

Blinman Mine Historic Site

Greg Drew (Senior Geologist, Publications and Displays Branch, MESA)



Introduction

The Blinman Mine, 0.5 km north of Blinman township, was the largest producer and longest operating mine in the Flinders Ranges. There were four main periods of mining activity between 1862 and 1907, which resulted in a total production of 10 000 t of copper metal from 200 000 t of ore, 90% of which was produced in the periods 1862–74 and 1903–07.

Today the site is an historic reserve managed by MESA, which has established an interpretive trail.

History

The mine was named after a shepherd, Robert Blinman, who discovered an outcrop of copper ore at the site in 1859. The Yudnamutana Mining Co. purchased the mining leases for £70 000 and commenced mining in September 1862 under the management of Captain Thomas Anthony.

Initial operations consisted of quarrying the outcropping orebody and sinking shafts along its length. To reduce the high cost of cartage to Port Augusta, a smelting works was erected in 1863 in a small valley just below the manager's residence. This eventually contained four reverberatory furnaces producing high-grade copper ingots.

By 1870, the workings had reached the 91 m level where water and sulphide ore were encountered. A second-hand steam engine from the nearby Nuccaleena Mine was erected at a new main shaft in 1871 to pump water and haul ore from the lower levels. Financial difficulties caused the company to be reformed as the Blinman Consolidated Copper Co. in 1872. This was unsuccessful and the mine closed in 1874.

With the arrival of the railway at Parachilna in 1882 a new company, the Corporation of South Australian Copper Mines Ltd, erected a steam engine and crushing and concentrating machinery from the Prince Alfred Mine to treat a stockpile of low-grade ore. Up to 200 men were employed on company leases, and underground mining concentrated on stoping between the 91 and 128 m levels. Falling copper prices caused closure in 1885; the company was liquidated and its assets transferred to the South Australian Mining and Smelting Co. Ltd.

The mine reopened in 1888 and the pumping, winding and concentrating machinery were restarted. Up to 80 men were employed until 1889 when once again the mine closed. It was worked on tribute above water level by small syndicates between 1890 and 1899. All machinery was removed to the Clara St Dora Mine in 1897.

In 1902, the Blinman Mine was purchased by the Tasmanian Copper Co., whose general manager Clarence

Henrie had an ambitious plan for the working of copper mines throughout the Flinders Ranges. Operations recommenced in 1903 and, in 1904, a water-jacketed blast furnace was fired. The furnace produced 5–10 t/day of 50% copper matte but required 600 t of coke per month. Over 250 people were employed during this period, and teams of mules, horses, donkeys, bullocks and camels were used in transporting supplies, copper and coke to and from Parachilna. Operations continued until 1907 when the mine closed due to falling copper prices and exhaustion of payable ore.

The mine site was placed under the care and control of MESA in 1990, and it has been listed on the Register of State Heritage Places.



Blinman Mine, c.1907, showing the blast furnace and slag heap. (Photo 32762)



Blinman Mine, c.1907. At right is the headframe at Main Shaft and at left is the two storey crusherhouse. (Photo 32763)

Geology

The orebody originally cropped out as a large, irregular mass over a length of ~60 m, but at depth was ~150 m long. It was vertical near the surface but flattened to the east at depth (Fig. 1), and consisted of dolomite impregnated with copper minerals, located in a large sedimentary block (mainly dolomite) in breccia of the Blinman Diapir. Above water level (~90 m) in the oxidised zone, the main copper minerals were cuprite (copper oxide) and malachite (copper carbonate). Below this level, the ore consisted of the primary copper sulphides chalcopyrite, bornite and chalcocite.

The ore mined averaged 4–5% copper and was concentrated at the surface to 20–30% prior to smelting, or sent direct to the blast furnace in the 1903–07 period.

The mine was worked from a vertical main shaft sunk to the 146 m level, and an inclined shaft which followed the dip of the orebody for a further 37 m. The deepest level was 165 m but all ore extraction took place above 146 m.

A notable feature of the mine was the immense cavities or stopes up to 60 m high and 15 m wide where large sections of the orebody were completely removed.

Township water supply

Since 1988, water from the Blinman Mine has been used by Highways Department (now DRT) to maintain unsealed roads in the area. A pump was installed on the 90 m level.

The E&WS Department (now SA Water) upgraded the mine pumping facility in 1994 due to continuing problems with the township water supply. An inclined hole was successfully drilled near the mine adit to intersect the mine workings at the 120 m level. A pump has been installed on



Ore bins at Main Shaft within the open cut, c.1907. (Photo 32760)

this bore which now provides the main water supply for Blinman.

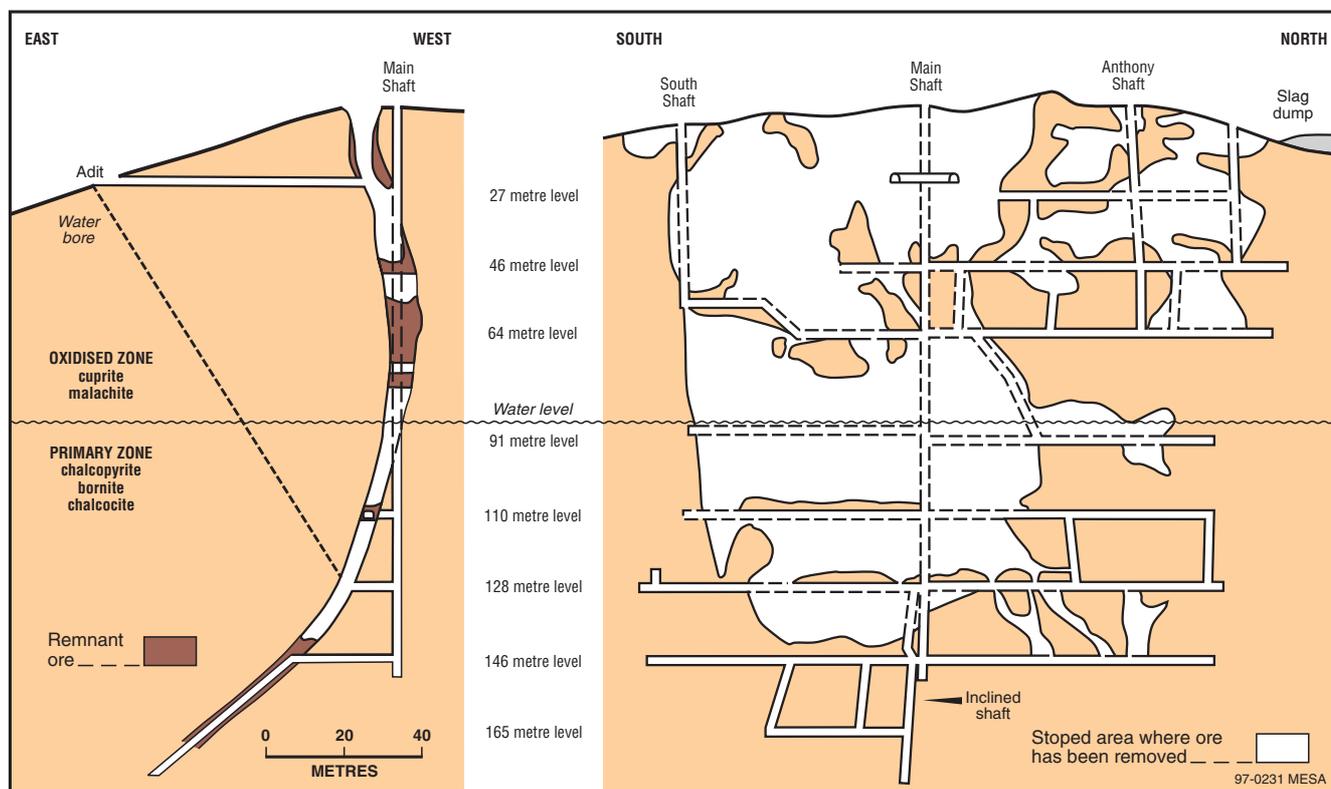
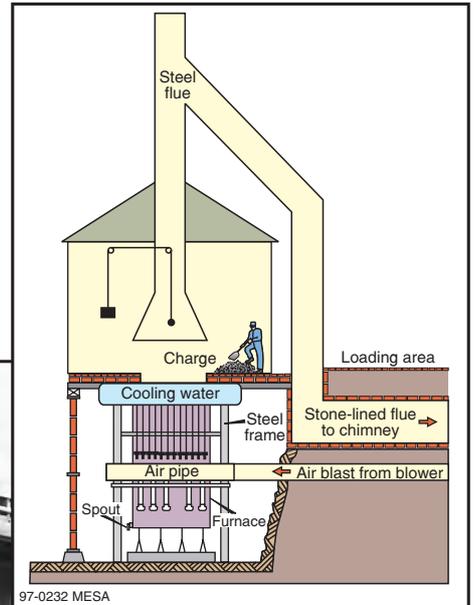


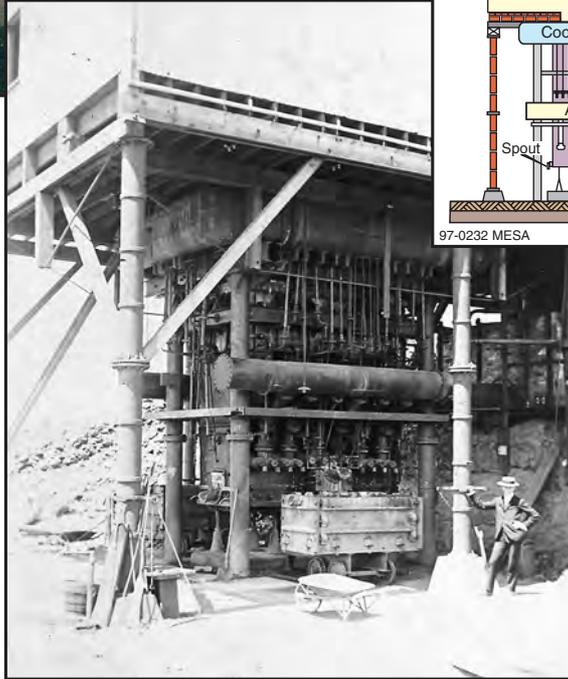
Fig. 1 Cross-section and longitudinal section of the Blinman Mine.



Interpretive sign at the blast furnace site.
(Photo 44424)



Detail from interpretive sign showing cross-section through the blast furnace.



Close-up of the water-jacketed blast furnace, c.1907. (Photo 43646)

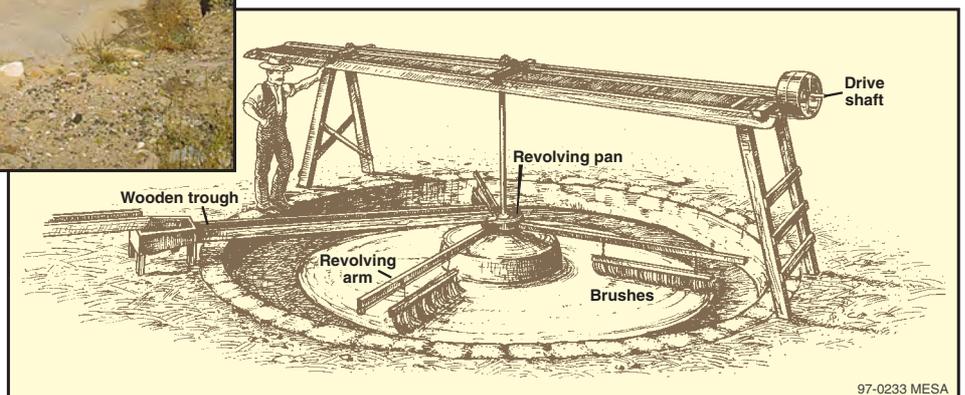
Foundations of the powerhouse. (Photo 43615)



Remains of a circular buddle used to concentrate slimes from jigging machines. (Photo 43614)



Detail from interpretive sign showing buddle in use.



The Captain's Cottage

The Captain's Cottage was erected in ~1862 by the Yudnamutana Mining Co. for Captain Thomas Anthony who was brought out from Cornwall on a five-year contract. Anthony was the first of a succession of Cornish mine captains who managed the mine up to 1890. Other Cornish captains who lived in the cottage included William Tonkin (1867–69), Samuel Terrell (1870–72), William Price (1872), Thomas Cornelius (1873), William Paul (1874–76), William Bryant (1882–85), William James (1888) and James Doble (1888–89).

The last manager to reside there was an American mining engineer, Clarence Henrie, who was manager from 1902 until his sudden death at Leigh Creek in 1906. Henrie and Captain Doble are buried in the Blinman Cemetery.

When the mine closed in 1907, the cottage became Government property and a number of families have subsequently leased it, including Carrig, Gill, Coad, Rudd and Fargher. Extensive renovations were carried out by Professor Eric Rudd and family in the late 1960s. The cottage is presently available for bed and breakfast accommodation.



The Captain's Cottage. (Photo 43625)

Miner's adit

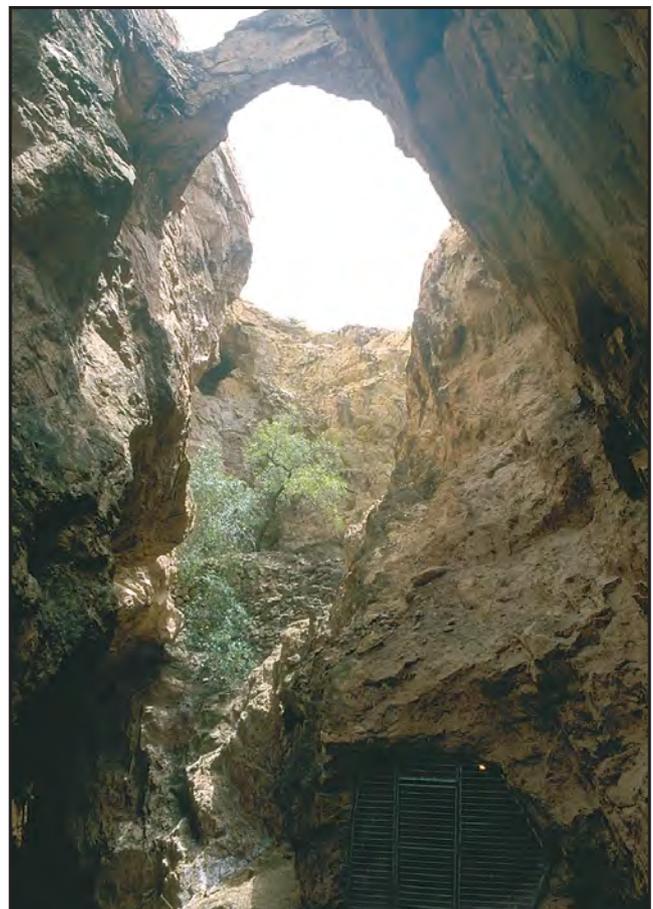
A 65 m long adit, which was excavated in 1899 to connect with the 27 m level in the mine, now provides spectacular views through open stopes to the surface. The adit was rehabilitated in 1995 with funds provided by the South Australian Tourism Commission as part of the upgrading of the mine site for public access.

A bobcat was used to remove material from the adit entrance and a partly collapsed stope. These areas were then retimbered using mine timbers donated by Pasmenco Mining, and backfilled with rubble.

Two viewing areas have been constructed at the end of the adit and appropriate lighting installed. A fully enclosed cantilever viewing platform, which will provide even more spectacular views of the stopes, is planned.



Re-timbering the miner's adit. (Photo 44296)



Viewing area within the open cut. (Photo 44422)

The Historic Trail

A self-guided interpretive trail has been designed and produced by MESA at the Blinman Mine. It is 1 km long and takes about one hour to complete. Fifteen interpretive signs illustrate the geology of the orebody and how the ore was mined, dressed and smelted. A brochure, which complements the trail, is available for \$1 from MESA and selected retail outlets.

For further information contact Greg Drew (ph. 08 8274 7732). ■