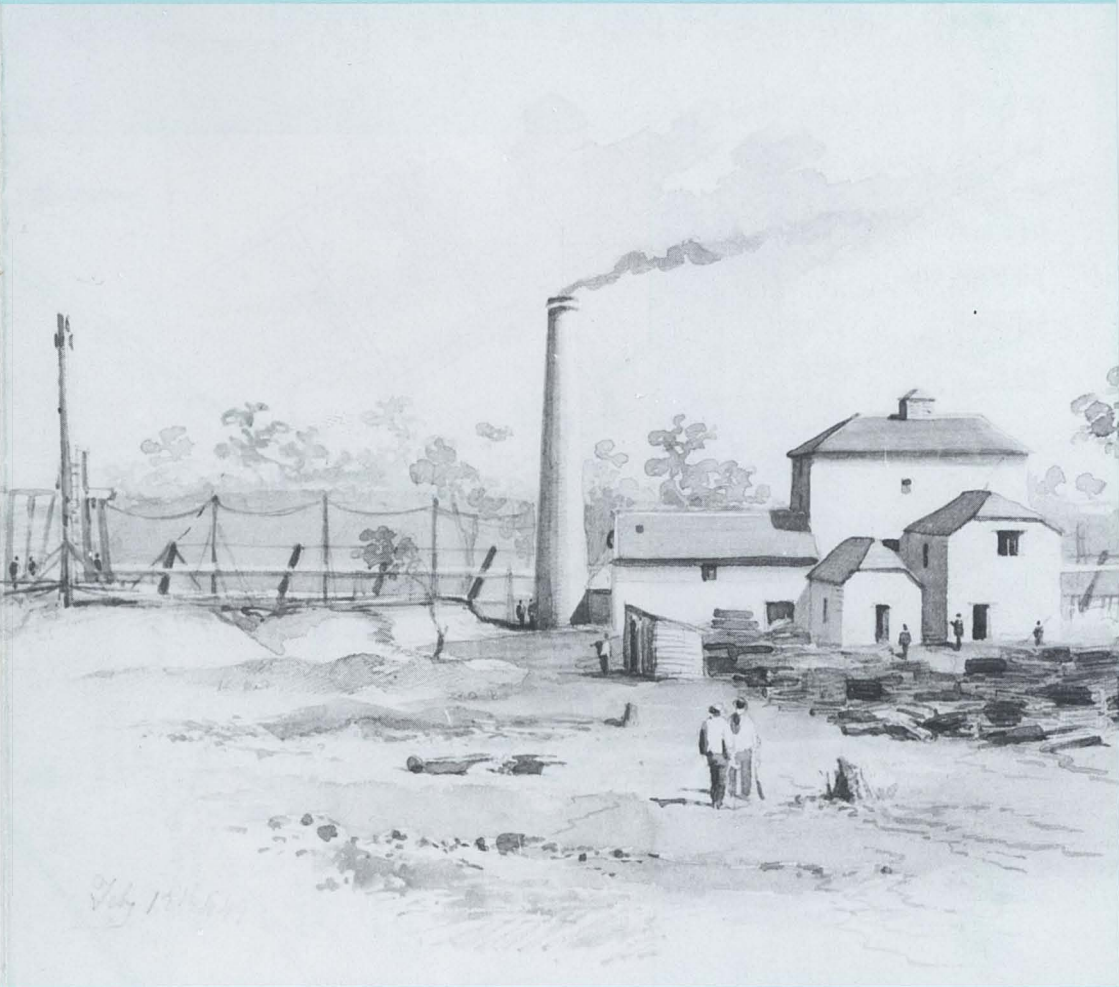


KAPUNDA MINE



DEPARTMENT OF
MINES AND ENERGY

HISTORY

Kapunda Mine was the first successful metal mine in Australia and, together with Burra, contributed to the Colony's recovery from economic crisis in the early 1840s; it has also made a major contribution to South Australia's Cornish heritage.

In 1842, Francis Dutton discovered green copper ore while searching for stray sheep. He discussed the find with his neighbour, Captain Charles Bagot, who was already aware of the lode. As neither man owned the land, Dutton and Bagot purchased a section around the outcrop in 1843.

The first ore was raised in 1844 under the management of Bagot by simply shovelling the outcrop of blue and green copper minerals into carts; the ore needed little further dressing. By December there were a dozen Cornish miners at work, underground mining had begun, and a small mining town was developing.

The underground workings reached the water-table in 1845, and a horse whim was installed for bailing the water which was used in crude ore dressing process. By 1847 the whim was incapable of holding the volume of water encountered in deeper workings, and a steam engine (see cover) was purchased in England; a second engine, to be used solely for pumping, had to be erected in 1850.

For the first five years, ore was carted to Port Adelaide on drays for shipment to smelters at Swansea in Wales. In 1849, the first smelting furnace at Kapunda was fired up, followed shortly after by a second. A refinery, added to the smelters in 1861, enabled a high-grade copper product to be manufactured on site.

By 1851 Kapunda was a prosperous mining town of more than 2000 people, but the Victorian gold rush severely affected its population and the mine closed until 1855. After this, the mine developed rapidly, reaching peak production in 1857.

After 1863, with exhaustion of the richest lodes, the higher cost in raising less accessible ore, and a fall in the copper price, financial losses were heavy. A Henderson treatment plant was erected in 1867 to concentrate and dissolve low-grade carbonate ore in acid, and precipitate copper on scrap iron. Ore was mined from open cut and underground, and loaded into trucks which were hauled up an inclined tramway to the treatment plant. The process was an economic failure, however, and the mine closed in 1879.

The deposit was worked periodically until 1912 by miners who gouged small parcels of ore above the water-table.

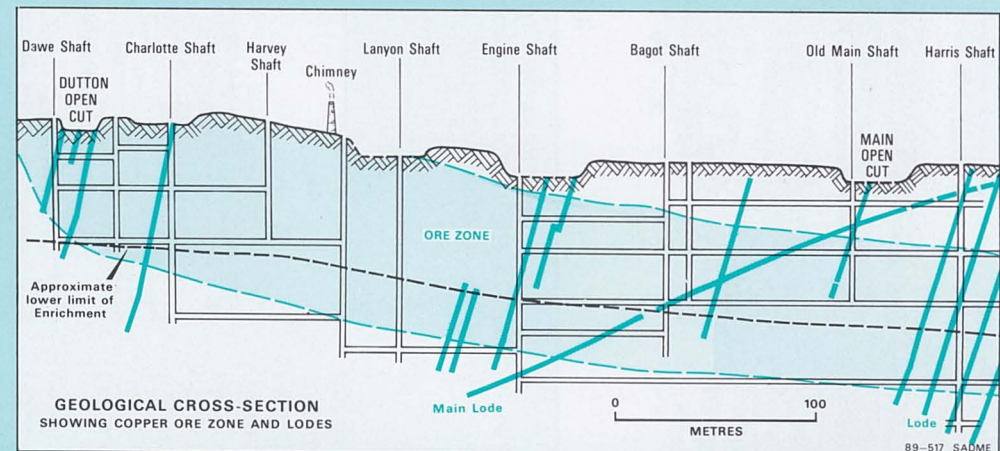
Total production from the mine during the period 1844-1912 amounted to 12 800 tons of copper from 64 000 tons of dressed ore averaging 20% copper, plus 1 200 tons of copper from the leaching process.

MINING METHODS

The copper ore occurred as veins and lodes in an irregular band of weathered shale, about 200 m wide, which the miners called 'whiteground'. The veins varied from a few centimetres to over a metre in thickness and were composed of quartz impregnated with copper minerals.

Kapunda Mine was worked by Cornishmen using the 'tribute' method. A groups of miners, known as a 'pare', would tender for an area of the exposed ore body and were paid according to the value of ore extracted. The company exercised practically no supervision over the operations and the result was a series of burrows without system or method. Owing to the softness of the whiteground, most mining was carried out by pick and shovel without the use of gunpowder.

Ore was separated in sorting sheds by hand picking into high-grade ('prill') and low-grade ('attle') material. The company also employed a number of other miners known as 'tutworkers' to look after the shafts and drives and to carry out exploratory and development work.



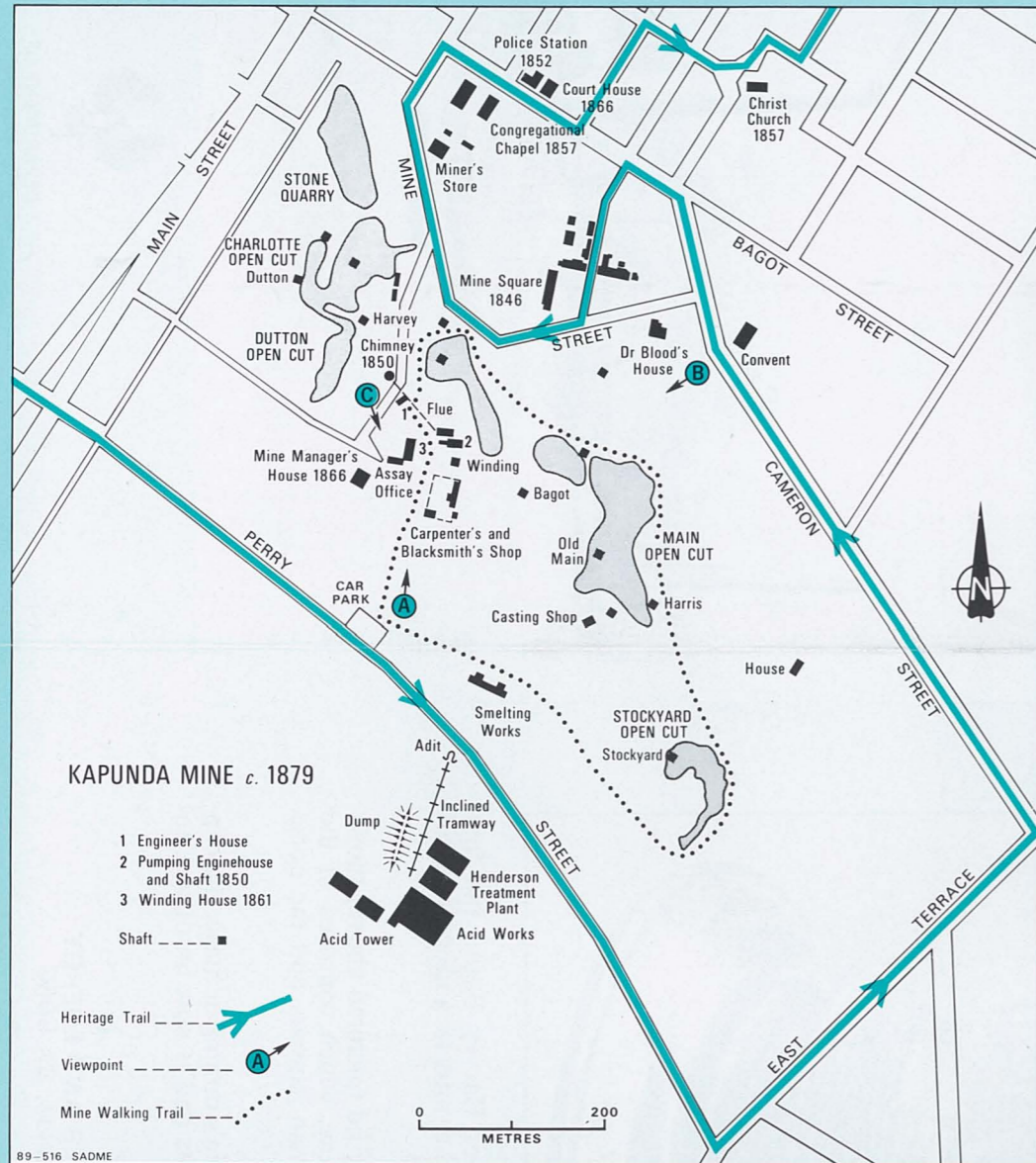
COVER: Draft Enginehouse 1849.

Erected in 1848, this was the first Cornish Enginehouse in Australia. It contained a second-hand Cornish steam engine which hauled ore, drove a crusher and powered pumps at distant shafts through a system of flat rods (centre left). Originally situated between Bagot and Old Main Shafts, it was rehoused near Buhl winding shaft in 1861, due to subsidence of the foundations.

S.T. Gill Collection: The Art Gallery of South Australia

KAPUNDA MINE TRAIL

The trail is an easy walk of 1.5 km and takes about 1 hour to complete. Interpretive signs explain how the ore was mined and treated. In 1984, the mine site was placed on the Register of State Heritage Items. It is now owned by the District Council of Kapunda.



A Northerly view of the mine in 1879

In the foreground is the Henderson treatment plant erected in 1867 and consisting of crushing, leaching and precipitation sheds. The smelters with square chimneys are at right with the main open cut behind.

In the background from left are the verandahed mine manager's house, assay office and two-storey winding house with engineer's residence and mine chimney behind. Near the centre is the pumping enginehouse and shaft with various workshops in front. At right are the mine square cottages and mine doctor's house.



B Panoramic view of the Kapunda Mine in 1879

Two enginehouses (centre) contained Cornish beam engines; one housed a 36-inch diameter pumping engine and the other a 30-inch winding engine. The pumping engine was erected in 1850 and its two boilers were connected by an underground flue to the mine chimney. The winding engine was erected in 1861 but had previously been erected as the Draft Engine in 1848.

C Southerly view of the mine from just below the mine chimney in 1879

In the foreground is part of the mine workshops with wooden shingle roofs. These included carpenters' and blacksmith's shops. Note the tramway used for dumping waste from the haulage shaft.

The smelting works with its distinctive square chimneys are in the left background.

On the hill is the Henderson treatment plant erected in 1867. The wide tower was used to produce sulphuric acid for use in the leaching of low-grade ore. Ore from the open cut was hauled up an inclined tramway to the plant. The two, long, open sheds below the tower contained vats and tanks for the leaching and precipitation of copper.

HENDERSON PLANT (1867)

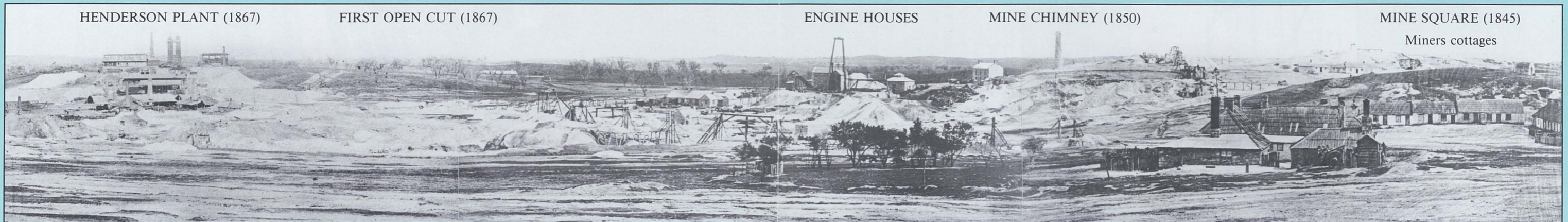
FIRST OPEN CUT (1867)

ENGINE HOUSES

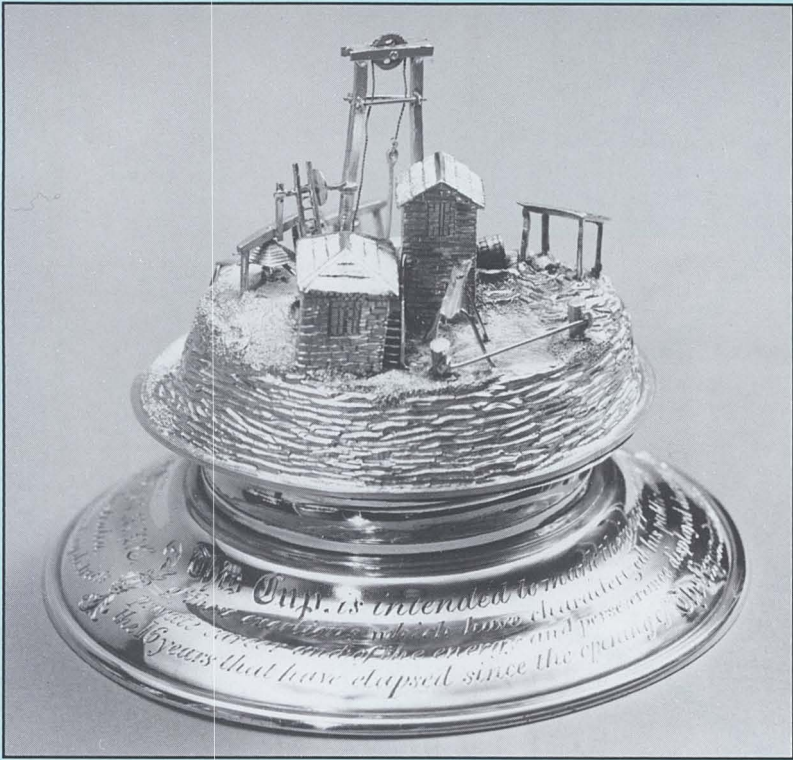
MINE CHIMNEY (1850)

MINE SQUARE (1845)

Miners cottages



THE BAGOT CUP



This cup was presented to Charles Harvey Bagot, the first Captain of Kapunda Mine, by the miners and citizens of Kapunda on his retirement in 1858.

The cup is of sterling silver and the lid (pictured above) shows the main surface works of the mine, which consisted of the pump house with its shears and man capstan, and the horse whim and hoisting shaft.

A unique example of South Australia's mining heritage, the cup was returned by Bagot's descendants and is now on display in the Kapunda Historical Museum.

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