same diameter. The E vat is buried; all that can be seen is an outline of galvanised iron. The W vat is less buried, with sections of the galvanised sides and concrete floor visible. The surviving remains suggest the vats were 2 ft 6-in deep.

Five metres from the E vat, on the N side of the track, is a 10 ft diameter slab of concrete. This slab exists at ground level, and may well have been the base of a water/cyanide solution tank.

**INTEGRITY/CONDITION:**            Brick vats in good condition. The access track to the brick vats is encroaching onto the fabric of the gal. lined vats. In fact, tyre tracks show the area containing the gal. vats is used as a reversing area.

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**CULTURAL SIGNIFICANCE:**

The sites have:

- Historical significance, because they:
  - a) are part of a group or network of sites, the totality of which is considered to be significant, namely, the Whroo Historic Reserve.
  - b) represent a sequence of uses or functions over time.
- Scientific significance, because they represent an important mining technology, as they show an example of an early cyanide works.
- Social significance, because of the importance of the sites to the local or wider community. The brick vats are an integral part of the Whroo interpretative facilities.

**SIGNIFICANCE RANKING:**            Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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<sup>1</sup> Jenkins, 1900, p. 5

**SITE NO. & NAME**                      **MAIN/BALACLAVA GULLY PUDDLERS**  
**2.3**    **Puddler & Dam**  
**2.4**    **Reconstructed Puddler**

**LOCATION:**                                **Main/Balaclava Gully, Whroo**

**HI NO:**                                    **2.3**    **H7924-0012**  
**2.4**    **H7924-0013**

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**DIRECTIONS:**                        Site 2.3. Puddler & dam are located 70 m SW of the W brick cyanide vat (Site 2.2), near the Balaclava mine dam.  
Site 2.4. Located on Main Whroo road

**MUNICIPALITY:**                      Campaspe Shire

**LAND STATUS:**                        Whroo Historic Reserve

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**HISTORY:**

August 1853. The first hectic gold rush days in 1853 only lasted a brief period at Whroo. The gold diggers came in great numbers in August--the rush was part of the Waranga Rush (Rushworth). Later that summer lack of water and intolerable heat of summer drove most of the miners away. The many thousands of fossickers first swarmed the flat, slightly west of Balaclava Hill, where bark huts lined each side of the track and a rowdy canvas township sprang up. The first hotels began here. Giant cacti still mark the site, on the west side of the road to Graytown--just before the cross-road named Tait Hamilton.<sup>1</sup>

1853-4. On arrival [at Port Phillip], the ship's crew deserted for the diggings, and Lewis himself thereupon made up a party with the boatswain and the ship's carpenter to follow them. At McIvor Creek (Heathcote) they tried their fortune, it was said, "in the usual happy-go-lucky style of sailor diggers", and when these diggings were abandoned they trudged off in the direction of Whroo with little left in the way of cash ... Precisely when Whroo was opened up is uncertain, but in mid-October it was being referred to as the "new diggings" though it already had its own government camp, to which Assistant Commissioner Mollison was soon transferred. Later in the month an 81 ounce (2314 g) nugget was discovered, but nevertheless the excitement waned and there was a lull when Whroo was almost deserted for two or three weeks, followed by a new rush in mid-November. At this time another two nuggets of 21 and 32-1/2 ounces (600 g and 929 g) were found, and 1560 ounces (44570g) were dispatched with the gold escort. The principal gold-bearing gully was the Union Lead, which began near Balaclava Hill and ran south-easterly towards Reedy Lake, and it was here that Lewis's party arrived late in 1853 and sank an alluvial shaft to bottom on the upper Silurian bedrock. All the mining was at this stage alluvial, and the first dams and puddling machines were constructed in 1854; by 1863 the number of puddlers was to rise to seventeen, of whom eight were Chinese.<sup>2</sup>

1856. Lands Dept Map--township of Whroo. This map shows: Main Gully--2 puddling machines.<sup>3</sup>

1 February 1861. McIvor News and Goulburn Advertiser. Eight one-acre allotments of land in the township, between Mrs Primrose Wilson's "Victoria Hotel" and the school house reserve, are advertised for sale. They are situated on a flat at the foot of Balaclava, and one not known to be auriferous.<sup>4</sup>

November 1861. New puddling machine in Main Gully.<sup>5</sup>

August 1862. At lower end of Main Gully, sinking is about 28 ft.<sup>6</sup>

August 1862. Busiest place is Main Gully, below the township, expecting to find the lost lead.<sup>7</sup>

July 1869. Small rush in Main Gully, below township. Payable gold in old bottom which has been worked, 14 years ago, on top of very hard cement, 6-15 inches thick. Only one of three claims payable.<sup>8</sup>

July 1869. Main Gully, old ground close to McIvor Road, 12 tons of cement yielded 4 oz 4 dwt.<sup>9</sup>

August 1869. Main Gully--16 loads of cement yielded 5 dwts per load.<sup>10</sup>

October 1869. Main Gully and Union Lead--18 tons of cement yielded 12-/12 oz.<sup>11</sup>

October 1869. 24 tons of cement paid excellent wages.<sup>12</sup>

March 1870. The old ground at Whroo and Rushworth continue to maintain the usual number of puddlers ... at Main Gully, Whroo, there are several claims from which puddling machines have given excellent returns.<sup>13</sup>

1878. Alluvial mining [at Whroo] has been carried on principally in the Main Gully, the Union Lead and its tributaries. These auriferous streams take their rise in the neighbourhood of Balacava Hill, and trend in a south-easterly direction towards the Reedy Swamp. The overflow waters of this swamp pour into the Goulburn River. The deepest sinking in the alluviums is on the Union Lead, and ranges from 35 feet to 55 feet in depth. The lead has been traced nearly to the swamp, and nearer to it than the operations carried on thus far upon the Main Gully.<sup>14</sup>

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*DESCRIPTION OF PHYSICAL REMAINS:*

Site 2.3. The puddler's weathered appearance suggests that it operated during the 19th-century. Presumably it pre-dates the Balacava Hill battery dam, whose construction in 1862 would have curtailed the supply of water to any downstream puddling machines. Site 2.4 is a reconstructed puddler.

2.3. Puddler & dam

Located near the head of Main Gully, on the E side. The dam associated with the puddler is dry, its earthen wall breached. The puddler is located just below the eastern end of the dam's embankment, and flood waters have washed away about a half of the puddler away. The central post still protrudes from what survives of the inner mound. The puddling trench is shallow and poorly defined. The puddler has a diameter of 20-22 ft.

Above and to the N of the puddling machine, the channel of Main Gully has had a large mining dam (Balacava Hill mine) constructed across it. Side channels to this main channel have been extensively puddled, destroying earlier alluvial sinkings. Below and to the S of the puddler, alluvial sinkings have escaped the ravages of such puddling activity.

2.4. Reconstructed puddler

The reconstructed puddler is located on the E side of Main Gully. The central mound has a diameter of 12 ft 6-in (3.8 m). The puddling trench is 4 ft (1.2 m) wide and 2 ft (60 cm) deep. Its walls are lined with timber slabs. The puddler's diameter is 21 ft (6.4 m).

A sign erected near the puddler reads "Puddle" machine purchased from William Puckey (original owner) by Charlie Bell for £10. Mr Bell restored it for the Rushworth Progress Association. The Rushworth Lions Club recently restored it again.

Alluvial sinkings continue southwards, past the puddler. These workings are visible from the main road.

*INTEGRITY/CONDITION:* Site 2.3 in poor condition.

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*CULTURAL SIGNIFICANCE:*

Site 2.3 has:

- Historical significance, because it forms part of a group or network of sites, the totality of which is considered to be significant, namely the Whroo Historic Reserve.

Both sites have:

- Scientific significance, because they:
  - a) Ability of the site to answer timely and specific archaeological research questions.
  - b) Represent an important mining technology.

*SIGNIFICANCE RANKING:* Sites Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Hammond, 1978, p. 114
  - 2 Lewis, 1977, pp. 3-4
  - 3 Lands Dept Map, W134, dated 1856
  - 4 Mclvor News and Goulburn Advertiser, 1 February 1861, quoted in Hammond, 1978, p. 118
  - 5 Mclvor News, 12 November 1861
  - 6 Mclvor News, 13 August 1862
  - 7 Mclvor News, 22 August 1862
  - 8 Mclvor News, 5 July 1869
  - 9 Mclvor News, 26 July 1869
  - 10 Mclvor News, 9 August 1869
  - 11 Mclvor News, 18 October 1869
  - 12 Mclvor News, 25 October 1869

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<sup>13</sup> Mining Surveyors' Reports, March 1870

<sup>14</sup> Geological Survey of Victoria, Report of Progress, 1878, pp. 156-7

**SITE NO. & NAME**                    **BALACLAVA HILL MINE SITE**  
**3.1**    **19th Century Workings**  
**3.2**    **1930s Open Cutting & Battery Site**  
**3.3**    **1940s Workings**

**LOCATION:**                            **Balaclava Hill, Whroo Township**

**HI NO:**                                **H7924-0014**

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**DIRECTIONS:**                      Whroo township

**MUNICIPALITY:**                  Campaspe Shire

**LAND STATUS:**                    Whroo Historic Reserve

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**HISTORY:**

The Balaclava Hill itself has been described as a stockwerk--a deposit in which ore is distributed throughout a mass of rock.<sup>1</sup>

October 1854-1855. The discovery of the Balaclava Reef is usually credited to the Cornish sailor Nickinson, who was one of Lewis's original shipmates from the Kent. On 25 October 1854, the date of the Battle of Balaclava, Nickinson, Lewis and another man were carting wash-dirt in a dray from their shaft to a puddling machine, when Nickinson wandered up the hill and returned, so the story goes, saying "throw away that rubbish and bring the dray up to what I have found on the hill". On the other hand James Lewis claimed that it was his father who took a Sunday stroll to the top of the hill on 1 May 1855, stumbled over some outcropping stone, and found it covered with gold. Now the quartz mine was certainly not started until 1855, and J.T. Lewis himself stated that it was opened in May, which is confirmed by near-contemporary reports. Moreover it seems unlikely that Nickinson would call for a dray at a time when there was no quartz mining or crushing machinery in the district, but the two stories may perhaps be reconciled if Nickinson discovered good alluvium and caused the party to move to the hill, while Lewis subsequently found the quartz.

Whatever the truth about the discovery, success seems to have come rapidly, though the partners worked the reef "in a manner which would have broken the heart of a Newcastle or Cornish miner", and had to employ labour at the prevailing high rates of £5 and £6 a week. Reports of their activities are sporadic, but in November of 1856 they were supposed to have got 1800 ounces in two weeks from stone averaging 23 ounces to the ton, while one claim in the area went as high as 80 ounces to the ton. In January 1857 another 1800 ounces was reported, and in April it was said that few reefs in Victoria paid so well; 6000 ounces had been got in the past four months from a hundred yards of reef, and a hundred men were employed, the greater part of which seems to have been attributable to Lewis and Nickinson's claim. Though a great proportion of the yield must have been dissipated in wages and overheads, the partners are supposed to have cleared £15,000 each in the first years.<sup>2</sup>

1854. The first store and hotel had been named Balaclava in 1854 by Ludovic Marie--situated opposite the "Victoria" Hotel in the first township site of Whroo. The "Balaclava Store Hotel"--on Balaclava Hill--a new building was owned by C. Band.<sup>3</sup>

1856. [Electoral list] shows that in the whole of the Whroo diggings only thirty-six men were registered to vote by virtue of holding miners' rights, or because they were freehold property owners or licensed innkeepers, or as the proprietors of quartz leases ... Wilson's [Berdan] machine was not necessarily the first or only one at Whroo, for the other quartz reefers were all working to the north on the Balaclava Hill, and any equipment they had would not show on the 1856 survey.<sup>4</sup>

1857. The proprietors in 1857 getting no less than £25,000 from the [Balaclava] mine, a small fortune in itself for one year's work. Up to the time that Lewis and Nickenson remained partners, it is estimated that £70,000 worth of gold was extracted by them.<sup>5</sup>

1857. In the triangle between the track and the northern slope of Balaclava Hill ... A. and C. Brown's hand Berdan machine, and between the Malakoff Hill and the Balaclava nothing less than a steam driven quartz crushing machine and calcining kilns belonging to Lewis and Nickinson, and a tramway running south from here to their claim on Balaclava Hill. From the position of the machine and kilns the Balaclava Reef ran approximately south-south-west across the hill with claims marked off in lengths; 40 yards to Ludovic Marie and Co., 30 to Andrew Henderson and Co., 40 to John Lewis, 40 to James Nickinson, 12 to A. and H. Patterson, 4 to A. and C. Brown, 30 to William Wilson and Co., and 40 to Pitman Vandenburg and Co. On Marie's Henderson's and Pitman's claims were shafts, and next to Lewis's was a substantial group of slab huts belonging to him and his partner, with a shaft nearby and well off the marked line of reef.<sup>6</sup>

1857-8. Certainly the Balaclava paid well, but as 1857 drew on the quantities of gold despatched by the claimholders were not so astronomical as before. In November 1857 Lewis and Nickinson set off 111 ounces, Baud 101 ounces, and Fisher and Co. 86 ounces, while in the following month Lewis and Nickinson alone sent 817 ounces. During 1858 they actually closed the mine for a time, until in October they began sinking again, but they were active in other directions for at about this time they bought out all their original mates, together with adjoining claims like that of Charles Baud and his partner Alexander Hall. It was perhaps about the end of 1858 that Lewis and Nickinson dissolved their partnership with Nickinson, as it appears, taking the quartz crusher, and Lewis keeping the now less remunerative mine. Nickinson was soon to leave Whroo for good but Charles Baud, even without an interest in the reef, was to remain longer than anybody associated with Balaclava Hill.<sup>7</sup>

1859. £5000 was invested in crushing machinery by Anderson Walpole and Company in their claim north of Lewis's Balaclava claim.<sup>8</sup>

1860 onwards. At Whroo, 7 miles south of Rushworth, the Balaclava Co. mined a stockwerk of auriferous quartz veins to a depth of 410 feet, and produced £150,000 worth of gold. Quantities of auriferous antimony occurred in the formation.<sup>9</sup>

July 1860. Prospectus of Balaclava Hill Quartz Mining Co. For working quartz reef on Balaclava Hill, Whroo. £100,000 worth of gold taken out already from a ground 100 yards in length. Company's claim includes an area on line of reef, 666 yards in length, 8-110 ft in depth. Four east-west reefs: Albert, Victoria, Carr's and Black Reef, intersecting the Coy's ground.<sup>10</sup>

1860-61. In October of 1860 Elliott, Hagerty and Co. began work in a deep shaft adjoining Lewis's claim, while in November an old claim re-opened on the east side of the hill was giving payable stone and Reay's Reef was being prospected by Reay and Downs. In 1861 we hear of what are doubtless the same claims in the names of Massino and Brown and then Massino and Co., Fisher, Elliot and Co.--whose deep shaft was once more reported about to commence work--Reay, Nicol and Co., as well as others like Anderson and Co. and Moffat and Co.

Nickinson ... remained on good terms with Lewis, and his name appears in 1860 amongst the provisional directors of the proposed Balaclava Hill Quartz Mining Company, while Lewis in turn appears with J.T. Fisher of Rushworth and Fulton and Co. of Melbourne amongst those able to assist with particulars when Nickinson's crusher is advertised for sale in January 1861. The auction must have been unsuccessful, for immediately afterwards Nickinson attempted to launch a company at Whroo to use his machinery both for draining the Albert Reef, which had been followed down to the water line, and to do crushing for the public. Next to Stanton and Co.'s leased ground, which was the major holding on the reef, Nickinson had bought a claim from Tait, Haines and Co. on which his crusher was to be set up. By 1860 one of the shafts on the Balaclava--probably Lewis's--seems to have been down to 300 feet (91 metres). It must have become obvious that winding and pumping machinery was needed to replace the horse whims on the deep claims and proper crushing equipment to replace such machines as the Chilean Mill which Lewis was then using, all the more so as larger quantities of lower grade quartz began to be processed. All of this would have suggested the desirability of amalgamating the claims and fitting them out with proper equipment, and it was doubtless to advise and quote on this installation that Robert Fulton, of the Melbourne foundry of Thomas Fulton and Co., visited Balaclava Hill at this time. Though gold valued at £100,000 was supposed to have been already taken from the reef, fresh capital was now needed to develop it. In July there were rumours that the Balaclava was to change hands, and the Whroo correspondent of the *McIvor News*, who did not formally favour companies, felt justified in this case in hoping the mine would be taken over by a strong company which would install effective crushing and amalgamating machinery.

Soon the prospectus was published of a limited liability company, the Balaclava Hill Quartz Mining Company, to work a claim which extended 660 yards along the line of the reef and well beyond the hundred yards which had actually been worked to date.

Under the Bendigo Mining Regulations, which applied at Whroo [and Rushworth], any quartz tailings left on crown land after November 1859 were the property of anyone who chose to take them, but those deposited before that date still belonged to the original owner. Now, at about the time the Balaclava Hill Quartz Mining Company was being mooted, the miner James Hannah (whose son Martin was subsequently elected to the Legislative Council), discovered on Balaclava Hill a line of reef which was thought to be an extension of Carr's, and which lay most conveniently within ten or twelve feet of an abandoned shaft sunk originally by Marie and Co. A quartz claim was taken out under miner's right by Watson, Hannah and Co., on part of which lay the bulk of Lewis's tailings, the results of five years of crushing and all, with the exception of about a hundred tons, either from his own claim or from those he had subsequently bought out.

These tailings Watson, Hannah and Co. attempted to claim for themselves, and in doing so incurred the righteous indignation reserved for all claim jumpers. "The whole proceeding", commented the correspondent of the *McIvor News*, "is looked upon with disgust by the thinking portion of our miners". The case was heard at the Rushworth court by four assessors who decided unanimously that the tailings were Lewis's property, with the possible exception of a few tons placed on the ground after November 1859. The decision, it was said, gave universal satisfaction. Watson, Hannah and Co. returned to their legitimate vocations, and not long afterwards opened a new claim on the Balaclava behind Baud's store.

The amalgamator continued to work night and day, passing the tailings through at the rate of 55 tons a week, and it was decided to set up two larger ones as well, increasing the total capacity to 200 tons a week. It appears that they

were to be set up beside Balaclava Hill itself, and an engine owned by Lewis was moved to the lower dam to operate them, while a Mr Brigham, one of the patentees of the invention, made a special trip to Melbourne to supervise the assembly of the two machines. Brigham proposed to experiment with the use of "Porter's process of amalgamating", and whether by this process or some other, work commenced on 23 April 1861, and continued successfully until November when the engine broke down and Brigham took the amalgamators away to Bendigo.

Lewis was not the man to pack up just because the Balaclava Hill Quartz Mining Company had not caught on. He had always had other mining interests in the neighbourhood: as early as 1857 he and Nickinson had a dam and puddling machine in Golden Point Gully, and not far from this, in 1860, Lewis had a dam in Champagne Gully. He now began quartz prospecting in the surrounding area. In the winter of 1861 it was reported that Lewis and Morgan were prospecting in Scotchman's Gully, and had staked off a 200 yard claim in which two new veins had been discovered; that the same partners were prospecting a new reef on Sailor's Flat; and that Lewis had taken up and was working 73 yards of spare ground on the Victoria Reef. On this last claim, indeed, he had managed simply by slightly deepening an abandoned shaft to open up a quartz vein two or three feet wide, which he was working day and night.<sup>11</sup>

1860-61. [The "Catherine" engine at Scotchman's Hill Reef] was a twenty horsepower horizontal engine made in Fife, and initially drove twelve stampers by means of a spur wheel and pinion, each stamper weighing five hundredweight, and arranged in groups of four in three strong stamper boxes. The cam shaft was of wrought iron, 5-1/2" (14 cm) in diameter, carrying "improved double" cams also of wrought iron and with a lift of 12" (31 cm). A sloping floor held the quartz before it passed over ripple boards measuring three metres long by 1.75 metres wide, and each with six ripples to catch the gold. Each of the boards led to one of three amalgamators "on the Tyrolese principle" which contained an inch of quicksilver. Next there were boxes three metres long by 0.6 metres wide, lined with flannel, leading into other boxes 0.9 metres long and containing two ripples to catch any mercury which might escape. Finally the tailings passed into races leading to large waste tanks in an arrangement which was said to be very good, both from the point of view of emptying out the tailings, and of keeping the dams clear of them. The stamper boxes and framing were built on a substructure made of logs from 36 to 61 cm square, with overall dimensions of 5.5 metres by 7.4 metres by 2.2 metres high, and the whole was enclosed in a well-built engine house roofed in corrugated iron. The engine was capable of driving another twelve stampers and three amalgamators, but it was proposed shortly to add these and double the capacity of the battery. The new stamper boxes were to have solid bottoms for convenience in cleaning them out, whereas those installed had separate lining blocks under each stamper. The engine, plant, dams and roads had taken three months to complete, and the battery was to operate night and day, crushing 26 tons every 24 hours ... Twenty-five men were being employed, and several more were to be taken on, yet the whole operation seems to have been acquired by Lewis [of Balaclava Hill] in mid-1861.<sup>12</sup>

1 February 1861. McIvor News and Goulburn Advertiser. Eight one-acre allotments of land in the township, between Mrs Primrose Wilson's "Victoria Hotel" and the school house reserve, are advertised for sale. They are situated on a flat at the foot of Balaclava, and one not known to be auriferous.<sup>13</sup>

March 1861. Lewis discovered new reef behind old workings, but running in different direction ... 9000 tons of rubbish have been crushed.<sup>14</sup>

April 1861. It was in April 1862 that Lewis applied for what was at first described as a six acre lease on the Balaclava, to include the claims he had purchased from Hall and Cooper. The application appears to have been amended to ten acres in an attempt to incorporate the area of his existing leases, which would be surrendered in favour of the new one.<sup>15</sup>

1861-3. [Lewis's] greatest success was to be on the Balaclava Hill, where in a short space of time he and his wife each discovered a significant new reef [Exhibition and Mary Reefs].

It is a fairly safe inference that the Mary Reef was discovered in mid-March, 1861, within a week of the Exhibition Reef, for the reef discovered at this time ran east-west, and the Mary is the only significant reef on the hill which does this, though it is not actually mentioned by name until mid-1862. It was soon reported that both new reefs were improving and thickening with depth to about twenty inches, and not long afterwards that one of the veins was being worked night and day. In May work was still proceeding round the clock and the cutting on the Mary Reef was about sixteen feet long and forty feet deep ... with the vein averaging ten inches wide.

Figures released by Lewis in 1863 do not support the impression that the Mary Reef made the mine suddenly more profitable. The value of the gold obtained is supposed to have been:

1859	£7482.10.11
1860	£4673.6.3
1861	£4708.8.8
1862	£5618.19.11

At the same time the 1862 yield is said to have been the most profitable of the series, probably because it was obtained from crushing the new reefs rather than the enormous quantities of low-grade material which were processed in the preceding years. As quickly as these profits poured in, the money was laid out in a number of directions. It was in mid-1861, it will be remembered, that Lewis bought out the whole of the Sharps' interests, both mine and crushing battery, in Scotchman's Gully. It may be that he did so on rather generous terms, his wife being a Sharp, for it was in the sixties that Archibald Menzies (husband of Catherine Sharp) became a partner in the

Balaclava and began to make big money out of his interest ... it may be suggested ... that he had invested money in the Sharps' mine and crusher, and that in buying the brothers out Lewis agreed to transfer Menzies' interest to the Balaclava.

It was this new wealth, too, which enabled Lewis both to begin his famous open cut, and to start amalgamating claims and gearing up for the deep mining which had previously been the objective of the Balaclava Hill Quartz Mining Company. In October he was getting very rich stone from some large blocks left unworked near the surface, and by November it was thought probable that the whole hill, which was intersected by at least a dozen gold-bearing quartz veins, might pay for crushing when worked on a face. In April 1862 he began at the lower face of his old workings a drive which may have been the beginnings of the main tunnel, but he was also persisting with his new cutting, now 200 feet ... deep and five feet ... wide, having the quartz removed by contract. He now began to consolidate his holdings, and applied for a six acres ... lease, including all the old workings which he already leased in addition to claims he had purchased from Hall and Cooper. During 1862 there were continual reports of crushings from Lewis's cutting or cuttings on the Balaclava. In October he began building a large dam in Main Gully, at the foot of Balaclava Hill, which promised to be "the finest piece of water on this goldfield"; by the end of the year it was complete, and there was renewed speculation that he would move the Catherine engine to Main Gully.

The Mary Reef did not maintain its high profitability. By July 1862 Lewis had let it on tribute to six miners on the basis that he paid them £1 per week plus working expenses, charged twelve shillings a ton for crushing, and divided the net return with the tributers, though their first crushing was disappointing. By September the quartz from the reef was scarcely paying crushing expenses, and it was being found that the gold, though very coarse, scarcely yielded one third gold to the weight of the amalgam.<sup>16</sup>

1863. Baud and Bazeley had the hotel and store north west of the Balaclava mine.<sup>17</sup>

1863. The battle of the leased land on Balaclava re-opened in January 1863, when Lewis made a new application for a fifteen year lease on seventeen acres of land adjoining (or rather, surrounding on three sides) his existing lease and the miners' rights which he had brought up. Although this is to be seen in a sense as a re-submission of his "informal" application of 1862, it was no longer simply a broadening of his existing claims along the line of reef, but a claim for the whole area of Balaclava Hill proper, extending as far as the public roads to the north and west, and excising only the relatively small areas already occupied by Baud's hotel and store and a handful of miners' huts and gardens. The total area after survey amounted not to 17 but to more than 21 acres ... He claimed to have spent £5000 already on the ground, and he undertook to employ six men on it during the first year of the lease ... Mining activity was now duller than it had been for seven years, so there was a great need for the jobs Lewis would be creating.

Lewis obtained his lease and a further fifty acres were designated as the watershed for his dam. The watershed was the result of a separate application in June of 1863 for a licence to construct a reservoir 21 feet deep covering 1-1/2 acres and with a capacity of a million gallons. This dam, which he had begun before applying for the licence, was estimated to cost £500 and was required to supply his quartz crusher.<sup>18</sup>

1860s. The Balaclava Mine as we know it dates essentially from the 1860s. We have seen how activity revived following the exploitation of the Mary Reef in 1861-2: how Lewis bought up and amalgamated claims, employed men, applied for leased, built a dam, and moved the Catherine engine into Main Gully. In moving the Catherine battery, Lewis effected some improvements, removing the revolving amalgamators and replacing them with double ripple boards. When the cog-wheel of the lifting shaft broke in September 1863, Lewis immediately ordered it redesigned in a stronger form, and had a new wheel made in Melbourne, delivered by train to Bendigo, transferred to a waiting dray, and fitted in time to have the crusher back in full operation only a week after the breakage. Five years later the crusher was given a new and larger cylinder, increasing it to seventeen horsepower, and then provided with a larger engine house framed in hardwood and clad in deal weatherboards.

In 1863 Lewis was employing twenty men. The mine had produced by no means as much since the partnership with Nickinson had been dissolved, and of the annual yield of gold, varying from £7,482 in 1859 down to £4673 the next year, and up again, the great proportion had been obtained by crushing 15,000 tons of "rubbish" raised before 1859. Nor did Lewis confine himself to crushing rubbish, for at the end of 1864 he began moving the quartz tailings themselves to a site in Main Gully where he proposed to make a horse puddling machine to re-process them. It was awaited with interest, as it was to be constructed according to a new principle, but we hear no further report of it.

Even more than in the past, Lewis was relying upon contract workers and tributers rather than employees to raise the quartz, and he now determined to let a contract for the cutting of a six foot ... square tunnel from his cutting through to the back of the hill for a distance of 76 metres, and to lay through it a tramway by which the spoil could be removed for crushing. The decision was made in July 1863, but the work was temporarily postponed when a good surface vein was discovered at the back of the workings, and for the present Lewis fixed a horse whim to raise the stone from the cutting up to a cart way cut into the hillside forty feet from the top. Tenders for the tunnel were finally called in September 1863, and the contract let to a party of Rushworth miners at a rate of twenty shillings a foot, with Lewis finding and sharpening tools, and finding rails and sleepers, the contractors finding labour, powder, fuse, and laying the rails. By April of 1864 the tunnel was in partial use.

In July 1864 Lewis began moves to transfer his leases (including the one he formerly held with Fisher) to “himself and his partner”, and in August we hear for the first time of “Lewis and Menzies” on the Balaclava. It seems that Lewis sold his brother-in-law Archibald Menzies a quarter share in what was to be known as the Balaclava Hill Gold and Antimony Mining Company, probably because he was short of development capital after buying out so many neighbouring claims during a period of perhaps only moderate profitability. The partnership seems at first to have been very successful, and by 1866 the total yield over the whole history of the mine was reckoned at £150,000. Then in about 1866-7 [Menzies] made his major step forward by using, it has been claimed, “the profits of the Balaclava Mine” to establish himself in the building which Joseph Reed designed for him at the corner of Bourke and William Streets, and which became famous as Menzies’ Hotel. This was ... opened ... in November 1867. It was much modified at later dates, but demolished only in recent years to make way for the BHP building.

Lewis and Menzies did not complete the tramway through their tunnel until late 1864, but once this was done they were able to crush on a massive scale, and were taking rock down from the sides by blasting off sections of as much as seven hundred tons at a time. The big dam was only partly complete, so that crushing operations were frequently hampered by a shortage of water, and in February 1865, for example, they were forced to stop work: on this occasion they encouraged their employees to go out and prospect either for new quartz reefs or for alluvial gold on a basis of £1 a week payment, tools supplied, and a share in the discoveries. Most of the men accepted and went to the Welcome Reef or Byron’s Reef. This must have met with some small success, for in the following June we hear of a prospecting claim on the London Reef in the names of Leroy and Lewis.

Water continued to be a problem. Between March 1865 and April 1866 the Balaclava Mine was stopped for 26 weeks, or nearly half the time; at this point rain fell, but so heavily that all the races leading to the large dam were broken and only enough water for two months was collected. This catastrophe must have persuaded the partners to complete the dam properly, and by August it was full of water and there was no prospect of work being stopped by anything short of an exceptionally dry season. As many as forty men were now being employed, not only on the Balaclava Mine, but on a claim on the Stockyard Reef to the north-west, which was bought from Samuel Rousseau. Lewis applied for a lease over this claim, to the west of the Rushworth Road, in August 1866; then after various delays in the surveying he successfully applied in March of 1867 to have included in the lease a smaller claim which he had bought to the east of the road and immediately north of the Balaclava. The lease for both areas, totalling nearly 27 acres was issued in August 1867. In 1870 Lewis and Menzies were working the Stockyard on tribute when Joseph Hickson, one of the tributers stumbled on the outcrop of another gold and antimony bearing reef which promised well and was named the “Little Balaclava”. However, it was very soon established the antimony was not payable, and within three months the reef had disappeared and the tribute was abandoned.

In September of 1865, when the water was low, Lewis took the opportunity of carrying out some development work on the underground workings of the Balaclava, and let a contract for the broadening out of an existing shaft for a depth of 270 feet. It was to be increased to nine feet by four at a rate of 17s 6d per foot depth for labour only. In the next year several drives were put in various directions, but only in August 1866 was the original Balaclava Reef picked up again in a drive allegedly fifty feet west of the perpendicular shaft (though fifty feet east would better accord with the known configuration of the mine). The drive in fact cut three veins: one about 30 cm thick, one of only 2.5 cm thick but containing a great deal of gold, and a poorer one of 15 cm--all of which were to be worked. A drive was now put in parallel to, but not breaking into, the newly discovered portion of reef. Until 1866 the open cut was still regarded as the main working of the Balaclava Mine and the shaft was still no deeper than 300 feet or 100 metres, but some antimony was being obtained, and the underground workings were beginning their major period of development.

The main shaft of the mine--referred to as the “new shaft” although it was probably the one which was being enlarged from 1865--was pushed ahead during 1868 regardless of expense. It was of usual size and was being timbered with strong sawn stuff, and it was claimed that it would be the best in the colony. As an encouraging sign a drive which was being put through a distance of 21 metres from this shaft towards the old workings (presumably that at the 188 foot level) struck a gold-bearing vein nine metres along, and it was intended to follow this vein once the drive was completed. At the head of the shaft a thirty horsepower winding and pumping engine was installed under contract over a period of three months by Lowden, Arundle and Braddish of the Victoria Foundry, Bendigo ... a tubular boiler was obtained from Melbourne.

On 30 July 1868 flags flew from the poppet heads and other conspicuous points on the hill and Miss Menzies--probably Maggie--broke a bottle of champagne on the flywheel and christened the engine the “Galatea” after the yacht used by the Duke of Edinburgh on his visit to Australia ... on the next day a trial was made of the Allan’s patent safety cages which had all the latest improvements and were the only things of the kind in the district.

The new machinery and development work of 1868, when several extra hands were taken on, was followed by something of an anticlimax, for no very promising yields seemed to be immediately forthcoming. In September about twenty-four men were dismissed and the crushing temporarily stopped. In October a very rich but thin vein was discovered in the 300 foot workings, but as men began to be taken on again others were attracted away to the new rush at Nine Mile Creek. Nevertheless, by December there were thirty-five men employed and the crusher was back in full operation, while more men were taken on over January and February, when there were as many as 46. There was another pause, due to the perennial problem of water shortage in summer, and then an improvement was reported in the stone being got at the 310 foot level ... At this level water was struck, and no doubt the new pumping machinery was brought into play, although the quantity was as yet only small. In June of 1869 Lewis seems to have engaged in a separate venture in partnership with John Coates, and they were sinking below the road in anticipation of driving towards the vein. In October even richer quartz was being got at the 190 foot level of the Balaclava mine proper, in an east-west vein which ran across the main reef.<sup>19</sup>

February 1863. Lewis' application for lease of new ground in Balaclava Hill, opposition (overwhelming public protest), has been refused by Mining Department.<sup>20</sup>

March 1863. Opening of the "Catherine" crushing battery at the Balaclava mine ... The 12 stampers, designed on the revolving principal were put in position ... Its design, by Engineer Mr Waller, incorporated wells, ripples and blanket tables, the entire plant being a model of neatness. The number of stamper feet was to be increased to 15, and later to 20--employing 60 men, working 24 hours a day, earning 11/- per foot of hand digging.

In 1863 ... Baud and Bazely had the hotel and store NW of the Balaclava mine.<sup>21</sup>

March 1863. Balaclava stopped. Mr Lewis "illegally interfering with alluvial miners' rights".<sup>22</sup>

April 1863. Lewis started crushing again. Employing 20 men.<sup>23</sup>

July 1863. Mr Lewis, encouraged by his extensive open cut and crushing, has started an east-west tunnel.<sup>24</sup>

November 1863. Balaclava Hill deserted except for Mr Lewis driving a tunnel and laying a tramway.<sup>25</sup>

January 1864. Lewis' tunnel now 140 ft.<sup>26</sup>

March 1864. Mr Lewis' tunnel, on Balaclava Hill, almost finished.<sup>27</sup>

June 1864. At Balaclava Hill, Mr Lewis, by a good system of mining and efficient crushing machinery realises a fair margin of profit from an average of 3 dwts 16 grs per ton.

J.T. Lewis, quartz crushing--1 machine of 12 head of stamps, 20 hp.

J.T. Lewis, Balaclava Hill--75 to 95 ft.<sup>28</sup>

August 1864. Balaclava Hill--very good stone being crushed, increase of men employed.<sup>29</sup>

September 1864. Lewis and Menzies 95 ft.

At Balaclava Hill, Messrs Lewis and Menzies are fast extending their mining operations. The mine is well laid out ... their quartz averaged only 2 dwt 18 grs per ton, still the thoroughly efficient machinery which they possess, and their method of working the reef, enables them to declare regular dividends.<sup>30</sup>

December 1864--31 miners working.

Lewis and Menzies. Crushed 3,936 tons from surface to 90 ft, yielding 583 oz.

At Balaclava Hill good criterions of progress are shown by Messrs Lewis and Menzies by an increase of 500 tons in their returns of the quantity of quartz crushed and an improvement in the produce of nearly 6 grs per ton. From Crocker and Ahern's claim the same splendid average of more than 20 oz per ton has been maintained.<sup>31</sup>

March 1865. At Whroo, the Balaclava Hill works have stopped for the past 10 weeks, the only reason for which is the want of water.<sup>32</sup>

1866-1881. Lewis and Menzies crushed 85,804 tons of quartz and obtained 21,340 ounces of gold valued at £85,000: that is, an average of 5 dwt to the ton.<sup>33</sup>

January 1866. Balaclava Hill in full work again. Lewis and Menzies began crushing.<sup>34</sup>

June 1866. At Whroo, the enterprising proprietors of the Balaclava works have the satisfaction of seeing the quartz from the deeper levels doubling the average yield per ton.

Lewis and Menzies, Balaclava Hill. Crushed 2350 tons from 90 to 160 ft, yielding 762 oz.<sup>35</sup>

September 1866--31 miners at work.<sup>36</sup>

October 1866. Old Balaclava Hill. Lewis and Menzies employ over 50 men. Mine still being opened up.<sup>37</sup>

March 1867. In quartz mining, Balaclava Hill maintains its position as the finest quartz reef in this subdivision. From Messrs Lewis and Menzies' claim, the average yield of 3000 tons of quartz crushed during the quarter has been above half-an-ounce per ton, and the reef shows every sign of permanency.

At Balaclava, a new engine shaft was commenced to be sunk last week. It is laid out so as to strike the reef at from 450 to 500 feet deep. This is about 150 feet below the deepest of the old workings.<sup>38</sup>

September 1867. Lewis and Menzies, Balaclava Hill. Crushed 3,258 tons from 220-280 ft, for a yield of 1,955 oz.<sup>39</sup>

December 1867. Lewis and Menzies, Balaclava Hill. Crushed 2,945 oz from 150-250 ft, for a yield of 1001 oz.<sup>40</sup>

June 1868. Lewis and Menzies, Balaclava Hill. Crushed 3538 tons from surface to 90 ft, for a yield of 393 oz.<sup>41</sup>

30 July 1868. A new pumping engine for the crushing battery, christened "Galatena", was installed.<sup>42</sup>

September 1868. The main shaft is not yet connected with the old mine; they are driving to communicate with this at the 310 ft level.<sup>43</sup>

April 1869. Balaclava Hill. Lewis and Menzies, and Law and Darrock, commenced crushing after a long lull owing to drought.<sup>44</sup>

April 1869. Better stone in the 310 ft workings. Vein 2 ft thick, but 3 ft taken for crushing.<sup>45</sup>

April 1869. Small quantity of water struck at 310 ft level.<sup>46</sup>

May 1869. Most miners left, main works now let by contract.<sup>47</sup>

June 1869. Balaclava. Payable quartz in new claims. Sinkings below the road, will drive for the vein.<sup>48</sup>

June 1869. Dare's claim--4-1/1 tons yielded 2 oz 8 dwt. Vein is 6 inches thick.<sup>49</sup>

October 1869. Lewis and Co.'s workings. Much richer quartz in an east and west vein crossing the main reef ... gold about 190 ft from the surface.<sup>50</sup>

November 1869. Lewis and Co. 118 tons of stone and 8 from new open cut, 20 ft wide on the south side, yielded 1 dwt 17 gr per ton. Good profits. Mining steady.

1870. In 1870 Lewis retired from the active management of the mine, and John Sharp, who had been intimately connected with the property since 1859, was appointed manager, and has been prominently identified with it almost ever since [1890].<sup>51</sup>

February 1870. Little Balaclava (tributors) crushing 17 loads, yielded 5 oz 12 dwt.<sup>52</sup>

March 1870. In quartz mining the prospects of most cheering character are at Balaclava Hill, Fontainebleau, South Nuggetty and the Frenchman's Reefs.<sup>53</sup>

April 1870. Lewis now held five leases ranging from the original one taken out by Pirman & Co. in 1859 to the lease on Stockyard Reef in 1866. In April 1870, he applied for a single lease consolidating all of these holdings with the exclusion of nearly 5 acres (2 ha) at the south-east corner, which was the site of his house, and in August he received the lease of more than 48 acres (19.5 ha). An application was now made to register the Balaclava Hill Gold and Antimony Mining Company under the provisions of the Mining Companies Limited Liability Act of 1864.<sup>54</sup>

September 1870. The engine shaft of the Balaclava Co. is sunk to a depth of 354 ft.<sup>55</sup>

July 1870. Lewis must have left Whroo in about July 1870 ... it appears, he put his first steps on the downward path by speculating in a variety of enterprises including the opening of reputed tin and copper mines in Queensland, which were not successful, and he quite soon found himself in acute financial difficulties ... In due course (1873) Lewis transferred to Menzies ... (incl) 6000 shares in the Balaclava Hill Gold and Antimony Co; house and land at Emerald Hill; land at Brighton; farm at Nine-Mile Creek; monies due for a share of Tribute from Balaclava Hill Tribute ... Lewis hence forward had no financial stake in the mine.<sup>56</sup>

December 1870. At Balaclava, in the bottom of the main shaft, the reef carries gold, but not in sufficient quantity to pay without adding pumping gear or an improved method of raising water. The tributers on all sections of the mine are obtaining fair wages.

The North Balaclava Co. has, at last, begun sinking with vigour ... The success of this company will materially effect the prosperity of the district.<sup>57</sup>

1871-1873. The mine was let on tribute to a party from Ballarat who seemed to have agreed to sink the shaft to 450 feet (136 m) in exchange for being allowed to work the Mary vein, and this was virtually the last development work that occurred. The initial tributers did not comply with the condition of the lease, and by the end of 1873 they had paid off all hands and allowed the mine to come to a standstill.<sup>58</sup>

June 1871. At the Balaclava Hill Gold and Antimony Mining Co. they have now 25 men employed, partly on tribute. The main shaft is down to a depth of 374 ft.<sup>59</sup>

December 1871. Balaclava Hill, Whroo, has been let on tribute for the past five years. The known richness of the vein on the surface has induced Ballarat men to undertake the further opening up of the mine, and arrangements are now being made for the erection of new boilers, etc., to enable the tributers to sink the main shaft deeper.<sup>60</sup>

1872. The tribute company that was formed in Bendigo in the year 1872 managed to raise a large quantity of gold, and paid many dividends, as also did the Melbourne tribute company, that followed the former's occupation, though not to the same extent, the latter being, practically speaking, a private company, which frittered away a lot of its substance in unnecessary works, and then had not sufficient capital left to prospect when the run of gold became poor.<sup>61</sup>

September 1873. Partial stoppage of mine. The present state of quartz mines is very satisfactory, for although the principal companies who have hitherto contributed most largely to the general average are either temporarily unemployed, or, as in the case of Balaclava Tribute Co., sinking shafts, the yield of gold has increased.<sup>62</sup>

n.d. The Balaclava mine was first developed using shafts to follow the rich veins in the auriferous quartz. Later, an enormous charge of explosive, which it was hoped would shatter the hill and enable open-cut mining merely made it unsafe for mining by shafts. However, a convenient opening was made in the side of the hill, and the whole body of the hill conveyed by tramway to the steam-driven stampers.<sup>63</sup>

1874-1876. In February 1874 Mines Department permission was sought for a new tribute. It was also determined that Lewis should return to Whroo ... The fortune was not immediately forthcoming, and by June of 1876 the mine had once more ceased to pay the tributers and Lewis was forced to take it back on behalf of the owners.<sup>64</sup>

March 1875. The manager of Balaclava Tribute Co. reports, "Prospecting during most of the quarter"; crushing mill only occasionally at work.<sup>65</sup>

June 1875. The Balaclava Tribute Co. has also succeeded in striking fresh stone of a highly remunerative character.<sup>66</sup>

1876. In February 1874 Mines Department permission was sought for a new tribute ... The fortune was not immediately forthcoming, and by June of 1876 the mine had once more ceased to pay the tributers and Lewis was forced to take it back on behalf of the owners.<sup>67</sup>

June 1876. The manager of Balaclava Hill (one of the oldest reefs in the subdivision) reports that, after much prospecting, a gold-bearing vein has appeared at the north end of the cutting, which may lead to payable results.<sup>68</sup>

September 1876. The Balaclava claim has again fallen into the hands of the proprietors. It will now be carried on under the supervision of Mr Lewis, its first owner, from whose local knowledge and energy great hope is entertained that it may again resume its former activity.<sup>69</sup>

December 1876. The Balaclava Company, Whroo, believe they have discovered, at a depth of 50 ft, at the south end of the cutting, the original vein, 16 tons from which, raised by 4 men in 4 days, gave the return of 18 oz 10 dwt of smelted gold.<sup>70</sup>

June 1877. Balaclava Hill. 12 men employed last quarter, chiefly prospecting, a very fair show now in sight.<sup>71</sup>

1878. The most considerable mining operations at Whroo have been carried on at the Balaclava mine, from which it has been estimated that considerably more than £150,000 worth of gold has been extracted ... The mine was opened in May 1855, and the main shaft is now down 450 feet [October 1877] ... The so-called "Balaclava Reef" has, on account of its extraordinary richness from the top downward to a depth exceeding 300 feet, established the fame of the district ... Besides this main cross vein another small one, likewise auriferous, has just been opened in a cutting intended for a powder magazine on the south side of the spur.<sup>72</sup>

September 1878. Balaclava Co. During 6 weeks of this quarter the crushing machine has been stopped for the purpose of fixing a new boiler, which is now in work.<sup>73</sup>

March 1880. A party of 4 tributers on Balaclava Hill have struck good stone at the 200-ft level. The first lot obtained--24 tons--gave 43 oz.<sup>74</sup>

June 1880. Irvine's party of tributers on the Balaclava Hill Company's ground are on excellent stone, and two other parties of tributers on the same ground are getting payable stone.<sup>75</sup>

1866-1881. Lewis and Menzies crushed 85,804 tons of quartz and obtained 21,340 ounces of gold valued at £85,000: that is, an average of 5 dwt to the ton.<sup>76</sup>

Dec 1881. On 7 April 1880, Archibald Menzies died ... In December 1881 Catherine Menzies sought permission to sub-let the mine, which was given six months later, and tributing resumed on a more substantial scale. The Menzies Tribute Company consisted of a syndicate of twenty shareholders ... one of the tributers was D. W. Welch, who had taken employment with Lewis and Menzies in about 1877, and in due course he became the mining manager ... There were profitable periods, such as in 1884 when Welch obtained gold worth £1000 from the work of two men for five months ... At other times the results seemed fairly desultory, as during the first quarter of 1886, when only 116 tons of quartz obtained at 240 feet yielded 67 ounces of gold.<sup>77</sup>

June 1882. The Menzies Tribute Co., Balaclava Hill, Whroo. The prospects of this company, after a long interval of poor luck, appears to be brightening ... Several parties of sub-tributers working.<sup>78</sup>

December 1882. Balaclava Hill, now held by Menzies Tribute Company, bids fair to resume its former celebrity as one of the richest mines in Victoria; 180 tons crushed during the quarter gave 578 oz.<sup>79</sup>

September 1884. The Menzies Tribute Co. has several parties of sub-tributers at work, 30 men being employed. The crushings during the quarter have been 357 tons, yielding 417 oz.<sup>80</sup>

March 1885. Great success has attended the Menzies Tribute Company, and work is being carried out with increased activity.<sup>81</sup>

1886. Catherine Menzies applied to have the labour requirements of the lease suspended for three months while she tried to sell the mine to some Maldon and Bendigo interests, but the sale did not proceed.<sup>82</sup>

June 1886. A new claim adjoining the Menzies Tributers Co.'s lease; the owners (Messrs Dewar and Cameron) have crushed 32 tons for a yield of 82 oz, taken from the surface to 50 ft.<sup>83</sup>

March 1888. Menzies Tribute Co. Deepest shaft 440 ft. 8 men employed by this company.<sup>84</sup>

September 1888. Menzies Tribute Co. is under exemption.<sup>85</sup>

1888. Welch left in 1888 ... and the initiative was left in the hands of William Nicholas (the former government mining surveyor for North Warranga) as managing director of the tribute company. There were eight men working at a depth of 440 feet, but Nicholas believed that the company, with nearly all its capital spent, could not possibly finance the prospecting or working of the mine below water level ... recommended the tribute company to wind up ... This was the end of the deep mining.<sup>86</sup>

March 1889. At Whroo, the manager of the Balaclava Hill reports cleaning up machinery, and repairs; expects to start work in a few weeks.<sup>87</sup>

December 1889. Balaclava Hill--ceased work.<sup>88</sup>

1860 onwards. At Whroo, 7 miles south of Rushworth, the Balaclava Co. mined a stockwerk of auriferous quartz veins to a depth of 410 feet, and produced £150,000 worth of gold. Quantities of auriferous antimony occurred in the formation.<sup>89</sup>

1890. Since [c.1872] the mine has been desultorily worked without much benefit to any one in particular, and is now held by Edwin Saint, of Adelaide, under lease and miner's right. In 1890 Mr Miller proceeded to England for the purpose of floating the mine into a company on the London market, and met with a certain amount of success, but somehow the venture appears to hang fire. That the speculation is a good one there can be little doubt, almost all the elements necessary to success being present. A good shaft, 11 feet by 5 feet in the clear, divided into pumping and

ladder road and two winding compartments, solidly timbered down to 360 feet, and fitted with 9-inch plunger and lift pumps, is ready for use at nearly a minute's notice. A 36 horse-power engine, erected in 1869 at a cost of £50000, and almost as good as new, with a large Cornish boiler in fair condition, is only awaiting the getting up of steam, everything being in good going order, and all the necessary adjuncts to a successful mine in the shape of trucks, safety cage, crab-winch, ropes, tram-rails, retorts, blacksmiths' shops, powder magazine, brick office, crushing machine with 15 head of stamps, amalgamating tables, &c., complete and awaiting occupation.

In addition to this there are 100,000 tons of tailings, a sample of which, when tried by assay in London, went 4 dwts to the ton, and it is estimated that 3-3/4 dwts could be obtained by ordinary work ... it will be strange if some of the old time glory that hovered around the name of Balaclava Hill in the days of prosperity does not come back, and make it again what it once was--the most famous, extensive, and richest mine in the north-eastern district.<sup>90</sup>

1894. The prospectus of the Balaclava Hill Company was supported by statements from Welch and Nicholas. It was pointed out that gold worth £250,000 had been taken down to the comparatively shallow depth of 360 feet, and that there were leases from the Crown totalling about fifty acres, and that the complete plant of the former company was in position, including a fifteen head battery adjoining a large dam, supplied by two smaller ones, and a winding and pumping engine and boiler with 450 feet of 8 1/2-inch pumps. The gold was of the first quality, selling at from £4.2s to £4.3s per ounce; the surrounding ironbark forest producing the necessary firewood for four shillings a ton; there was an immense heap of tailings adjoining the dam, which 'must be a valuable asset shortly (perhaps with the advent of cyanide treatment); and the railway had recently been completed to Rushworth, four miles away, which would be of great benefit if the company were to commence work on the large antimony lode. All this was of no avail, for there is no indication that the company was floated.<sup>91</sup>

June 1894. Balaclava Reef [history of]--a party cleared £25,000 in 13 months.<sup>92</sup>

1900. "Balaclava Hill" is a low elongated hill, almost 150 feet high above the surrounding country. There is a 6 feet by 12 feet shaft down 444 feet, but 110 feet of this is full of water, and from this shaft there are several extensive levels. The work that I saw was the surface quarry 80 feet deep, with tunnels into it from the hillside. Much of one side of this quarry came in some years ago owing to a heavy blast and the mine has been to a certain extent interfered with by the result, leaving even at the present time a large amount of ground that will have to be removed or secured before any but very deep operations were safe.

I noted that the old machinery at the mine has not been entirely removed and the engines remain at the winding shaft. Two cyanide works exist at Whroo, one of which is out of work. They appear to be treating old tailings only.<sup>93</sup>

1903. Balaclava--46 tons yielded 29 oz.<sup>94</sup>

1906. We learn that during 1906 Balaclava Hill was being worked by a party of four men, Northausen, Le Roy, Wickings and Gorey, who in twelve weeks took 36 loads of stone, which they crushed for 136 ounces of gold ... At the same time the partnership of W. Birney & Hageman, later joined by A. Heath, was working a mine on the east side of the hill with some success, and other parties were working on Chinaman's, Scotchman's and the Malakoff Hills. In addition an antimony mine was re-opened on the Stockyard Reef to the west of the Balaclava Hill, where some excellent ore had been obtained until market prices fell to uneconomic levels.<sup>95</sup>

1910. Cane, of 15 Temple Court, Melbourne, applied on behalf of the Whroo Company N.L. for leases over three distinct areas ... It does not appear that the Whroo Company has had any great success.<sup>96</sup>

1912. Whroo Company has erected a battery and pumping engine on the old Balaclava lease, but has done no mining work.<sup>97</sup>

1918. By 1918 a more substantial company had been formed, but even in this case with a nominal capital of only £8500 and not (the Rushworth Chronicle suspected) with sufficient stability or adequate financial resources to develop the mine. The mine was, however, being worked in 1920 when it was inspected by W. Baragwanath,<sup>98</sup>

1918. The present company is 34,000 shares of five shillings each, which means £8,500 if the whole of the capital were at once called up--and £8,500 would not be an exorbitant amount to have in hand as working capital when expensive machinery has to be purchased and erected before developmental work can be even entered upon ... the Balaclava lease embraced no less than six quartz reefs, viz. the Balaclava, Mary, Exhibition (for Elizabeth), Anglo-French, South Western, and the Stockyard (antimony). These are all distinct reefs ... the Balaclava mine ... was opened as far back as 1855 ... There is this difference, when speaking of Balaclava Hill as compared with other mines of the district, that here the amount of gold won from the hill is spoken of not in ounces, but in tons, and many tons at that. Of course this embraces the whole of Balaclava Hill, and includes the half-dozen reefs enumerated above together with the rich surface crushing. Like most other mines of bygone days Balaclava has its history, and connected with this is the assertion that Menzies Hotel, Melbourne, was built as a result of gold won at Balaclava. Although it could hardly be claimed that the mine provided the money for building the present palatial hotel, of a certainty the original Menzies has its origination from this source. It appears that the mine was practically opened up by Lewis and Nickenson, although a sailor is reputed to have done some pottering about on it prior to this. Although there are so many defined reefs here it would seem that the richest returns were obtained from nearer the surface, where the country was interspersed by numerous cross veins, some of extraordinary richness--in fact, one part was termed "The Jeweller's shop". It was in this connection that a great blunder was made in the working of the mine. Under the direction of Lewis an enormous charge of gunpowder was placed in position and fired with the object of blowing up the hill so that these veins could easily be sorted out and passed down to the battery. The scheme was a complete failure for the strength of the blast was only sufficient to shake and crack the ground, thereby rendering its future working by the ordinary means practically impossible ... in the seventies John Sharp got the mine on his own and managed to hang onto the lease for the next twenty or twenty-five years.<sup>99</sup>

1920. The Balaclava Hill mine is situated near the north-eastern corner of the surveyed township of Whroo, now comprising a half-a-dozen houses, but in the sixties and seventies of last century, a flourishing township. The mine is located on the western slope of Balaclava Hill, on the summit of which an extensive open cut marks the site of operations in the early mining days, and from which gold to the value of "more than £150,000 worth" was extracted ... The open cut has a depth of 80 feet at the deepest point and was worked from a tunnel, the entrance of which lies to the south west. The main shaft is sunk to a depth of over 400 feet, with levels opened at 90 feet, 188 feet, 305 feet, 400 feet and 410 feet.<sup>100</sup>

1926-1940. By 1926 there were only four or five families left, but the Depression brought about eighteen unemployed men from Shepparton to work the mine, only to abandon the venture after five months. It would be tedious to trace in detail the various claims which were worked at Whroo at this time: one Michael Hennessy of Picola lodged the first prospecting claim at Whroo for some years, "The Three Stars" in July of 1930, and was followed a few days later by Thomas Nobb Birney's "Cobbler's Peg Claim" on the Malakoff Hill, and after another month by John Hageman's "Sweer Marie" on the Balaclava Hill itself. Amongst those that followed the largest parties were the five partners in "The Collingwood Claim" in August 1931 and the four partners (including three of the Collingwood men) in the "White Mine" in October. Another quartz prospecting claim on the Balaclava Hill itself was J. A. Marks and Edward McGoldrich's "The Edna Doris" of January 1932. Numerous claims were stacked out in the vicinity until their limited success, coupled with the gradual economic recovery of the community and finally the outbreak of war, brought mining activity in the area to a halt once more. Whroo had become a ghost town.<sup>101</sup>

1938. Party from Rushworth erected a battery on Balaclava Hill and started a small open cut. The battery was driven by a traction engine. The engine was later removed to Risstrom's woodmill at Rushworth where it drove the breaking down saw. This engine operated at the mill until 1990.<sup>102</sup>

Pre WW2. Dick Bell and his father had a little show on the crown of the hill. They erected a single head, home-made battery. Battery is now in Dick's backyard at Rushworth.<sup>103</sup>

1960s. We [Bells] were the last ones mining at Balaclava Hill. Our shaft was filled in by the Mines Dept's shaft filling dozer.<sup>104</sup>

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*DESCRIPTION OF PHYSICAL REMAINS:*

Multi-phased site. 1854/5 to 1960s.

1854/55:	Discovery and first mining operations on Balaclava Hill. Hill worked by several claimholders, including the original prospectors, Lewis and Nickenson.
1857 - 1859:	Lewis and Nickenson operating crushing mill and calcining kilns.
1861-63:	Lewis commences open cut, amalgamating with adjoining claimholders and installs battery.
1868:	Lewis and Mensies install pumping and winding plant. Sinking of engine shaft.
1870:	Mine being worked by Balaclava Hill Gold and Antimony Co.
	Mine goes onto tribute system and worked through the 1870s by Balaclava Tribute Co.
1882	Mine being worked by Menzies Tribute Co.

1889 Operations cease.  
1890s: Various moves to float new company, none appear to have been successful. Limited mining.  
1900: Cyaniding of dumps.  
1912: Whroo Co. Installation of battery and pumping engine. No mining undertaken.  
1918: Another company formed, which was still mining in 1920.  
1920s/early 1930s: Several small parties worked the hill during the Great Depression.  
1938: A Rushworth syndicate install battery and excavate a smaller open cut. Dick Bell and his father install one-head battery and sink shaft.  
1950s: Dick Bell and other working a shaft.  
1960s Mines Dept's shaft filling program.

Site 3.1. Earliest phase (Lewis and others).

Large open-cut; tunnelling, and tramway leading to battery site. Little survives of the latter except from some levelled areas and building rubble. On the north side of the open cut are traces of blue mullock and a capped shaft (main engine shaft). There is a strong possibility that one of the access tracks to the hill goes over the site of the pumping machinery associated with the main engine shaft.

Site 3.2. 1930s operations

1930s. Narrow open cut excavated N-S into the hill. Associated with this phase of working are some concrete footings (battery site).

Site 3.3. 1940s operations

1940s. Dick Bell and his father had a small show on the western side of the open cut. Worked a shaft (now filled) and installed a one-head, home-made battery.

*INTEGRITY/CONDITION:* Site dominated by the mine's open cut. Little survives in regards to mining machinery.

*CULTURAL SIGNIFICANCE:*

The site has:

- Historical significance, because it:
  - a) represents a sequence of uses or functions over time.
  - b) is part of a group or network of sites, the totality of which is considered to be significant, namely the Whroo Historic Reserve.
  - c) had success as a mine in terms of its production levels and yields. Balaclava Hill mine was the richest mine to operate in the Rushworth/Waranga North Mining Division and its wealth, especially in the 1860s, would have had an influence on the economic development of the region.
- Scientific significance because it represents an important mining technology, the mine being a fine example of mid/late 19th century open cutting.
- Social significance, because of the importance of the site to the local or wider community. Balaclava Hill is an integral part of the Whroo interpretative facilities.

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

**Assessor: David Bannear**

**Date: September 1991.**

- 1 Lewis, 1977, p. 11
- 2 Lewis, 1977, p. 8
- 3 Hammond, 1978, p. 115
- 4 Lewis, 1977, pp. 7-8
- 5 'The Whroo Gold Mines'
- 6 Lewis, 1977, pp. 9-10
- 7 Lewis, 1977, p. 12
- 8 Hammond, 1978, p. 117
- 9 Victoria: Gold and Minerals, 1935, p. 49
- 10 Mclvor News, 27 July 1860
- 11 Lewis, 1977, pp. 18-20, 26, 29-30
- 12 Lewis, 1977, pp. 22-5
- 13 Mclvor News and Goulburn Advertiser, 1 February 1861, quoted in Hammond, 1978, p. 118
- 14 Mclvor News, 18 March 1861
- 15 Lewis, 1977, p. 39
- 16 Lewis, 1977, pp. 31-3
- 17 Hammond, 1978, p. 119
- 18 Lewis, 1977, pp. 42-4
- 19 Lewis, 1877, pp. 54-8
- 20 Mclvor News, 3 February 1863
- 21 Hammond, 1978, p. 119
- 22 Mclvor News, 27 March 1863
- 23 Mclvor News, 14 April 1863
- 24 Mclvor News, 10 July 1863
- 25 Mclvor News, 13 November 1863

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- 26 Mclvor News, 1 January 1864  
27 Mclvor News, 11 March 1864  
28 Mining Surveyors' Reports, June 1864  
29 Mclvor News, 5 August 1864  
30 Mining Surveyors' Reports, September 1864  
31 Mining Surveyors' Reports, December 1864  
32 Mining Surveyors' Reports, March 1865  
33 Lewis, 1877, p75  
34 Mclvor News, 23 January 1866  
35 Mining Surveyors' Reports, June 1866  
36 Mining Surveyors' Reports, September 1866  
37 Mclvor News, 5 October 1866  
38 Mining Surveyors' Reports, March 1867  
39 Mining Surveyors' Reports, September 1867  
40 Mining Surveyors' Reports, December 1867  
41 Mining Surveyors' Reports, June 1868  
42 Hammond, 1978, p.  
43 Mining Surveyors' Reports, September 1868  
44 Mclvor News, 4 April 1869  
45 Mclvor News, 19 April 1869  
46 Mclvor News, 26 April 1869  
47 Mclvor News, 17 May 1869  
48 Mclvor News, 7 June 1869  
49 Mclvor News, 28 June 1869  
50 Mclvor News, 11 October 1869  
51 'The Whroo Gold Mines', 1890  
52 Mclvor News, 7 February 1870  
53 Mining Surveyors' Reports, March 1870  
54 Lewis, 1877, p 70  
55 Mining Surveyors' Reports, September 1870  
56 Lewis, 1877, pp. 70 -71  
57 Mining Surveyors' Reports, December 1870  
58 Lewis, 1877, p 72  
59 Mining Surveyors' Reports, June 1871  
60 Mining Surveyors' Reports, December 1871  
61 'The Whroo Gold Mines', 1890  
62 Mining Surveyors' Reports, September 1873  
63 Forster, 1965, pp. 27-8  
64 Lewis, 1877, p 72  
65 Mining Surveyors' Reports, March 1875  
66 Mining Surveyors' Reports, June 1875  
67 Lewis, 1877, p 72  
68 Mining Surveyors' Reports, June 1876  
69 Mining Surveyors' Reports, September 1876  
70 Mining Surveyors' Reports, December 1876  
71 Mining Surveyors' Reports, June 1877  
72 Geological Survey of Victoria, Report of Progress, 1878, pp. 165-6  
73 Mining Surveyors' Reports, September 1878  
74 Mining Surveyors' Reports, March 1880  
75 Mining Surveyors' Reports, June 1880  
76 Lewis, 1877, p75  
77 Lewis, 1877, p 75  
78 Mining Surveyors' Reports, June 1882  
79 Mining Surveyors' Reports, December 1882  
80 Mining Surveyors' Reports, September 1884

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- 81 Mining Surveyors' Reports, March 1885  
82 Lewis, 1877, p76  
83 Mining Surveyors' Reports, June 1886  
84 Mining Surveyors' Reports, March 1888  
85 Mining Surveyors' Reports, September 1888  
86 Lewis, 1877, p76  
87 Mining Surveyors' Reports, March 1889  
88 Mining Surveyors' Reports, December 1889  
89 Victoria: Gold and Minerals, 1935, p. 49  
90 'The Whroo Gold Mines', 1890  
91 Lewis, 1877, p79  
92 Mclvor Times, 14 June 1894  
93 Jenkins, 1900, p. 5  
94 Mining Surveyors' Annual Reports, 1903  
95 Lewis, 1877, p784-85  
96 Lewis, 1877, p785  
97 Mining Surveyors' Annual Reports, 1912  
98 Lewis, 1877, p85  
99 'The Rushworth Gold Mines', 1918  
100 Baragwanath, 1925, p. 331  
101 Lewis, 1877, p86  
102 Pers Comm. Ron Risstrom, Rushworth  
103 Pers Comm. Ron Risstrom, Rushworth  
104 Pers Comm. Dick Bell, Rushworth

**SITE NO. & NAME**                    **ALBERT/CARR'S REEF WORKINGS**  
**4.1 Mine Workings**

**LOCATION:**                            **Albert/Carr's Reefs, Whroo**

**HI NO:**                                **H7924-0015**

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**DIRECTIONS:**                    150 m NW down Greens Road, from junction with Reedy Lake Road. Follow track that runs N towards Whroo reservoir

**MUNICIPALITY:**                Campaspe Shire

**LAND STATUS:**                Whroo Historic Reserve

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**HISTORY:**

c. 1856-60. The Albert reef being first opened in 1856 ... by John T. Lewis, somewhere about the same time as the famous Balaclava Hill ... It was then taken up by Henry Chard, and by him worked to a depth of about 15 feet, but the prospects not being to him just then of a sufficiently encouraging nature, the claim was abandoned. It remained for the next occupiers, Francis and Moffatt, to thoroughly try the ground, which they did greatly to their own satisfaction and benefit ... The adjoining ground west was taken up by Frittelier and Jones, who incorporated with Francis and Moffatt, for the better and more expeditious working of the two claims, one of their shafts being the one at present [1890] used by the Victoria and Albert Company. By these parties the ground was worked to a depth of 240 feet, or a few feet below the water level, where the reef, which had been gradually getting thinner, was not of a very remunerative character, when the cost of working the same was taken into consideration. In 1857, two Welshmen named Morgan and Evans, who held the western claim, sank a shaft on the reef and obtained good gold. The eastern ground was then taken up by a man named Black and two others, who were also successful in striking the run of golden stone, but did not procure such good yields as Francis and Moffat ... the reef, which had been worked with such good results in the Albert claim pinching out at the boundary, with scarcely any gold in it ... Messrs Benbow, Darroch and Francis then worked the Albert reef slightly to the south of Black's claim, and succeeded in getting a little gold, and also struck an antimony vein, which was not thoroughly tried. After this proprietary abandoned the ground it was tried by several parties, but none of them were successful in obtaining much gold.<sup>1</sup>

1859. In 1859 John T. Lewis was sole agent for the Albert Reef Quartz Mining Co., named after Prince Albert. £780 was invested in powerful machinery. The "Albert" Reef reached 245 ft without reaching water level.<sup>2</sup>

Late 1859. By the end of 1859, Lewis was himself applying for the lease of 3-1/2 acres of land on behalf of the Albert Reef Quartz Mining Company, but this gave rise to no adverse comment, presumably because there were no alluvial workings or payable surface reefs on the ground.<sup>3</sup>

1860. The Albert Reef, which by 1858 had proved very rich, yielding 15 ounces to the ton, and was ultimately to be followed well to the east of the town boundary, was now being worked by Moffat, Francis and Co., Small and Anglade (on what was previously Morgan's claim) and Stanton and Moore. Inwood and Co.'s claim on this line had failed to strike the Albert but instead had struck Carr's Reef, which ran parallel and was already being worked in Carr's claim.<sup>4</sup>

July 1860. Prospectus of Balaclava Hill Quartz Mining Co. For working quartz reef on Balaclava Hill, Whroo Company's claim includes an area on line of reef, 666 yards in length, 8-110 ft in depth. Four east-west reefs: Albert, Victoria, Carr's and Black Reef, intersecting the Coy's ground.<sup>5</sup>

October 1860. Albert Reef. Some of the best quartz yet discovered at 240 ft.<sup>6</sup>

January 1861. Albert Reef. Extension of tailing operations.<sup>7</sup>

April 1861. Improvement expected by installing pumping engine and cheaper crushing. Tailing amalgamator machines commence working day and night.<sup>8</sup>

December 1861. Albert Reef pumped dry by new machinery of the Whroo Quartz Mining and Pumping Co. Shaft is 260 ft deep.<sup>9</sup>

February 1862. Whroo Pumping Co. deepening engine shaft by 25 ft. Shaft is 4 ft 6 inches--8 ft 6 inches--Renison's claim.<sup>10</sup>

1863. George Thompson built the "Albert Family and Commercial Hotel-Store" of 25 rooms over in the eastern sector, near the Albert mine, on the eastern-most border of the town reserve.<sup>11</sup>

January 1863. Albert Reef Co.'s claim. After 19 months of idleness, now one man working. Lewis new machine being fixed at Main Gully.<sup>12</sup>

February 1863. Albert Reef. Whroo Pumping Co. idle for many months.<sup>13</sup>

1863-66. There were of course numerous mines, but the only one with any prospect of rivalling the Balaclava was the Albert and Carr's United Quartz Mining Prospecting and Pumping Co. which represented a new attempt to unite a number of claims not only on the Albert, but also on the adjoining Carr's Reef. Most of the claims had been worked more or less profitably down to water level, and the prospectus issued in 1865 shows that, of a nominal capital of £10,000, one quarter was to be allocated as paid up shares to the eight amalgamating claimholders in amounts of from £50 to £800 each. An additional £500 worth of shares and £500 in cash was to be paid to Law Darroch and Co. for the "Endeavour" crushing battery, which they moved onto the ground in 1864 from its original position at White Hills, a little way from Whroo. It does not appear that the company got off the ground in this form, but there was a revival on the Albert Reef. In August of 1866 Anglade and Co. who had lost the vein at about 200 feet, rediscovered it at 230, and were fortunate enough to obtain 21 ounces of gold from a crushing of three tons.<sup>14</sup>

March 1864. Jones and Francis--80 ft. Band and Co.--80 ft.<sup>15</sup>

June 1864. Jones and Co.--90 ft. Malloch and Co.--40 ft.<sup>16</sup>

October 1864. Former Albert Reef Co.'s claim, now "Prince of Wales Claim". Yields good stone.<sup>17</sup>

December 1864. 7 miners working. Jones, Malloch and Co.--120 ft. Anglade and Co. Crushed rubbish from shaft mouth.<sup>18</sup>

March 1865. The preliminary arrangements for the formation of a quartz mining and crushing company upon the Albert and Carr's Reefs have been made and from the energy displayed by the shareholders and the known richness of the reefs, there appears little doubt of its success.<sup>19</sup>

April 1865. Albert Reef. 385 yards in length ... includes 4 large, strongly timbered shafts.

Carr's Reef--168 yards in length, parallel and distant 60 yards from Albert Reef.

Black Reef--160 yards in length.

Crushing machinery in good order. Dams are in a good situation, have an extensive watershed, can be enlarged.

Good fall for discharge of tailings.<sup>20</sup>

May 1865. Albert and Carr's United Quartz Mining, Pumping and Crushing Co.--purpose to work Albert and Carr's Reefs which have been very successfully worked, past 5 years, by small parties of miners. Most claims worked to water level ... Area 13-1/2 acres, including crushing plant.<sup>21</sup>

December 1865. At Rushworth and Whroo, the older portions of the gold workings of this district, excepting from water obtained from the Pioneer and Albert companies' shafts, the whole of the machinery would be similarly situated, and it is to the engines supplies from these sources that quartz is being carted from 10 to 15 miles.<sup>22</sup>

August 1866. Albert Reef--3 claims, long idle because of water, being applied for, but little can be done without pumping engine.<sup>23</sup>

March 1869. Albert Reef, Darrock and Co.--5 tons of quartz scarcely paid expenses.<sup>24</sup>

June 1869. Albert Reef. Discontinued working deep ground. Try to form company to drain by machinery.<sup>25</sup>

October 1869. Darrock and Co. Much richer quartz, and antimony in quantity.<sup>26</sup>

February 1870. Albert line--very fine antimony, exported to England.<sup>27</sup>

1872-77. In 1872, as the late James Darrock was engaged in cutting a drain for the water from his crushing works, he came across the continuation of the reef ... As the prospects were encouraging he opened out on the line, and put down a shaft a good deal to the east of the previous ones, and worked the ground on and off for the next five years to a depth of 260 feet, with payable, though not very startling results ... The average yield was ... slightly more than 1-1/2 oz to the load.<sup>28</sup>

June 1877. Mining for metals other than gold ... confined to the U & F Antimony Company (Old Albert Reef, Whroo). The work is carried on at 200 ft level. The bearing of the reef N & S, the Old Albert Reef, E & W; thickness of reef 3 inches to 1 ft. Cobbings crushed have given an average yield of gold 1 oz per ton. Value of antimony not yet known. About 8 ton forwarded to market.<sup>29</sup>

September 1877. The U & F Company--the reef is increasing in thickness, and looks well.<sup>30</sup>

1878. The Albert Reef, which is next in importance to the Balaclava, is situated to the east of the latter-named reef. At the time of my visit to the Albert Reef the U and F. Antimony Company were raising antimony ore and gold-bearing quartz from their mine. They then had several tons of the ore stacked at the surface, and were crushing the quartz, which did not contain much antimony.<sup>31</sup>

1886-90. After [1877] the ground lay idle for some time, until it was taken up by the present [1890] company in August 1886, which was formed for the purpose of proving the antimony as well as the gold veins. Their lease comprises an area of over 17 acres, and embraces all the reefs mentioned [Albert, Victoria, Carr's] ... The first care of the company was to have a good shaft put down, so the original Albert underlay shaft was cut down to a depth of 170 feet, being in three compartments, and 10 feet by 5 feet in the clear. A horse whim was also erected, and the shaft further sunk by the manager, Mr Rogers, to a depth of 300 feet, where a cross-cut was put in to the north, and the Albert reef struck at a distance of 30 feet from the shaft ... The attention of the company was then directed to the antimony veins ... and in driving south on these lodes a large east and west vein was met with, which let out more water than the whim was able to cope with, so the company was obliged to stop all work for a time and erect suitable machinery to enable them to try all the ground thoroughly. After a stoppage of about nine months Mr W. Johns was appointed manager, and immediately set to work to erect a simple, cheap, and effective winding plant, poppet heads, &c., and as soon as the shaft had been skidded for the cages and tanks a start was made, the water baled out, and work resumed below. As before, the antimony veins received first attention, but these not proving satisfactory the Albert reef was reverted to, with the result that good gold was found going up ... The present manager, Mr T. Shiels ... is proceeding with work at the 360 feet level.<sup>32</sup>

December 1887. Mines crushing during quarter included Victoria and Albert, Whroo--53 tons for 25 oz.<sup>33</sup>

March 1888. Returns of quartz crushed for last quarter show a marked decrease. The necessity of more efficient machinery for drainage is being forced upon the mine owners, e.g. Victoria and Albert Mining Co., Whroo--struck heavy water; horse power of no use; must erect machinery.<sup>34</sup>

March 1889. Victoria and Albert erecting winding machinery.<sup>35</sup>

June 1889. Victoria and Albert Co. Whroo, have completed the erection of the steam-winding machinery, and are now driving at the 300 ft level.<sup>36</sup>

September 1889. The Victoria and Albert Company is now working on the Albert Reef ... a winze is being sunk on the 240 ft level.<sup>37</sup>

1890. Victoria and Albert Reefs. Under this heading will be comprised the ground at present worked by the Victoria and Albert Gold Mining Company, which includes several east and west reefs, amongst them being the Victoria, Albert and Carr's.<sup>38</sup>

June 1894. Albert Reef [history of] 4-1/2 tons yielded 23 oz. 12 tons yielded 10 oz. 10-3/4 tons yielded 141 oz. 27 tons yielded 243 oz.<sup>39</sup>

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*DESCRIPTION OF PHYSICAL REMAINS:*

Multi-phased site:

- 1856: Reef discovered and first worked.
- 1859-1864: Albert Reef Quartz Mining Co. Installation of crushing mill, then battery.
- 1864-1869: Albert and Carrs United Quartz Mining Co. Installation of battery.
- 1870s: Antimony discovered and mined. In 1877 reef being worked by U & F Antimony Co.
- 1886-1890: Victoria and Albert Co. Installation of winding machinery.

Little survives to documents any of the reef's mining periods.

**4.1: mine workings**

Little survives of this mining site. Below the Whroo reservoir is a deposit of battery sand, and above the dam, on the NE side of Malakoff Hill/Golden Point Gully, are what survives of the mine workings. These workings have been bulldozed and the majority of their mullock removed. All that survives are subsiding shafts, and an open cut (15 x 10 m x 4 m deep) associated with a small mullock heap (15 x 14 m, 2.5 m high).

*INTEGRITY/CONDITION:* Little survives to document the mining operations carried on from 1856 to 1890.

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*CULTURAL SIGNIFICANCE:*

Quarrying and Mines Dept's shaft-filling program has obliterated most of the above ground evidence of the mine site. Integrity of the site reduced to such an extent as to hold little cultural significance.

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

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**Assessor: David Bannear****Date: September 1991.**

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- 1 'The Whroo Gold Mines', 1890
  - 2 Hammond, 1978, p. 115
  - 3 Lewis, 1977, p. 38
  - 4 Lewis, 1977, p. 18
  - 5 Mclvor News, 27 July 1860
  - 6 Mclvor News, 12 October 1860
  - 7 Mclvor News, 21 January 1861
  - 8 Mclvor News, 22 April 1861
  - 9 Mclvor News, 3 December 1861
  - 10 Mclvor News, 10 February 1862
  - 11 Hammond, 1978, p. 115
  - 12 Mclvor News, 30 January 1863
  - 13 Mclvor News, 3 February 1863
  - 14 Lewis, 1977, p. 47
  - 15 Mining Surveyors' Reports, March 1864
  - 16 Mining Surveyors' Reports, June 1864
  - 17 Mclvor News, 8 October 1864
  - 18 Mining Surveyors' Reports, December 1864
  - 19 Mining Surveyors' Reports, March 1865
  - 20 Mclvor News, 4 April 1865
  - 21 Mclvor News, 19 May 1869
  - 22 Mining Surveyors' Reports, December 1865
  - 23 Mclvor News, 20 August 1866
  - 24 Mclvor News, 1 March 1869
  - 25 Mclvor News, 21 June 1869
  - 26 Mclvor News, 11 October 1869
  - 27 Mclvor News, 7 February 1870
  - 28 'The Whroo Gold Mines', 1890
  - 29 Mining Surveyors' Reports, June 1877
  - 30 Mining Surveyors' Reports, September 1877
  - 31 Geological Survey of Victoria, Report of Progress, 1878, p. 167
  - 32 'The Whroo Gold Mines', 1890
  - 33 Mining Surveyors' Reports, December 1887
  - 34 Mining Surveyors' Reports, March 1888
  - 35 Mining Surveyors' Reports, March 1889
  - 36 Mining Surveyors' Reports, June 1889
  - 37 Mining Surveyors' Reports, September 1889
  - 38 'The Whroo Gold Mines', 1890
  - 39 Mclvor Times, 14 June 1894

**SITE NO. & NAME**            **5.1    CROWN CROSS MINE**

**LOCATION:**                            **Hard Hills, Rushworth**

**HI NO:**                                **H7924-0016**

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**DIRECTIONS:**                    Located on the E side of Hard Hill, W of dam

**MUNICIPALITY:**                Campaspe Shire

**LAND STATUS:**                Unreserved Crown Land

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**HISTORY:**

The Hard Hills and Crown Cross Mines in the north-east were rich in gold.<sup>1</sup>

Hard Hills are aptly named. The country is flint-like.<sup>2</sup>

February 1869. New Rush, Hard Hills, Batchelor's Flat near Wild Duck Road, 3 miles from Heathcote. 15 claims are being worked, prospectors getting payable gold. Said to have obtained £34 worth of gold from 3 loads of stuff. Sinking very hard, 10-18 ft deep. Neighbourhood no doubt highly auriferous.<sup>3</sup>

February 1869. Hard Hills. Very fine specimen of auriferous cement.<sup>4</sup>

c. 1880s. Crown Cross Reef. At Hard Hills, 2-1/2 miles due east of Rushworth, the formation is north-south, one of the richest lines in the district. The Crown Cross was considered to be one of the richest of all the Rushworth claims and one of the richest in the State.<sup>5</sup>

1880-81. The Crown Cross mine was opened in 1880 by Dan O'Sullivan and others--then Charles Muhlhan who found some surface gold but the seam was clay. This seam gave excellent results at times. Just at that time, illness in his family prevented him giving full attention to the mine and he handed it over to Charlie Manning. Manning followed the clay seam to the reef, which showed some gold. Pat Synnett came in as a partner. By the end of January 1881, ten loads returned 32 oz of gold. These partners worked together for two years.<sup>6</sup>

1880. [The Crown Cross] mine was opened up during the latter part of 1880, although some work had previously been done on the IOR mine, a little to the south-west, by Dan O'Sullivan and others. Then Charles Muhlhan came on the scene, and it was through his instrumentality that one of the richest lines of reef ever worked in the district was opened up ... he eventually handed it over to Charlie Manning ... He took in Pat Synnett as a partner and the two immediately set to work and took out a crushing.<sup>7</sup>

March 1881-December 1884. The Crown Cross mine produced 4417 oz of gold.<sup>8</sup>

June 1882. The Crown Cross Co., on the same line as the Never-Can-Tell Company, was registered by Manning and Sinnott on the 13 Jan 1881, and may be said to hold the premier place in the locality. The last stone crushed was obtained from a depth of 80 ft, where the reef is 3 ft thick. The last crushing of 18 tons averaged 6 oz 12 dwt per ton--two miners employed.<sup>9</sup>

September 1882. The Crown Cross Company, on the same line as the Never-Can-Tell Co.<sup>10</sup>

1883-85. Crown Cross. For over two years Manning and Synnett worked the mine and stone gradually improving and yielding up to 6 oz 20 dwt 12 grs to the load. Other claims had in the meantime been taken up adjoining and some of these also struck splendid stone. Manning and Synnett put on six men in 1883 and the crushings became more frequent ... The shoot of gold angled away south into the Try Again mine adjoining.<sup>11</sup>

1883. In 1883, six men worked for Manning and Synnett. In four years the mine produced 3575 oz of gold.<sup>12</sup>

June 1884. The Crown Cross and Never Can Tell claims have ... crushed stone of unwonted richness.<sup>13</sup>

September 1884. Crown Cross--123 tons yielded 469 oz.<sup>14</sup>

c. 1885. At this time, Septimus Darby pegged out the "Crown Cross" Extended lease on the eastern boundary of the Crown Cross, Try Again and Never Can Tell mines ... after 84 ft of blank country this new mine was successful ... from 67 loads a magnificent cake of 766 oz smelted gold was produced. For 12 months, similar phenomenal returns followed--the gold reef ranged from 18 inches to 3 ft. They sank an engine shaft.<sup>15</sup>

December 1885. An endeavour to procure machinery is shortly to be made at the Hard Hill mine, Rushworth.<sup>16</sup>

March 1886. Crown Cross (Manning and Co.) Hard Hills. On 7th October, 1885, a half share in this claim was sold by auction ... the purchaser being Captain Darby. Work of a more energetic character was commenced, from 10 to 20 men being constantly employed, with the result that the first crushing of 67 tons yielded 766 oz.<sup>17</sup>

Late 1880s. Crown Cross. 84 feet of blank country was gone through, levels had been put in north and south, and the party were beginning to despair, when one day, as the men were putting in a drill-hole, they struck a larger make of stone and as the dirt trickled from the hole, which had an upward course, they were surprised to observe specks of gold ... The first crushing yielded 11-1/2 ounces to the load, 67 loads producing the magnificent cake of 766 oz 10 dwts 10 grs. For about twelve months similar phenomenal returns followed ... A start was made with the sinking of an engine shaft on the Crown Cross Extended lease, and here again was made one of those blunders which have proved fatal to many of the mines of this district - the shaft was sunk too close in, and at 400 feet passed through the reef into the footwall, which became as hard as flint, terribly expensive for further sinking, and the reef was all the time getting further away ... While sinking, what is termed a floor was cut and the inrush of water was so strong that, notwithstanding the pumps were kept going at full speed, the water rose 60 feet in the shaft and it was something over a month before the men saw the bottom of the shaft again. What was in those days regarded as powerful machinery ... had been erected, and on striking the reef a level was driven south along the boundaries of the Try Again and Never Can Tell mines to what was known as No. 2 shaft, about 500 feet away, and sunk with the object of intercepting the Never Can Tell run of gold. Some 20 men were employed below, a battery had been erected ... At the end of about two years, however, there was a perceptible diminution in the yields and before another 12 months was over it was apparent that another blank stretch of country had been entered upon.

The proprietors now entered upon a second period of explorative work ... The shaft was put down deeper, prospecting levels were put in and various work done, but to no purpose. This was very expensive work under the circumstances for the ground, as before mentioned, was terribly hard on the footwall side ... The last work done in this mine was in a cross-cut put in to intercept the reef at the deepest depth of the engine shaft. The men who worked the last shift put in a blast and fired it, and when they returned to the face they were surprised to find the water already up to their knees and rising rapidly ... The machinery was only powerful enough to cope with the normal supply of water, and, having spent so much on prospecting work, the proprietors did not feel equal to purchasing and erecting stronger machinery, and the mine was hung up, and so it has remained to the present day [1918].<sup>18</sup>

1886-89. From March 1886 to December 1889, Darby Brothers, Watcham and Manning took 6622 oz in 1525 loads [from Crown Cross].<sup>19</sup>

June 1886. Crown Cross. The best yield taken from this mine was in June 1886, when 97 loads returned the magnificent cake of 1006 oz 10 dwts of smelted gold--about 10-1/2 ounces to the load.<sup>20</sup>

June 1886. Crown Cross Co. have, during the quarter, crushed 172 tons for 1629 oz 5 dwt, and they are now erecting efficient machinery.

Try Again Company, Hard Hills, has crushed 44 tons for a yield of 252 oz and are putting through another crushing of supposed equal value.<sup>21</sup>

September 1886. Crown Cross Co. has completed the erection of efficient machinery, the value of the works being £3000. The mine crushed 218 tons during the quarter, for a yield of 1355 oz.

Try Again Co., on the adjoining claim, crushed 184 tons for 1422 oz.<sup>22</sup>

December 1886. Crown Cross Co., having been in litigation, suspended work; Try Again ... work has been chiefly confined to cutting down the shaft and completing machinery.<sup>23</sup>

March 1887. Crown Cross Co. resumed active work; the pump recently installed is doing well.

Try Again Co. crushed 151 tons for a return of 438 oz; a recent crushing of 9 tons yielded 195 oz.<sup>24</sup>

June 1887. The Try Again Co. Hard Hill, is at present almost at a standstill, the machinery employed not being of sufficient power to cope with the great influx of water.

Crown Cross Co.--69 tons crushed, average yield of 5 oz 15 dwt.<sup>25</sup>

September 1887. Crown Cross Co.--last lot crushed--75 tons yielded 569 oz.

Try Again Co.--still idle.

No. 1 North Crown Cross, on the same line, has sunk shaft to 293 ft.<sup>26</sup>

March 1888. Crown Cross--deepest shaft 330 ft--40 hp engine erected for pumping and winding.<sup>27</sup>

September 1888. Crown Cross and Never-Can-Tell Co.s stopped by litigation, with reference to a drainage dispute.<sup>28</sup>

March 1889. Crown Cross Co. is sinking a shaft 300 ft on the boundary of the Never-Can-Tell lease.<sup>29</sup>

June 1889. Splendid returns from the Never-Can-Tell, Hard Hill ... Work at the Cross Crown Company has chiefly been confined to sinking new shaft on the boundary of the Never Can Tell, the present depth is 265 ft.<sup>30</sup>

September 1889. Never-Can-Tell Co. crushed 305 tons for 736 oz.<sup>31</sup>

October 1889. Crown Cross Co.--finished crushing 400 tons, for a yield of 655 oz.<sup>32</sup>

December 1889. Crown Cross Co. has nearly completed the erection of a powerful crushing plant.<sup>33</sup>

June 1894. Crown Cross Reef [History of]--yields of gold 3-4 oz to the ton, but was patchy.<sup>34</sup>

1896. At the eastern end of the Frenchman's workings the surface outcrop of the reef disappears, the cap apparently dipping eastward, but further on it has been picked up in various shallow excavations ... It then takes a curve southward, having been traced by means of a number of open cuts, and south of the turn is known as the Crown Cross reef. The ground was worked by several companies from the surface down to shallow depths, and was finally wholly held by the Crown Cross Company, which worked the reef to 400 feet from one shaft, and 350 feet from another, but found it too expensive to continue sinking in the footwall country on account of its great hardness ... The returns from this reef were very high, many crushings averaging 10 ounces per ton.<sup>35</sup>

1897. By 1897, the Crown Cross had yielded £37,000 worth of gold.<sup>36</sup>

1900. I found that the "Crown and Cross" mine was in process of being entirely dismantled ... This reef was found originally where it crossed the top of a hill to the north-west of the "Crown and Cross" engine shaft, and has been followed to a considerable depth. The gold in it must be in a very sharply-marked shoot, for it would appear that practically no gold has ever been obtained to the north-east of the original find, whilst along the line of the shoot much rich stone has been taken. The direction of this shoot, Mr Anderson informed me, is south-east, and nearly in the same line as the original shallow "Crown and Cross" shaft and the "Hit and Miss" shaft, as well as that of the "Try Again".

The "Crown and Cross" engine shaft was put down to the north of this line, and on the less productive side of it.<sup>37</sup>

1935. Only a few of the reefs have been mined below water level. The Crown Cross, mined to a depth of 400 feet, produced £36,000 worth of gold; and the Perseverance yielded, down to 600 feet deep, 6,864 oz. of gold from 4,531 tons of stone. The South Devon crushed 2,041 tons for a yield of 3,399 oz. of gold.<sup>38</sup>

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#### *DESCRIPTION OF PHYSICAL REMAINS:*

Single phased site:

1880-1889: Crown Cross mine. Adjoining claims taken up and worked by Never-Can-Tell and Try Again companies. Installation of pumping and winding machinery. Quartz from the mine most probably crushed at the nearby Perseverance Co's battery.

1889: Battery installed, but mine appears to have closed down before plant operated.

Site of the Crown Cross mine. The bedlogs represent the site of the mine's pumping and winding machinery. The absence of any trace of battery sand suggests that the quartz was carted away to be crushed. The concrete slab covers the mine's engine shaft. This shaft, according to local informant, Ron Risstrom, was the first used by the Shire for the dumping of night soil.

#### 5.1. Crown Cross mine

Components: wooden bedlogs with mounting bolts, stone footings, capped shaft, chimney base, two dams and ash dump.

The machinery footings consist of an arrangement of wooden bedlogs. There are two parallel logs, 4 ft 6-in (1.35 m) apart, running N-S. These bedlogs are approximately 33 ft (10 m) long, roughly hewn and approximately 12-in (30 cm) square. Running at right angles to the eastern bedlog are at least five crossbeams. These beams run for approximately 16 ft (5 m) and are spaced 4 ft 6-in (1.35 m) apart. Both the parallel logs and crossbeams have protruding iron bolts. The five crossbeams terminate against a raised level platform. This platform has stone walls visible on its E & W sides.

Ten metres S of the bedlogs is a concrete slab that has collapsed inwards. Beneath the slab can be seen the remains of several sanitary pans. The area between the slab and bedlogs also contains buried pans.

Four metres N of the bedlogs is a partly buried base of a brick chimney. To the E of the chimney lies a dump of ash, which also contains fragments of fire-bars.

The whole area is covered with brick rubble--the bricks are all red, handmade and have no frog.

No battery sand was observed near the machinery remains, or around the two dams.

A scatter of blue mullock suggests that the mine's main mullock heap, generated by mining below the water level, has been carted away.

On the next ridge, S of the machinery site, are more mine workings. The area has been extensively bulldozed and all that is visible is a filled shaft that has subsided about 5 m.

Further up the hill, west of the machinery site, near the crown of Hard Hill, is a line of shafts running N-S. Some of these shafts have been completely filled with night soil, and have been sealed off. Others are still being used for the dumping of effluent.

*INTEGRITY/CONDITION:* Bedlogs are virtually buried and rotten. Iron bolts in good condition.

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*CULTURAL SIGNIFICANCE:*

The site has:

- Historical significance because of its success as a mine in terms of its production levels and yields. The richness of the mine in the early/mid 1880s was instrumental in reviving Rushworth's flagging quartz mining industry.

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Hammond, 1978, p. 10
  - 2 Hammond, 1978, p. 20
  - 3 Mclvor News, 19 February 1869
  - 4 Mclvor News, 26 February 1869
  - 5 Hammond, 1978, p. 15
  - 6 Hammond, 1978, p. 15
  - 7 'The Rushworth Gold Mines', 1918
  - 8 'The Rushworth Gold Mines', 1918
  - 9 Mining Surveyors' Reports, June 1882
  - 10 Mining Surveyors' Reports, September 1882
  - 11 'The Rushworth Gold Mines', 1918
  - 12 Hammond, 1978, p. 15
  - 13 Mining Surveyors' Reports, June 1884
  - 14 Mining Surveyors' Reports, September 1884
  - 15 Hammond, 1978, p. 15
  - 16 Mining Surveyors' Reports, December 1885
  - 17 Mining Surveyors' Reports, March 1886
  - 18 'The Rushworth Gold Mines', 1918
  - 19 Hammond, 1978, p. 15
  - 20 'The Rushworth Gold Mines', 1918
  - 21 Mining Surveyors' Reports, June 1886
  - 22 Mining Surveyors' Reports, September 1886
  - 23 Mining Surveyors' Reports, December 1886
  - 24 Mining Surveyors' Reports, March 1887
  - 25 Mining Surveyors' Reports, June 1887
  - 26 Mining Surveyors' Reports, September 1887
  - 27 Mining Surveyors' Reports, March 1888
  - 28 Mining Surveyors' Reports, September 1888
  - 29 Mining Surveyors' Reports, March 1889
  - 30 Mining Surveyors' Reports, June 1889
  - 31 Mining Surveyors' Reports, September 1889

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- 32 Mclvor News, 17 October 1889  
33 Mining Surveyors' Reports, December 1889  
34 Mclvor Times, 14 June 1894  
35 Murray, 1896  
36 Hammond, 1978, p. 15  
37 Jenkins, 1900, p. 6  
38 Victoria: Gold and Minerals, 1935, p. 49

**SITE NO. & NAME**                    **6.1    GROWLER'S HILL MINE WORKINGS**

**LOCATION:**                                **Growlers Hill Reef--Head of Shellback Gully**

**HI NO:**                                    **H7924-0017**

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**DIRECTIONS:**                        Follow road to Growlers Hill Fire Tower

**MUNICIPALITY:**                      Campaspe Shire

**LAND STATUS:**                        Unreserved Crown Land

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**HISTORY:**

Growler's Hill. South of the township, slightly westward, where the first reservoir was situated.<sup>1</sup>

1854. North Growler's reef ... was opened in 1854 by M. Manuel, a Spaniard. At this time, under the old code of mining regulations only 16 yd. claims were allowed, and it was not till about the end of 1854 (after the Ballarat riot) that an extension of 24 yds was granted. The reef was about 2 ft thick, and after working it with fairly good results to 50 ft., Manuel left and went to Whroo ... The three adjoining claims to the south were occupied by Fisher, Randolph & Co. who sank another 50 ft and obtained returns as rich as 9 oz and 11 oz per ton. They worked the reef until it became too poor in the deep ground. The fourth claim was held by Morbury, Smith and party. Smith sold his share to Coy and Anderson, who held their share for 17 years.<sup>2</sup>

1855-63. West Growlers Mine (known as the Humbug) was opened in 1855 by a man who had no Miner's Right. His claim was jumped by ... W. Murray, Cluney, R. Rush and M. Bregan, who took £14,000 worth of gold from the Humbug. They left for New Zealand when the rush over there in 1863 began.<sup>3</sup>

c. late 1850s. Fisher, Randolph and Co., gave up the [Canadian Reef] mine ... and then proceeded to put up the crushing battery ... at the foot of Growler's Hill. This was of 20 horse-power, and the battery consisted of 12 head of stampers.<sup>4</sup>

n.d. Other mines in Rushworth were Darby's "Just in Time" on Growlers Hill.<sup>5</sup>

c. 1864. About six months after Murray and party left for New Zealand the new proprietors, of whom John Farquharson, battery proprietor, was one, had the claim exempted, and for a long time afterwards it remained unworked.<sup>6</sup>

September 1864. Coy and Anderson--180 ft.<sup>7</sup>

December 1864. 11 miners working.<sup>8</sup>

March 1865. Dean and Co.--26 ton crushed from 260 ft, yielding 39 oz.<sup>9</sup>

c. 1870-1884. M. Milleay got possession of the [West Growler's] mine, ultimately, and he held it till 1884, when the Growler's Hill Quartz Mining Co. was formed. Milleay sank to a depth of 100 feet perpendicular, and, although getting 2 oz per load from one crushing, his principal returns were 7 dwts and 8 dwts.<sup>10</sup>

1884. The Growler's Hill Quartz Mining Co. was floated in 1884 and leases of the North and West Growler's mines, embracing upwards of 34 acres, were secured. Active operations were soon carried on to test the value and permanency of the reef to a depth of 370 feet on the underlay from the surface in the old workings, and to 95 feet in the downright shaft, with satisfactory results ... The influx of water was too great for horse power to contend with, so it was decided to erect a thoroughly efficient winding plant.<sup>11</sup>

1884 onwards. Later owners found gold between two solid bars about 100 ft apart. Expensive machinery was required, which needed capital, and the Growlers Hill Quartz Mining Co. was floated in 1884. Messrs Milleay, John Farquharson, C. Mumford, C. Muhlhan, G. Phillips all had interest in West Growlers--sunk to 355 ft but returns were not enough to recompense the outlay.

Dave Shewan was told about a show left untried and with his partner, R. Bell, successfully worked the mine, getting 13 oz to the load. Ill-health beat them--the mining was hard work. McMullen worked there later. Bill Corner was the last "whip-boy" employed in the Humbug Mine.<sup>12</sup>

June 1885. The Growlers Hill Co. Rushworth, has now completed preparatory work, and is driving on the reef; prospects are good; eight men employed.<sup>13</sup>

December 1885. The Growlers Hill Company is erecting efficient machinery, the boiler and other parts being already on the ground.<sup>14</sup>

1886. Early in 1886 the West Growler's lease was let to a local tributer for 12 months. The Company which had by this time erected the necessary machinery proceeded to work, but, although the mine was sunk to a depth of 355 feet, the returns did not prove sufficient to recompense the shareholders for the outlay. The Company, after spending upwards of £4000, and mortgaging the plant for £500, exhausted its capital and were thus unable to continue. The mine remained idle and the lease was forfeited.<sup>15</sup>

March 1886. Growlers Hill Co. has completed machinery, will start work immediately.<sup>16</sup>

June 1886. Growlers Hill Co. Machinery of the value of £950 has been erected on the mine. The shaft is 335 feet deep and still sinking.<sup>17</sup>

1888. In 1888 the Waranga Shire and the Mines Department together constructed a powder magazine at Rushworth. Mr Hume, Shire Engineer, designed it ... The magazine was used to store the gunpowder then used by miners, safely-it was situated on the north side of the top end of the old reservoir at the foot of Growlers Hill, near the old dam. Only a rubble of bricks remain today.<sup>18</sup>

March 1886. Growlers Hill Co. has completed machinery, will start work immediately.<sup>19</sup>

June 1886. Growlers Hill Co. Machinery of the value of £950 has been erected on the mine. The shaft is 335 feet deep and still sinking.<sup>20</sup>

1903. Growler's Hill--60 tons yielded 120 oz.<sup>21</sup>

1896 [history]. Westerly [from Perseverance mine] the line of the Cockatoo reef has been worked at intervals, under various names, for about 3 miles ... The Growlers and West Growlers, a short distance south of and parallel with the Scrub reef, having also high records, and gold-bearing cores were obtained from the diamond-drill bores put down close to the Growlers workings.<sup>22</sup>

c. 1899. Dave Shewan, whilst in West Australia, was informed by one of the men who had previously worked in the [West Growler's] mine of an excellent show which had been left untried by the proprietors of many years before ... Shewan ... on his return to Victoria, set to work to give the place a trial. Almost immediately good gold was obtained, and for many years Shewan, with his partner, R. Bell, successfully worked the mine, and obtained crushings yielding as high as 13 oz to the load.<sup>23</sup>

1899-1900. Bell and Schewan ("The Humbug" claim) has been operating since May, 1899, on the ground formerly known as West Growler's, their whip shaft being situated about 7 chains westerly from the main shaft, now idle, of the old Growler's Hill Company.

Bell and Schewan are at present mining quartz only, for a thickness of about a foot, from the lowest vein, at a depth of about 170 feet; 97 loads for 52 oz 9 dwt is the return given me by the owners, the gold realising £3 18s 10d per ounce at the local bank.<sup>24</sup>

1903. Growler's Hill--60 tons yielded 120 oz.<sup>25</sup>

1904. Only five co-operative parties have been continuously at work during the past year in this portion of the district ... [including] Bell and party, Growlers Hill, who crushed 37 tons for 31 oz.<sup>26</sup>

1912. Shewan and party continues to obtain good results from the mine on Growler's Hill.<sup>27</sup>

c. 1918 [The West Growler's mine] was taken up by McMullen and party, and is being worked at the present time, having always returned the proprietors good wages for any work done.<sup>28</sup>

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*DESCRIPTION OF PHYSICAL REMAINS:*

Multi-phased site:

1854:	Reef opened up and first worked.
Late 1850s.	Battery installed at the base of Growlers Hill.
1860s/70s:	Worked intermittently by small parties.
1884-1886:	Growlers Hill Co. Installation of winding machinery and battery.
1899-1912.	Humbug shaft worked by Bell and Shewan.

Site 6.1 is the Humbug shaft which was worked in the early decades of the 20th century. Little survives of the early phases.

6.1. Mine workings on Crown of the hill.

A two-compartment shaft lies SW of the fire tower. It is fenced off with high cyclone. Twenty metres past the shaft is a small open cut (40 x 6 m).

*INTEGRITY/CONDITION:* Poor.

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*CULTURAL SIGNIFICANCE:*

The site holds little historical significance and its integrity has been so reduced that it has little cultural significance.

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Hammond, 1978, p. 10
- 2 'The Rushworth Gold Mines', 1918
- 3 Hammond, 1978, p. 18
- 4 'The Rushworth Gold Mines', 1918
- 5 Hammond, 1978, p. 22
- 6 'The Rushworth Gold Mines', 1918
- 7 Mining Surveyors' Reports, September 1864
- 8 Mining Surveyors' Reports, December 1864
- 9 Mining Surveyors' Reports, March 1865
- 10 'The Rushworth Gold Mines', 1918
- 11 'The Rushworth Gold Mines', 1918
- 12 Hammond, 1978, p. 18
- 13 Mining Surveyors' Reports, June 1885
- 14 Mining Surveyors' Reports, December 1885
- 15 'The Rushworth Gold Mines', 1918
- 16 Mining Surveyors' Reports, March 1886
- 17 Mining Surveyors' Reports, June 1886
- 18 Hammond, 1978, p. 10
- 19 Mining Surveyors' Reports, March 1886
- 20 Mining Surveyors' Reports, June 1886
- 21 Mining Surveyors' Annual Reports, 1903
- 22 Murray, 1896
- 23 'The Rushworth Gold Mines', 1918
- 24 Herman, 1900
- 25 Mining Surveyors' Annual Reports, 1903
- 26 Mining Surveyors' Annual Reports, 1904
- 27 Mining Surveyors' Annual Reports, 1912
- 28 'The Rushworth Gold Mines', 1918

**SITE NO. & NAME**                      **PHOENIX/UNION REEF MINE SITE**  
**7.1**      **Phoenix Mine Site**  
**7.2**      **Union Hill Workings**

**LOCATION:**                                  **Phoenix/Union Reef**

**HI NO:**                                      **7.1**      **H7824-0001**  
**7.2**      **H7824-0002**

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**DIRECTIONS:**                              0.5 km along the track to Chinaman's Hill, from junction its with Stanhope Road

**MUNICIPALITY:**                          Campaspe Shire

**LAND STATUS:**                            Unreserved Crown Land

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**HISTORY:**

c.1860. Mine Dept's map shows crushing machine located in Chinaman's Flat, base of Union Hill.

June 1882. The engine, etc., lately belonging to the Frenchman's Reef Co., has been purchased by the proprietors of the Phoenix Reef, who are now refixing the same in their claim at Chinaman's Flat, Rushworth.<sup>1</sup>

September 1882. Phoenix Co., Rushworth, has completed the machinery, and erected a very efficient battery of 10 stamp heads. They recently commenced crushing, and have about 1000 tons of quartz to operate on ... 10 men employed.

Phoenix Co., Chinaman's Flat, Rushworth, was registered by Sutherland and Loshe on the 18th May 1878 and worked by them for some time with success, until the gold having apparently run out, Loshe transferred his interest to Thomson, shortly afterwards some good stone was struck, and several crushings of a highly remunerative character were obtained. The owners, finding the cost of carting and crushing too heavy an item in their expenses, determined to risk their all in the erection of crushing machinery for their mine, and accordingly they registered a machinery and dam site, and work was immediately recommenced. On 21st September 1882, machinery which had been placed at a cost of about £1500, was started.<sup>2</sup>

December 1882. Messrs Sutherland and Thomson, following their success, have added a battery of 5 stamp heads to their plant; 16 men are employed.<sup>3</sup>

September 1883. Phoenix Co. has declared a first dividend of 6d per 24,000th share.<sup>4</sup>

December 1883. The Phoenix Co., Rushworth, in consequence of a break in the reef, now only employ 4 men.<sup>5</sup>

June 1884. The Phoenix Co ... now putting through about 500 tons.<sup>6</sup>

September 1884. Phoenix Co.--crushing of 500 tons yielded 155 oz.<sup>7</sup>

December 1884. The Phoenix Co. is sinking a new shaft.<sup>8</sup>

June 1885. Phoenix Co.--another successful crushing; the reef still looking well.<sup>9</sup>

September 1885. Phoenix Co. Crushing of 300 tons yielded 505 oz. The Bound to Win Company, east of the Phoenix lease, has struck very payable gold. The history of this company is worthy of special remark. For several years the claim had been unprofitably prospected by various parties, but on 16th June 1884, a small company of 12 shareholders was formed, to assist the 2 men then in possession. After contributing £13 per share, the ground was let on the 8th July, 1855, on tribute of 25-1/2% to 8 tributers. The gold obtained since then has enabled the original company to declare a dividend of £10 per share, and the tributers £14 per share.<sup>10</sup>

December 1885. The works of the Bound to Win mine are still very remunerative.<sup>11</sup>

March 1886. The Bound to Win Co. has declared a dividend. Shareholders, per 12th share, £21; tributers, per 8th share, £33.<sup>12</sup>

June 1886. Bound to Win Co. Crushed 461 tons for a yield of 273 oz. Their tribute having now expired, the mine will be worked by the company.<sup>13</sup>

June 1887. Phoenix Co. Still prospecting; crushed 270 tons for a yield of 49 oz.<sup>14</sup>

September 1887. Phoenix Co. Still prospecting.<sup>15</sup>

September 1888. Phoenix Co. Crushing only for the public.<sup>16</sup>

March 1889. Phoenix Co. Sinking new shaft; present depth is 50 ft.<sup>17</sup>

December 1889. Phoenix Co. Ceased work.<sup>18</sup>

June 1894. Phoenix Reef [History of]. Over £20,000 worth of gold taken.<sup>19</sup>

1896 [history]. The Phoenix ... only worked down to water level, though nearly 4,000 ounces of gold appear by the bank-books to have been won.<sup>20</sup>

1918 [history]. Bound to Win Reef. This reef, known as the Union, is situated about a mile west of the township of Rushworth, to the north of the Moora road, and is on the well known Phoenix line. It was founded in 1857 by Ned Smith ... but before sinking any great depth so little was thought of the prospects that an offer of £50 from Randolph and Fisher was sufficient to induce a transference in Randolph's favor ... They took out about 100 loads of stone, the average yield being nearly 10 oz to the load. Finding that Randolph and Fisher had been so successful, S. Darby and J. Hutchinson took up the adjoining ground easterly and worked it with good results, but a large break threw the reef to the south a distance of 60 feet, where the stone again made very rich, giving good returns until operations were discontinued. Some time after two diggers trenched the crown of the hill, and obtained, amongst others, a yield of 87 oz from a bucketful of stone. In 1879 W. and J. McDonald and Fred Kane took up the ground and formed a local company to try it. They did very little work, but in 1885 let the mine on tribute to a party of eight persons, some of the shareholders taking an interest, the tribute term being twelve months ... They started operations at 130 feet and continued down to the water level taken out an enormous amount of stone, the average yield from which was about half an ounce to the load ... The tributors, from 1st July, 1885, to 30th June, 1886, crushed 1,459 loads for a return of 755 oz 17 dwts 20 grs ... The shoot of gold worked by the tributors had been followed to the water and nothing was left for the company unless they were prepared to go to the expense of working below the water level, so they decided to try the ground further eastward, but although their operations extended over a period of four years their returns for the whole of that period were only 393 oz 16 dwts 2 grs ... Several parties have given the ground a trial since, with varying success, some good returns being obtained.

Phoenix Reef. This reef, which is one of the best known on Rushworth, lies about a mile west of the township of Rushworth and was opened up as late as the year 1879, although Appleton's reef, which runs parallel and is only fifty or sixty yards south, was discovered as far back as 1857. The two reefs would appear to be one and the same, for they came together in the deeper workings on the Bound to Win, adjoining the Phoenix mine on the east ... Appleton worked the reef to a depth of 30 or 40 feet, but as it proved unremunerative he gave it up. So the ground lay until 1879, when Thomas Law found some specimens on the surface just north of Appleton's, on what is known as the Phoenix line ... he gave the show to Archie Sutherland, who obtained a few more loads of surface stone in addition to that taken out by Law and put the lot through the battery. The result was 15 dwts to the load. Sutherland then took for a partner John Loosh ... Loosh, believing that the gold was about exhausted, gave his share to David Thompson. Almost immediately afterwards good gold was struck which they continued to work for some time, one crushing alone returning them about £1000 per man. Thompson and Sutherland had a large body of stone to operate on so they decided to erect a crushing battery and do their own work, and a battery of 15 head was soon in motion at a cost of about £3000 ... The bank records show that 4000 ounces were taken out of this mine between 1879 and 1887. During the eight years in which the claim was worked by Sutherland and Thompson, they took out over £15,000 worth of gold, and yet for all that the ground stands idle at the present day, being only worked to the water level where the reef joined the Bound to Win mine.<sup>21</sup>

Nov 1957. Rushworth Gold Mines NL. Report to shareholders ... position of the Phoenix mine being worked by the company and the reason for the call. Actual work on the mine has been in progress for one year, and the following works have been accomplished. Old shaft has been enlarged and extended to a depth of 150 feet. At the 150 ft level, the cross-cut is 90 ft to the south. From 35 ft on the cross-cut, the E drive is extended to 31 ft and the W drive to 128 ft with rails laid to each section.

On the surface, a poppet head has been erected, with winch and all necessary plant for haulage. A portable air compressor (with supplementary air receiver now connected) provides necessary power for winch, also air power for underground work. Water on surface and underground is provided by local town system, whilst for battery purposes, a large dam has been constructed. Storage and necessary sheds have been provided, also H.W system and showers for miners. Ore bin for feeding batteries has been completed. Present developmental work ... erection of batteries and the installation of necessary power to drive them. Two 5 head stamp batteries, those from Tarnagulla and St. Arnaud were secured by tender from the Mines Department and their erection is nearly complete. [letter not dated but associated with other correspondence which all dates between Jan and Nov 1957].<sup>22</sup>

1972. The "Phoenix"--where battery machinery and poppet head were sold as recently as 1972 to Charlie's Hope mine in Maldon.<sup>23</sup>

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*DESCRIPTION OF PHYSICAL REMAINS:*

Multi-phased site:

1857: Reef discovered and first worked.  
 c.1860: Battery installed on Chinaman's Flat, base of Union Hill.  
 1882 - 1889: Phoenix Co. Installation of battery.  
 1885 - 1886: Bound to Win Co., working adjoining claim.  
 1957: Rushworth Gold Mines NL. Installation of winding engine and 10-head battery.

Surviving remains relate to the latest phase of mining. The following interpretation was supplied by Ron Risstrom, whose father was involved in the operation of the mine in the late 1950s.

On the footings nearest the dam sat a Crossley diesel engine which drove the ten head of stamps. The middle footings would have been for the intermediate belt pulley, and the single three compartment footing for a ten-head battery of stamps. Five head of stamps came from Tarnagulla and five head from St Arnaud. They were secured in 1957 by tender from the Mines Department. This suggests they were ex-government batteries.

The height of the bolts above the footings suggest the battery boxes were bolted directly onto the concrete.

The mine's battery, engine and winding gear were sold in 1972, for removal to Charlie Hope's mine at Maldon.<sup>24</sup>

Site 7.1. Phoenix mine (operated for approx 2 years c. 1957).

N of the dam, on the E slope of Union Hill, are the remains of a crushing battery. The footings for the battery and engine have been erected on a level platform, quarried out of the face of the slope.

The engine site consists of three sets of concrete footings, all of which contain protruding iron mounting bolts and stand at least 0.5 m above present ground level. The set nearest the dam contains two foundations: one measures 2 ft 9-in x 7 ft (85 cm x 2.1 m), the other 3 ft 6-in x 1 ft (1.05 m x 30 cm). They are placed 1 ft 6-in (45 cm) apart.

To the S, and 9 ft (2.75 m) to the W, are two more associated footings: both measure 4 x 1 ft (1.25 m x 30 cm) and are placed 4 ft 9-in (1.45 m) apart. Ten feet (3.05 m) further to the W are the battery footings.

The crushing battery (ten head of stamps) was placed on a single concrete footing which has three U-shaped compartments. Its overall dimensions are 8 x 17 ft (2.45 x 5.2 m). The compartments at either end are 5 ft 6-in (1.65-m) wide; the middle compartment is 2 ft (65 cm) shorter in width. The back wall, to which the battery boxes would have been bolted is 2 ft thick.

N of the battery footings, is a hard deposit of grease and oil. A dump of battery sand lies below the battery.

Further up the hill from the battery is a one-compartment shaft. It is poorly fenced and collapsing. Ten metres N of the shaft is a single concrete footing.

Site 7.2. Union Hill reef workings

A line of workings runs W from the one-compartment shaft over the crown of Union Hill into Chinaman's Gully. The workings consist of filled and partly subsided shafts (some up to 10 m deep), relatively small mullocks heaps derived from shallow workings, and several small open cuts.

*INTEGRITY/CONDITION:* Concrete footings in good condition. The one compartment shaft is collapsing, poorly fenced and the area is quite dangerous.

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*CULTURAL SIGNIFICANCE:*

Site 7.2 has:

- Historical significance because it is part of a group or network of sites, the totality of which is considered to be significant, namely sites 7.2, 8.1 & 8.2. Site also represents one of the few mines to operate in the Rushworth area after the Great Depression.

*SIGNIFICANCE RANKING:* Sites Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Mining Surveyors' Reports, June 1882
  - 2 Mining Surveyors' Reports, September 1882
  - 3 Mining Surveyors' Reports, December 1872
  - 4 Mining Surveyors' Reports, September 1883
  - 5 Mining Surveyors' Reports, December 1883
  - 6 Mining Surveyors' Reports, June 1884
  - 7 Mining Surveyors' Reports, September 1884

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- 8 Mining Surveyors' Reports, December 1884
  - 9 Mining Surveyors' Reports, June 1885
  - 10 Mining Surveyors' Reports, September 1885
  - 11 Mining Surveyors' Reports, December 1885
  - 12 Mining Surveyors' Reports, March 1886
  - 13 Mining Surveyors' Reports, June 1886
  - 14 Mining Surveyors' Reports, June 1887
  - 15 Mining Surveyors' Reports, September 1887
  - 16 Mining Surveyors' Reports, September 1888
  - 17 Mining Surveyors' Reports, March 1889
  - 18 Mining Surveyors' Reports, December 1889
  - 19 Mclvor Times, 14 June 1894
  - 20 Murray, 1896
  - 21 'The Rushworth Gold Mines', 1918
  - 22 Private papers re Rushworth G M NL held by Ron Risstrom
  - 23 Hammond, 1978, p. 22
  - 24 Waranga Conservation Study, 1988, Vol 3, p11

**SITE NO. & NAME**                      **CHINAMAN'S HILL & GULLY WORKINGS****8.1**    **Alluvial Workings, Chinaman's Gully****8.2**    **2-Head Battery, Chinaman's Hill****LOCATION:**                              **Chinaman's Flat/Gully & Hill, Rushworth****HI NO:**                                **8.1    H7824-0003**  
**8.2    H7824-0004**

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**DIRECTIONS:**                      Site 8.1. Chinaman's Gully and Hill lie to the W of the Phoenix Mine. Accessible from a track that runs N off Colbinabbin, W of the abandoned railway line  
Site 8.2. N of Murchinson Road, on the S side of Chinaman's Hill. A bush track running N off the main road leads to the battery**MUNICIPALITY:**                      Campaspe Shire**LAND STATUS:**                      Unreserved Crown Land

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**HISTORY:**Chinaman's Hill/Flat/Gully.

1856 [history]. Chinaman's Hill Reef. This reef, which is situated a short distance to the west of the Phoenix reef, and sometimes spoken of as the West Phoenix, was opened as early as the year 1856, and was discovered on the surface by Thomas Henneford and George Nagel, who owned and worked a puddling machine in the gully below the hill. While obtaining wash dirt for the machine they came across the reef, which was of an east and west nature, and about as rich in the first workings as any that has been opened on the Rushworth goldfield.<sup>1</sup>

1857-1860. Maps--showing Rushworth. These two maps show puddling machines in the following gullies:

Antonio Gully 2 puddling machines.

Billy Buttons Gully 3 puddling machines.

Canadian Gully 1 puddling machine.

Chinamans Flat & Gully 4 puddling machines.

Kangaroo Gully 2 puddling machines.

Long Gully 2 puddling machines.

Nuggetty Gully 1 puddling machine.

Shellback Gully 6 puddling machines.<sup>2</sup>

1859. The only area [at Rushworth] not worked when Philip Chauncy's map [CPO, Goldfield Plans, Waranga, 1859, by Philip Chauncy, No. 31] was made of the field in 1859, was Chinaman's Flat, near Moorra Road. Rushworth field then was entirely an affair of reef workings and puddling machines.<sup>3</sup>

September 1859. Nearby [Fletcher's Reef] is Chinaman's Gully and Flat, scene of very successful puddling operations.<sup>4</sup>

March 1864. Crocker and Co.--40 ft.<sup>5</sup>

September 1864. Two other small rushes--the other to a branch gully of Chinaman's Flat.<sup>6</sup>

December 1864. Chinamans Gully/Flat--59 miners working.<sup>7</sup>

December 1864. Chinaman's Reef--4 miners working.<sup>8</sup>

1866-69. Chinaman's Flat. Heriot P. Bedwell and Thomas Wootton owned huts at crushing machines at Chinaman's Flat in 1866. John G. Rice applied for a beer licence on 13th June 1869 for his public house of 3 rooms built of slab and bark ... John Groom took over this licence in 1888.<sup>9</sup>

December 1868. Sauthers and Thompson's--4 ft in thickness taken for crushings, reef payable.<sup>10</sup>

April 1869. Manuel and Thompson--37 tons yielded 10 oz.<sup>11</sup>

May 1869. 25 tons yielded 4-1/2 dwts per ton. Reef 4 ft thick.<sup>12</sup>

September 1869. Chinaman's Hill. Manuel and Co.--22 tons of quartz yielded 13 oz. About payable.<sup>13</sup>

1878. [Cement] has been extensively worked at the undermentioned places, yielding remunerative quantities of gold and frequently rich patches--Chinaman's Hill, Gravel Pits, Old Lead, Nuggety, Cockatoo, Rushworth township, Butcher's Gully, &c.<sup>14</sup>

June 1878. Waranga Shire Council have constructed a reservoir about half a mile from the township of Rushworth, capable of holding 3,000,000 gallons, and one of smaller dimensions at Chinaman's Flat. These cannot fail to be an advantage to the miners, securing to them an unlimited supply for domestic purposes.<sup>15</sup>

June 1882. The engine, etc. lately belonging to the Frenchman's Reef Co. has been purchased by the proprietors of the Phoenix Reef, who are now refixing the same on their claim at Chinaman's Flat, Rushworth; they are also adding to it an efficient battery of stamp heads; the prospects of this claim are good, and 14 men are employed.<sup>16</sup>

1918 [history]. Chinaman's Hill Reef. This reef, which is situated a short distance to the west of the Phoenix reef, and sometimes spoken of as the West Phoenix, was opened as early as the year 1856, and was discovered on the surface by Thomas Henneford and George Nagel, who owned and worked a puddling machine in the gully below the hill. While obtaining wash dirt for the machine they came across the reef, which was of an east and west nature, and about as rich in the first workings as any that has been opened on the Rushworth goldfield. In fact, one bucketful of picked specimens, when pounded in a mortar, returned them no less than 200 oz of clean gold, which yield has been equalled by few claims in the district. The proprietors worked the reef ... Down to a depth of 40 feet they obtained splendid gold, about 30 oz to the load being the average yield. Such news as this soon set others on the alert, and the adjoining ground west was taken up by five men, with whom Fletcher, Gaffney and Smith were partners ... The original prospectors found that the shoot of gold was running into the western ground, held by Fletcher and party so, with a view of still keeping an interest in the mine, they offered to amalgamate with Fletcher, the offer being readily accepted. They then left their own claim, which was almost worked out, and started operations in Fletcher's taking it on tribute ... they then contracted with a storekeeper at McIvor, named Stackpole, to sell out for the sum of £1,000 each ... Stackpole, instead of working the ground himself, formed a company, with the aid of some Melbourne and Heathcote men ... unfortunately the run of gold, which was worked for 40 feet along the reef, was soon worked out, and the claim became forfeited. The next man who had anything to do with the ground was John Rooke, who kept an hotel on Chinaman's Flat, known as the Beehive. He put up a crushing battery of four head of stampers and a portable engine on the east side of the hill, and crushed a great portion of surface stone, as well as mullock and stone from the reef, managing good wages during the greater portion of the time, until he removed the plant to Black Joe's Gully, on the east side of Rushworth township ... Fisher and Randolph ... were the next to try the ground, and managed to extract a fair amount of stone ... Their chief workings were to the west of the ground prospected by the previous owners, and nearer the crown of the hill, where they sank a shaft to a depth of 30 feet on payable gold. Since their tenure of the ground it has been tried by several parties at short intervals, but none of them were successful ... Messrs W.C. Walbran, W. Mason and G. Marsland were the last persons who actively carried on operations on the ground, though even they did not work it constantly, holding the lease until the year 1887 ... Since they abandoned the ground in 1887 nothing except a little surface scratching has been done here and there, the returns from which seem commonplace when compared with those obtained by the original workers.<sup>17</sup>

Late 1930s. Jim and Charlie Robertson had a 2-head battery on the side of the hill--about 1936/1937.<sup>18</sup>

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*DESCRIPTION OF PHYSICAL REMAINS:*

Site 8.1. Appear to be 19th/early 20th century reef workings.

Site 8.2. Local miner, Dick Bell, recalls that this battery was worked by Jim and Charlie Robertson. Dick thinks he would have been about sixteen at the time, providing a date of about 1936-37 for its operation. The large tailing dump could not have been generated by this small battery, indicating, as shown by the historical record, that earlier batteries operated in this area, eg. Phoenix Company who operated a battery in the 1880s.

Site 8.1. Alluvial workings

Chinaman's Gully has been extensively puddled and the only alluvial sinkings surviving run along the edges of the excavated gully. Near where the gully joins with Chinaman's Flat there is a dam. No puddler was found near this dam, but there is a dump of battery sand on the NE side of the dam. The Union Hill line of workings continues on Chinaman's Hill. These workings contain two open cuts and some filled shafts. As with the workings on Union Hill (Site), those that survive are on the crown of the hill, out of reach of the shaft-filling machinery.

Site 8.2. 2-head battery (operated by Jim and Charlie Robertson, c. 1936-37).

On the S slope of Chinaman's Hill is the wooden framework of a two-head battery. It is located 10 m in from the N side of a track that runs along the base of the hill. The two upright beams that supported the battery still stand 3.2 m above current ground level. The uprights are 7 x 9 in thick and are roughly hewn (broad-axed). The westerly upright is still supported by a strut. Between the two uprights are three wooden stumps, which together make up a surface 16-in (40 cm) wide and 3 ft (90-cm) long. There are upright bolts (still with threads) in each of the four corners. The back corner bolts stand 6-in (10 cm) above the stumps, the front 8 in (12-cm).

Immediately in front (south) of the stumps is a sloping concrete pad, 2 ft 9-in (85 cm) wide and 12 ft (3.65 m) long. A small gold-catching channel (3-in wide and 1-1/2-in deep) is located at the end of the pad.

Three metres from the end of the pad, slightly to the E are a number of partially buried bedlogs. No iron bolts are visible.

The area surrounding the battery is littered with scraps of rusty galvanised iron sheeting and water tank.

South of the battery, near where private paddocks commence, is an extensive dump of battery sand. Limited quarrying has taken place, exposing sections in the battery sand to reveal distinct depositional layers. This suggests that the sand has come straight from a battery and has not, as yet, been treated.

A large dam, still retaining some water, is also associated with this battery sand.

*INTEGRITY/CONDITION:*

Site 8.1. Timber work is in good condition. There is, however, some white ant activity in the strut supporting the westerly upright.

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*CULTURAL SIGNIFICANCE:*

The sites have:

- Historical significance, because they are part of a group or network of sites, the totality of which is considered to be significant, namely sites 7.1, 7.2 & 8.2.
- Scientific significance, because they represent an important mining technology. They illustrate the scale and continuity of 19/20th century quartz mining and prospecting around Rushworth.

*SIGNIFICANCE RANKING:*

Sites Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 'The Rushworth Gold Mines', 1918
- 2 Lands Dept Map: Central Plans Office, Goldfields 31, dating 1857, additions to 1859 & Mines Dept Map dating Jan 1860?
- 3 Flett, 1979, p. 80
- 4 Mclvor News, 2 September 1859
- 5 Mining Surveyors' Reports, March 1864
- 6 Mining Surveyors' Reports, September 1864
- 7 Mining Surveyors' Reports, December 1864
- 8 Mining Surveyors' Reports, December 1864
- 9 Hammond, 1978, p. 5
- 10 Mclvor Times, 28 December 1868
- 11 Mclvor Times, 5 April 1869
- 12 Mclvor Times, 10 May 1869
- 13 Mclvor Times, 27 September 1869
- 14 Geological Survey of Victoria, Report of Progress, 1878, p. 158
- 15 Mining Surveyors' Reports, June 1878
- 16 Mining Surveyors' Reports, June 1882
- 17 'The Rushworth Gold Mines', 1918
- 18 Pers Comm. Dick Bell, Rushworth

**SITE NO. & NAME**                      **HOPE OF DENMARK CO./MONGOLIAN CO. MINE SITES****9.1**    **Clausen's Hope of Denmark Mine****9.2**    **Monogolian Mine****LOCATION:**                              **Hope of Denmark/Mongolian Reef, Rushworth****HI NO:**                                **9.1**    **H7824-0005**  
**9.2**    **H7824-0006**

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**DIRECTIONS:**                      SE corner of private paddock, W side of Old Ned's Gully track that leads off Colbinabbin main road.**MUNICIPALITY:**                      Campaspe Shire**LAND STATUS:**                      Site 9.1 is on Freehold Land  
Site 9.2 is on Unreserved Crown Land

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**HISTORY:**

Hope of Denmark Reef or Clausen's Reef.

December 1874. Several new reefs discovered. One is The Hope of Denmark at Old Ned's Gully, Rushworth; 3 separate claims are now at work. The gold obtained is very fine, so much so that the owners, believing they have no chance of saving it with machinery used in the division, have combined for the purchase of a set of Chilian wheels, which is now on the ground in the course of erection.<sup>1</sup>

June 1876. Present prospects of the quartz mines in the Division are encouraging, including Forlorn Hope and Hope of Denmark at Rushworth.<sup>2</sup>

September 1882. No. 4 Hope of Denmark, Old Ned's Gully, Rushworth was registered by Trules Clausen on the 5th July 1881, and worked by the owner and two men; depth 70 ft; thickness of reef, 8 inches; average last crushing, 1 oz 7 dwts per ton for 23 tons; three miners employed.

No. 5 Hope of Denmark, adjoining the foregoing, registered by Molloy, Hansen and Mumford; depth 70 ft; thickness of reef, 8 inches. A large paddock of good stone awaits crushing; 3 miners are employed.<sup>3</sup>

1896 [history]. The most westerly workings visited on [Rushworth's southerly] belt are on what is known as Clausen's, or Hope of Denmark reef. The workings extend along nearly half-a-mile in length on the various shoots. The general depth to which the stone has been worked is stated as 105 feet (water-level), but the main present workings are at 180 feet.<sup>4</sup>

1900. At the Hope of Denmark ... is an 8 feet by 3 feet shaft timbered in three compartments to 180 feet, with poppet legs, complete winding plant, and 10-head battery, all of which, unless work be renewed, will be soon quite unfit for use.<sup>5</sup>

1918 [history]. Hope of Denmark Reef ... is situated in Old Ned's Gully, about two miles west of the township of Rushworth, and runs parallel with the Mongolian (with which is included the Cumberland) and Schleswig-Holstein reefs, being about 150 feet north of the Mongolian, which in turn is 250 feet north of the Schleswig-Holstein ... The reef, named by Clausen the Hope of Denmark, was found by him and Ernest Hicks in 1873, when puddling the surface close to his private property, the stone being very thin, but richly studded with gold ... It was well known that the returns were from 4-1/2 to 10 oz to the load, so that the amount of gold obtained must have been considerable, as they continued the sinking of the shaft down to 130 feet--being five feet below water level--when they were forced to relinquish operations. They also put down another shaft on the western end of the reef in which good gold was obtained ... Though the returns from this ground had been so good, little was done in the way of prospecting in the immediate vicinity--with the exception of the sinking of a couple of shafts on the private ground, the returns from which were low--until the year 1881, when Clausen tried the Crown land at the east of his property, where he again came across the reef at a depth of 20 feet from the surface. This occurred in August 1881. The first load taken from this part of the reef when crushed yielded 3 oz 2 dwts ... His success had attracted notice, and a company was formed for the purpose of working the intervening private ground between Clausen's east and west shafts, and also the Crown land held by him ... In 1886, the company started operations by sinking an engine shaft to the water level by contract, properly timbered. This was an expensive undertaking, the work being well carried out, but they never placed machinery on the mine ... Whilst the engine shaft was being sunk work was carried on in two of the shafts on the eastern part worked by Clausen, one of them being worked to a depth of 145 feet, 20 feet below water level. By keeping three horses constantly employing baling, they managed to raise four small crushings, which returned them 95 oz 8 dwts 2 grs from 85 loads ... Their last crushing of 29 loads, which was put through the mill in February, 1888, yielded 34 oz 10 dwts and took them six weeks to procure. They appear then to have abandoned the ground altogether.

When Clausen found the reef in the eastern ground the news was not long in spreading, and the adjoining part was immediately taken up by Chris Hansen, Peter Molloy and Clement Mumford, under the title of No. 1 East, and registered on the 6th August, 1881 ... Their only means for raising the stone was a windlass, so that when water was struck they had either to erect more power or cease working, the latter course being adopted in 1883. Their returns were very good, averaging nearly 4-1/2 oz to the load.

Peter Molloy ... continued to hold the ground after Hansen and Mumford backed out, but as little could be done by himself he soon found a mate in Albert Melville, and set to work again in 1884 to sink another shaft east of the one previously worked by himself and party ... They also ... sank the shaft to the water level, obtaining payable gold all through. Another shaft further east was then sunk to the water level, and the reef worked along, the three claims being connected by a cutting to a depth of 125 feet. The water at this stage became too strong for them, and they were forced to abandon the ground in 1888.

No. 2 East was taken up in the year 1887 by Chris Hansen and John Hargreaves, who, for the better working of the ground, formed a local company, they being the working partners. Three shafts were sunk on the reef at varying depths ... They held a lease of nine acres, but the returns not being remunerative the ground was abandoned.

Later a lease was taken up on the ground, and Mr Clinton, of Ballarat, interested himself in the mine. A winding plant was installed and a crushing battery erected ... Under Mr H. Carter's management work proceeded for some time, but no records can be obtained. The mine was again abandoned, and this proves that the work done by them was not remunerative. The fact that the mine was worked by this company from the engine shaft previously sunk by Clausen and Co. militated greatly against its success ... Since that time little work has been done.<sup>6</sup>

#### Mongolian Reef

1867. Mongolian Reef--so named because the reef was found in 1867 by Chinese miners who had a puddling machine in Goss's Gully. The Chinese sold the claim to David Scott, H.P. Bedwell and G. Cracknell for £150.<sup>7</sup>

September 1868. Cracknell and Scott's on the Mongolian ... continue to produce very rich quartz.<sup>8</sup>

March 1874. The Mongolian Co. has erected an engine, with pumping and winding gear, and will probably be complete within a fortnight.<sup>9</sup>

June 1874. The Mongolian Co. has completed the erection of their pumping machinery, and expect to strike the reef in their shaft daily; and their pumping drains several adjacent claims, which will shortly resume work.<sup>10</sup>

June 1875. The Mongolian Co. is again at work, prospecting their ground above the water level for fresh veins; four men are employed.<sup>11</sup>

June 1876. Rushworth, Mongolian Co. to sink main shaft a further 25 ft.<sup>12</sup>

June 1876. The Mongolian Co. proposes to start sinking the shaft again shortly.<sup>13</sup>

September 1876. Mongolian Co. resumed work.<sup>14</sup>

December 1879. It is stated that the ... Black Cloud Co., at Coy's Diggings, has purchased the Mongolian machinery.<sup>15</sup>

June 1894. Mongolian Reef [history of]. Very patchy.<sup>16</sup>

1896 [history]. The Mongolian ... is said to have been worked to 450 feet in various shoots ... and the yields from 15 dwts up to as much as 25 ounces to the ton.<sup>17</sup>

1918 [history]. This reef is situated about one mile west of Growler's Hill, and about 200 yards north, in a parallel line, from the Schleswig-Holstein mine, and on the same line of reef as the Cumberland, it was discovered in the year 1867 by some Chinamen, who had a puddling machine in Goss's Gully ... They opened up a cutting along the reef for about 14 feet, and sank it to a depth of 10 feet. At this depth they took out a crushing of 6 loads, which returned the magnificent yield of 45 oz ... They were not long in getting out another crushing of three loads, when a break occurred in the stone ... they were unable to pick up the run of stone again, and agreed to sell the claim ... for £150, and the claim was shortly afterwards registered in their names under the title of the Mongolian Reef ... The claim had now reached a depth of 90 feet, and as the last 30 feet had not been very remunerative Bedwell decided to leave the company, selling his share [to the others]. Scott and Cracknell, however, were not to be deterred from a further search, and for some time afterwards carried on the work of the claim. Their enterprise did not receive the reward it deserved ... and they decided to exempt the claim for three months. After the expiration of the exemption they let the mine on tribute ... The claim had been sunk by the tributers to water level, and the proprietors worked it as far as they could with a windlass, having three shifts of men working day and night ... A whim was erected and every preparation made for a thorough search, but after sinking to 250 feet, where the reef was from 6 to 12 inches in thickness, [Cracknell] determined to form a company of 12 shares of £100 each, six of which he held himself. The new company showed faith in the mine by immediately putting up a 25-horse power engine and pumps, by which means they were able to keep the mine dry. A further distance of 50 feet was sunk, making a total 300 feet, but as the ground got very hard and the reef poor very little work was done ... The next claim, known as No. 1 West, was taken up by Peter Berg, David Scott and G. Cracknell in 1867 ... At a depth of 60 feet the stone had decreased to 6 or 8 inches, and was slightly poorer, 15 dwts to the load being the yield down to about 132 feet ... No. 2 West was taken up by Rose and Sons, and was similar in character to the previous ones ... They sank this shaft to a depth of 180 feet on the underlay, but at this distance from the surface the run of gold had decreased considerably. The mine was then exempted, and in 1884 was taken up by Egan and Sons, who found gold at a depth of 40 feet ... The party obtained about £300 worth of gold in the two years they were working the mine.<sup>18</sup>

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*DESCRIPTION OF PHYSICAL REMAINS:*

Hope of Denmark and Mongolian were adjoining reefs worked with limited success:

Hope of Denmark Reef:

1874-1880s: Reef discovered and worked by several claimholders.

1900: Hope of Denmark Co. Installation of winding engine.

Mongolian Reef:

1867-early 1870s: Discovered and worked by various claimholders.

1874-1879: Mongolian Co. Installation of pumping engine.

Little survives of the mine workings. The mullock heaps associated with this site are quite small, and none have any of the blue mullock (derived from below the water-level) which indicates the sites of deep shafts. Presumably, as is the case for all other quartz mines around Rushworth, the blue mullock has been removed from the site and used for road construction.

9.1. Hope of Denmark mine site.

In cleared grazing paddocks are what survives of the Clausen mine or Hope of Denmark. From the road, all that appears to survive are several small mullock heaps.

9.2. Mongolian mine site.

The line of workings run E-W. The easterly continuation of workings runs through State Forest. Here the workings, including subsiding shafts and one section of open-stoping, would comprise part of the Mongolian lease. The associated mullock heaps are quite small, and none have any blue mullock.

*INTEGRITY/CONDITION:* Poor.

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*CULTURAL SIGNIFICANCE:*

Sites hold little Historical significance and their integrity so reduced as to have little cultural significance.

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Mining Surveyors' Reports, December 1874
- 2 Mining Surveyors' Reports, June 1876
- 3 Mining Surveyors' Reports, September 1882
- 4 Murray, 1896
- 5 Herman, 1900
- 6 'The Rushworth Gold Mines', 1918

- 7 Hammond, 1978, p. 19
- 8 Mining Surveyors' Reports, September 1868
- 9 Mining Surveyors' Reports, March 1874
- 10 Mining Surveyors' Reports, June 1874
- 11 Mining Surveyors' Reports, June 1875
- 12 Mclvor News, 22 June 1876
- 13 Mining Surveyors' Reports, June 1876
- 14 Mining Surveyors' Reports, September 1876
- 15 Mining Surveyors' Reports, December 1879
- 16 Mclvor Times, 14 June 1894
- 17 Murray, 1896
- 18 'The Rushworth Gold Mines', 1918

**SITE NO. & NAME**                    **10.1 OLD NED'S GULLY ALLUVIAL WORKINGS**

**LOCATION:**                                **Old Ned's Gully, Whroo**

**HI NO:**                                    **H7824-0007**

**DIRECTIONS:**                        Head of Old Ned's Gully, E side of track, 0.5 km S of the junction with track that runs W along the S boundary of private paddocks

**MUNICIPALITY:**                      Campaspe Shire

**LAND STATUS:**                        Unreserved Crown Land

**HISTORY:**

1858. The diggings came alive again in 1858, when Long Gully, Canadian Gully, lower Old Ned's Gully and other places were opened.<sup>1</sup>

1860. Alluvial was still paying, including Old Ned's Gully.<sup>2</sup>

December 1864. 21 miners working.<sup>3</sup>

March 1872. There has been a small alluvial rush in the town end of Old Ned's Gully, but the yield was, with a few exceptions, very poor.<sup>4</sup>

December 1874. Several new reefs discovered. One is The Hope of Denmark at Old Ned's Gully, Rushworth; 3 separate claims are now at work. The gold obtained is very fine, so much so that the owners, believing they have no chance of saving it with machinery used in the division, have combined for the purchase of a set of Chilian wheels, which is now on the ground in the course of erection.<sup>5</sup>

June 1876. Present prospects of the quartz mines in the Division are encouraging, including Forlorn Hope and Hope of Denmark at Rushworth.<sup>6</sup>

c. 1878. The largest nugget I know as having been found was at Old Ned's Gully, Rushworth, weighing 30 oz. 4 dwt. 18 gr.<sup>7</sup>

**DESCRIPTION OF PHYSICAL REMAINS:**

The puddler possesses the following characteristics that suggest it is a late (20th century) puddler:

- raised and fresh-looking outer mound
- well defined puddling trench and inner mound
- scant vegetation
- location above the water level of its associated dam

10.1. Alluvial sinkings & puddler.

South of the Clauscen mine, in State Forest, is a band of alluvial sinkings running S up Old Ned's Gully. The band of sinkings would average around 100 m wide and extend over about 0.5 km. The sinkings are fairly intense, many being separated by a narrow, 1m-wide baulk.

Near the head of the gully, close to a discarded car body, is an earthen-walled dam and puddler. The outer mound of the puddler, despite being very eroded, has a fresh appearance and is raised at least 1 m above the ground level. The inner mound is intact, but its central post has gone. The puddling trench is well defined and the site is covered with low bushes. The dam lies to the S of the puddler. There is no sign of any inlet channel, and as the puddling machine is placed somewhat above the water level, it is likely that the water was pumped into the puddler.

**INTEGRITY/CONDITION:**                      Puddler is in relatively poor condition for its age.

**CULTURAL SIGNIFICANCE:**

The site has:

- Historical significance, because it:
  - a) represents a sequence of uses or functions over time.
  - b) is part of a group or network of sites, the totality of which is considered to be significant.
- Scientific significance, because it represents an important mining technology, showing two methods of alluvial mining.

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Flett, 1979, p. 80
- 2 Hammond, 1978, p. 117
- 3 Mining Surveyors' Reports, December 1864
- 4 Mining Surveyors' Reports, March 1872
- 5 Mining Surveyors' Reports, December 1874
- 6 Mining Surveyors' Reports, June 1876
- 7 'Mr Benbow', quoted in Geological Survey of Victoria, Report of Progress, 1878, p. 159

**SITE NO. & NAME**                      **11.1 LONG GULLY PUDDLER AND DAM SITE**

**LOCATION:**                                **Long Gully, Whroo**

**HI NO:**                                    **H7924-0018**

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**DIRECTIONS:**                      Puddler is located on the NE verge of the Whroo-Rushworth road, 575 m N of the Balaclava Hill turn-off

**MUNICIPALITY:**                      Campaspe Shire

**LAND STATUS:**                      Whroo Historic Reserve

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**HISTORY:**

1860. Alluvial was still paying--including Long Gully.<sup>1</sup>

December 1864. 4 miners working.<sup>2</sup>

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**DESCRIPTION OF PHYSICAL REMAINS:**

The following characteristics place the puddler within the twentieth century:

- puddler placed above the associated dam's water level
- well defined puddling trench
- no vegetation
- fresh-looking appearance

11.1. Puddling machine site

The dam's earthen wall has been breached, and the puddler is located at the western end of this bank. The outer mound of the puddler is very eroded, due to water running off the main road. The central mound is intact, but the post is absent. The puddling trench is fairly well defined. The puddler has an overall diameter of 22 ft (6.7 m) and is placed above the water-level of the dam.

On the eastern side of the dam is a cleared, grassy area, probably a house site.

**INTEGRITY/CONDITION:**                      Puddler beginning to erode.

---

**CULTURAL SIGNIFICANCE:**

Although having some local Historical significance as part of the Whroo Historic Reserve, the puddler is isolated from the main interpretative facilities, and has eroded to such an extent as to have little cultural significance.

**SIGNIFICANCE RANKING:**                      Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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<sup>1</sup>     Hammond, 1978, p. 117

<sup>2</sup>     Mining Surveyors' Reports, December 1864

**SITE NO. & NAME**                    **NUGGETTY GULLY REEF WORKINGS**  
**12.1 Cyanide Works**  
**12.2 Battery Site?**

**LOCATION:**                            **Nuggetty Gully, Whroo**

**HI NO:**                                **12.1 H7924-0019**  
**12.2 H7924-0020**

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**DIRECTIONS:**                    Site 12.1. 100 m down the track to the camping reserve, from the junction with Greens Road. The cyanide vats are situated 60 m NE of the road, on the western side of Nuggetty Gully

**MUNICIPALITY:**                    Campaspe Shire

**LAND STATUS:**                    Whroo Historic Reserve

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**HISTORY:**

1860. Lands Dept map. Township of Whroo. This map includes Nuggetty Gully--3 puddling machines.<sup>1</sup>

1860. Alluvial was still paying, including Nuggetty Gully.<sup>2</sup>

February 1861. Scotchman's Gully and Windlass Flat are the busiest places, though a good many find payable ground about Nuggetty and the old gullies at Whroo.<sup>3</sup>

July 1864. New dam built at Nuggetty Gully [for crushing plant].<sup>4</sup>

1863-66. There were of course numerous mines, but the only one with any prospect of rivalling the Balaclava was the Albert and Carr's United Quartz Mining Prospecting and Pumping Co. which represented a new attempt to unite a number of claims not only on the Albert, but also on the adjoining Carr's Reef. Most of the claims had been worked more or less profitably down to water level, and the prospectus issued in 1865 shows that, of a nominal capital of £10,000, one quarter was to be allocated as paid up shares to the eight amalgamating claimholders in amounts of from £50 to £800 each. An additional £500 worth of shares and £500 in cash was to be paid to Law Darroch and Co. for the "Endeavour" crushing battery, which they moved onto the ground in 1864 from its original position at White Hills, a little way from Whroo. It does not appear that the company got off the ground in this form, but there was a revival on the Albert Reef. In August of 1866 Anglade and Co., who had lost the vein at about 200 feet, rediscovered it at 230, and was fortunate enough to obtain 21 ounces of gold from a crushing of three tons.<sup>5</sup>

October 1864. Completion of quartz crushing machinery in Nuggetty Gully.<sup>6</sup>

December 1864. During construction of dam, auriferous reef discovered.<sup>7</sup>

June 1869. Albert Reef. Discontinued working deep ground. Try to form company to drain by machinery.<sup>8</sup>

June 1877. Mining for metals other than gold ... confined to the U & F Antimony Company (Old Albert Reef, Whroo). The work is carried on at 200 ft level. The bearing of the reef N & S, the Old Albert Reef, E & W; thickness of reef 3 inches to 1 ft. Cobbings crushed have given an average yield of gold 1 oz per ton. Value of antimony not yet known. About 8 ton forwarded to market.<sup>9</sup>

1890. Victoria and Albert Reefs. Under this heading will be comprised the ground at present worked by the Victoria and Albert Gold Mining Company, which includes several east and west reefs, amongst them being the Victoria, Albert and Carr's.<sup>10</sup>

1900. Two cyanide works exist at Whroo, one of which is out of work. They appear to be treating old tailings only.<sup>11</sup>

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*DESCRIPTION OF PHYSICAL REMAINS:*

Soaking and drainage vats associated with the cyaniding of battery sand (tailings). Tailings appear to have been produced by the battery connected with the mining of Albert and Carrs reefs. As a rule, tailing dumps witnessed several phases of cyaniding. The only reference to cyaniding at Whroo shows that it was being carried out at the turn of the century. The good state of preservation of the gal. iron vats and tanks suggest that the surviving remains belong to the last phase of cyaniding to be carried out on the site. If this assumption is correct, the remains would date to the 1930s/40s.

Crushing mill, then a battery, worked in the area from the 1860s to 1890s.

12.1. Cyanide works

Between the track and the site are numerous dumps of battery sand.

The site consists of two levels of galvanised iron vats.

The upper level consists of a line of five vats running N-S. The tops of the sunken vats are flush with the present ground level. Each of the vats has a diameter of 17 ft 6-in (5.3 m) and they are positioned 7 ft 6-in (2.3 m) apart. The construction of the vats in the upper level is thus: the galvanised iron is rendered with a thick, rough coating of concrete on the exterior, and lined with a finer concrete render. In the most westerly of the upper vats, the concrete base is visible, suggesting that the depth of each vat would be 2 ft (60 cm).

The lower level, comprising two galvanised iron vats, lies 8 m to the east of the upper, in an excavated area, allowing for drainage from the upper vats. The two vats are roughly in line with the third and fourth vats (from S end) of the upper level. These vats are smaller and deeper than those already described--with a diameter of 12 ft (3.65 m) and depth of 4 ft (1.2 m)--and are rendered with concrete on the inside only. The two vats are positioned 11 ft 6-in. (3.5 m) apart. To the east of the westerly vat are the remains of a further vat of similar size.

A tramway embankment runs 43 m in a easterly direction from the upper level of vats, along the western edge of the lower excavation. Drainage channels run along either side of the embankment, which terminates in Nuggetty Gully.

To the N of the cyanide works is Puckey's dam (as shown on the 1:25,000 map; known locally as Birney's dam).

On the opposite (E) side of Nuggetty Gully to the cyanide works are further heaps of battery sand. Quarrying in these heaps has exposed sections which show distinct layers, suggesting that the original dump from the battery may have been located on that side.

12.2. Battery site?

The most likely spot for the battery appears to be on the western slope of Nuggetty Gully, where there is a raised, levelled platform and dump of ash and brick. This site is located 30 m to the N of the cyanide works.

*INTEGRITY/CONDITION:* Cyanide works in a good state of preservation. Little survives of battery site.

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*CULTURAL SIGNIFICANCE:*

The site has:

- Historical significance, because it:
  - a) is part of a group or network of sites, the totality of which is considered to be significant, namely, the Whroo Historic Reserve.
  - b) represents a sequence of uses or functions over time.

Site 12.1 has:

- Social significance, because of the importance of the site to the local or wider community. The cyanide works are an integral part of the Whroo interpretative facilities.

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Lands Dept map, W139E, dating from May 1857, with additions to 1860
  - 2 Hammond, 1978, p. 117
  - 3 Hammond, 1978, p. 118
  - 4 Mclvor News, 15 July 1864
  - 5 Lewis, 1977, p. 47
  - 6 Mclvor News, 8 October 1864
  - 7 Mclvor News, 6 December 1864
  - 8 Mclvor News, 21 June 1869
  - 9 Mining Surveyors' Reports, June 1877
  - 10 'The Whroo Gold Mines', 1890
  - 11 Jenkins, 1900, p. 5

**SITE NO. & NAME**                    **NUGGETTY GULLY PUDDLERS**  
**12.3**        **Concrete Lined Puddler**  
**12.4**        **Puddler & Dam**

**LOCATION:**                                **Nuggetty Gully, Whroo**

**HI NO:**                                    **12.3 H7924-0021**  
**12.4 H7924-0022**

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**DIRECTIONS:**                        Site 12.3. 100 m NW of Murchinson Road, Nuggetty Gully. Associated with a dam, locally called Puckey's Dam. (On Whroo 1:25,000 map, Puckey's Dam is located approximately 400 m the the north, at the head of Nuggetty Gully. Locals call this latter dam Birney's Dam).  
Site 12.4. 35 m E off Greens Road, 600 m NE from junction with Reedy Lake Road

**MUNICIPALITY:**                        Campaspe Shire

**LAND STATUS:**                        Whroo Historic Reserve

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**HISTORY:**

1860. Lands Dept map. Township of Whroo. This map includes Nuggetty Gully--3 puddling machines.<sup>1</sup>

1860. Alluvial was still paying, including Nuggetty Gully.<sup>2</sup>

February 1861. Scotchman's Gully and Windlass Flat are the busiest places, though a good many find payable ground about Nuggetty and the old gullies at Whroo.<sup>3</sup>

July 1864. New dam built at Nuggetty Gully [for crushing plant].<sup>4</sup>

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**DESCRIPTION OF PHYSICAL REMAINS:**

Site 12.3. The remains suggest that a puddler last operated at this site in the 20th century. Local information suggests that the puddler was operated by Mr Puckey, and the machinery was subsequently moved to Main Gully, where it was re-erected and used by the Bell family. The latter puddler survives today as a reconstruction undertaken by the Lions Club (see Site2.4).

Site 12.4 also appears to be a late puddler, probably constructed after 1890. It was around this time that the battery dam (slightly downstream from the puddler) became redundant after mining operations ceased on Albert/Carrs reefs. A puddler, given the amount of sludge it produced, would certainly not have been allowed to operate whilst the battery dam was in use.

12.3. Concrete lined puddler.

A large dam which still retains water. On the SE end of the dam's embankment is well preserved puddler. The inner mound (diameter 12 ft or 3.65 m) is raised and well defined. The central post (9 in or 23 cm diameter) still survives and is surrounded by a 10-15 cm thick backing of concrete. The concrete was set in the base of a galvanised iron tub. Around the top of the post runs an iron collar.

The puddling trench is 4 ft 6-in (1.4 m) wide and 2 ft 6-in (76 cm) deep. The trench has a concrete base. The diameter of the puddler is 22 ft (6.7 m).

The outer mound is flattened, has a maximum width of 6 m, and is raised 1.5 m above ground level. The outer face of the wash has been partially quarried away by fossickers. The site is relatively clear of vegetation.

Site 12.4. Puddler & dam

A puddler is located on the W end of the earthen embankment of a dam. The dam has been breached, and no longer holds water.

The breach in the dam has caused the western half of the puddler to be washed away, leaving a neat section through the machine site. In this section can be seen the outline of the outer mound, puddling trench and inner mound (with the complete length of the post exposed).

The diameter of the puddler is 22 ft (6.7 m) and the exposed post has a diameter of 12-in and was at least 2 ft (60 cm) long.

**INTEGRITY/CONDITION:**                        Site 12.3. In good condition, but outer mound of wash being quarried.

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*CULTURAL SIGNIFICANCE:*

Both sites have:

- Historic significance, because they are part of a group or network of sites, the totality of which is considered to be significant, namely, the Whroo Historic Reserve.

Site 12.3 has:

- Scientific significance, because it:
  - a) represents an important mining technology, being a well-preserved example of early 20th century puddling machine.
  - b) has the potential to answer timely and specific archaeological research questions. The site acts as a dating yardstick, by which other puddling machine sites can be phased.

*SIGNIFICANCE RANKING:* Sites Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Lands Dept map, W139E, dating from May 1857, with additions to 1860
- 2 Hammond, 1978, p. 117
- 3 Hammond, 1978, p. 118
- 4 Mclvor News, 15 July 1864

**SITE NO. & NAME**                    **GOLDEN POINT GULLY PUDDLERS**  
**13.1**            **Puddler**  
**13.2**            **Mud Brick Hut & Rubbish Dump**

**LOCATION:**                            **Golden Point Gully, Whroo**

**HI NO:**                                **13.1 H7924-0023**  
**13.2 H7924-0024**

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**DIRECTIONS:**                    Site 13.1. 70 m S down track to Camping Reserve. Puddler is located 15 m SW of the track. Site 13.2. 450 m E along Greens Road from its junction with Reedy Lake Road; 150 m N of Greens Road

**MUNICIPALITY:**                    Campaspe Shire

**LAND STATUS:**                    Whroo Historic Reserve

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**HISTORY:**

1857. The mile square town boundary had already been marked out, and just outside the north-east corner was Golden Point Gully, running roughly north-south, and in it Lewis and Nickinson's puddling and hand Berdan machines, various shafts, a horse Berdan and stamping machine and a calcining kiln belonging to Johnson and Graham, and a horse quartz mill belonging apparently to Fauzoulcam and Home. Just south of this, the gully was crossed by an east-west line of quartz vein, so far only partly worked, and later to be known as Albert Reef.

1860. Lands Dept map. Township of Whroo. This map includes Golden Point--4 puddling machines.<sup>1</sup>

1860. Alluvial was still paying, including Golden Point.<sup>2</sup>

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**DESCRIPTION OF PHYSICAL REMAINS:**

Despite being severely eroded, the puddler has a fresh-looking appearance suggesting it was in use during the 20th century. The rubbish associated with the mud brick hut appears to date from the 1930s/40s.

**13.1. Puddling machine site**

The puddler has a well defined, raised inner mound which still contains the central post. The puddling trench is deep and its sides are relatively sheer. No vegetation or trees growing on the puddler.

The outer mound is flattened and raised only slightly above ground level. Only the outlet channel is visible. The remnants of a dam lie to the SW. The puddler's diameter is 22 ft (6.7 m).

**13.2. Remains of mud brick hut**

Remains of a mud brick structure, comprising a single room measuring approximately 10 x 12 ft (3.05 x 3.65 m). The mud brick walls stand to a height of 30 cm, and are approximately 9-in (22 cm) thick. An entrance is located on the NE corner of the structure, and a fireplace on the back wall.

11m to the E is a dump of domestic rubbish, including numerous rusty food cans and kerosene tins. The dump covers an area of approximately 4 x 6m.

Sections of iron tank and galvanised roofing iron are also scattered around the site.

A track runs past the S side of the hut.

**INTEGRITY/CONDITION:**                    Puddler in poor condition; mud brick hut weathering away.

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**CULTURAL SIGNIFICANCE:**

Both sites have:

- Historical significance as they form part of a group or network of sites, the totality of which is considered to be significant, namely the Whroo Historic Reserve.

**SIGNIFICANCE RANKING:**                    Sites Listed Heritage Inventory.

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**Assessor: David Bannear**                    **Date: September 1991.**

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<sup>1</sup> Lands Dept map, W139E, dating from May 1857, with additions to 1860

<sup>2</sup> Hammond, 1978, p. 117

**SITE NO. & NAME**                    **BRITISH & FOREIGN GULLY ALLUVIAL WORKINGS**  
**14.1 Elongated Stone Feature**  
**14.2 Puddler & Dam**

**LOCATION:**                            **British & Foreign Gully, Whroo**

**HI NO:**                                **14.1 H7924-0025**  
**14.2 H7924-0026**

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**DIRECTIONS:**                    Site 14.1. Stone feature is located 220 m S down Murchinson-Whroo Road from Reedy Lake Road junction, 65 m E of the road, near the head of British and Foreign Gully.  
Site 14.2. Puddler & dam—200 m S down Reedy Lake Road, from its junction with Whroo-Murchinson Road. 70 m E of road

**MUNICIPALITY:**                    Campaspe Shire

**LAND STATUS:**                    Whroo Historic Reserve

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**HISTORY:**

None found

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**DESCRIPTION OF PHYSICAL REMAINS:**

Site 14.1. The structure's shape and the burnt condition of the stone and mud mortar which form the internal chamber, suggest it was used as an oven or furnace.  
Site 14.2. The weathered appearance of the puddler and its isolated location suggests it is not a re-used/reconstructed puddler. It is therefore probably an early (19th-century) site.

Site 14.1. Stone Structure

Elongated, oval-shaped feature, running N-S, with a 6ft 6-in (2 m) opening on its W side. The stone and mortar wall of the feature is 4 ft 6-in (1.4 m) thick and still stands about 70 cm above ground level. The internal chamber measures 4 ft (1.2 m) x 17 ft 6-in (5.3 m), and the colour and condition of the stone and mud mortar suggests they have both been subjected to considerable heat—in fact, the clay mortar has become brick-like because of its exposure to heat.

A dump of ash runs along the outside of the rear (eastern) wall and there is a large tree stump (80 cm diameter) near the N end of the structure.

Some 30 m to the S is a clearing in the bush containing stone rubble which suggests a house site.

Site 14.2. Puddler & dam

The puddler is located near the N end of the dam's earthen embankment. The dam is breached. The puddler is very weathered, with the inner mound and puddling trench poorly defined. A large tree is growing from the mound. The outlet channel still retains a section of timber slabbing. The puddler's diameter is 6.7 m (22 ft).

**INTEGRITY/CONDITION:**                    Structure is in good condition.

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**CULTURAL SIGNIFICANCE:**

Both sites have:

- Historical significance as they form part of a group or network of sites, the totality of which is considered to be significant, namely the Whroo Historic Reserve.

Site 14.1 has additional historical significance because it is of considerable age in circumstances where precise historical significance of the site is not at present known.

Site 14.2 also has:

- Scientific significance, because of its ability to answer timely and specific archaeological research questions. The site acts as a dating yardstick, by which other puddling machine sites can be phased.

**SIGNIFICANCE RANKING:**                    Sites Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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**SITE NO. & NAME**                      **CHINAMAN'S FLAT ALLUVIAL WORKINGS**  
**15.1 Brickworks**  
**15.2 Puddler**

**LOCATION:**                                **Chinaman's Flat, Rushworth**

**HI NO:**                                    **H7824-0008**

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**DIRECTIONS:**                        450 m S down railway track from Chinaman's Hill track crossing, 50 m W of the line.

**MUNICIPALITY:**                      Campaspe Shire

**LAND STATUS:**                        Unreserved Crown Land

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**HISTORY:**

1857-1860. Maps showing Rushworth. These two maps show puddling machines in gullies including Chinaman's Flat & Gully--4 puddling machines.<sup>1</sup>

1859. The only area [at Rushworth] not worked when Philip Chauncy's map [CPO, Goldfield Plans, Waranga, 1859, by Philip Chauncy, No. 31] was made of the field in 1859, was Chinaman's Flat, near Moora Road. Rushworth field then was entirely an affair of reef workings and puddling machines.<sup>2</sup>

September 1859. Nearby [Fletcher's Reef] is Chinaman's Gully and Flat, scene of very successful puddling operations.<sup>3</sup>

c.1860. Department of Mines, Map 2569/G/2 shows brickworks on north side of Chinaman's Flat--approx position of site 15.0.<sup>4</sup>

September 1864. Two other small rushes--the other to a branch gully of Chinaman's Flat.<sup>5</sup>

December 1864. 59 miners working.<sup>6</sup>

1866-69. Chinaman's Flat. Heriot P. Bedwell and Thomas Wootton owned huts at crushing machines at Chinaman's Flat in 1866. John G. Rice applied for a beer licence on 13th June 1869 for his public house of 3 rooms built of slab and bark ... John Groom took over this licence in 1888.<sup>7</sup>

June 1878. Waranga Shire Council has constructed a reservoir about half a mile from the township of Rushworth, capable of holding 3,000,000 gallons, and one of smaller dimensions at Chinaman's Flat. These cannot fail to be an advantage to the miners, securing to them an unlimited supply for domestic purposes.<sup>8</sup>

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**DESCRIPTION OF PHYSICAL REMAINS:**

Location of surviving remains and brickworks marked on a Mines Dept's plan (dating c.1860) match. The puddling machine, despite being very eroded, has a fresh-looking appearance suggesting it operated during the 20th century.

Site 15.1. Brickworks

The site consists of a large clay pit which contains water. On the W side of the pit is a levelled grassy area which contains a spread of red bricks covering an area approx 20 m square. Some of the bricks are very discoloured and are coated with a slag-like deposit. All the bricks are hand-made and bear no frog.

Site 15.2. Puddler

On the NW side of the clay pit is a dam. There is a puddling machine site located at the S end of the dam's earthen embankment. The puddler is very eroded but still recognisable. The inner mound has almost vanished, and only about one-quarter of the puddling trench and outer mound still survives. A gully to the S of the machine site has been extensively puddled.

**INTEGRITY/CONDITION:**                      Site 15.1. Except for brick rubble, no visible above-ground remains of the brickworks.  
Site 15.2. Puddler in poor condition.

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*CULTURAL SIGNIFICANCE:*

Further research needed to clarify the significance of Site 15.1 (brickworks). Despite precise historical significance of the site being unclear at present, it has:

- Historical significance because of the evidence of considerable age.

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Lands Dept Map: Central Plans Office, Goldfields 31, dating 1857, additions to 1859 & Mines Dept Map dating Jan 1860?
- 2 Flett, 1979, p. 80
- 3 Mclvor News, 2 September 1859
- 4 Department of Mines: 2569/G/2
- 5 Mining Surveyors' Reports, September 1864
- 6 Mining Surveyors' Reports, December 1864
- 7 Hammond, 1978, p. 5
- 8 Mining Surveyors' Reports, June 1878

**SITE NO. & NAME** SHELLBACK GULLY ALLUVIAL WORKINGS**16.1 Puddler & Dam, and Alluvial Sinkings****16.2 Puddler & Dam, and Surfacing****LOCATION:** Shellback Gully (now called Hays Gully)**HI NO:**  
**16.1 H7824-0009**  
**16.2 H7824-0010****DIRECTIONS:** Off track that runs SW from Nine Mile Road, 900 m past Growlers Reservoir.**MUNICIPALITY:** Campaspe Shire**LAND STATUS:** Unreserved Crown Land**HISTORY:**1854. Shellback Gully ... was named after Sailor Operdart who opened the gully in 1854 seeking gold.<sup>1</sup>1857-1860. Maps showing Rushworth. These two maps show puddling machines in gullies including Shellback Gully--6 puddling machines.<sup>2</sup>1858. Shellback Reef was discovered in 1858 by Archibald Sutherland. It gave only small returns.<sup>3</sup>1850s. There were many Chinese living at Shellback.<sup>4</sup>December 1864. 14 miners working.<sup>5</sup>

1918 [history]. Shellback Reef. The reef under notice is situated at the head of Mousey and Shellback Gullies, on the north-west side of Shellback Hill ... After the discovery by Operdart and the subsequent surface workings in 1854, nothing appears to have been done until Archibald Sutherland discovered the first reef in 1858. He worked it in connection with two brothers named Wilson ... They crushed a fair amount of stone but kept no records of the exact amount of gold won, though it is generally supposed that they cleared about £750 per man ... They never worked the ground to any great depth, confining themselves to following the slides and taken the ground out for 150 feet along the reef, but not going deeper than 20 feet, when they lost the run of gold.

The late Mr Hugh Kane sank a shaft in the year 1870 to the west of the reef worked by Sutherland and struck payable gold ... The amount of gold obtained by Kane was not large, none of the stone going over 1-1/2 ounces to the load. The Dwyer Bros. sank another shaft to the west of Kane's and obtained much better results, some of the stone, which was got at a depth of 12 feet from the surface, giving as much as 3 oz to the load ... This reef having run out, search was made for another, success attending their efforts, for to the south of the old workings they came upon a reef containing a large amount of ironstone, which, upon being tried, gave them the handsome return of 47 oz of bar gold from three loads. They prospected the reef further and obtained 7 oz from 7 loads, but nothing approaching the richness of the first return was obtained. Others afterwards tried it, but none were successful, and this return may be taken as the largest proportionate yield from the reef proper ... Since Sutherland's death very little work has been done on the ground, and as some of it has never been prospected there is plenty of scope for the energetic miner to search for the hidden treasure either in the new ground or the old workings. Its surface has been completely riddled by the diggers and Chinese in the early days.<sup>6</sup>

1930s. Puddler in this gully worked by people called Morgan.<sup>7</sup>**DESCRIPTION OF PHYSICAL REMAINS:**

According to local timberman, Ron Risstrom, Site 16.1 was worked in the late-1930s/early-1940s by people called Morgan. The other puddler, given its similar state of preservation, would date from around the same time.

**Site 16.1. Puddler**

Located 15 m E of track that runs down the W side of Shellback Gully. The puddler's central mound is well defined and still contains its post hole.

The puddling trench is 2 ft deep, and its sides are sheer. The outer mound is raised above ground level and still retains its outlet channel. The puddler appears to be located above the water level of the dam that lies to the E. Its overall diameter is 22 ft (6.7 m).

Only low vegetation is growing on the puddler.

Site 16.2. Puddler

Located 200 m downstream from Site 16.1, and only 5m in from the track.

Part of the central mound has been removed. The puddling trench is 2 ft 6-in deep and its sides are relatively sheer. The outer mound's SE side has been washed away. What survives is flattened, and raised about 1m above ground level.

The dam lies to the NE and the puddler (like Puddler No. 1) appears to have been constructed above the dam level.

Scant vegetation grows on the puddler.

To the W of the puddler, the gully's slope has been extensively surfaced.

*INTEGRITY/CONDITION:* Both puddlers in reasonable condition, but despite being relatively late sites, no timberwork survives in either the puddling trench or drains.

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*CULTURAL SIGNIFICANCE:*

The sites have:

- Historical significance, because they form part of a group or network of sites, the totality of which is considered to be significant.
- Scientific significance because they:
  - a) represent an important mining technology, being a well-preserved examples of early 20th century puddling machine.
  - b) have the ability to answer timely and specific archaeological research questions. The sites acts as a dating yardstick, by which other puddling machine sites in the area can be phased.

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Hammond, 1978, p. 18
  - 2 Lands Dept Map: Central Plans Office, Goldfields 31, dating 1857, additions to 1859 & Mines Dept Map dating Jan 1860?
  - 3 Hammond, 1978, p. 18
  - 4 Hammond, 1978, p. 5
  - 5 Mining Surveyors' Reports, December 1864
  - 6 'The Rushworth Gold Mines', 1918
  - 7 Pers Comm. Ron Risstrom, Rushworth

**SITE NO. & NAME**                    **DICK'S GULLY ALLUVIAL WORKINGS**  
**17.1**    **Modern Pipe-Clay Surfacing**  
**17.2**    **Alluvial Sinkings**

**LOCATION:**                            **DICK'S GULLY (HEAD OF SHELLBACK GULLY)**

**HI NO:**                                **H7924-0027**

**DIRECTIONS:**                    S side of Growlers Hill

**MUNICIPALITY:**                Campaspe Shire

**LAND STATUS:**                 Unreserved Crown Land

**HISTORY:**

None collected.

**DESCRIPTION OF PHYSICAL REMAINS:**

Although no direct references were found for the alluvial sinkings, their nature and association with Chinese ceramics suggests that they are 19th century.

Site 17.1. Modern clay mining.

In the gully below the open cut on Growlers Hill (site 6.0) is a dam that still retains water. The slope NE of this dam has been quarried. Those who worked the slope appear to have removed a relatively thin deposit of pipeclay that lay above bedrock.

Site 17.2. Alluvial sinkings

In a narrow gully E of the dam is a band of alluvial sinkings that stretches for about 200 m. The sinkings which are quite intense (separated by 3 ft [1 m] baulks) and are confined to a band about 40 m wide. During an inspection of the area Chinese ceramics were sighted.

**INTEGRITY/CONDITION:**            Sinkings are relatively undisturbed.

**CULTURAL SIGNIFICANCE:**

Site 17.2 has:

- Historical significance, because it is:
  - a) of considerable age in circumstances where precise historical significance of the site is not at present known.
  - b) associated with a cultural group. Further work required to assess the implications of the Chinese ceramics.

**SIGNIFICANCE RANKING:**            Site Listed Heritage Inventory.

**Assessor: David Bannear**

**Date: September 1991.**

**SITE NO. & NAME**            **18.1 LONG GULLY ALLUVIAL WORKINGS****LOCATION:**                            **Long Gully, Rushworth****HI NO:**                                **H7824-0011**

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**DIRECTIONS:**                        Runs along the E side of Canadian Hill Track, S of its junction with Old Ned's Gully Track**MUNICIPALITY:**                    Campaspe Shire**LAND STATUS:**                      Unreserved Crown Land

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**HISTORY:**

1857-1860. Maps showing Rushworth. These two maps show puddling machines in gullies including Long Gully--2 puddling machines.<sup>1</sup>

1858. The diggings came alive again in 1858, when Long Gully, Canadian Gully, lower Old Ned's Gully and other places were opened.<sup>2</sup>

November 1863. There were a number of Chinese market gardeners at Moora, Rushworth and Long Gully.<sup>3</sup>

1918 [history]. This reef is situated about three-quarters of a mile west of Growler's Hill, at the head of Long Gully, from which it derives its name. It was opened in the year 1858 by Fisher and Co. The reef ... proved very remunerative, averaging 3 oz to the load from a depth of 2 to 40 feet from the surface, and gave some good returns. From 40 to 80 feet the yields were on an average only half that on the previous 40 feet, being 1-1/2 oz to the load. They were employing 30 to 40 men at the time, having a crushing plant and one or two other claims to keep going, and the wages at £3 per week were more than they could afford to pay, so they exempted this portion of the ground and removed the men to the Canadian Hill, where they had been successful in finding another reef. A claim to the west of Fisher and Co.'s original working, called No. 1 West, was taken up by Chandler and Wall. The reef worked by them was from 2 to 3 feet in thickness, and to a depth of 50 ft gave them returns averaging from 1 to 2 oz to the load ... Four mates, who worked under the name of John Harris and party, took up the ground on the west of the claim worked by Chandler and Wall as No. 2 West ... They worked the ground to a far greater depth than either Chandler and Wall or Fisher & Co., but at last found it necessary to abandon the claim to a depth of 90 ft. This was in 1859. From this date until the year 1885 the ground stood idle, nobody being anxious to risk money in the search. In 1885, the Short Bros. of Chinaman's Flat, determined to give the ground another trial, and started operations in the old workings, which they cleaned out to a depth of 80 feet ... They had worked the shaft down from 80 feet to about 160 feet on the straight, and about 260 feet on the underlay. On March 18th, 1887, Peter Berg took up the claim formerly held by Fisher & Co., and started to prospect at a depth of 80 feet ... Very little work has been done in the mine since.<sup>4</sup>

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**DESCRIPTION OF PHYSICAL REMAINS:**

From the junction of the two roads, a band of alluvial sinkings run S for about 400 m. From this point onwards, the gully has been puddled-out. There are two dams associated with the puddled landscape, but no puddlers appear to have survived.

The surviving alluvial sinkings are located quite close together and are still well defined. Nature of sinkings suggest they date from the 19th century.

**INTEGRITY/CONDITION:**            Alluvial sinkings are relatively undisturbed.

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**CULTURAL SIGNIFICANCE:**

The site has:

- Scientific significance, because it represents an important mining technology. Site illustrates the consequences of alluvial sinking and the operation of puddling machines.

**SIGNIFICANCE RANKING:**            Site Listed Heritage Inventory.

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**Assessor: David Bannear****Date: September 1991.**

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<sup>1</sup> Lands Dept Map: Central Plans Office, Goldfields 31, dating 1857, additions to 1859 & Mines Dept Map dating Jan 1860?

<sup>2</sup> Flett, 1979, p. 80

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- <sup>3</sup> Forster, 1965, pp. 24-7  
<sup>4</sup> 'The Rushworth Gold Mines', 1918

**SITE NO. & NAME**                      **19.1 BILLY BUTTON'S GULLY PUDDLER**

**LOCATION:**                                      **Billy Button's Gully (now called Stewarts Gully)**

**HI NO:**    **H7824-0012**

**DIRECTIONS:**                                  Junction of Canadian Hill Track and track leading from Growlers Hill.

**MUNICIPALITY:**                                Campaspe Shire

**LAND STATUS:**                                Unreserved Crown Land

**HISTORY:**

1857-1860. Maps showing Rushworth. These two maps show puddling machines in gullies including Billy Buttons Gully 3 puddling machines.<sup>1</sup>

December 1864. 7 miners working.<sup>2</sup>

**DESCRIPTION OF PHYSICAL REMAINS:**

Puddler (19th century).

At the junction of the two roads is a modern clay pit (probably associated with pipe clay workings already described near Growlers Hill Site ). Near the clay pit is a dam, which has a puddler constructed on its W corner.

The puddler is very weathered-looking. The central mound has flattened out, filling in the puddling trench. No central post survives. The diameter of the puddler is 22 ft (6.7 m). It has a 5 m-wide, flattened outer mound, which is raised about 0.5 m above ground level.

The puddler is located below the level of the water in the dam, and has both inlet and outlet channels. The weathered appearance of the puddler suggests it dates to the 19th century.

**INTEGRITY/CONDITION:**                      Puddler in poor condition.

**CULTURAL SIGNIFICANCE:**

Site has little historical significance and its integrity has been reduced to such an extent that it has little significance.

**SIGNIFICANCE RANKING:**                      Site Listed Heritage Inventory.

**Assessor: David Bannear**

**Date: September 1991.**

<sup>1</sup>     Lands Dept Map: Central Plans Office, Goldfields 31, dating 1857, additions to 1859 & Mines Dept Map dating Jan 1860?

<sup>2</sup>     Mining Surveyors' Reports, December 1864

**SITE NO. & NAME**            **20.1 NUGGETTY REEF BATTERY****LOCATION:**                            **Nuggetty Hill Reef****HI NO:**                                **H7924-0028**

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**DIRECTIONS:**                    700 m along Nuggetty Hill Track from Rushworth-Whroo main road. N side of track, on private property. Base of Specimen Hill**MUNICIPALITY:**                Campaspe Shire**LAND STATUS:**                 Freehold

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**HISTORY:**

1858. Jack Ryan first discovered Nuggetty Reef in 1858. It proved to be a bonanza. Very soon there were hundreds of tents and crude huts jostling together in between mines, dams, stores and wine shops which sprang up overnight.<sup>1</sup>

Late 1850s. John Galloway Stewart and Ah Sam owned crushing machines on Nuggetty. William Stewart owned a brick-field, where local bricks were kilned. John Regan owned the only "cottage"; Thomas Cole was a builder. Dr Watts attended the sick. Francis O'Donnell owned a hut, James S. Darby a store and beer shop, John Rooke, Mary Irvine and Dan O'Leary beer shops. Chinese ran a market garden.

A two-storey mansion was said to have been built in Nuggetty by a woman while her husband and son carried on with their mining. The foundations were still there a few years ago [1978].<sup>2</sup>

1859-1885. Danny Sullivan and Joe Scurry took £20,000 worth of gold out of the Nuggetty streak in 1859. Then Jimmy Anstead, the blacksmith ... opened Specimen Hill, and not knowing just what he had uncovered, left the show for Watson and Wigg to deal with. They broke out a shaft that yielded 85 oz from one bucket. From the general run of rock they took out the rate of 100 oz a week for years.

Specimen Hill carried rich values in shallow depths. Nothing went below 80 ft, where the ore bodies cut out, but the block produced over £600,000 worth of gold.

Nuggetty Reef was opened first at the east end, a "fault" was met on the top of the hill and the reef thrown back north a distance of 210 ft. From this point westwards, the Reef was taken out right across to Specimen Hill to a depth of 130 to 140 ft.

One could walk through the underground workings for the entire distance--in a 200 ft long cavern. This cavern has been filled in by the Mines Department for safety's sake.

Thomas Semmons, a mining expert, estimated that 100,000 ounces of gold was won from Nuggetty Hill--at an average of 9 oz of gold from a ton of quartz - up to 1885.<sup>3</sup>

1860. In 1860, Masterton and Farquharson erected a crushing battery of 12 hp, Rooke and Touseaux, a smaller one, on Nuggetty. Crushing cost miners £1 per ton.<sup>4</sup>

April 1863. A rush on new ground, off the old workings. Running into a bank, a splendid nugget weighing 25 oz was found.<sup>5</sup>

March 1864. Harrison and Co.--90 ft. Long and Co.--70-80 ft. Regan and Co.--140 ft. Boss and Brideson--60-70 ft.<sup>6</sup>

March 1865. Bossie and Fisher, Nuggetty Hill--63 ton from the 70 ft yielded 66 oz.<sup>7</sup>

September 1868. At Rushworth, Regan and Anderson's claim on Nuggetty Hill Reef ... continues to produce very rich quartz.<sup>8</sup>

1896 [History]. The Nuggetty Hill reef ... has only been worked to 120 feet, though it was very rich.<sup>9</sup>

1903. Nuggetty Hill Co.--203 tons yielded 114-1/2 oz.<sup>10</sup>

1904. Only five co-operative parties have been continuously at work during the past year in this portion of the district, viz: Johnson and party on Nuggetty Hill, who crushed during the term 641 tons for 222 oz; Bell and party, Growlers Hill, who crushed 37 tons for 31 oz; Hawkings and party, who crushed 90 tons for 56 oz; Bradford's crushing works which crushed 350 tons for 32 oz; and Collard and party, who crushed 65 tons for 56 oz. It is to be regretted that not more attention is paid to this portion of the district by capitalists, as I think the probability of gold being obtained in the deeper ground is very great, as past records show that the shallow workings have been fairly rich.<sup>11</sup>

1904. Only five co-operative parties have been continuously at work during the past year in this portion of the district ... [including] Johnson and party on Nuggetty Hill, who crushed during the term 641 tons for 222 oz.<sup>12</sup>

1908. Nuggetty Hill Co. has been crushing steadily during the year with a fair degree of success. Other ventures in the locality are also working away steadily.<sup>13</sup>

1913-22. Attempts were made to revive mining at Nuggetty Hill in 1913, when a syndicate was formed ... But the battery was auctioned at Coyles Market on 20th May 1922.<sup>14</sup>

June 1914. Nuggetty Hill - 26 loads gave 17 oz.<sup>15</sup>

1918 [history]. Of the many reefs opened up in this district the Nuggetty Hill line has been worked to a greater extent than any of the others. In fact, the hill has been riddled to a depth of about 200 feet practically from one end to the other. One the whole the reef was of great thickness and in one part of the old workings appears to have been taken out up to 20 ft in thickness ... This mine was discovered in 1858 by a miner named J. Ryan, but it was opened up by Randolph and Fisher, large speculators, who had a great deal to do with the early quartz mining history of this place, as their names are associated with most of the principal mines. Randolph and Fisher immediately obtained good gold, and right from the surface the stone yielded from 4 oz to 6 oz to the load ... Thompson and Son, and Farquharson and Masterton were others on this line whose efforts proved equally successful ... Coy and Anderson and Stewart and Smith bought into this mine, but later Coy and Anderson became the sole proprietors. They obtained from two to three ounces to the load, but got much better returns from the claim adjoining, which they purchased from some Germans. There were many parties working on this line of reef, and even in the late seventies the hill presented a scene of great activity. Dan O'Sullivan and Scurry had a claim to the west end of Nuggetty Hill. They pegged to the south of some of the existing mines, hoping to strike the golden stone between their workings and the surface ... and carried the shaft down to 100 feet ... Such persistency deserved and had its reward, for they struck the golden ore and from the first ten loads taken out in a short space of three weeks they obtained the handsome return of 684 oz 11 dwts--over 68 ounces to the load ... Here the stone was of a rubbly nature, about two feet thick, and easily worked, but it was remarkable that the first crushing was the best, for the yields became poorer and poorer down to 16 dwts. This was in '59 when the large cake was obtained and for want of better appliances, a camp-oven had to be utilised for treating the gold, which, by reason of its shape, caused much excitement both here and in Sandhurst (now Bendigo), where it was taken for sale, and where it was displayed in the window of the Union Bank. Later, Marshall, Parkinson and Mosely joined O'Sullivan and Scurry, and for eight or ten years the mine was worked with varying results, the returns being sometimes very good. Holmes, of Sandhurst, had a turn on Nuggetty Hill, and Fitzpatrick also had a good claim. Nuggetty Hill was one of the richest lines worked on Rushworth and over 100,000 oz have been taken out of it ... many individual parties have had a try at Nuggetty Hill since those days, and some excellent returns have been obtained. Amongst the latter were the Johnson Bros., Coy and party. At one time an English company was formed to work this mine. A deal of money was squandered in the construction of dams but mining operations were never entered upon and the company disbanded.<sup>16</sup>

1991. According to local miner Dick Bell, the battery built around turn of the century was built by Bradford.

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*DESCRIPTION OF PHYSICAL REMAINS:*

Remains of crushing battery erected c.1900. The following interpretation was supplied by local miner, Dick Bell:

- Boiler was of the Cornish type and had a brick stack.
- Pedestal carried an 8 ft diameter, 5-in wide fly wheel.
- Engine operated a 10-head battery. In front of the battery was a well.
- Fenced shaft is the last back shaft sunk on Nuggetty Reef. It was 170 feet deep.

Battery

The battery site is largely obscured by large pepper trees. Hidden by one pepper tree is a single engine mounting bed, which is constructed from blue mullock and mortar. The bed is 4 ft 6-in (1.4 m) wide and 17 ft (5.2 m) long, and stands approximately 50 cm above ground level. Four rows of mounting bolts (3 bolts to a row) run across the bed at intervals of 4 ft 6-in. Ten of the 12 bolts still protrude 70 cm above the bed, and retain their thread. A deposit of hardened grease survives at the base of the bed, NE corner.

The boiler, as indicated by a spread of red brick, was located to the E of the engine bed. The bricks are hand-made and bear no frog.

One metre from the W side of the engine bed is a wooden pedestal. Constructed from 10-in square hewn timber, the pedestal stands 3 ft (85 cm) above the ground. It consists of two posts which slope slightly inwards. These posts are braced by two 5 ft (1.5 m) diagonal beams. The posts and cross beams rest on a single bedlog. Iron bolts run up the outside of each of the posts; they still retain their thread and nuts.

A coating of hardened grease adheres to the timberwork in places, with a thick deposit also lying on the bedlog.

The battery lay to the E of the pedestal. All that is visible now, amidst high grass, is a couple of protruding iron bolts.

Ten metres N of the crushing works is a dump of battery sand, measuring 50 x 30 m, and approximately 8 m high. Two dams, upper and lower, lie to the E. The upper dam still retains water. Several filled but subsiding shafts are located between the battery and the upper dam. The shaft nearest the engine bed is fenced.

*INTEGRITY/CONDITION:* Given its age, the site is in good condition. Site clearance would certainly reveal more. Some white ant activity is evident in the wooden pedestal. There are several open shafts associated with the site.

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*CULTURAL SIGNIFICANCE:*

The site has:

- Historical significance, because it is part of a group or network of sites, the totality of which is considered to be significant, namely the quartz workings and other features on Specimen Hill and South Nuggetty Reef (Sites 20,21, 22 & 23).
- Scientific significance because it:
  - a) represents a particular type of process, ie. response to site. The engine bed being unusual in that it is constructed from blue mullock.
  - b) represents an important mining technology. A well-preserved example of a turn-of-the-century battery site.

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Hammond, 1978, p. 14
  - 2 Hammond, 1978, pp. 5-6
  - 3 Hammond, 1978, p. 15
  - 4 Hammond, 1978, p. 13
  - 5 Mclvor News, 17 April 1863
  - 6 Mining Surveyors' Reports, March 1864
  - 7 Mining Surveyors' Reports, March 1865
  - 8 Mining Surveyors' Reports, September 1868
  - 9 Murray, 1896
  - 10 Mining Surveyors' Annual Reports, 1903
  - 11 Mining Surveyors' Annual Reports, 1904
  - 12 Mining Surveyors' Annual Reports, 1904
  - 13 Mining Surveyors' Annual Reports, 1908
  - 14 Hammond, 1978, p. 13
  - 15 Mclvor Times, 4 June 1914
  - 16 'The Rushworth Gold Mines', 1918



*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Mining Surveyors' Reports, March 1864
- 2 Mining Surveyors' Reports, June 1864
- 3 Mining Surveyors' Reports, March 1865
- 4 Murray, 1896
- 5 'The Rushworth Gold Mines', 1918

**SITE NO. & NAME**                      **SOUTH NUGGETTY/PERSEVERANCE REEF MINE WORKINGS**  
**22.1**            **Cyanide Works**  
**22.2**            **Perseverance Battery**  
**22.3**            **Day's Mill Road & House Footings**  
**22.4**            **Perseverance Mine Site**

**LOCATION:**                                      **South Nuggetty/Perseverance Reef, Rushworth**

**HI NO:**                                        **22.1 H7924-0030**  
**22.2 H7924-0031**  
**22.3 H7924-0032**  
**22.4 H7924-0033**

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**DIRECTIONS:**                                Sites 22.1 to 22.3. E of Nuggetty Hill Track. Track into the site sealed by a padlocked gate.  
 Site 22.4. Located 550 m S along Jones Track from main road, on the E side of the track in a grazed paddock

**MUNICIPALITY:**                              Campaspe Shire

**LAND STATUS:**                                Sites 22.1 to 22.3. Unreserved Crown Land  
 Site 22.4. Freehold Land

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**HISTORY:**

c. 1854. About the year 1854 Randolph, Risher and Evans opened the Pioneer reef, which runs north and south and underlays to the east. They worked it to a depth of 125 ft (the water level) and then a further distance of 45 ft. From the surface and right all the way down they were upon the gold, the stone going from 3 oz to 9 oz per load. A whip was used in working the mine.<sup>1</sup>

1854. The Pioneer or Perseverance Reef was opened in 1854 by Randolph, Fisher and Evans. Water level was 125 ft. The partners worked the Pioneer to 45 ft under the water. However, want of perseverance sealed this mine's doom ... although at the time of its closing it was yielding 3-1/2 oz to the load. From two crushings taken from the Pioneer 1000 oz were obtained. This stimulated other miners with promise of success, and gold was found in the Pioneer at a depth of 700 ft as much as 8 oz to the load.<sup>2</sup>

Late 1850s-1864. After water was struck Randolph and party amalgamated with Sloan and others, who were working the adjoining claim north with equally satisfactory results. They stuck to it until the water became too heavy for them to cope with, when they sold their interest for £8 to Stewart and Smith and Coy and Anderson, who at once erected machinery.<sup>3</sup>

5 August 1859. Rushworth, Pioneer Quartz Mining and Crushing Co. (Ltd). Installation of machinery. Over an ounce to the ton has been yielded in most instances from surface quartz. In many places 7 dwt per ton, 100 oz per ton from a claim close to the township. Applications for shares are invited.<sup>4</sup>

March 1864. Axton and Co. 130 ft. Anderson and Co.--80 ft. Long and Co.--85 ft.<sup>5</sup>

June 1864. J.T. Fisher and Co.--45-60 ft. Axton and Co.--100 ft. Masterton and Co.--85 ft. Boss and Brideson--20 ft. Regan and Co.--110 ft.  
 Fisher and Co.--quartz crushing--1 engine, 16 stamps, 12 hp.  
 Fisher and Co.--crushing tailings and rubbish.  
 Masterton and Co.--crushing mullock and cement.<sup>6</sup>

September 1864. Stewart and Smith--140 ft. Messrs Stewart and Smith are vigorously prosecuting their search for the reef, but unfortunately are often stopped by their pumping machines. Two other small rushes have occurred, the one to cement claims near the junction of Nuggetty Gully with the Old Lead, and the other to a branch of Chinaman's Flat.<sup>7</sup>

December 1864. Nuggetty and South Nuggetty--36 miners working.

December 1864. At South Nuggetty Reef, Messrs Stewart and Smith have struck quartz in their engine shaft at 244 feet from the surface. Their pumping, crushing and winding machinery is now in good order and working satisfactorily.

Stewart and Smith, Nuggetty Gully--crushing cement and puddler's tailings.

Nuggetty Gully--10 miners working.<sup>8</sup>

March 1865. Bossie and Fisher, Nuggetty Hill--63 ton from the 70 ft yielded 66 oz.

Stewart and Smith, South Nuggetty Reef--12 ton from 250 ft yielded 67 oz. At Rushworth, Messrs Stewart and Smith, on their South Nuggetty Reef claims, are at length meeting with success which the outlay of capital, combined with intelligent management and perseverance, frequently secures from out quartz reefs. The quartz in their shaft at 250 ft, is worth about 6 oz to the ton, and their pumping machinery supplies them with an abundance of water for crushing purposes.<sup>9</sup>

June 1864. Rook and Co.--25-40 ft. Rook and Co., quartz crushing: 1 engine, 6 stamps, 6 hp.<sup>10</sup>

December 1865. At Rushworth and Whroo, the older portions of the gold workings of this district, excepting from water obtained from the Pioneer and Albert Company's shafts, the whole of the machinery would be similarly situated, and it is to the engines supplied from these sources that quartz is being carted from 10 to 15 miles.<sup>11</sup>

June 1866. The Pioneer Company, on South Nuggetty Reef, is also in full work, with fair yields.<sup>12</sup>

March 1867. The Pioneer Co. has crushed 126 tons, with the fine average of 3 oz 7-1/2 dwt per ton.<sup>13</sup>

1868. Thomas Rich came to Rushworth about 1868 to take charge of Mr Holmes' interest in the crushing plant and the Nuggetty mine.<sup>14</sup>

September 1868. At Rushworth, Regan and Anderson's claim on Nuggetty Hill Reef ... continues to produce very rich quartz.

The engine shaft of the Perseverance Co., on the South Nuggetty Reef, is now about 315 ft, just at the point where they would extend their next levels on the course of the reef, but an accident to their pumping machinery had stopped their work for nearly 3 weeks. The shaft is 190 ft below the water level.<sup>15</sup>

March 1870. In quartz mining the prospects of most cheering character are at Balaclava Hill, Fontainebleau, South Nuggetty and the Frenchman's Reef ... The average produce of quartz from the Perseverance Co.'s crushings, from the South Nuggetty Reef, throughout the quarter, was 4 oz per ton. The depth from which the quartz was raised was about 350 ft.<sup>16</sup>

September 1870. At the Perseverance Co.'s works, on the South Nuggetty Reef, they are now at the depth of 480 ft. The quality of quartz is quite rich as at the shallow levels, and the reef presents every indication of permanency.<sup>17</sup>

December 1870. Quartz mining dull. Exceptionally, the yields from the Perseverance Co ... are to be distinguished. At 440 ft deep the average produce of 160 tons is 4-1/2 oz per ton ... The reef shows no sign of change.<sup>18</sup>

March 1871. The workings upon the South Nuggetty, in the Perseverance, are now about 500 ft in depth upon the underlay. Some of the richest quartz I have seen in the locality was broken out a few days since.<sup>19</sup>

June 1871. The Perseverance Co ... has attained the depth of 450 ft, and the reef appears to be still improving. They crushed from this claim, during the quarter, 476 tons of quartz, which produced 491 oz of gold.<sup>20</sup>

June 1873. The Perseverance Co. having relinquished work, and taken up the pipes for their pumps, the workmen are all distributed; many of them have left the district, and the others are dispersed.<sup>21</sup>

March 1875. The manager of Holmes's Nuggetty Gully machine, Rushworth, reports, "in consequence of an accident to the boiler, I have done no work during the quarter". The result of this stoppage at this machinery, the only one on Rushworth, has been that most miners have been unwilling to risk carting poor stone to the nearest machinery at work, a distance in most cases of 7 miles, and are waiting repairs.<sup>22</sup>

March 1877. At Rushworth, Holmes's machine, so long idle, has been repaired, and has started crushing this week.<sup>23</sup>

December 1877. At present a rush is setting in to ground situated at the north end of Nuggetty Gully, Rushworth. The gold is nuggetty--the largest nugget yet obtained (8 oz 14 dwt) by Black and Co., the sinking being from 10 ft to 14 ft.

Crushing machine, Holmes's, Rushworth--has been idle for the past 3 months for the want of water.<sup>24</sup>

1878. Nuggetty Gully, the main feeder or tributary to the Old Lead, crosses the Nuggetty Reef in its northerly course. This gully was very rich; the gold found in it was of a rather pale colour, and little, if at all, water-worn.

[Cement] has been extensively worked at the undermentioned places, yielding remunerative quantities of gold and frequently rich patches--Chinaman's Hill, Gravel Pits, Old Lead, Nuggetty, Cockatoo, Rushworth township, Butcher's Gully, &c.

There has been but one deep shaft sunk on a quartz reef, and that reached to a depth of 573 feet. It is situated on the Nuggetty Reef. This shaft was sunk by the Perseverance Company, who obtained 9 oz of gold to the ton at 330 feet in depth; from 1 oz to 1 oz 5 dwt to the ton of quartz raised from 450 and 460 feet; 1 oz 15 dwt 18 gr of gold from 651 tons got from 510 feet in depth; and good yields from various other considerable depths.

The Perseverance Company, South Nuggetty Reef, crushed their own quartz for some years ... after lying for several years, the tailings were worked by a party of Chinamen, with large quicksilver cradles, and blankets or canvas catches.<sup>25</sup>

March 1878. Only about 60 miners now remain at the scene of this rush.<sup>26</sup>

June 1894. Nuggetty Reef [History of]. 184 tons from 180 ft yielded 19 dwt. 330 tons from 300 ft yielded 1 oz 4 dwt.<sup>27</sup>

June 1894. Perseverance (or Pioneer) Reef had 5334 tons of ore taken from it, yielding 7,020 oz of gold. Depth obtained 640 ft. Reason given for stoppage was that it belonged to a Bendigo company whose shareholders finding a suspension of dividends, determined to reclaim what they could in the form of capital, sold the machinery for what it could fetch.

Perseverance Co.--£250,000 worth of gold. Little work below 300 ft, although shaft sunk to 420 ft.<sup>28</sup>

n.d. A. Bryce, Carter and T. Semmens and Richards then took an interest and found [the mine] paid. Carter floated the mine into a Bendigo company and the owners received £700--under the title of Perseverance. After only a few weeks ... the new company dismantled the mine and took the machinery to Bendigo ... It was never worked again.<sup>29</sup>

1896 [history]. The Perseverance mine, on the next southerly bend of the reef [from the Cockatoo reef] is stated to have extended to 600 feet from surface vertically, the reef underlying flatly eastward. Very good returns were obtained, the gross yield being quoted at 30,000 ounces, but the mine was abandoned, owing to the inefficient system of working pursued.<sup>30</sup>

1898. In 1898 cyanide works at Nuggetty handled 150,000 tons of "tailings" from crushing batteries in three to four years, operated by Duncan Noyes and Co., who employed 20 men. The assayer was Mr Coyne. The tailings were from most of the mines in Rushworth. Later Bradfords operated a cyanide works.<sup>31</sup>

1900. There is a well designed and efficient cyanide works at Rushworth, treating the old tailings from the "Perseverance" line of reef. Those works belong to Messrs Duncan Brothers and Noyes, and Mr Duncan very courteously showed me his plant, consisting of three 40-ft vats for leaching with store vats, sumps, charcoal filters and furnaces.

The mullock heap of the "Pioneer" shaft is now falling down the shaft, Mr Anderson [guide] assured me ... that the shoot of gold, 40 feet wide, was still strong on the bottom of the shaft when the latter was abandoned at a depth of 600 feet.<sup>32</sup>

1903. The Cockatoo and Perseverance Companies are prospecting.<sup>33</sup>

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*DESCRIPTION OF PHYSICAL REMAINS:*

Remains of features associated with the crushing of quartz and the treatment of the byproduct (tailings).

The following interpretations were given by local miner, Dick Bell:

Site 22.1. The cyaniding vats were constructed of galvanised iron. They were arranged in two rows of four vats. A tramway led from the tanks for dumping purposes. Some of the wooden trestles of this tramway still survive. The original tailings dump from the Nuggetty battery was situated in the gully, on the other side of the road. It was all shifted this side of the road for treatment.

Site 22.2. The excavation represents the site of the battery boxes. The boiler was positioned on the town (north) side of the engine. There was once a large ash dump, but it was carted away.

Site 22.3. Called Owen's Castle. Was two-storeyed and built by two women. It was erected using mullock from the mine. The road running past the house was the road to Day's Mill.

Site 22.4. Once the site of Rushworth's deepest mine shaft. According to local miner, Dick Bell, the mine's blue mullock heap stretched for a very long distance, probably 200 to 300 m. Nothing survives of this immense heap.

The Nuggetty site is situated at the end of track that leads from a padlocked gate. A sign at the gate reads: "Leave face of sand at 45 degrees to prevent falls. Royalty to be paid at Shire Office".

Site 22.1. Cyanide works

500 m E along the track, on the S side, are the remnants of cyaniding operations. Sand removal has obliterated all traces of the vats. The only visible features, apart from the remains of what must have been very extensive sand dumps, are several wooden legs of a tramway. This tramway, according to local miner Dick Bell, carried the treated sand from the vats.

Site 22.2. Battery

50 m in from the N side of the track, 600 m along the track from the padlocked gate, are the remains of the Nuggetty battery. A single stone and mortar engine bed, running N-S, is situated on the N edge of an excavation. The engine bed measures 7 x 17 ft ( 2.1 x 5.2 m) and stands approximately 80 cm above ground level. The engine bed had two lines of iron bolts running down its length. Five bolts still protrude above the stonework, all still retaining their threads.

The adjoining excavation is 10 m long x 7 m wide and contains several protruding iron bolts. On the S side of the excavation is a loading ramp.

The boiler, as indicated by a spread of iron fragments and red brick, lay NE of the engine bed.

In the gully (once called Nuggetty Gully) that lies to the W is a dam, whose earthen wall has been breached. Upstream from the dam are traces of in-situ (stratified) battery sand on the side of the gully.

Site 22.3. Day's Mill Road & House site

The road that leads to the Nuggetty cyanide works is well maintained. Past the site, it continues in an easterly direction, albeit in a more rudimentary and probably earlier form. At the 750 m mark from the padlocked gate, on the N side of the old road, is a house site. All that survives are footings of blue mullock and mortar, with abutting mounds of rubble. The overall measurements of the building are 36 ft (11 m) x 23 ft (7 m), and it appears to have comprised four main rooms.

Site 22.4. Perseverance mine site

About 20 m in from the fence is a mound of rubble, from which protrudes several iron mounting bolts. The rest of above-ground remains have been removed from the site.

*INTEGRITY/CONDITION:* Cyanide works has been quarried to such an extent as to have little or no integrity. The Perseverance Co's battery site still retains sufficient features to have some interpretative power.

*CULTURAL SIGNIFICANCE:*

The site has:

- Historical significance because it is part of a group or network of sites, the totality of which is considered to be significant, namely the quartz workings and other features on Specimen Hill and South Nuggetty Reef (sites 20,21, 22 & 23).

*SIGNIFICANCE RANKING:* Sites Listed Heritage Inventory.

**Assessor: David Bannear**

**Date: September 1991.**

- 1 'The Rushworth Gold Mines', 1918
- 2 Hammond, 1978, p. 14
- 3 'The Rushworth Gold Mines', 1918
- 4 advertisement in Mclvor News, 5 August 1859
- 5 Mining Surveyors' Reports, March 1864
- 6 Mining Surveyors' Reports, June 1864
- 7 Mining Surveyors' Reports, September 1864
- 8 Mining Surveyors' Reports, December 1864
- 9 Mining Surveyors' Reports, March 1865
- 10 Mining Surveyors' Reports, June 1864
- 11 Mining Surveyors' Reports, December 1865
- 12 Mining Surveyors' Reports, June 1866
- 13 Mining Surveyors' Reports, March 1867
- 14 Hammond, 1978, p. 6
- 15 Mining Surveyors' Reports, September 1868
- 16 Mining Surveyors' Reports, March 1870
- 17 Mining Surveyors' Reports, September 1870
- 18 Mining Surveyors' Reports, December 1870

- 19 Mining Surveyors' Reports, March 1871
- 20 Mining Surveyors' Reports, June 1871
- 21 Mining Surveyors' Reports, June 1873
- 22 Mining Surveyors' Reports, March 1875
- 23 Mining Surveyors' Reports, March 1877
- 24 Mining Surveyors' Reports, December 1877
- 25 Geological Survey of Victoria, Report of Progress, 1878, pp. 156, 158, 160
- 26 Mining Surveyors' Reports, March 1878
- 27 Mclvor Times, 14 June 1894
- 28 Mclvor Times, 14 June 1894
- 29 Hammond, 1978, p. 14
- 30 Murray 1896
- 31 Hammond, 1978, p. 13
- 32 Jenkins, 1900, p. 6
- 33 Mining Surveyors' Annual Reports, 1903



*INTEGRITY/CONDITION:* Puddler in good condition, displaying a very unweathered appearance.  
Area has been recently burnt.

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*CULTURAL SIGNIFICANCE:*

The site has:

- Historical significance because it is part of a group or network of sites, the totality of which is considered to be significant, namely the quartz workings and other features on Specimen Hill and South Nuggetty Reef (sites 20,21, 22 & 23).

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Flett, 1979, p. 80
- 2 Lands Dept Map: Central Plans Office, Goldfields 31, dating 1857, additions to 1859 & Mines Dept Map dating Jan 1860?
- 3 Hammond, 1978, pp. 5-6
- 4 Mclvor News, 17 April 1863
- 5 Mining Surveyors' Reports, September 1864
- 6 Mining Surveyors' Reports, December 1864
- 7 Mining Surveyors' Reports, December 1877
- 8 Geological Survey of Victoria, Report of Progress, 1878, pp. 156, 158, 160
- 9 Mining Surveyors' Reports, March 1878

**SITE NO. & NAME**            **24.1 COCKATOO MINE SITE****LOCATION:**                            **Cockatoo Reef****HI NO:**                                **H7924-0035**

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**DIRECTIONS:**                    200 m S up Jones Road from the main road. Located approximately 200 m S of the road**MUNICIPALITY:**                Campaspe Shire**LAND STATUS:**                 Unreserved Crown Land

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**HISTORY:**

1856. One of the first reefs opened in Rushworth was the "Cockatoo", discovered by the Edward Brothers, who worked the reef to 50 ft then gave up their claim to Charlie Crocker and J. Ahern in 1856. They found a reef 4 inches to 6 inches thick and worked it to water level at 150 ft, getting 3 to 5 oz per ton.<sup>1</sup>

1856. The [Cockatoo] line of reef was one of the first opened on Rushworth. Edwards Bros. were its discoverers, and were rewarded by rich yields from 4 oz to 9 oz per load, down to between 40 and 50 feet, when, the ground becoming poor, they gave their claim up. C. Crocker and J. Ahern were the next heard of in this locality. That was in '56. They had a reef from 4 in. to 6 in. thick, and worked it to the water level, about 150 ft on the underlay, for the profitable returns of 3 oz to 5 oz per ton.<sup>2</sup>

1857. Williams, Bennet and Johnson, W. Birch and E. Howie were there in 1857 ... Gold was found all the way down to the 250 ft level, producing 3 to 4 oz to the ton. They opened the reef out both ways and took out the stone bodily, but water in the mine forced them to abandon. The rich reef was half a mile long, but it required powerful machinery to cope with the heavy flow of water.<sup>3</sup>

1857-83. W. Birch and E. Howie (known as Cockatoo Ned) tried their luck in the locality in '57 ... Birch and Howie followed the reef to 120 ft and obtained a yield of 1-3/4 oz ... This party then went to 150 ft in the straight, and 240 ft or 250 ft on the underlay with good results, gold being got right through, the stone yielding from 3 oz to 4 oz. They opened the reef out both ways and took the stone out bodily from the face until they had gone too deep to work the shaft with a windlass. They went into another deep shaft and sank it to about 162 ft but never got the reef, and as the water was too heavy for them they were compelled to abandon it. Next to them Smith and Jenkins were on gold to the extent of from 3 oz to 4 oz per load ... The first westerly claim was taken up by two brothers named Jones, who had a small Berdan crusher in the gully ... The adjoining claim was held by J. Johnson, C. Simpson and C. King. They got as high a return as 3 oz ... J. Eustace had one of the richest claims on the line. From 14 load crushings he got such grand yields as 12 oz, 10 oz and 5 oz per load.<sup>4</sup>

June 1864. Johnston and Co.--70 ft. Jacobs and Co.--90 ft.<sup>5</sup>

September 1864. No crushing has, as yet, taken place.<sup>6</sup>

December 1864. 15 miners working.<sup>7</sup>

March 1865. Rodstead, Johnson and Eustice, Cockatoo Reef--24 tons crushed from 160 ft, yielded 20 oz.<sup>8</sup>

1878. [Cement] has been extensively worked at the undermentioned places, yielding remunerative quantities of gold and frequently rich patches--[including] Cockatoo.<sup>9</sup>

1883-? In '83 an attempt was made to float the Cockatoo into Nagel's United Gold Mining Company, No Liability, with a capital of £30,000, in as many shares of £1 each, resulted successfully. 15,000 shares, paid up to 10/-, were held by the proprietors. The company held an area of 37 acres, comprising such celebrated reefs as the Cockatoo, Perseverance and Old Nuggetty Hill, the returns from which were estimated, up to that time, as having been about 200,000 oz. The general yield for thousands of tons from the Cockatoo reef was between 2 oz and 6 oz per ton ... In the face of these splendid returns the company appeared to have a magnificent property and a splendid future before it. The Cockatoo and Nuggetty Hill had been held under the mining by laws, when it required four men to work a 48 ft claim on the line of lode, and as the surface miners merely adopted the windlass, whip and whim, and the shafts, being mostly worked on the underlay. They could not get much below the water level, and of course, were compelled to relinquish their claims. As the lease which the Cockatoo reef traversed was supposed to have within it the underlie of the Old Nuggetty Hill, the company proposed sinking a shaft in a central position on the lease and erecting suitable machinery, with not less than 10 or 12 inch lifts for the purpose of working the ground to a much greater depth, and also erecting a battery of not less than 15 head. The estimated cost of sinking the shaft 250 ft, and erecting the machinery was £3000. An important feature of the undertaking was that on the surface of the lease there were 15,000 to 20,000 tons of cement, easily to be wrought and crushed, large quantities of which had been crushed, and it had never gone below 1-1/2 dwts to the ton, considerable quantities having yielded as high as 1 oz and 6 oz per ton.

The company sank a shaft 11 ft by 4 ft, 128 ft deep, with three compartments, closely timbered from top to bottom, with ladder road and bearer reaches for pumps, but they never made a success of it for when they were sued for drainage by the Perseverance Company they had the option of paying it or forfeiting the claim, which they did.<sup>10</sup>

March 1885. The Cockatoo Company has sunk and timbered a shaft to water level, 126 ft.<sup>11</sup>

c. 1890-? The mine remained idle until after the Spring Creek rush, when J. Wicker, Anderson and Co. took up the claim formerly held by Birch and Howie. They followed the reef down to water level, and put a whip on it. The magnificent yield of 14 oz per load resulted, but the reef pinched out at the bottom. A short time prior to exempting the claim, when it was held by a party of tributers from Bendigo, it is said that 80 ounces were obtained from 3 loads. Some years afterwards another attempt was made at working the Cockatoo reef. A company was formed, and a small vertical boiler and winch were placed on the mine. The old shaft was repaired, and the task of continuing the shaft down to the reef was commenced. They succeeded in this work, but no stone was taken out, the shaft breaking through into the old workings. The water was very heavy, and a severe strain was placed upon the plant in baling the water. The boiler resented this increased labour and one morning departed from the scene with an explosion with was heard a couple of miles away.

The next company to try its hand on this reef was a Ballarat Company, which had acquired leases of the Cockatoo and Caullen's lines of reef, and erected a battery on the last-named mine ... A considerable amount of work was done by this company on Nuggetty Hill, where also the stone was a thick one ... A good deal of work was done on the Cockatoo by this proprietary, but again the lack of stronger machinery prevented the working of this mine to any great depth.<sup>12</sup>

1896. The Cockatoo reef lies northward of Nuggetty Hill ... The Cockatoo yielded well in early times down to water-level (about 150 feet), returns from 2 ounces up to 12 ounces per ton being recorded. Operations are now in progress at the first bend to the south, and I learn that the reef has been proved rich at 180 feet, though work has been delayed owing to a boiler explosion. Machinery is, however, now being erected. Westerly [from the Perseverance mine] the line of the Cockatoo reef has been worked at intervals, under various names [Scrub, Growlers, West Growlers, Star of the West], for about 3 miles.<sup>13</sup>

1903. The Cockatoo and Perseverance Companies are prospecting.<sup>14</sup>

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*DESCRIPTION OF PHYSICAL REMAINS:*

Site not inspected, but as it is currently being mined, the prospects of anything surviving are remote.

Working mine.

Small-scale plant operating, appears to be some sort of trommel.

*INTEGRITY/CONDITION:* Poor.

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*CULTURAL SIGNIFICANCE:*

Site not inspected but current mining operations do not bode well for the site retaining much historical significance.

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

- 
- 1 Hammond, 1978, p. 13
  - 2 'The Rushworth Gold Mines', 1918
  - 3 Hammond, 1978, p. 13
  - 4 'The Rushworth Gold Mines', 1918
  - 5 Mining Surveyors' Reports, June 1864
  - 6 Mining Surveyors' Reports, September 1864
  - 7 Mining Surveyors' Reports, December 1864
  - 8 Mining Surveyors' Reports, March 1865
  - 9 Geological Survey of Victoria, Report of Progress, 1878, p. 158
  - 10 'The Rushworth Gold Mines', 1918
  - 11 Mining Surveyors' Reports, March 1885
  - 12 'The Rushworth Gold Mines', 1918
  - 13 Murray, 1896
  - 14 Mining Surveyors' Annual Reports, 1903

**SITE NO. & NAME**            **25.1 OLD LEAD ALLUVIAL SINKINGS****LOCATION:**                            **OLD LEAD, RUSHWORTH****HI NO:**                                **H7924-0036**

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**DIRECTIONS:**                    Block of State Forest, N side of the Murchinson Road, 1.5 km E of Rushworth**MUNICIPALITY:**                Campaspe Shire**LAND STATUS:**                 Unreserved Crown Land

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**HISTORY:**

1856. The gold rush brought 5000 diggers to the Old Lead. The first rush lasted for six weeks. J.H. Roberts opened his first store there. "Smith the Union" Hotel (the site is opposite the last house in Murchison Road) was established for the diggers on the Old Lead.<sup>1</sup>

1857. There was a large rush there to the Old Lead in 1857.<sup>2</sup>

September 1864. A little excitement has also been felt in the township of Rushworth, by the finding of payable gold between the head of the Old Lead and the foot of Growlers Gully. The depth of sinking is from 10 to 15 feet, and the run of gold is trending through the centre of the township. Every facility is afforded to miners who are desirous of working upon the streets.

Two other small rushes have occurred, the one to cement claims near the junction of Nuggetty Gully with the Old Lead.<sup>3</sup>

December 1864. 22 miners working.<sup>4</sup>

March 1867. The cement miners at the Old Lead ... have generally earned fair wages throughout the quarter.<sup>5</sup>

March 1870. At the Old Lead, Rushworth ... there are several claims from which the puddling machines have given excellent returns.<sup>6</sup>

June 1877. A party of 7 men, subsidised by the Government, have been employed prospecting the Old Lead, Rushworth. Gold was obtained, but not in payable quantities. Hope is expressed that their efforts may be continued, and local contributions are being raised for that purpose.<sup>7</sup>

September 1877. A rush has set in at the Old Lead, Rushworth, where there are now about 400 miners present, the number still increasing. The ground is that lately prospected by Government subsidy; the sinking is from 25 to 32 ft, and the average yield is about 1 oz 5 dwt per load. Up to date, 9 claims were on gold. The run of gold is narrow, from 3 to 16 ft, and the wash-dirt from 9 inches to 2 ft. Work is carried on with much energy.<sup>8</sup>

December 1877. The rush at Old Lead, Rushworth ... has now subsided; at one period of the quarter about 700 men were on the ground; but although much work was done, they failed to follow the gold beyond a few claims.<sup>9</sup>

1877. The Old Lead produced £3000 worth of gold in 1877.<sup>10</sup>

1878. The most northern and most important gold workings are at and in the vicinity of Rushworth, where, at the close of the September quarter of this year, 513 alluvial miners were employed in mining. The principal alluvial workings are, or have been, on the Old Lead. The head of the lead is in Growler's Gully, at the back and to the west of the township. This lead trends easterly, and probably terminates in the Waranga Swamp. Many rich tributaries flow into it, but those joining it on the southern side are the most considerable. This lead has yielded more gold than any other in the district; it is but shallow, as the deepest shafts sunk on it are only from 35 feet to 55 feet in depth. [Cement] has been extensively worked at the undermentioned places, yielding remunerative quantities of gold and frequently rich patches--[including] Old Lead.<sup>11</sup>

March 1889. A small rush has taken place on the Old Lead, Rushworth, caused by one man having secured gold to the value of £200 in a few weeks. Being old ground, it is unlikely to continue.<sup>12</sup>

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**DESCRIPTION OF PHYSICAL REMAINS:**

Surviving alluvial sinkings connected with the working of the Old Lead. Main period of working appears to have been from 1856 to 1900s.

Alluvial workings

Approximately 1 km-long band of alluvial sinkings. The shafts and associated mullock paddocks are relatively undisturbed, and their size and distribution suggest relatively deep sinking: holes are 2 to 3 m wide and spaced up to 6m apart. No puddling machine sites were identified. Several stone fireplaces were observed.

*INTEGRITY/CONDITION:* Sinkings are still relatively intact, and their distribution suggests that the sinking was quite deep.

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*CULTURAL SIGNIFICANCE:*

The site has:

- Historical significance, because of its success as auriferous lead in terms of its yields and influence on the economic development of Rushworth.
- Scientific significance, as it illustrates an important mining technology. The sinkings, which are relatively intact, are some of the last of this nature surviving in the Rushworth area.

*SIGNIFICANCE RANKING:* Site Listed heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 
- 1 Hammond, 1978, p. 5
  - 2 Flett, 1979, p. 80
  - 3 Mining Surveyors' Reports, September 1864
  - 4 Mining Surveyors' Reports, December 1864
  - 5 Mining Surveyors' Reports, March 1867
  - 6 Mining Surveyors' Reports, March 1870
  - 7 Mining Surveyors' Reports, June 1877
  - 8 Mining Surveyors' Reports, September 1877
  - 9 Mining Surveyors' Reports, December 1877
  - 10 Hammond, 1978, p. 22
  - 11 Geological Survey of Victoria, Report of Progress, 1878, pp. 156,158
  - 12 Mining Surveyors' Reports, March 1889

**SITE NO. & NAME**                    26.1    **REGULAR BACHELOR MINE SITE**

**LOCATION:**                                **REGULAR BACHELOR REEF**

**HI NO:**                                    **H7924-0037**

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**DIRECTIONS:**                    1.2 km along Old Tatura Road, from Murchinson main road, about 150 m W of the road

**MUNICIPALITY:**                    Campaspe Shire

**LAND STATUS:**                    State Forest

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**HISTORY:**

1935. The Regular Bachelor Syndicate is working on a very small reef from an 80-ft shaft on the Frenchman's line. Operations to date have not been payable.<sup>1</sup>

Late 1930s. Regular Bachelor mine was worked by two brothers--Jim and Bill Roach--in the late 1930s. Worked by windlass and ladder to 200 ft.<sup>2</sup>

1991. New shaft being sunk. Worked by whip and engine. Two-head battery erected on the site. This battery is owned by Ron Risstrom. Battery originally worked at Baillieston, owned by Otto Opperman.<sup>3</sup>

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**DESCRIPTION OF PHYSICAL REMAINS:**

According to Ron Risstrom, the current owner of the two-head battery, the mine was first worked by Jim and Bill Roach in the late 1930s. The two brothers worked the shaft by windlass and ladder to a depth of 200 feet. The mine is currently being worked by a whip and engine. The two-head battery originally came from Baillieston, where it was owned by Mr Otto Opperman.

**Modern mine**

Shaft being worked by whip and engine. A small section of tramway leads from the shaft to a galvanised iron shed which contains a two-head battery.

**INTEGRITY/CONDITION:**                    Little survives of the 1930s workings.

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**CULTURAL SIGNIFICANCE:**

Integrity of earlier workings is poor. Site holds little significance.

**SIGNIFICANCE RANKING:**                    Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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<sup>1</sup> Mining Surveyors' Annual Reports, 1935

<sup>2</sup> Pers Comm. Ron Risstrom 1991

<sup>3</sup> Pers Comm. Ron Risstrom 1991

**SITE NO. & NAME**      **27.1**      **FRENCHMAN'S REEF WORKINGS****LOCATION:**                      **Frenchman's Reef, Rushworth****HI NO:**                              **H7924-0038**

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**DIRECTIONS:**                      600 m SE of junction of Old Tatura Road and Frenchmans Hill Road**MUNICIPALITY:**                      Campaspe Shire**LAND STATUS:**                      Unreserved Crown Land

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**HISTORY:**

Frenchman's Reef--1-1/2 miles NE of Rushworth. The formation is E-W, a continuation of the Crown Cross which runs N-S. Unlike many mines in Rushworth, it was worked in an almost unbroken line for over a mile--continuity was rare. The Frenchman's Reef was mostly worked on the surface--200 ft was the deepest, except at the extreme east end where the Frenchman's mine was situated.<sup>1</sup>

1855. Frenchman's mine was opened in 1855 by a Frenchman named "Jasper" Bartholomi, show made little use of his discovery and went to work for Fisher Randolph and Co., who also had the adjoining claim. The reef averaged from 4 inches to 12 inches thick, from one end to the other, returning 1 oz to 5 oz to the load. After 60 ft of digging with no result, the mine was abandoned at 80 ft.<sup>2</sup>

1855-c.mid 1870s. This mine was opened, like most other mines here, in the early fifties. As its name would imply, this reef was opened up by a Frenchman, named Bartholomi, better known as "Jasper", away back in '55 ... we next learn of him working the ground for Fisher, Randolph & Co. who also held the adjoining claim. This was on the eastern end of the line ... W. Lyons and old "Bill" Smith had the adjoining claim, which they worked down to 100 feet before it became too poor at half-an-ounce to be remunerative ... J. Baker and party held the next claim west and they worked it to 110 feet before the stone became too poor ... Others had similar claims along the line, but it was not till the year 1865 that we find P. Synnett, G. Cracknell and H. Rhoderick assuming proprietorship of Fish, Randolph and Co.'s old mine on extreme eastern end of line. They worked the mine for about six years, when Rhoderick sold his share to T. Fitzpatrick. The party carried their workings down to water level, 200 feet, and their returns varied from 2-1/2 ounces to 5-1/2 ounces to the load.<sup>3</sup>

March 1870. In quartz mining the prospects of most cheering character [include] the Frenchman's Reef.<sup>4</sup>

Early 1870s. Other parties went down to 200 ft in the early 1870s, getting a few ounces of gold.<sup>5</sup>

March 1875. A probability of some of the deep claims being shortly in work; already a company is being formed for working the Frenchman's Reef, Rushworth, a claim that, above water level, yielded rich stone.<sup>6</sup>

June 1875. The Frenchman's Reef Company (Ltd) are progressing well with their engine-shaft, and the machinery will be shortly placed on the ground.<sup>7</sup>

December 1875. The Frenchman's Reef Company is on good stone, but is sinking 60 ft for a new level.<sup>8</sup>

1876-78. A No Liability Company was formed with 24,000 shares at £1 each, and machinery was erected in 1876. But more funds were needed and the work was stopped 306 ft deep. Then T. Rich formed a co-operative party, including Wilson, Clarke, and other locals, taking a tribute of the mine, agreeing to pay 17 % of the gross yield of gold. They sunk the shaft another 50 ft, making the total depth 356 ft. They levelled at 60 ft east and 40 ft west--and found a new shoot of gold ... A six head 8 hp battery was then erected--but again the pumping machinery was not strong enough to cope with the water and it was abandoned--the mine has stayed the same up to the present time [1978].<sup>9</sup>

1876-78. The Frenchman's No Liability Company was then formed with a capital of 24,000 shares of £1 each, and necessary machinery was erected. This was in the early part of 1876, but the company found itself hampered for want of funds, insufficient shares having been taken up and shareholders neglecting to meet calls ... When the company suspended operations towards the end of 1876 the shaft stood at a depth of 306 feet. T. Rich then formed a co-operative company, including Wilson, Clarke and other local men and they took a tribute of the mine, agreeing to pay 17 per cent, on the gross yield of gold. They commenced operations by sinking the shaft another 50 feet, making the total depth 356 feet ... That the tributers succeeded for a time is borne out by the fact that they erected a six-head battery and worked it with an eight horse power horizontal engine ... The machinery was also not sufficiently strong to cope with the water ... and it must be remembered that in every instance the water has proved very heavy in this district.<sup>10</sup>

June 1876. The Rushworth United Gold Mining Co., Frenchman's Reef, has 24 men employed.<sup>11</sup>

September 1876. The Rushworth United Gold Mining Co. has ceased work at present. It was formed under the Limited Liability Act, and has expended its capital.<sup>12</sup>

June 1877. The crushing from the Rushworth United Gold Mining Co. (Frenchman's Reef) was not so satisfactory, much preparatory labour had to be done. The tributers have resumed work.<sup>13</sup>

September 1877. The stamping machine at Rushworth United Gold Mining Co. is now complete.<sup>14</sup>

December 1877. Rushworth United Gold Mining Co.--during the quarter a crushing machine with six stamp-heads has been erected; the main shaft 340 ft, reef 6 inches, driven at 340 ft level, 100 ft to E, 40 ft to W; prospects good; 25 men at work.<sup>15</sup>

March 1878. Rushworth United Gold Mining (antimony mine)--2 men employed.<sup>16</sup>

September 1878. Rushworth United Gold Mining--stopped work, not from want of success, but for the purpose of reorganisation of the company.<sup>17</sup>

June 1881. The proprietors of the Mary Jane Reef have purchased the crushing plant of the Frenchman's Reef Company, Rushworth, and are now removing it.<sup>18</sup>

June 1882. The engine, etc., lately belonging to the Frenchman's Reef Co., has been purchased by the proprietors of the Phoenix Reef, who are now refixing the same in their claim at Chinaman's Flat, Rushworth.<sup>19</sup>

1896. The Frenchman's reef, eastward from the Phoenix, is also one deserving of special notice ... the deepest level reached was 300 feet, though generally the workings do not extend below water-level. The yields recorded vary from 1/2 an ounce to 4 ounces per ton, the average being stated at 3 ounces.

Want of efficient pumping plant is the cause assigned for abandonment in past times.

The Little Frenchman's about 100 yards south of and parallel with the Frenchman's, has also yielded well in patches. At the eastern end of the Frenchman's workings the surface outcrop of the reef disappears, the cap apparently dipping eastward, but further on it has been picked up in various shallow excavations, though only slightly gold-bearing. It then takes a curve southward, having been traced by means of a number of open cuts, and south of the turn is known as the Crown Cross reef.<sup>20</sup>

1918 [history]. The Frenchman's line lies about a mile and a half to the north-east of Rushworth and, unlike many of our mines, has shown a degree of continuity, having been worked in an almost unbroken line for over a mile. These were practically all surface working and 200 feet would limit the depth of any of the workings, with the exception of the extreme east end, where we find the remnants of what was once known as the Frenchman's mine.<sup>21</sup>

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*DESCRIPTION OF PHYSICAL REMAINS:*

Line of reef was discovered and first worked in 1855. From this time to 1875 the reef was worked by various claimholders. In 1875 the Frenchman's Reef Co. was formed and they sunk an engine shaft, and installed a pumping engine and battery. The plant was removed from the site in the early 1880s. Little evidence survives of the 1870s mining operations.

Reef workings

Lines of surface mullock heaps extending E-W for some 350 m. All shafts have been filled.

*INTEGRITY/CONDITION:* Mines Dept's shaft filling program has significantly reduced the integrity of the site. No sign of the main mine was found.

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*CULTURAL SIGNIFICANCE:*

Site holds little historical significance and the Mine Dept's shaft filling program has severely reduced the integrity of the site.

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 
- 1 Hammond, 1978, p. 17
  - 2 Hammond, 1978, p. 17
  - 3 'Rushworth Gold Mines', 1918
  - 4 Mining Surveyors' Reports, March 1870
  - 5 Hammond, 1978, p. 17
  - 6 Mining Surveyors' Reports, March 1875
  - 7 Mining Surveyors' Reports, June 1875
  - 8 Mining Surveyors' Reports, December 1875
  - 9 Hammond, 1978, p. 17
  - 10 'The Rushworth Gold Mines', 1918
  - 11 Mining Surveyors' Reports, June 1876
  - 12 Mining Surveyors' Reports, September 1876
  - 13 Mining Surveyors' Reports, June 1877
  - 14 Mining Surveyors' Reports, September 1877
  - 15 Mining Surveyors' Reports, December 1877
  - 16 Mining Surveyors' Reports, March 1878
  - 17 Mining Surveyors' Reports, September 1878
  - 18 Mining Surveyors' Reports, June 1881
  - 19 Mining Surveyors' Reports, June 1882
  - 20 Murray 1896
  - 21 'The Rushworth Gold Mines', 1918

**SITE NO. & NAME**                    **ANTONIO GULLY ALLUVIAL WORKINGS**  
**28.1**                                    **Brickworks**  
**28.2**                                    **Brick-Lined Puddler**  
**28.3**                                    **Puddler (2) & Dam**

**LOCATION:**                            **ANTONIO GULLY, NORTH DUNLOP HILL, RUSHWORTH**

**HI NO:**                                **28.1 & 28.2    H7924-0039**  
**28.3                                    H7924-0040**

**DIRECTIONS:**                    Sites. 2 km (N) along Tatura Road from Rushworth, a track on the W side of the road runs back in a SW direction to Dunlop Hill. Some 450 m along this track, 50 m in from W side of the road, is a clay pit

**MUNICIPALITY:**                    Campaspe Shire

**LAND STATUS:**                    Unreserved Crown Land

**HISTORY:**

1857-1860. Maps showing Rushworth. These two maps show puddling machines in the following gullies: [including] Antonio Gully--2 puddling machines.<sup>1</sup>

December 1864. 3 miners working.<sup>2</sup>

1930s. Freddy Wall and Ron Risstrom's brother worked a puddler in the gully. One of the last to be worked around Rushworth. They purchased the plant from Baillieston. It was worked via a shaft under the ground.<sup>3</sup>

**DESCRIPTION OF PHYSICAL REMAINS:**

Although no information was found relating to a brickworks in Antonia Gully, the type of bricks produced at the site suggests it operated around the same time as the Chinaman's Flat brickworks, that is, c.1860.

Site 28.2. According to local informant, Ron Risstrom, his brother and Freddy Wall were the last people to operate a puddler around Rushworth. This puddler was worked via a shaft underground. The gear for the puddler came from Baillieston. They worked it for only a short time and pulled up the gear, which may still survive. The more conventional puddler, due to its fresh-looking appearance, would also date to the 20th century.

Site 28.1. Brickworks

The clay pit is located in a gully (no name as yet found for this gully) and measures approximately 85 x 30 m. On the W side of the clay pit is a mound of red bricks measuring approximately 7 m square. There appears to be some outline to this mound, though only excavation could clarify if any footings survive.

Another dump of bricks is eroding into the pit, and further to the N is a dump of clinker bricks.

All bricks are hand made and frogless.

Site 28.2. Brick-lined puddler

The pit has been turned into a dam by the construction of an earthen embankment across its N end. Below the earthen bank is a puddling machine. The puddler's construction is unlike any others yet recorded. Instead of an inner mound of clay, there is a ring of brickwork. The ring is 10-in wide (2 rows of red bricks) and has a diameter of 7 ft 6-in (2.3 m). Dirt, rubble and leaves fill the ring.

The puddling trench is 5 ft 9-in (1.75 m) wide and 2 ft deep. The inner face of the puddling trench is formed by the brick wall of the inner ring and the outer face is one row of bricks with a rendering of concrete. The trench appears to have a concrete base, though it could be brick rendered with concrete.

The puddler has an overall diameter of 19 ft (5.8 m).

The outer mound is flattened and approximately 3 m wide. It has an outlet, which drains N into the gully. No inlet is visible.

Site 28.3. Puddler & dam

Located 150 N of the clay pit, up the gully towards Dunlop Hill, is a second puddler. This one is more conventional. It is located on the SE side of a dam which still retains water, and appears to be located well above the dam's water level. The inner mound is well defined, and the post hole is visible. The absent post would have had a diameter of approximately 1ft.

The puddling trench is well defined, and its sides relatively sheer. The outer mound has eroded badly, and only an outlet channel is visible.

**INTEGRITY/CONDITION:**                    Puddlers in good condition.

*CULTURAL SIGNIFICANCE:*

The sites have:

- Historical significance, because they:
  - a) represent a sequence of uses or functions over time.
  - b) are part of a group or network of sites, the totality of which is considered to be significant.
  - c) are of considerable age in circumstances where precise historical significance of the site is not at present known.
- Scientific significance because they:
  - a) represent a particular type of response to site, eg. the construction of a puddling machine from bricks scavenged from the ruins of a nearby brickworks.
  - b) represent an important mining technology, namely the importance of puddling in the Rushworth area.
  - c) have the ability to answer timely and specific archaeological research questions. The early 20th century puddler acting as a dating yardstick.

*SIGNIFICANCE RANKING:* Sites Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Lands Dept Map: Central Plans Office, Goldfields 31, dating 1857, additions to 1859 & Mines Dept Map dating Jan 1860?
- 2 Mining Surveyors' Reports, December 1864
- 3 Pers. Comm. Ron Risstrom, Rushworth

<b>SITE NO. &amp; NAME</b>	<b>MAIN GULLY SITES</b>	
	<b>Site 29.1</b>	<b>Burial ground</b>
	<b>Site 29.2</b>	<b>Puddler &amp; dam</b>
	<b>Site 29.3</b>	<b>Cleared area - site of Chinese Camp</b>

**LOCATION:** Main Gully, Rushworth

**HI NO:**

<b>29.1</b>	<b>H7924-0041</b>
<b>29.2</b>	<b>H7924-0042</b>
<b>29.3</b>	<b>H7924-0043</b>

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**DIRECTIONS:** Site 29.1. The cemetery is located 450 m S of the Anglican Church down the Whroo-Rushworth main road; mine workings are 100 m E.

**MUNICIPALITY:** Campaspe Shire

**LAND STATUS:** Unreserved Crown Land

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**HISTORY:**

1853. The only reference to the discovery of gold there was in *The (Melbourne) Argus*, 3 August 1853, which said the diggings were discovered by a sawyer, who, looking for timber, saw the resemblance to Bendigo, and got the first gold in St Louis Creek. This was the *Argus'* name, given no doubt to the gully from the St Louis Stores there, to what soon after became known as Main Gully, where gold was first found, some time in July 1853.

The first commissioner in charge at Waranga was William Willoughby, who arrived early in August, and camped on Waranga Creek, between the Lagoon and Main Gully.

The first accounts of the rush to Waranga in August 1853 mention seven digging localities, only one of which--Waranga Creek--had a name that survived. Mr D.J. Shewin [in 1953] wrote that gold was found in old Main Gully and New Main Gully, Parramatta Gully, Perseverance, Specimen and Nuggetty gullies in 1853. The name, New Main Gully, never figured on any map, but Howitt mentions Parramatta Gully in 1853.<sup>1</sup>

1853. In 1853 a party of gold-diggers camped overnight near Waranga Swamp ... after showing local aboriginals samples of the gold they had found on the north-eastern goldfields, the surprised diggers were shown the same "pretty" stones lying hidden under the grass not far from where they slept.

The site was later known as Main Gully--when the "rush" began.<sup>2</sup>

1850s. The Chinese camp was near Main Gully on Whroo Road, Rushworth.<sup>3</sup>

December 1864. Main Gully--17 miners working. Main Gully Reef--2 miners working.<sup>4</sup>

1900. Mines Department was approached to fund prospecting the "Last Chance" in Main Gully.<sup>5</sup>

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**DESCRIPTION OF PHYSICAL REMAINS:**

Site 29.1. Rushworth's first official burial ground. Site 29.2. Although eroding badly, the fresh-looking appearance of the puddler suggests it was in operation in the 20th century. Site 29.3 is the site of a late 1850s Chinese Camp.

Site 29.1. Burial ground

A cairn inside the cemetery reads "The First Rushworth Cemetery--1853 -1861".

The cemetery is fenced-off and is roughly 40 m square. It contains no headstones, only a series of mounds. Some of the mounds are edged in stone and the varying sizes suggest that both adults and children were buried in the cemetery. Some 27 mounds were counted. An exact count was not possible because of areas of dense grass and bushes.

Site 29.2. Puddler

60 m NE of the cemetery, in Main Gully, is a puddler and dam. The puddler is very eroded. Flood waters have eroded a section through the middle of the machine site, removing sections of the outer mound and all of the inner mound.

Main Gully, above and below the puddler, has been extensively puddled and is now eroding rather badly.

Site 29.3. Chinese Camp site--clearing

On the opposite side of Main Gully to the puddler is a large cleared area.

**INTEGRITY/CONDITION:** Cemetery very overgrown. Puddler eroding badly

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*CULTURAL SIGNIFICANCE:*

The sites have:

- Historical significance because they are part of a group or network of sites, the totality of which is considered to be significant.

Site 29.3 has additional significance as it is associated with a cultural group (Chinese).

Site 29.1 (old burial ground) has social significance because of importance of the site to the local or wider community.

*SIGNIFICANCE RANKING:* Sites Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Flett, 1979, p. 80
- 2 Hammond, 1978, p. 10
- 3 Hammond, 1978, p. 5
- 4 Mining Surveyors' Reports, December 1864
- 5 Hammond, 1978, p. 21

**SITE NO. & NAME**      **Site 30.1**      **SURFACE GULLY PUDDLER**

**LOCATION:**      **SURFACE GULLY, WHROO**

**HI NO:**      **H7924-0044**

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**DIRECTIONS:**      80 m NE of Whroo Interpretation Centre. A signposted track (Surface Gully) leads to the dam and puddler

**MUNICIPALITY:**      Campaspe Shire

**LAND STATUS:**      Whroo Historic Area

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**HISTORY:**

1860. Lands Dept map--Township of Whroo. This map includes Surface Hill Gully--4 puddling machines.<sup>1</sup>

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**DESCRIPTION OF PHYSICAL REMAINS:**

Puddler

The puddler is located at the SW end of a dam and is badly eroded; run-off from the dam has washed a large part of the machine site away. Only a small section of the inner mound, puddling trench and raised outer mound survives. The post-hole is discernible in the remaining section of the inner mound. The puddler would have had a diameter of 22 ft (6.7 m). The gully itself has been extensively puddled. The fresh-looking appearance of the puddler suggests that it operated during the 20th century.

**INTEGRITY/CONDITION:**      Puddler is eroding badly.

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**CULTURAL SIGNIFICANCE:**

The site has little historical significance and its integrity is severely reduced.

**SIGNIFICANCE RANKING:**      Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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<sup>1</sup>      Lands Dept map, W139E, dating from May 1857, with additions to 1860

<b>SITE NO. &amp; NAME</b>	<b>SCOTCHMAN'S GULLY SITES</b>	
	<b>31.1</b>	<b>Puddler (1) &amp; Dam</b>
	<b>31.2</b>	<b>Puddler (2) &amp; Dam near clearing known as Chinaman's Flat</b>
	<b>31.3</b>	<b>Dam and Dump of Battery Sand</b>
	<b>31.4</b>	<b>Puddler (3) and nearby Surfacing</b>
	<b>31.5</b>	<b>Puddler (4) and Remnants of Dam</b>

**LOCATION:** Scotchman's Gully, Whroo

**HI NO:**

<b>31.1</b>	<b>H7924-0045</b>
<b>31.2 &amp; 31.3</b>	<b>H7924-0046</b>
<b>31.4</b>	<b>H7924-0047</b>
<b>31.5</b>	<b>H7924-0048</b>

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**DIRECTIONS:** Scotchman's Gully extends NE from the junction of Greens and Blacksmiths Roads

**MUNICIPALITY:** Campaspe Shire

**LAND STATUS:** State Forest

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**HISTORY:**

1857-1859. Lands Dept Map--Plan of the Waranga Goldfields embracing the villages of Whroo, Rushworth, Moora and Waranga. This map includes Scotchmans Gully--1 puddling machine.<sup>1</sup>

July 1860. In all, 15 reefs were producing gold--Scotchman's Gully was the busiest part. Some quartz was being taken 5 miles away to crush in July 1860.<sup>2</sup>

September 1860. Brown, Sharp and Company's stamping machinery was christened "The Catherine" by Mrs Brown, on Scotchman's Reef. The machine was 20 hp with 12 stampers and worked day and night, employing 25 men. Brown and Sharp charged 11/- per ton, the charge had never been under 15/- a ton before. The "Catherine" was called a patent amalgamator. Tailings were chemically prepared, and about 5 tons passed through in 12 hours. The "Catherine" was moved to Balaclava Hill in 1863, by John T. Lewis.<sup>3</sup>

1860. In mid-1860 it was reported that Scotchman's Hill Reef promised to rival the older reefs and that the prospectors, Sharp and Brown, were so optimistic as to be setting up a twenty horse crushing battery. They formed reservoirs, called tenders for 200 tons of engine firewood (unsuccessfully) and for raising 100 tons of quartz per week from their claim, and also obtained the lease of four acres of adjoining ground and began working it. In September the new engine was put into full operation and formerly christened "The Catherine".

It was a twenty horsepower horizontal engine made in Fife, and initially drove twelve stampers by means of a spur wheel and pinion, each stamper weighing five hundredweight, and arranged in groups of four in three strong stamper boxes. The cam shaft was of wrought iron, 5-1/2" (14 cm) in diameter, carrying "improved double" cams also of wrought iron and with a lift of 12" (31 cm). A sloping floor held the quartz before it passed over ripple boards measuring three metres long by 1.75 metres wide, and each with six ripples to catch the gold. Each of the boards led to one of three amalgamators "on the Tyrolese principle" which contained an inch of quicksilver. Next there were boxes three metres long by 0.6 metres wide, lined with flannel, leading into other boxes 0.9 metres long and containing two ripples to catch any mercury which might escape. Finally the tailings passed into races leading to large waste tanks in an arrangement which was said to be very good, both from the point of view of emptying out the tailings, and of keeping the dams clear of them.

The stamper boxes and framing were built on a substructure made of logs from 36 to 61 cm square, with overall dimensions of 5.5 metres by 7.4 metres by 2.2 metres high, and the whole was enclosed in a well-built engine house roofed in corrugated iron. The engine was capable of driving another twelve stampers and three amalgamators, but it was proposed shortly to add these and double the capacity of the battery. The new stamper boxes were to have solid bottoms for convenience in cleaning them out, whereas those installed had separate lining blocks under each stamper. The engine, plant, dams and roads had taken three months to complete, and the battery was to operate night and day, crushing 26 tons every 24 hours ... Twenty-five men were being employed, and several more were to be taken on, yet the whole operation seems to have been acquired by Lewis [of Balaclava Hill] in mid-1861.<sup>4</sup>

October 1860. Scotchman's Gully, some claims average 2 dwt to the tub.<sup>5</sup>

November 1860. Alluvial--Scotchman's Gully the busiest.<sup>6</sup>

1861. By 1861, 4,000 tons of quartz veined with gold had been put through Brown and Sharp's crushing mill on Scotchman's Reef.<sup>7</sup>

February 1861. Scotchman's Gully and Windlass Flat are the busiest places.<sup>8</sup>

December 1864. Scotchman's Gully--3 miners working. Scotchman's Reef--2 miners working.<sup>9</sup>

April 1869. Scotchman's Hill. 2 other claims taken up on Bailey's line of reef.<sup>10</sup>

December 1869. Scotchman's Reef. Trial crushing of 2 tons yielded 2 oz.<sup>11</sup>

1906. Parties were working on Chinaman's, Scotchman's and the Malakoff Hills.<sup>12</sup>

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*DESCRIPTION OF PHYSICAL REMAINS:*

Puddling machines were being operated in Scotchman's Gully as early as 1857/59. Three of the four puddling machine sites recorded in the survey, exhibit characteristics which suggest they operated during the 20th century. The fourth (Site 31.4) may be an earlier puddling machine site. The battery sand found near the dam presumably came from the Scotchman's Hill battery which operated in the area from 1860 to 1862. The battery was then removed to Balaclava Hill.

The Scotchman's Gully, from the road to the first puddler, has been extensively puddled, removing all traces of alluvial sinkings.

Site 31.1. Puddler 1

125 m down the gully from the junction is a breached dam and puddler. The puddler is situated on the slope at the E end of the dam's embankment. The puddler is beginning to weather and is eroded badly. The inner mound is still discernible and retains its post (diameter 10-in). The post is badly eaten by white ants.

The puddling trench is beginning to weather and fill up with silt and vegetation. The outer mound is being eroded by flood waters.

The puddler's diameter is 22 ft (6.7 m).

A track runs past the E side of the puddler.

The puddler is hidden by small bushes.

200 m down the gully from the first puddler, the gully has recently worked. There is a series of small dams and races. The gully, at this point, is beginning to broaden out into a flat, which contains numerous alluvial sinkings.

Site 31.2. Puddler 2

Approximately 550 m downstream from Puddler 1 is a second puddler. Again, the puddler is associated with a dam, and is located on the dam's SE corner. The puddler is well defined, with an inner mound containing post (diameter 9in), a 2 ft deep puddling trench with sheer sides, and a raised outer mound.

The puddler has a diameter of 24 ft (7.3 m) and an outlet channel, but no sign of an inlet.

The puddler has one sizeable tree growing on it (estimated to be 30 to 40 years old by local timberman, Ron Ristrom).

100 m to the E of this puddler is a cleared area, known locally as Scotchman's Flat.

The area immediately downstream from the puddler is being mined--Claim No. 2856, Bradley & Baker, expiring 11-7-1993.

The alluvial sinkings in the flat continue to run NE to Blacksmith's Dam.

Site 31.3. Dam and battery sand

A track runs down the S side of Scotchman's Gully. 450 m along this track is a large dam which still holds water. On the SW side of the dam is a dump of battery sand. The tailings are not stratified and may well have been brought to the dam for cyaniding. No evidence of any vats, or depressions indicating buried ones, were observed.

Site 31.4. Puddler 3

On the E end of the dam's embankment is a puddler. The puddler is very weathered, with the inner mound and puddling trench merging into a single feature. Only the outer mound gives the puddler any real definition. The gully slopes to the N of the puddler has been extensively surfaced.

Site 31.5. Puddler 4

150 m N of Puddler 3 is another puddler. It is located on the side of a track that leads from the dam. It is relatively well defined with a raised inner mound with post hole and 2 ft deep puddling trench, and is surrounded by a large raised outer mound of wash.

The puddler has only a few small bushes growing on it.

Its diameter is 22-24 ft (6.7-7 m).

*INTEGRITY/CONDITION:*

A succession of re-workings, and timber regrowth, has left a rather confused alluvial landscape. This confusion has been exacerbated by recent alluvial mining and the creation of logging tracks.

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*CULTURAL SIGNIFICANCE:*

Reworking of this gully, which continues today, has severely reduced the sites' integrity (ability to illustrate the past in any meaningful way). The puddlers' significance is further reduced by their isolation from the interpretative facilities established around the old Whroo township.

*SIGNIFICANCE RANKING:* Sites Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Lands Dept Map, Central Plans Office (Goldfields 31), date 1857, additions made to 1859.
  - 2 Hammond, 1978, p. 117
  - 3 Hammond, 1978, p. 117
  - 4 Lewis, 1977, pp. 22-5
  - 5 Mclvor News, 12 October 1860
  - 6 Mclvor News, 9 November 1860
  - 7 Hammond, 1978, p. 118
  - 8 Mclvor News and Goulburn Advertiser, quoted in Hammond, 1978, p. 118
  - 9 Mining Surveyors' Reports, December 1864
  - 10 Mclvor News, 19 April 1869
  - 11 Mclvor News, 8 December 1869
  - 12 Lewis, 1877, p784-85

**SITE NO. & NAME** 32.1 POOR MAN'S GULLY PUDDLER

**LOCATION:** POOR MAN'S GULLY, WHROO

**HI NO:** H7924-0049

**DIRECTIONS:** 100 m w of Whroo Cemetery, 260 m S from Whroo-Murchinson Road

**MUNICIPALITY:** Campaspe Shire

**LAND STATUS:** Whroo Historic Reserve

**HISTORY:**

1860. Lands Dept map--Township of Whroo. This map includes Poor Mans Gully--3 puddling machines<sup>1</sup>

**DESCRIPTION OF PHYSICAL REMAINS:**

Puddler

The puddler is weathered, with the central mound flattening out and filling in the puddling trench. The inner mound still retains its post (diameter 12-in).

The puddling trench is surrounded by a 3-5 m wide flattened outer mound.

The dam associated with the puddler has been breached.

A small grassy clearing lies 20 m SE of the puddler, and within this clearing are the remains of a stone fireplace. The area above the clearing has been recently surfaced. Puddler displays characteristics which suggest it is an early (19th century) puddler.

**INTEGRITY/CONDITION:** For its age, in good condition.

**CULTURAL SIGNIFICANCE:**

The site has:

- Historical significance as it is part of a group or network of sites, the totality of which is considered to be significant, namely those forming the heart of the Whroo Historic Reserve

**SIGNIFICANCE RANKING:** Site Listed Heritage Inventory.

**Assessor: David Bannear** **Date: September 1991.**

<sup>1</sup> Lands Dept map, W139E, dating from May 1857, with additions to 1860

<b>SITE NO. &amp; NAME</b>	<b>NORTH BAILLIESTON SITES</b>	
	<b>33.1</b>	<b>Puddler (1) on West side of Road</b>
	<b>33.2</b>	<b>London Reef Mine Site</b>
	<b>33.3</b>	<b>Alluvial Sinkings &amp; Puddler</b>
<b>LOCATION:</b>	<b>North end of Baillieston Historic Reserve</b>	
<b>HI NO:</b>	<b>33.1</b>	<b>H7924-0050</b>
	<b>33.2 &amp; 33.3</b>	<b>H7924-0051</b>
<b>DIRECTIONS:</b>	Site 33.1. Puddler 1 is located in the V created by the branching of the Baillieston/Whroo Road Site 33.2. Reef workings are at North end of the Historic Reserve Site 33.3. Puddler 2 is located on private property, 20 m E of the Historic Reserve's boundary fence	
<b>MUNICIPALITY:</b>	Strathbogie Shire	
<b>LAND STATUS:</b>	Reef workings in Historic Reserve. One puddler (Site 33.3) on private land, the other probably on Water Reserve	

**HISTORY:**London Reef

1865-1878. London Reef. Opened in June 1865. In Judson and Co.'s claim the highest yield was 8 oz. 10 dwt., and the average yield is 3 oz. 10 dwt per ton.<sup>1</sup>

c. 1865-69. This claim was about the most northerly in which gold to any appreciable amount was obtained. The credit of its discovery rests with a man in the employ of Thomson and Pollen's party, named J. Huddart, locally known as "Cumberland Jack", who dropped on to the outcrop one day when passing. The claim was taken up by a party comprising Thomson, Pollen, Nolan and Radcliffe. These men sunk on the reef to water, and also put in a good deal of work driving and cross-cutting, with very satisfactory results for a time. Indeed, it is said that during the few years they worked the mine they realised from it upwards of £30,000.

March 1865. Angelo and Co. London Reef--crushed 2 ton from 10 ft, yielding 2 oz.<sup>2</sup>

c. 1870s-90. The claim lay idle for a time while Spring Creek was in its prime, and next we hear of C. Mason, H. Judson, Bailey, and C. Allen going into it. This party soon struck a rich shoot which at times went as high as 6 oz or 7 oz to the ton. Unfortunately the shoot was soon exhausted, and without going into prospecting the party gave it up. A company was subsequently formed, but apparently things went wrong somehow, as the shareholders speedily became disheartened, and the mine was sold to J. Fraser. He in turn soon repented of his bargain, and threw it up. There was one man in Coy's, however, who had a good deal of faith in the old London--James Mackay--and who still resides there [1890]. Mackay took it up again about three years since, but has not been able to do much work owing to ill-health.

June 1880. At Coy's Diggings, some of the claims, notably the London Reef and White Elephant, are on good stone, and have recently had a good crushing.<sup>3</sup>

Puddling at Whroo

June 1866. O'Dea and party have found very nuggetty gold about 300 yards SE of the Prospector's Gully, Coys. They are now erecting a puddling machine. During their last week's washing up, they found a 7 oz nugget in the trough; and, in addition to this, they made about £10 per man for the week.<sup>4</sup>

**DESCRIPTION OF PHYSICAL REMAINS:**

Remains of alluvial and quartz mining which took place at Baillieston during the late 19th century. Modern quartz prospecting and drilling has significantly reduced the integrity of the London Reef mine site. The puddlers probably date to the 19th century and the reef workings to mining from 1860 to 1880s.

Site 33.1. Puddler 1

A dam and puddler located 30 m from the Baillieston/Whroo main road. The puddler lies at the E end of the dam's embankment. Water coming from a breach in the dam's wall has washed away about two-thirds of the puddling site. All that survives is a small section of the inner mound and part of the puddling trench.

Site 33.2. London Reef workings (1860s-1880s).

The reef workings at Baillieston run for approximately 5 km. At certain spots along the line of reefs there are concentrations and/or more sizeable mullock heaps marking the sites of the more substantial mines. One such concentration occurs at the most northerly end of the Historic Reserve. The largest of the mounds measures 25 x 15

m and would stand about 8-10 m high. All the shafts have been filled and the area has been extensively bulldozed and disturbed during recent drilling operations.

Site 33.3. Puddler 2

A gully separates the above reef workings from the next concentration of workings to the south. This gully is very overgrown, but contains some fairly intense alluvial sinkings. The band of sinkings runs E from the Historic Reserve into a cleared paddock. They terminate at a dam, nearby which a puddler is located. (Puddler not recorded).

*INTEGRITY/CONDITION:* All sites are in poor condition.

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*CULTURAL SIGNIFICANCE:*

The integrity of all sites is poor. Sites hold little cultural significance.

*SIGNIFICANCE RANKING:* Sites Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Geological Survey of Victoria, Report of Progress, 1878, p170
- 2 Mining Surveyors' Reports, March 1865
- 3 Mining Surveyors' Reports, June 1880
- 4 Mining Surveyors' Reports, June 1866

**SITE NO. & NAME**            **34.1    BLACK CLOUD CO.**

**LOCATION:**                            **Baillieston Historic Reserve**

**HI NO:**                                **H7924-0053**

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**DIRECTIONS:**                    250 m S of the N end of the Historic Reserve, 50 m E of the main road

**MUNICIPALITY**                    Strathbogie Shire

**LAND STATUS:**                    Baillieston Historic Reserve

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**HISTORY:**

Black Cloud Reef or Murray's Reef

1864-1878. Coy's Diggings, as it is called, was discovered by Messrs Coy, Anderson, and Brian in September 1864. The mining operations have been principally carried on upon quartz veins, which extended from Coy's Reef northwards to the London Reef, a distance of between two and three miles. The works on the Byron, Canadian, Great Eastern, Hick's, Welcome, Murray, Essex, and London Reefs, form nearly one continuous line in the intervening space between the two first-mentioned veins. The prevailing strike of the reefs is north and south, although there are two cross reefs, viz. Coy's and the Hit-or-Miss ... The depth of the water-level at Coy's is about 150 feet.<sup>1</sup>

1865-1878. Taylor and Murray's Reef. Opened in 1865; now the Black Cloud Company. The highest yield of gold per ton was 3 oz. 15 dwt., and the average yield is 2 oz. 10 dwt.<sup>2</sup>

March 1865. Murray Co., Murray's Reef--crushed 5 ton from 10 ft, yielding 6 oz.<sup>3</sup>

June 1877. But for the excessive cost of carriage to Melbourne, two other antimony reefs of proved value--Stockyard Reef, Whroo, and Black Cloud Reef, Coy's Diggings--would be worked.<sup>4</sup>

September 1877. Black Cloud Reef--work will be resumed here in a few days. A small engine is on the ground.<sup>5</sup>

March 1878. The Black Cloud Diggings--9 men employed.<sup>6</sup>

June 1878. There have been several small crushing at Coy's Diggings, near Graytown, averaging 3 oz per ton.

June 1878. The manager of the Black Cloud reports--17 men now employed, 20 tons of antimony raised, 62 tons of quartz crushed, yielding 65 oz 18 dwts. I have classified the men employed under the head of quartz miners.<sup>7</sup>

September 1878. Black Cloud Antimony ... stopped work ... not from want of success, but for the purpose of reorganisation.<sup>8</sup>

June 1879. Antimony mining--confined to the Black Cloud Co., Coy's Diggings. This company has resumed work, but it is feared with very insufficient machinery.<sup>9</sup>

December 1879. Black Cloud Co. is still idle; it is stated that they have purchased the Mongolian machinery, and that they will soon resume work.<sup>10</sup>

March 1880. Black Cloud Co. now engaged removing and refixing machinery.<sup>11</sup>

June 1880. Black Cloud Antimony and Gold Company has completed the erection of new machinery; the claim is now in full work, 24 men being employed.<sup>12</sup>

September 1880. Black Cloud Co. Sinking all the quarter; just commenced getting returns, the mine looking very well for antimony.<sup>13</sup>

December 1880. Black Cloud Co. is still sinking the shaft, their working generally being of a preparatory character. Twenty men are employed by them.<sup>14</sup>

March 1881. The Black Cloud Antimony Co. has completed sinking the shaft; its depth is now 175 ft. Forty tons of antimony has been raised during the quarter, and 18 men employed.<sup>15</sup>

June 1882. Black Cloud Gold and Antimony Co. About 60 tons of antimony raised in the quarter and a large quantity of quartz showing gold ... 25 men are employed.<sup>16</sup>

September 1882. Black Cloud Gold and Antimony Co. The claim has been driven on the 300-ft level ... Six men only employed, chiefly blanketing old tailings.<sup>17</sup>

June 1883. Black Cloud now in full work.<sup>18</sup>

September 1883. Black Cloud have stopped working; previous to their recommending work, more steam power will be required.<sup>19</sup>

December 1883. Black Cloud--idle.<sup>20</sup>

September 1884. Four men bagging antimony; it is expected that work would be resumed at the commencement of the ensuing year.<sup>21</sup>

June 1885. Black Cloud. Has been cleaning up quartz, raised some time since, but no other work is being carried out.<sup>22</sup>

1885. Murray's Reef or Black Cloud at Coy's Diggings. Records of crushing and yields taken from Mining Registrar's Reports 1865-1885:

Total 999 tons for 1,780 oz of gold & 120 tons of antimony.<sup>23</sup>

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*DESCRIPTION OF PHYSICAL REMAINS:*

Reef worked in two main phases:

1864-1878. Black Cloud Co. Installation of pumping engine and battery?. Reef mainly worked for gold

1879-1885. Reformed Black Cloud Co. Mining for gold and antimony.

Surviving bedlogs relate to Phase 1, installation of pumping engine.

Black Cloud Mine

This site has witnessed at least three recent destructive operations: shaft-filling program, drilling operations and rehabilitation/tree planting.

The mine site is defined by several pepper trees. The most dominant feature is a large, partially quarried mullock heap. The northern or quarried end of the heap contains blue mullock. The ground S and W of the heap has been cleared and levelled as a result of recent drilling operations. The area has been rehabilitated: pipelines and tree planting.

On the W side of the heap are some ripped up bedlogs, some of which retain mounting bolts. Five metres S of the shattered bedlogs is a mound of stone and mortar. The surrounding area is littered with red brick fragments. The bricks are handmade and have no frog. There is also a hint of battery sand near the mound of rubble.

*INTEGRITY/CONDITION:* 20th century mining and shaft filling has significantly reduced the integrity of the site.

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*CULTURAL SIGNIFICANCE:*

The site has:

- Historical significance because it was a successful mine in terms of its yields. For a brief time, the mine was important for the mining of antimony.

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Geological Survey of Victoria, Report of Progress, 1878, 170
- 2 Geological Survey of Victoria, Report of Progress, 1878, p170
- 3 Mining Surveyors' Reports, March 1865
- 4 Mining Surveyors' Reports, June 1877
- 5 Mining Surveyors' Reports, September 1877
- 6 Mining Surveyors' Reports, March 1878
- 7 Mining Surveyors' Reports, June 1878
- 8 Mining Surveyors' Reports, September 1878

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9	Mining Surveyors' Reports, June 1879
10	Mining Surveyors' Reports, December 1879
11	Mining Surveyors' Reports, March 1880
12	Mining Surveyors' Reports, June 1880
13	Mining Surveyors' Reports, September 1880
14	Mining Surveyors' Reports, December 1880
15	Mining Surveyors' Reports, March 1881
16	Mining Surveyors' Reports, June 1882
17	Mining Surveyors' Reports, September 1882
18	Mining Surveyors' Reports, June 1883
19	Mining Surveyors' Reports, September 1883
20	Mining Surveyors' Reports, December 1883
21	Mining Surveyors' Reports, September 1884
22	Mining Surveyors' Reports, June 1885
23	Mining Development Report, p173

**SITE NO. & NAME**                      **SOUTH BAILLIESTON SITES**  
**35.1**                                      **Byrons Reef Mine Site**  
**35.2**                                      **Puddlers**

**LOCATION:**                                **Byrons Reef, Baillieston**

**HI NO:**                                    **35.1 & 35.2      H7924-0054**

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**DIRECTIONS:**                        Most southerly section of the Baillieston Historic Reserve—300 m S from the N boundary, 50 E from the main road

**MUNICIPALITY:**                      Strathbogie Shire

**LAND STATUS:**                        Baillieston Historic Reserve

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**HISTORY:**

1864-1878. Byron's Reef was opened in December 1864, in Messrs Martin and Scanlan's claim; on this reef the highest yield obtained was 9 oz. per ton, and the average yield 2 oz. 10dwt.<sup>1</sup>

1864-1878. Coy's Diggings, as it is called, was discovered by Messrs Coy, Anderson, and Brian in September 1864. The mining operations have been principally carried on upon quartz veins, which extended from Coy's Reef northwards to the London Reef, a distance of between two and three miles. The works on the Byron, Canadian, Great Eastern, Hick's, Welcome, Murray, Essex, and London Reefs, form nearly one continuous line in the intervening space between the two first-mentioned veins. The prevailing strike of the reefs is north and south, although there are two cross reefs, viz. Coy's and the Hit-or-Miss ... The depth of the water-level at Coy's is about 150 feet.<sup>2</sup>

December 1864. From Byron's Reef No. 1, the yield of 18 tons of quartz was about 2 oz per ton. Other reefs being prospected are also producing little gold, but the expenses of taking the quartz 7 miles to the nearest crushing machinery are too heavy for the working of these reefs with profit.<sup>3</sup>

1864-66. Within a few days of the original discovery of specimens by Mr Coy in September, 1864, a man named Byron, when prospecting for alluvial, discovered on the surface the quartz reef which has since borne his name. Byron took in with him Mr H. Snelling ... and the pair worked the claim for a couple of years.<sup>4</sup>

March 1865. On the Byron Reef, they have 150 tons of quartz raised, which is estimated will yield from 4 to 6 oz per ton. The reef will average about 2 ft in width for 130 ft in length, and the gold appears to be regularly distributed through the quartz. The first crushing from Welcome Reef was about 3 oz per ton; it is now increasing in breadth and yield of gold.<sup>5</sup>

June 1865. [Crushing plant being erected at Coy's Diggings]. In anticipation of this, the Byron Reef Co. has let a contract for raising 2000 tons of quartz.<sup>6</sup>

Late 1860s-1870s. No record is extant of the amount of gold obtained by the original holders ... Snelling next sold out to a party comprising J. Farquharson and the Masterton Brothers ... This party brought on to the ground a crushing plant of 28 head of stampers. The mine was worked for a couple of years ... we next hear of the crushing plant falling into the hands of F. Pollen (an employee of the party) and Mr Rigby, solicitor, of Sandhurst. Differences of opinion subsequently arose, and the mine was let on tribute to H. Judson and J. Johnson. The tributors worked the claim for some time with results varying from 1-1/2 oz downward per load, no complete record being kept ... the leaseholders and the tributors joining together and continuing work. A huge excavation was made at the 80 ft level, about 20 ft wide by 40 ft high. The reef, flat and cross veins and ground were taken out bodily, but the effect of this suicidal policy was the collapse of a large body of earth, necessitating the use of hundreds of tons of timber to protect the remainder of the mine. This work practically crippled the finances of several of the party, and they one by one dropped out until only Pollen was left. He "shepherded" the lease for a time, and then also gave it up, the plant standing idle for many months.<sup>7</sup>

c.1880s. The next to take up the Byron were Messrs Scanlon (2), T. Hunt, of Kilmore, A. Martin and J. Woods, MLA ... and James Scanlon was killed in the mine by a fall of earth. The claim was worked on behalf of Mr Hunt up to about two years ago, since which time it has been standing idle.<sup>8</sup>

June 1881. Two companies have been formed at the Coy's Diggings and are now in active work. The Byron's Reef Company is down 40 ft with a permanent shaft.<sup>9</sup>

September 1882. New Byron Co. The deepest workings are at the 132 ft level.<sup>10</sup>

December 1883. Byron's Reef Co. is placing machinery on the ground, and work will be resumed.<sup>11</sup>

June 1884. Most noteworthy feature for the quarter in the Division is the great success of the New Byron Co. at Coy's Diggings. The company, after the expenditure of a large sum, struck the reef at the depth of 200 ft. At present it is 7 ft thick and shows gold freely ... The success of the company has given an impetus to further prospecting, and already leases have been granted, or applications made, for nearly all the old claims formerly worked with success to water level, and then abandoned for want of capital.<sup>12</sup>

September 1884. The New Byron Reef Co. has crushed 54 tons for 124 oz, an average of 2 oz 5 dwt per ton.<sup>13</sup>

March 1885. At the New Byron Co's. Diggings, the shaft is now 272 ft. About 100 tons of quartz awaits crushing at this claim. Work is much retarded by the flow of water, and it is very evident that pumps must soon be substituted for baling.<sup>14</sup>

June 1885. New Byron Co.--now erecting crushing and pumping machinery.<sup>15</sup>

September 1885. New Byron Co. having completed their machinery, started crushing on 28th September with good prospects of success. On a lease adjoining, a contract has been taken, and is now in progress for timbering and sinking shaft 100 ft.<sup>16</sup>

March 1886. The New Byron Co. has suddenly and most unexpectedly collapsed, the pumps being withdrawn, and the property being advertised for sale ... Much sympathy for the workmen, whose wages are in arrears.<sup>17</sup>

June 1887. The New Byron Co. (henceforth to be known as the Goe-Carr Company) is busy erecting machinery.<sup>18</sup>

September 1887. The Goe-Carr Co. reports machinery erected of 35 hp, and 8 head of stamps; width of block reef 10 ft to 25 ft. The reef was formerly known as the New Byron.<sup>19</sup>

December 1887. Goe-Carr--crushed 505 tons for a yield of 87 oz.<sup>20</sup>

March 1888. Goe-Carr Co. Baillieston--deepest shaft, 270 ft. Putting in pumps to sink as soon as the water is out. South Byron, Baillieston--deepest shaft, 80 ft. No machinery on mine except whips.<sup>21</sup>

June 1888. Much preparatory work done at the Goe-Carr and Doctor's Reef. Machinery is now in order.<sup>22</sup>

March 1889. Goe-Carr Co.--machinery is not of sufficient power to keep down the water at a greater depth.<sup>23</sup>

December 1889. Goe-Carr--ceased work.<sup>24</sup>

1890. In only one shaft [at Coy's Diggings] the Byron, has gold been got below water level, which at Coy's averages about 130 ft.

Though not exactly the first ground to be broken on Coy's Diggings the history of Byron's Reef--now known as the Goe-Carr Company, in compliment to the two leading prelates of the colony--may fittingly be told first.<sup>25</sup>

June 1894. At Coy's, Byron Reef was yielding so largely for a time, that quarter shares were selling at £1000 a piece.<sup>26</sup>

1900-1905. Baillieston Gold Mining Company. On 9.6.1900 an M.D. [Mines Dept] grant for £1,000 with a subsequent one for £400 were expended in unwatering the shaft in which the water stood at 130 feet from the surface. The objective was to unwater the shaft and prospect at or below the 400 ft. level.

G. Garson, Mining surveyor, Rushworth, reporting on same, stated:

"This application is to develop the quartz mine known as Byron's Reef situated in the Parish of Baillieston".

[Between December 1901 and March 1905, a total of 676 tons were crushed for a yield for 173 oz 16 dwt 2 gr.]

The mine closed down for want of funds about May 1905.<sup>27</sup>

1903. The Baillieston Co. obtained 325-1/2 oz from 1001 tons.

The Welcome Stranger obtained 7 oz from 10 tons.<sup>28</sup>

1904. Baillieston Co. Fair amount of progressive work done during the year ... Crushing was only commenced in September last, since which time 524 tons have yielded 139 oz. There are a few parties of working men engaged prospecting in this locality, but as they have not sufficient capital to prospect the deeper ground, no permanent results can be expected.<sup>29</sup>

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*DESCRIPTION OF PHYSICAL REMAINS:*

Multi-phased site:

1864-1879: Reef opened and worked by Byron Reef Co.  
 1881-1886: New Byron Co. Installation of pumping engine and battery.  
 1887-1890s: Goe-Carr Co. worked the mine.  
 1900-1905: Ballieston Gold Mining Co. dewatered the shaft and worked mine for 5 years.

Surviving bedlogs date to 1885 when pumping machinery was installed on the site. There is a strong possibility that the dumps of battery sand around the site may cover other remains.

Both puddlers would probably date to the 19th century.

Byrons Reef mine

The most dominant feature is a large blue mullock heap, approximately 40 x 50 m, and 10 m high. The heap has had a section bulldozed through it, presumably to the fill the shaft which lies on its W side. In line with the shaft, further to the W, are the remains of five parallel bedlogs. Spaced from 3 ft to 5 ft 6-in apart (1.1 to 1.7 m), the bedlogs run N-S. The fabric of four of the five bedlogs still survives, albeit in a very rotten state, and the fifth evidenced by a narrow depression. Three of the bedlogs have protruding mounting bolts. The surviving bedlogs are at least 20 ft (6.1 m) long, and would originally have been about 1ft thick.

4 m NE of the machinery footings are two more bedlogs. These have been ripped out of the ground, but one still retains an iron bolt, complete with nut.

SW of the in-situ bedlogs is a dam.

3 m N of the in-situ bedlogs is a mound of stone, red brick and mortar rubble. On the N side of the mound is an exposed section of what may be an engine bed. The stone bed is 3 ft 6-in (1.1 m) wide and at least 1.5 m long. Its southern end lies buried in the mound.

On the N side of the mullock heap is a large deposit of battery sand and sludge. The deposit is raised approximately 1.5 m above ground level, appears to have distinct layers and measures approximately 30 x 40 m. Dumps of battery sand are also situated on the S side of the mullock heap and around the dam. These dumps appear to have no stratification.

Puddlers

Two puddling machine sites. One of the puddlers has weathered badly, the other is in a much better state of preservation.

*INTEGRITY/CONDITION:* Site retains several features which document the operation of a late 19th-century quartz mine. Bed logs badly decayed.

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*CULTURAL SIGNIFICANCE:*

Site 35.1 (mine site) has:

- Historical significance as it was a successful mine in terms of its production levels. For a brief time during the 1880s, the mine was heralded as one of the most promising in the Division.

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Geological Survey of Victoria, Report of Progress, 1878, p170
- 2 Geological Survey of Victoria, Report of Progress, 1878, 170
- 3 Mining Surveyors' Reports, December 1864
- 4 'Coy's Diggings Gold Mines', 1890
- 5 Mining Surveyors' Reports, March 1865
- 6 Mining Surveyors' Reports, June 1865
- 7 'Coy's Diggings Gold Mines', 1890
- 8 'Coy's Diggings Gold Mines', 1890
- 9 Mining Surveyors' Reports, June 1881
- 10 Mining Surveyors' Reports, September 1882
- 11 Mining Surveyors' Reports, December 1883

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- 12 Mining Surveyors' Reports, June 1884  
13 Mining Surveyors' Reports, September 1884  
14 Mining Surveyors' Reports, March 1885  
15 Mining Surveyors' Reports, June 1885  
16 Mining Surveyors' Reports, September 1885  
17 Mining Surveyors' Reports, March 1886  
18 Mining Surveyors' Reports, June 1887  
19 Mining Surveyors' Reports, September 1877  
20 Mining Surveyors' Reports, December 1887  
21 Mining Surveyors' Reports, March 1888  
22 Mining Surveyors' Reports, June 1888  
23 Mining Surveyors' Reports, March 1889  
24 Mining Surveyors' Reports, December 1889  
25 'Coy's Diggings Gold Mines', 1890  
26 Mclvor Times, 14 June 1894  
27 Notes compiled by J.G. Easton, Mining Development Reports, Mines Department, p. 22  
28 Mining Surveyors' Annual Reports, 1903  
29 Mining Surveyors' Annual Reports, 1904

**SITE NO. & NAME**            36    **CHERRY TREE REEF WORKINGS**

**LOCATION:**                            **Cherry Tree Flat, Baillieston**

**HI NO:**                                **H7924-0055**

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**DIRECTIONS:**                    Most southerly section of Baillieston Historic Reserve

**MUNICIPALITY:**                Strathbogie Shire

**LAND STATUS:**                Baillieston Historic Reserve

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**HISTORY:**

1860. Alluvial was still paying, including Cousin Jacky's Gully.<sup>1</sup>

c. mid-1860s. [Coy's Diggings discovered in September 1864] ... and shortly after reefs were again discovered south of Coy's at Cherry Tree Flat. The propector here, H. Hyam, received an official reward of £200.<sup>2</sup>

1865-1878. Quartz mining at Cherry-Tree Flat.

The gold workings at this place lie to the south of and adjacent to Coy's Diggings. They were discovered by H. Hyam in February 1865. The reefs here extend from the Homeward-bound by the Cousin Jack Reef southwards beyond the Brighton Reef. Numerous quartz reefs have been mined, and many of them have yielded payable returns.<sup>3</sup>

1867. On Cousin Jack and other three reefs unnamed, gold is frequently seen in quartz, but the heavy cartage and crushing expenses prevent the development of the reefs.<sup>4</sup>

March 1873. A new winding and crushing plant has been erected at Cherry Tree, Coy's Diggings, during the last quarter, and is now actively at work.<sup>5</sup>

September 1877. The Cherry Tree Co. has purchased the Union machine.<sup>6</sup>

1878. The alluvial works at Cherry-tree Flat, which lie about two miles to the south-east of Coy's Diggings, are confined to the flat and two small gullies which fall into it. The alluvial deposits are comparatively unimportant as compared with the auriferous quartz reefs.<sup>7</sup>

March 1885. Scarcity of water ... From this cause the Union Machine, at Coy's Diggings, has been idle throughout the quarter.<sup>8</sup>

March 1886. Union Machine, Coys Diggings--no crushings for the quarter.<sup>9</sup>

June 1887. The Cherry Tree Gold Mining Co. has purchased the two claims known as the "What You Like" and also the Union crushing plant, 23 tons from these claims, recently crushed, yielded 89 oz.<sup>10</sup>

March 1888. Cherry Tree, Baillieston--deepest shaft 145 ft. Work and machine stopped. No water in dam.<sup>11</sup>

June 1888. At the Cherry Tree Reef ... a new run of stone at the bottom of the deepest shaft, giving an average yield of 1 oz 2 dwt has been struck.<sup>12</sup>

July 1891. The Cherry Tree. They are working there now. Good crushings were obtained there recently.<sup>13</sup>

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**DESCRIPTION OF PHYSICAL REMAINS:**

Short section of open stoping and associated reef workings.

**INTEGRITY/CONDITION:**            Stoping in good condition.

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**CULTURAL SIGNIFICANCE:**

The site has:

- Scientific Significance due to the survival of a small section of open stoping. The survival of such earthworks is quite rare in the Central Victorian goldfields.

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Hammond, 1978, p117
- 2 Flett, 1979, p. 82
- 3 Geological Survey of Victoria, Report of Progress, 1878, p. 171
- 4 Mining Surveyors Reports, 1867
- 5 Mining Surveyors' Reports, March 1873
- 6 Mining Surveyors' Reports, September 1887
- 7 Geological Survey of Victoria, Report of Progress, 1878, p. 157
- 8 Mining Surveyors' Reports, September 1884
- 9 Mining Surveyors' Reports, March 1886
- 10 Mining Surveyors' Reports, June 1887
- 11 Mining Surveyors' Reports, March 1888
- 12 Mining Surveyors' Reports, June 1888
- 13 W. Oddy, in evidence to the Gold Mining Commission, quoted in Melvor Times, 9 July 1891

**SITE NO. & NAME**                    **SCRUBBY REEF MINE SITE**  
**37.1**    **Battery Site**  
**37.2**    **Stone Fireplaces Associated With c.1930s Rubbish**

**LOCATION:**                                **SCRUB/SCRUBBY REEF**

**HI NO:**                                    **37.1 & .2**            **H7824-0013**

**DIRECTIONS:**                        Site 37.1 located 30 m NW of Scrubby Dam's embankment; and Site 37.2 located near the S end of the dam's embankment

**MUNICIPALITY:**                        Campaspe Shire

**LAND STATUS:**                         State Forest

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**HISTORY:**

March 1864. Westerman and Co.--20-30 ft.<sup>1</sup>

June 186. Leroz and Co.--45 ft. Hilbrun and Co.--12 ft.<sup>2</sup>

December 1864. 5 miners working.<sup>3</sup>

January 1866. Rushworth Gold Mining Co.--Scrubby Reef, capital £10,000, paid up £5,000.<sup>4</sup>

January 1883. Hipgrave and Sons--19 loads gave 60 oz from Scrubby Reef between Whroo and Tait and Hamiltons. These are expected to gain 3 oz.<sup>5</sup>

January 1884. Scrubby Reef mine  
Hipgrave and Sons--48 loads yielded 101 oz gold.  
Ellis--10 loads yielded 1-1/4 oz per load.  
McLeish--20 loads yielded 15 oz.<sup>6</sup>

June 1888. Scrubby Reef Company report erecting a crushing battery of 10 stamp heads. They have struck a new make of stone at the 200-ft level.<sup>7</sup>

September 1888. The machinery at Scrubby Creek is nearly completed, and a large quantity of quartz awaits crushing.<sup>8</sup>

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**DESCRIPTION & INTERPRETATION**

Battery erected by Scrubby Reef Co. in 1888 and appears to have only operated for a short time.

Battery site

All that survives of the battery are some rough concrete footings, and some small mounds of stone rubble and brickbats. The bricks are hand-made. N of the battery, in the gully are several smallish mounds of battery sand.

Stone fireplaces and c.1930s rubbish

In the gully below the dam's embankment are the remains of two stone fireplaces. The most westerly appears to be associated with stone house footings. Between the two features is a spread of domestic rubbish--including rusty food cans, tobacco tins, kero tins, and decaying radio batteries.

**INTEGRITY/CONDITION:**                        Battery site in poor condition.

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**CULTURAL SIGNIFICANCE:**

The sites hold little historical significance and their integrity has be so reduced that they have little cultural value.

**SIGNIFICANCE RANKING:**                        Site Listed Heritage Inventory.

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**Assessor: David Bannear**                        **Date: September 1991.**

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<sup>1</sup> Mining Surveyors' Reports, March 1864

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- 2 Mining Surveyors' Reports, June 1864
  - 3 Mining Surveyors' Reports, December 1864
  - 4 Mclvor News, 26 January 1866
  - 5 Mclvor News, 4 January 1883
  - 6 Mclvor News, 11 January 1884
  - 7 Mining Surveyors' Reports, June 1888
  - 8 Mining Surveyors' Reports, September 1888

**SITE NO. & NAME**                    **WHITE HILL DIGGINGS**  
**38.1: Puddling Machine Site**  
**38.2: Battery Site**  
**38.3: Remains of Two-Roomed Mud Brick Hut**  
**38.4: Reef Workings--Mullock Heaps and Subsiding Shafts**

**LOCATION:**                            **White Hill Diggings**

**HI NO:**                                **H7824-0014**

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**DIRECTIONS:**                    Junction of White Hills Road, Ludlow Track and Kinder Road

**MUNICIPALITY:**                Campaspe Shire

**LAND STATUS:**                 State Forest

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**HISTORY:**

Pre-1857. White Hills, west of Whroo, was originally an alluvial diggings, and was worked before 1857.<sup>1</sup>

1857-1859. Lands Dept Map. Plan of the Waranga Goldfields embracing the villages of Whroo, Rushworth, Moora and Waranga. This map shows:

White Hills 4 puddling machines.

Scotchmans Gully 1 puddling machine.<sup>2</sup>

1860. Reef prospecting was on the increase at White Hills. Alluvial was still paying--several gullies at White Hills were paying good gold.<sup>3</sup>

1860. At White Hills, some way from Whroo, Law and Darroch were putting up a crushing battery, and in connection with this it was decided to install the latest patent amalgamator, specifically with a view to treating Lewis's old tailings. Work began in December 1860, and the process paid well.<sup>4</sup>

1865. An additional £500 worth of shares and £500 in cash was to be paid [by the Albert Co.] to Law Darroch and Co. for the "Endeavour" crushing battery, which they moved onto the ground [Albert Reef] in 1864 from its original position at White Hills, a little way from Whroo.<sup>5</sup>

March 1864. Arthur and Law--40 ft. Darroch and Law--35 ft.<sup>6</sup>

December 1864. 3 miners working.<sup>7</sup>

February 1869. Near White Hills, old reef taken up.<sup>8</sup>

March 1869. Three old quartz reefs taken up by 13 miners. Reefs have been renamed. Chinaman's is now Evening Star. White's old Reef is now Ivor's Reef. Law's Hill Reef is now Royal Standard.<sup>9</sup>

December 1869. White Hills. Report of 8 oz gold from 8 dishes of dirt. Gold consisted of three nuggets, weighing 6 oz, 1-1/2 oz, 1/2 oz. A rush obtained no further.<sup>10</sup>

June 1873. Within the last few days a fresh impetus has been given to quartz mining in the district by the discovery of several new reefs containing good payable gold. One of these is at Coy's Diggings, and another at White Hills, the latter being 20 inches in thickness, and yielding about 6 oz to the load.<sup>11</sup>

15 June 1873. Welch's Reef was opened on 15th June 1873; it runs east and west.<sup>12</sup>

December 1873. Though the large companies have not hitherto proved successful, small companies working under miners' rights have sprung up, and by them gold in payable quantities has been obtained. The neighbourhood of White Hills has been the most productive. One of the claims there has proved excellent. The mining industry at White Hills was for several years abandoned, but during the last 12 months has revived there with much activity.<sup>13</sup>

December 1874. The satisfactory crushings from Welch Company's claim, at the White Hills, have given an impetus to prospecting--the result being the discovery of several new reefs..<sup>14</sup>

June 1875. At White Hills a shaft abandoned for many years has been taken up by a party of 4 miners, who have succeeded in striking a reef 3 ft thick, at a depth of 160 ft; they are at present carting 100 tons to Whroo, for crushing. At the White Hills, a small rush is taking place ... about 20 miners at work, but the average yield of gold is small.<sup>15</sup>

June 1876. Cameron Brothers, adjoining Welsh Co. White Hills, have, after sinking 240 ft, struck good stone, and are now erecting pumping machinery.<sup>16</sup>

September 1876. Messrs Cameron, of White Hills, have been rewarded for their perseverance by a trial crushing of 24 tons which gave a yield of 62 oz 7 dwts.<sup>17</sup>

December 1876. Augustine and Co. New Belle Alliance, White Hills, crushed from the new vein 30 tons for 59 oz 18 dwt--3 men's labour for 7 weeks.

Messrs Cameron Brothers ... have been compelled to cease work on their claim, the expense of keeping the water down being too much for the amount of gold obtained.<sup>18</sup>

1878. At the White Hills, which lie to the west of Whroo about three miles ... there are a number of reefs which have recently attracted attention through the richness of their yields ... Welch's Reef was opened on 15th June 1873; it runs east and west ... the greatest depth the works have attained is 300 feet ... The total amount of quartz crushed out of this reef is 790 loads, which yielded 1,731 oz 11 dwt 12 gr or an average yield of 2 oz 6 dwt.<sup>19</sup>

1880s. [Doctor's] reef is situated at the White Hills, about three miles west of Whroo ... being found about the year 1880 ... the merit of the actual finding of the stone was due to some Chinamen who were engaged in washing a lot of the surface adjoining the reef ... The Celestials, however, were doomed not to enjoy the fruits of their discovery, as another person, who seemed to be under the impression that strangers should not be allowed on the ground, succeeded in driving them off without giving them a chance to prove the value of the reef ... John Taylor ... James Webb, and David Webb ... soon set to work and opened a cutting about 15 feet in length on the reef, in which gold could be plainly traced ... As this news caused a little excitement some speculation was indulged in ... [shares being bought by John Welch, John Loughlin, James Wilson, Mrs Pettifer and Robert Cameron]. The new proprietary being determined to prove the value of the purchase a start was made on the stone, and a first crushing of 30 loads taken out, 45 oz of retorted gold being the return ... They ... worked the stone down from the surface to the water level, a distance of 250 feet on the straight, and had obtained good yields all through ... The reef had now run out to the boundary, so Cameron Bros. took up the adjoining ground and sank a straight shaft of 250 feet in such a position that they actually cut the reef at the bottom of the previous workings ... As soon as they broke through into the old winze the water came up rather strongly ... so a portable engine was obtained, poppet heads erected, and the necessary work of baling the water commenced. At [60 ft further] the water was also becoming strong, and finally became too heavy for the engine to cope with, and as they were not in a position to provide a larger and stronger plant the ground was abandoned by them in 1882. The ground then lay idle for some time after this, when a company was formed for the purpose of once more trying the ground, John Welch again taking a share in it ... Another portable engine was procured and placed in position, and a good deal of sinking and driving was accomplished, but nothing of any consequence rewarded their efforts ... another company was formed to continue the operations ... Several prominent men in the district were induced to take an interest in it, including Messrs Shackell, C. Baud, G. Welch, A. Webster, J. Hutchinson, Farmer, and others. Still another portable engine was procured and work commenced, but although a large amount of prospecting was done, and returns were almost nil, and the ground was finally abandoned in the beginning of 1890 ... It is reckoned that fully 1,700 oz were taken from the original shaft, which was the only payable one worked.<sup>20</sup>

September 1884. Additional machinery being placed at White Hills.<sup>21</sup>

December 1884. At the White Hills, the Black Reef Company have had a trial crushing of 33 tons, which gave an average yield of 6 dwts. The shaft is now 250 ft deep and worked by a whip, the reef being 18 inches to 3 ft thick. It is proposed to place machinery on the ground adjacent to the claim soon.<sup>22</sup>

December 1884. At the Welch's Reef, the shaft is now 340 ft and is being sunk deeper; steam power is used for winding.<sup>23</sup>

March 1888. Doctors Reef Co., White Hills, Whroo--310 ft deepest shaft, making shaft larger; are now erecting machinery, expect to finish in 3 weeks.<sup>24</sup>

June 1914. White Hills (2 men)--a trial crushing gave 9 oz.<sup>25</sup>

*DESCRIPTION OF PHYSICAL REMAINS:*

Site 38.1. Puddler exhibits characteristics (non weathered appearance, condition of position, re-inforced concrete, lack of vegetation, and sheer puddling walls) which suggest it operated during the 20th century.

Site 38.2. A battery existed at White Hills in 1860, but was moved to Whroo in 1864.

Site 38.3. The mud brick hut appears to date to the 1930s.

Site 38.4. Reefing was carried out in the area from c.1857.

38.1. Puddling machine site

Located below, or to the S, of the W end of the White Hills dam's earthen embankment is the remains of a 22 ft diameter puddling machine. The puddler has the unusual feature of having 14 truncated reinforced concrete sections making up the floor of the puddling trench. Some of these sections have been ripped up, others appear to still be in-situ. Each section measures 41/2 ft long, 3 ft wide at the inner angling out to 41/2 ft wide on the outer edge. The puddling trench is approx 5 ft wide and 2 ft deep. The sides of the puddling trench are sheer, and still retain the wooden posts which once held the trench's lining of wooden slats in position.

The central or inner mound of the puddler is intact, has a diameter of 10 ft, and still retains the post or pivot. The central post, measuring 14 inches in diameter and standing 1 ft, is so well preserved that it still retains the smell of grease.

The puddler has a 4 m wide spread of wash on its southern side. The mound of wash has been quarried, and in its intact form would have stretched some 8 to 10 m.

38.2. Battery site

A battery appears to have been located on the slope above the W end of the dam's embankment. Little survives except what appears to be the loading ramp, which is constructed of mullock and earth.

38.3. Mud brick hut

30 m SW of the dam is the remains of a two-roomed mud brick hut, measuring some 7 x 5 m. The walls are still distinguishable, but stand only slightly above ground level. Near the hut site is a dump of domestic rubbish, which includes rusty food cans, and a few decaying radio batteries.

38.4. Reef workings

On the crown of the hill (W) above the dam, extending down into the gully, is a line of reef workings. The workings consists of partially bulldozed mullock heaps/subsiding shafts and one open cut. The latter has been partially buried by mullock from a later phase of mining. Near the open cut is a modern shaft. This shaft is still open and contains an iron ladderway. Near the open shaft is a single concrete engine bed with 4 protruding iron bolts. The bolts are still quite fresh and unrusty. This shaft is only secured by the placement of a few small sections of bush timber.

One interesting feature is found in the gully, at the eastern end of the line of workings. Protruding from a partially bulldozed mullock heap are some 20 wooden posts. The randomly positioned posts, have rotted-off and now stand just above the level of the mullock. The posts may be placed so as to form a secure base to the mullock heap.

*INTEGRITY/CONDITION:* Puddler in good condition.

*CULTURAL SIGNIFICANCE:*

The sites have:

- Historical significance, because they are part of a group or network of sites, the totality of which is considered to be significant, namely the various alluvial and quartz mining features found around White Hill reef.

Site 38.1 has

- Scientific significance, because it represents an important mining technology. Being a relatively late puddler, it still retains considerable integrity and thus ability to illustrate puddling technology. It may be the only puddler of this kind to survive in the Central Goldfields area.

*SIGNIFICANCE RANKING:* Site Listed Heritage Inventory.

**Assessor: David Bannear**

**Date: September 1991.**

- 1 GPO, Map Whroo, 1857, by Wm. Urquhart; referred to in Flett, 1979, p. 81
- 2 Lands Dept Map, Central Plans Office (Goldfields 31), date 1857, additions made to 1859.
- 3 Hammond, 1978, p. 118
- 4 Lewis, 1977, p. 29
- 5 Lewis, 1977, p. 47
- 6 Mining Surveyors' Reports, March 1864
- 7 Mining Surveyors' Reports, December 1864
- 8 Mclvor News, 15 February 1869
- 9 Mclvor News, 25 May 1869
- 10 Mclvor News, 27 December 1869

- 
- 11 Mining Surveyors' Reports, June 1873
  - 12 Geological Survey of Victoria, Report of Progress, 1878, p. 168
  - 13 Mining Surveyors' Reports, December 1873
  - 14 Mining Surveyors' Reports, December 1874
  - 15 Mining Surveyors' Reports, June 1875
  - 16 Mining Surveyors' Reports, June 1876
  - 17 Mining Surveyors' Reports, September 1876
  - 18 Mining Surveyors' Reports, December 1876
  - 19 Geological Survey of Victoria, 1878, pp. 168-9
  - 20 'The Whroo Gold Mines', 1890
  - 21 Mining Surveyors' Reports, September 1884
  - 22 Mining Surveyors' Reports, December 1884
  - 23 Mining Surveyors' Reports, December 1884
  - 24 Mining Surveyors' Reports, March 1888
  - 25 Mclvor Times, 4 June 1914

**SITE NO. & NAME**            39.    **POVERTY DIGGINGS PUDDLER**  
**LOCATION:**                            **POVERTY DIGGINGS, WHITE HILLS**  
**HI NO:**                                **H7824-0015**

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**DIRECTIONS:**                    West side of White Hills Road

**MUNICIPALITY:**                Campaspe Shire

**LAND STATUS:**                 State Forest

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**HISTORY:**

None collected. See White Hills. Name for this gully taken from Gobarup 1:25,000 map.

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**DESCRIPTION OF PHYSICAL REMAINS:**

Unnamed dam lies close to the White Hills Road. On the western verge of the road is the remains of a puddling machine. Road maintenance is slowly burying/obliterating this site.

On the NW corner of a dam is a second puddler that is obscured by reed growth. This puddler, if cleared of the reeds, would be in good condition. This second puddler is surrounded by a great embankment of washed material. In some places the wash would stretch for 20 m. Undoubtedly, the swampy ground has protected the wash from quarrying activities.

**INTEGRITY/CONDITION:**                    Puddler located on the NW corner of the dam is in good condition.

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**INTERPRETATION OF PHYSICAL REMAINS:**

Puddling machine sites. Perhaps reflecting two phases of operations, with the one located on the NW corner being the most recent.

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**CULTURAL SIGNIFICANCE:**

The puddling machine on the NW corner of the dams has:

- Scientific significance, because it represents an important mining technology. The swampy ground has protected the puddler's spread of wash being quarried. It is one of the few sites in which the scale of puddling operations, as indicated by the massive embankment of wash, can be appreciated.

**SIGNIFICANCE RANKING:**                    Site Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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**SITE NO. & NAME**                    **FONTAINEBLEU DIGGINGS**  
**40.1**        **Puddler Associated with Fontainebleu Dam**  
**40.2**        **Battery Site**

**LOCATION:**                            **Fontainebleu Reef/Diggings**

**HI NO:**                                **40.1 H7824-0016**  
**40.2 H7824-0017**

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**DIRECTIONS:**                        Junction of Scrubby and Thompsons Roads

**MUNICIPALITY:**                    Campaspe Shire

**LAND STATUS:**                      State Forest--Fontainebleu Dam Picnic Area

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**HISTORY:**

Pre-1857. White Hills, west of Whroo, was ... worked before 1857. Fontainebleu, about four miles south-west of Whroo, at the head of Nine Mile Creek, was opened at the same time as the White Hills.<sup>1</sup>

1860. Siberia and Fontainebleu Reefs were brisk ... Fontainebleu was opened in December 1860, when 40 holes were bottomed, at a depth of 10 ft. The reef was 6 feet in thickness.<sup>2</sup>

December 1860. New Gully sinking about 10 ft, 40 holes proved payable.<sup>3</sup>

December 1864. 5 miners working.<sup>4</sup>

September 1868. An increased area of alluvial ground is being opened at the Buffalo Ranges and near Fontainebleu. The prospectors at the new gullies in these places continue to make good wages. The greatest number of men employed at both places at the same time would not exceed one hundred.<sup>5</sup>

March 1870. In quartz mining the prospects of most cheering character are at Balaclava Hill, Fontainebleu, South Nuggetty and the Frenchman's Reef ... At Fontainebleu, Henry Thompson's average of nearly 3 oz per ton is drawing attention to the numerous undeveloped quartz reefs in that neighbourhood.<sup>6</sup>

December 1870. At Fontainebleu ... the prospects are improving.<sup>7</sup>

March 1871. The claims at work on ... Thompson's Reef at Fontainebleu, have been yielding fair returns.<sup>8</sup>

1878. At Fontainebleu, which lies midway between the Nine-mile and Good Friday, a little alluvial mining has been done.<sup>9</sup>

1878. Quartz mining at Fontainebleu.

At this place the quartz reefs are situated on high ground to the south of the alluvial workings at the Nine-mile Creek, and these reefs are probably the source from which the auriferous deposits at the latter diggings are derived. Thompson's Reef yielded at 50 feet in depth nearly 3 oz. of gold to the ton, and many other crushings comprising some hundreds of tons of quartz were raised from this reef and yielded remunerative quantities of gold.<sup>10</sup>

June 1886. Proprietor of the Sebastian crushing machine at Fontainebleu, about 12 miles from Rushworth--during the quarter crushed from various small parties 120 tons for a yield of 154 oz.<sup>11</sup>

March 1889. At the new reef, near Whroo, called Fontainebleu Reef (Walton and Co.), the shaft is down 50 ft, on a well defined reef. A company is now being formed for the purpose of erecting a crushing plant.<sup>12</sup>

June 1889. Alabama Co. machinery bought by the Fontainebleu Syndicate. 300 tons at grass and 10,000 tons ready for stoping at average grade of 5 dwt per ton.<sup>13</sup>

June 1889. Fontainebleu Reef Co. The reef worked by this company is stated to be unlike any hitherto worked in the division, being a saddle formation, with an average thickness of 12 ft; present depth of shaft, 60 ft ... purchased the machinery of the Alabama Co. at Heathcote and will remove it when the roads permit.<sup>14</sup>

September 1889. Fontainebleu Reef Co. has erected the machinery, but is unable to get the boiler from Heathcote in consequence of the bad state of the roads.<sup>15</sup>

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*DESCRIPTION OF PHYSICAL REMAINS:*

Two batteries appear to have existed at Fontainebleu. The Sebastian Co's machine was crushing quartz in the mid 1880s, and the Fontainebleu Reef Co was reported to have erected a battery in 1889. The puddling machine would post date the construction of the battery dam, and exhibits features (non-weathered appearance, sheer sides, and survival of posts) which suggest that it last operated in the 20th century.

40.1. Puddler

A 22 ft diameter puddler lies near the W end of the dam's earthen embankment. Has a non-weathered appearance and is quite bare of vegetation. The inner mound of the machine is intact and still retains the pivot or post. The post has been chopped about, presumably for firewood to feed a nearby barbeque. The sides of the puddling trench are sheer and still retain impressions of the wooden posts which were used to secure the trench's wooden lining of slats. The puddler is surrounded by a substantial mound of wash.

40.2. Battery site

Traces of battery sand still survive in the picnic area. 10 m S of the Forestry Commission's picnic area is what survives of a battery. The most visible feature of the battery site is a 3 m high loading ramp which is constructed from mullock and earth. On the E side of the ramp is what survives of a boiler setting: the stone walls are at ground level, run N-S, are approx 8 m long, and are positioned 6 ft apart. There is a scattering of hand-made brick fragments associated with the boiler setting.

All that survives of the battery itself is one uprooted, partially buried, stump or bedlog.

*INTEGRITY/CONDITION:* Puddler in good condition, but little survives of the battery site.

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*CULTURAL SIGNIFICANCE:*

Site 40.1 has:

- Scientific significance, because it represents an important mining technology. Being a relatively late puddler, it still retains considerable integrity and thus has the ability to illustrate puddling technology.

*SIGNIFICANCE RANKING:* Sites Listed Heritage Inventory.

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**Assessor: David Bannear**

**Date: September 1991.**

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- 1 Mining Surveyors' Reports, December 1861, p. 552, quoted in Flett, 1979, p. 81
- 2 Hammond, 1978, p. 117
- 3 Mclvor News, 14 December 1860
- 4 Mining Surveyors' Reports, December 1864
- 5 Mining Surveyors' Reports, September 1868
- 6 Mining Surveyors' Reports, March 1870
- 7 Mining Surveyors' Reports, December 1870
- 8 Mining Surveyors' Reports, March 1871
- 9 Geological Survey of Victoria, Report of Progress, 1878, p. 158
- 10 Geological Survey of Victoria, Report of Progress, 1878, p. 172
- 11 Mining Surveyors' Reports, June 1886
- 12 Mining Surveyors' Reports, March 1889
- 13 Mclvor News, 13 June 1889
- 14 Mining Surveyors' Reports, June 1889
- 15 Mining Surveyors' Reports, September 1889