

PORT PHILLIP & COLONIAL GOLD MINING COMPANY, CLUNES

This model depicts the mine and crushing works of the Port Phillip & Colonial Gold Mining Company, once the most famous mine in Clunes and a pioneer of large-scale quartz mining in Australia.

Floated in London in early 1852, the Port Phillip & Colonial Gold Mining Company was the first foreign-owned public company to invest in Victorian gold mining. Under the direction of its energetic local managing director Rivett Henry Bland, the company initially spent several frustrating years seeking a mining lease suitable for large-scale mechanised mining on crown lands at Ballarat, Fryers' Creek and the Ovens Diggings.

On January 27, 1857, the company finally succeeded in signing a 21 year lease over 160 acres of private land at Clunes with several promising looking outcrops of quartz. The terms were a royalty of 10 per cent on the gross yield of all gold, which would eventually return the landowners some £139,000.

Clunes Quartz Mining Company

An agreement was signed with a co-operative party of 100 local miners who formed the Clunes Quartz Mining Company to develop and operate the mine in exchange for a share of profits. Mining commenced in May 1857. The Port Phillip Company concentrated on developing a large and efficient crushing plant, beginning to erect the first battery of 20 stamps in March 1857.

Bland sought advice from leading overseas mining experts and recruited experienced men as department heads. The company soon became the leading innovator in Victorian gold mining.

It developed the loose bed system to catch course gold under the stamps and was the first to introduce blanket strakes, mercury wells and troughs for saving fine gold. It was also the first Victorian mine to develop a practical method for recovering gold from pyrites or base-metal sulphides. Other innovations included the early use of more efficient multitubular boilers and condensing steam engines.

The company achieved fame by proving for the first time that quartz yielding less than half an ounce of gold per ton could be profitable if mined on a sufficiently large scale.

The Port Phillip Company's influence spread far beyond Clunes with mining engineers from around the world visiting the works to study the company's plant and treatment methods. By the mid-1860s, hundreds of Victorian mining companies from Ballarat to Omeo, had built crushing plants based on the 'improved Clunes model'.

The Port Phillip mine remained in operation until 1891, producing 514,886 ounces (15.96 tonnes) of gold, worth \$A270 million at today's prices, from 1.3 million tonnes of quartz ore, with the main shaft reaching 532 metres in depth.

BUILDING THE MODEL

The Clunes model was the last and most ambitious of ten scale models that Swedish-born miner and artisan Carl Nordström made for National Museum of Victoria depicting various aspects of early Victorian gold mining. The Museum's founder Professor Fredrick McCoy was introduced to Nordström by Henry Smith, a Ballarat mining engineer. It was at Smith's suggestion that Nordström was commissioned to build a model of the 'Clunes Mines' in April 1858. It took over six-months to complete and cost £215, over twice Nordström's initial quote.

Nordström built the model 'on location' at the mine site in Clunes and was assisted by the manager Rivett Bland and the company's engineer in perfecting details of the machinery and underground workings. He used materials readily at hand on the goldfields, such as plaster of Paris, hessian, wire, candle wax, sheet lead and timber from packing crates.

Nordström took care to make each figure and piece of machinery in exact proportion to its actual size at a scale of 3/8-inch to 1-foot (1 in 32) while reducing the overall size of the model by shortening the relative distance between various features on the site.

The model shows only the first 54 feet of underground workings, although at the time the mine had already reached 200 feet in depth.

At the Melbourne Museum

The model was a triumph for Nordström and when first exhibited in Melbourne in early 1859, it so impressed a reporter from *The Argus* that he described it as unsurpassed in "*the boldness of the design, minuteness of detail, and beauty of execution*".

In the decades since, the Port Phillip Mine Model has continued to fascinate succeeding generations of museum visitors. Its significance is both that it depicts the workings of one of Victoria's leading gold mines and provides an accurate record of early Victorian mining technology, including details not readily gleaned from other written accounts or photographs and etchings.

Following McCoy's death in 1899, the model was transferred to the Industrial and Technological Museum. It will be fondly remembered by many older Victorians as a highlight of any visit to the old Swanston Street Museum where it remained on display until 1990. More recently it was exhibited at Scienceworks from 1992 to 1996.

This display of the model in Clunes to celebrate the 150th anniversary of the first 'official' gold discoveries in Victoria is proudly supported by the Hugh Williamson Foundation.

The following key to the model's main features was prepared by Bernhard Straubel at the National Museum of Victoria during the 1860s.

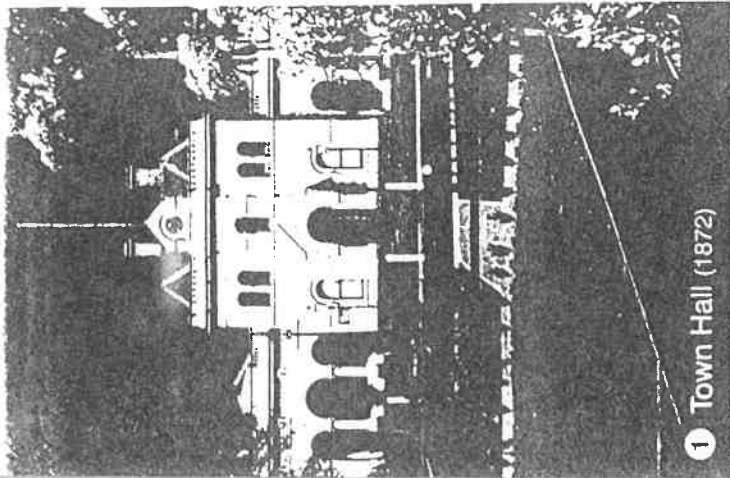
1. Main Shaft & Poppet Legs with steam winding & pumping engine (showing 54 feet in depth only, later known as the South Shaft it would reach 896 feet in depth by 1881).
2. Robinson's Reef Shaft (85 ft deep).
3. Western Reef Shaft, with hand-powered windlass.
4. Winding Drum & Brake for working Inclined Tramway.
5. Reservoir for collecting water pumped from underground to feed the boiler.
6. Drainage Channel for water baled from Western Reef Shaft
7. Tunnel Mouth or Adit for accessing upper workings.
Above the tunnel is a bullock dray delivering firewood. Some ½-million tonnes of box, red gum and ironbark firewood were consumed in the boilers and quartz kilns during the life of the mine.
8. Tramroads for filling and discharging the quartz kilns.
9. Tramway Turntables.
10. Calcining Kilns for roasting quartz before crushing.
11. Bypass Ore Shoot, for broken or 'rotten' quartz.
12. Mullock Dump for barren rock dug from tunnels and shafts.
13. Water Tanks for feeding the batteries.
14. Launder or Flúe channelling water raised from the creek by the pumps.
15. Ore Hoppers.
16. Stamp Batteries
 - I. 12-head battery, driven by single-cylinder horizontal steam engine on egg-ended boiler
 - II. 12-head battery, driven by 20 h.p. single-cylinder horizontal steam engine (note iron cam barrel)
 - III. 8-head battery, " " " " " " " " " "
 - IV. 12-head battery, driven by patent Clayton & Shuttleworth twin-cylinder portable steam engine
17. Blanket Tables or Strakes.
18. Amalgamating Barrels.
19. Shaking Tables.
20. Tailings Shoots.
21. Water-Supply Dam across creek.
22. Creswick Creek.
23. Channel leading water from dam to pump well.
24. Circular Sawbench for firewood.
25. Drawlift Pump raising creek water to feed the batteries.
26. Chinese Bucket Pump.
27. Saw-Pit.
28. Mounted Gold Escort.
29. Upper Level First Drive, 29 ft below main shaft sill.
30. Underground Pump Cistern.
31. Cradle for washing coarse gold collected under stamps.
32. Workman squeezing free mercury from amalgam containing the gold.
33. Chilian Mill.
34. Wooden Tubs & Dollies for washing blankets.

35. Police Station.
This building is a reminder of the dispute that developed in 1857-8, when independent miners secretly tunnelled under the company's boundaries seeking rich alluvial drifts and fought underground battles with company miners when discovered. Additional police reinforcements were called in to protect the company's workings even though mining on private property was technically illegal at the time.
 36. Surface workings on Old Man's Reef.
 37. Outcrop of Eastern Reef on Surface.
 38. Outcrop of Robinson's Reef.
 39. Monkey Shaft or Winze sunk from 29 ft level underground.
 40. Wrought-Iron Ore & Mullock Skip.
 41. Ore Shoot feeding Chilian mill.
 42. Fence dividing Port Phillip & Colonial Company's crushing works from mine operated by Clunès Quartz Mining Company.
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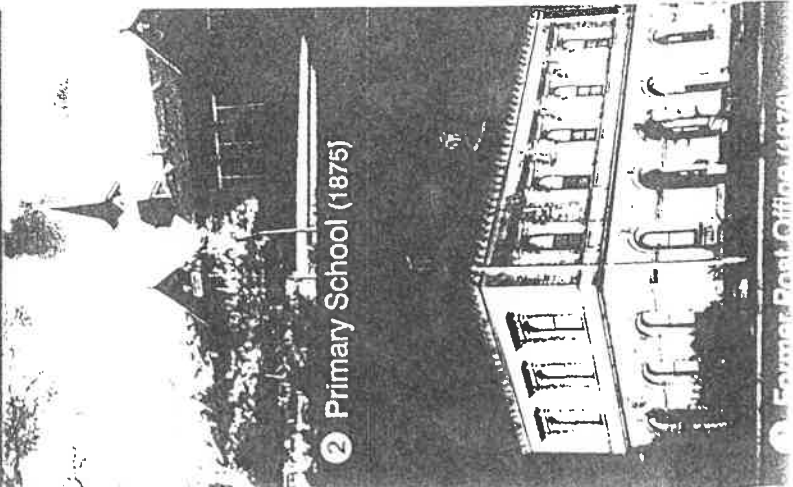
Notes prepared by
Matthew Churchward,
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Museum Victoria

Nestled in a picturesque valley...

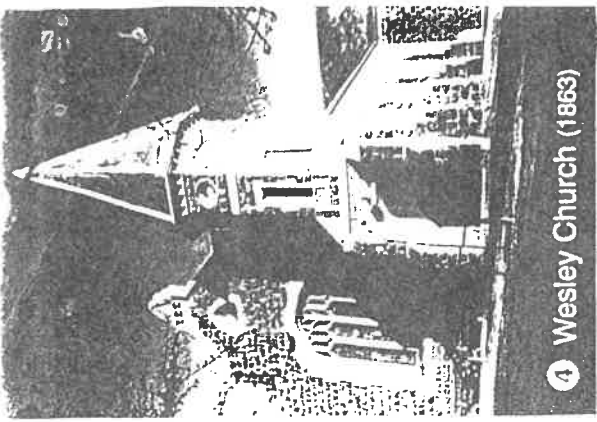
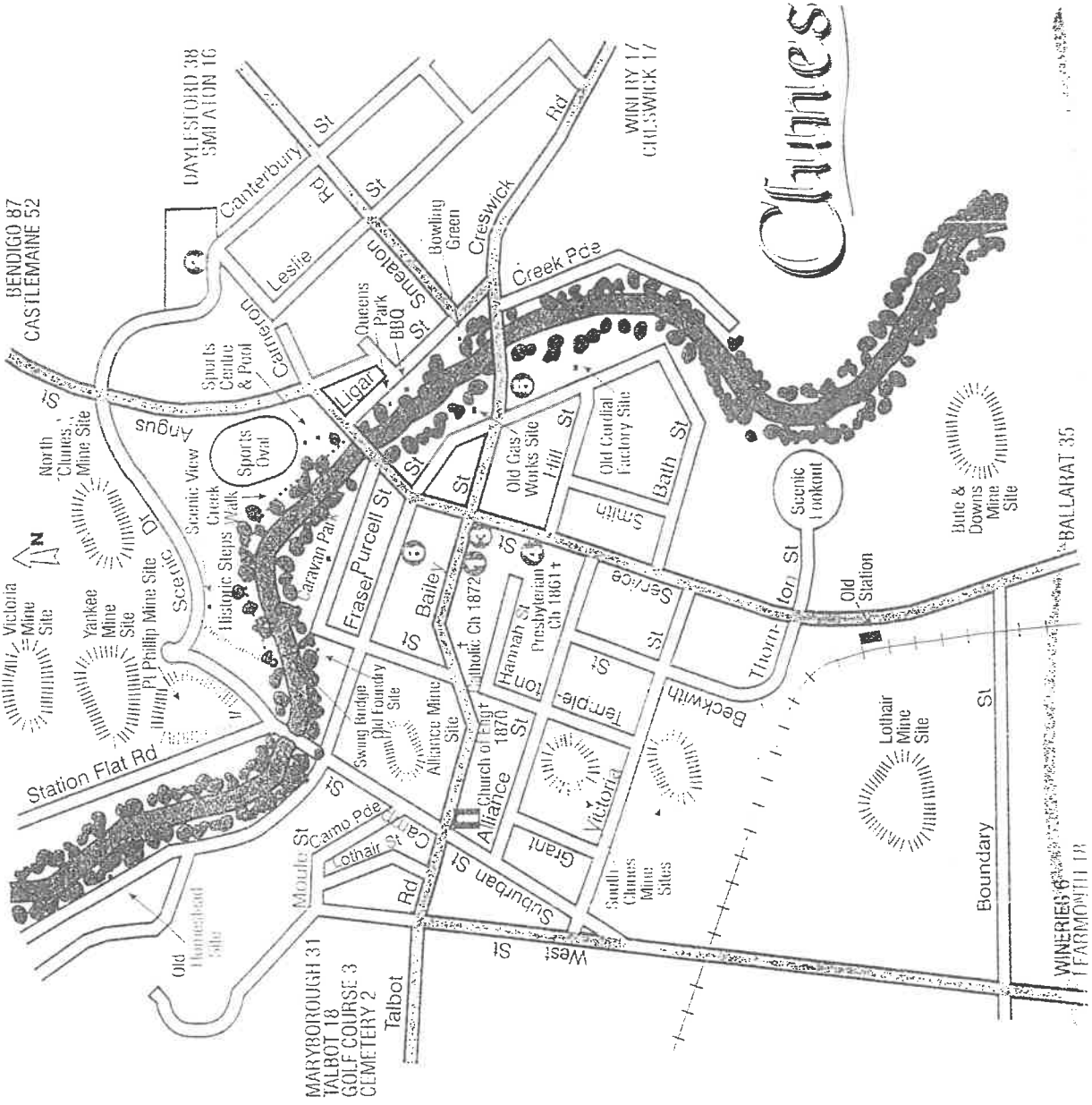
...just over twenty minutes from Ballarat and one and a half hours from Melbourne is the historic town of Clunes. Walk around Clunes and revisit one of the most significant periods in Australia's history.



1 Town Hall (1872)



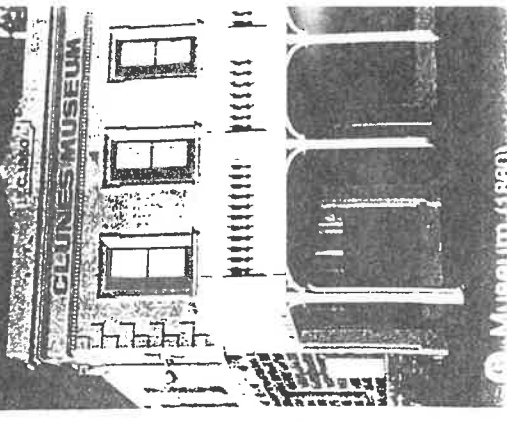
2 Primary School (1875)



4 Wesley Church (1863)



5 Keables (Telegraph) Hotel - 1860



6 Museum (1880)

WINERIES 6
FARMHILL 19

BALLARAT 35