Joadja Creek Oil Shale Mine

The Joadja Creek is one of the tributaries of the Wingecarribee River. The town of Joadja Creek was developed in an isolated valley, approximately 20 km west of Mittagong.

Joadja Creek Valley was initially utilised as a grazing area by Mr Ben Carter of Sutton Forest. His son, Mr Edward Carter, continued to use the area for grazing and, at some stage, recognised that an outcrop on the property consisted of Torbanite, which is oil shale.

Eventually the useful value of torbanite found on the property was realised by a Stockman he had employed, and word of it began to spread quickly. To protect his interests, Mr Edward Carter registered a claim to the mineral rights in the area with the Lands Department Office at Berrima on Friday 3rd October 1873. However, another person residing in the area, Mr William Cosgrove, was aware that that day, was not a legal trading day, so he travelled to Sydney and registered a claim to the mineral rights to the same land, on Saturday 4th October 1873. Realising his mistake, Mr Edward Carter re-registered his claim at Berrima on Thursday 9th October, 1873.

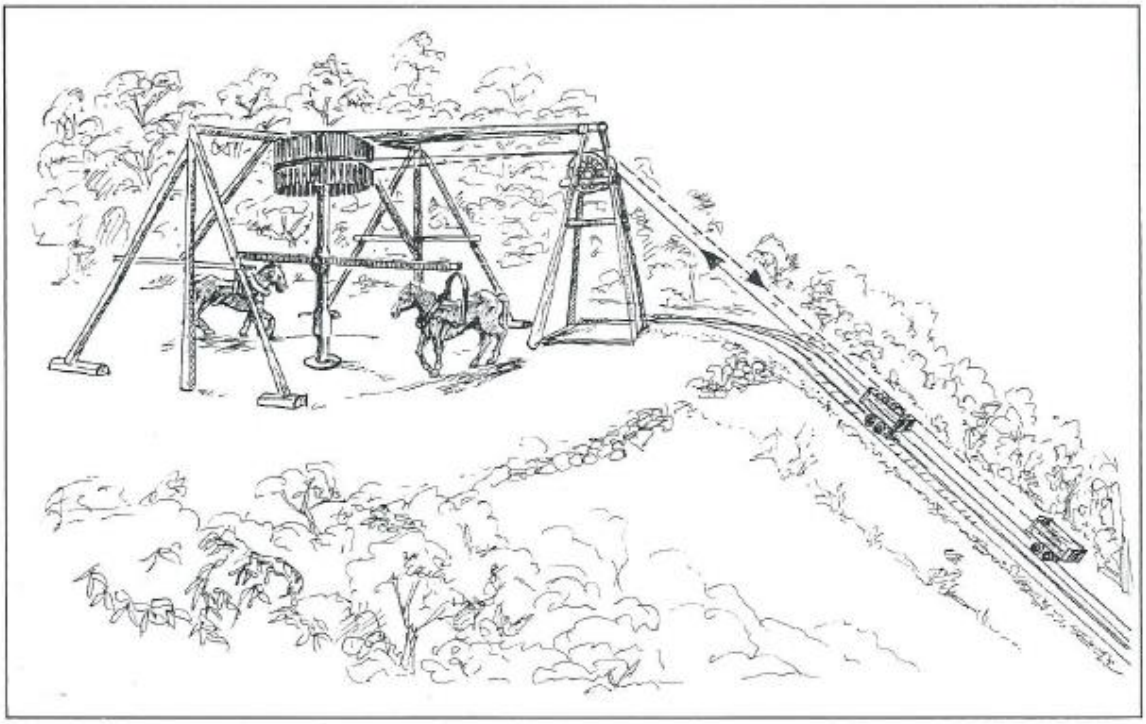
The dispute over ownership continued for two and a half years, and on the 22nd March 1876 the NSW Legislative Assembly, decided in favour of Mr Edward Carter.

After word of the discovery spread in 1873, Messrs Brown, Ellsmore, Lamb, Larkin, McCourt and Parbury, all took out mining leases in the valley. When the Australian Kerosene Oil and Mineral Company was formed in 1878 some leaseholders sold their leases to the Company and left the region, while others exchanged their leases for shares in the Company, and stayed in the area.

In the period between 1873 and the formation of the Australian Kerosene Oil and Mineral Company in 1878, many miners flocked to the valley, and the population quickly reached over 300 persons.

Hauling the mined product out of the valley, was difficult because of the steep terrain. Two double track tramways were built by Edward Carter for his mine. One tramway used to lower the shale from the mining shelf to the valley floor, using a wire rope passing around a drum drive, that was powered on the self-acting gravity principle. Full skips were lowered by the wire rope when the brake on the drum was released, and the empty skips were raised by the previously extended portion of the same wire rope.

A second Tramway was used to haul the shale out of the valley and was powered by a horse whim using a pair of horses. The winding direction of the whim was changed by facing the horses in the opposite direction. the length of time taken to wind one skip of Shale out of the valley was 25 minutes, and each skip contained about 0.4 ton of Shale.



Sketch of Horse Whim used to haul Shale out of the valley[553]

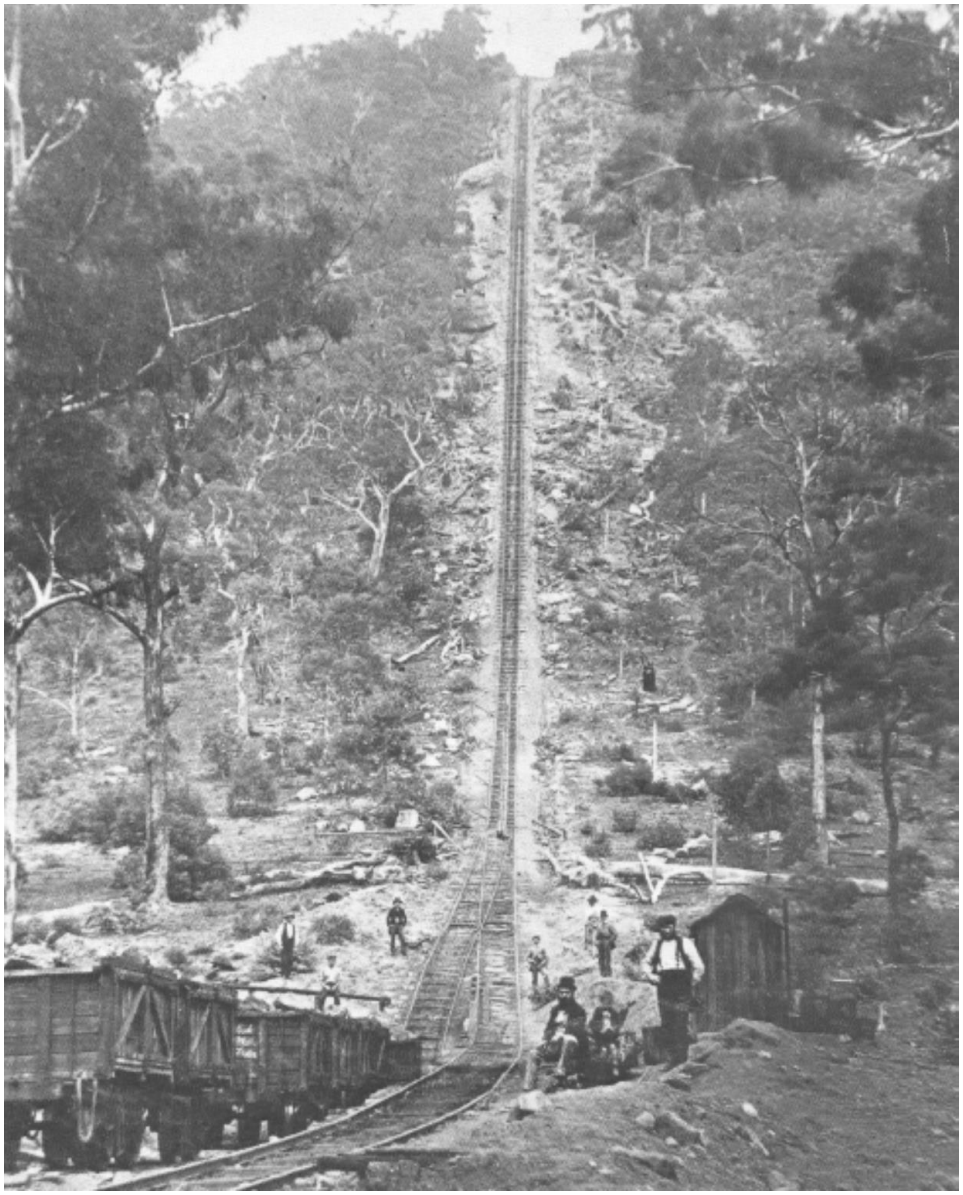
The mine operated by Messrs Lamb and Parbury used chutes, into which the mined shale was dumped, to deliver the shale down from the mining shelf to a Tramway on the valley floor. From there a mechanically powered haulage engine hauled the skips of shale up a 764 m inclined tramway and out of the valley. Horses were used to haul skips of shale between the mines and along the floor of the valley until the Australian Kerosene Oil and Mineral Company was formed and constructed a railway line. Horses were replaced by locomotives in 1880.

Bullock teams hauling shale on the valley floor circa 1877 [554]

[553] L. Knapman "Joadja Creek, the shale oil town & its people 1870-1911," 1988, p. 22.
[554] L. Knapman "Joadja Creek, The shale oil town & its people 1870-1911," 1988, p. 20.

The Australian Kerosene Oil and Mineral Company was registered in October 1878, with a share capital of £50,000 pounds consisting of 5,000 shares of £10 pounds each. Shareholders included William Gilchrist, Thomas Knox, John Lamb, Walter Lamb, Charles Parbury and Waldermar Rothe.

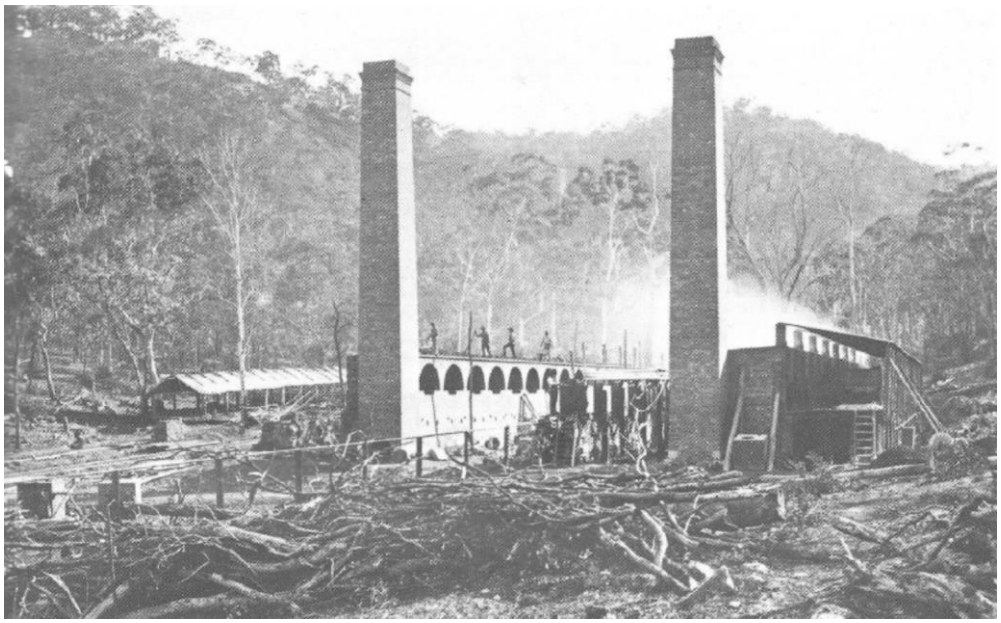
With the valley under the control of the Australian Kerosene Oil and Mineral Company, procedures for large-scale production of shale and coal were decided. A major issue that had to be resolved was transport of the products. A mechanical haulage Plant was installed to haul the products up the valley wall on a tramway to the top of the escarpment. From there, a narrow gauge railway was constructed from Joadja to Mittagong, when the NSW Parliament passed the Joadja Creek Railway Act of 1878. This railway was completed in November 1980 and enabled a significant increase in productivity.



Inclined Tramway out of the Joadja Valley[555]

[555] L. Knapman "Joadja Creek, the shale oil town & its people" 1870-1911," 1988, p. 2.

The first distilled and refined oil was marketed in 1879.[556] The Mines Department Annual Report provides a brief description of the refining process: "For the purpose of extracting the oil, the shale is placed in retorts and distilled at a low temperature. The oil passes to the purifying works. It is received into a tank of sulphuric acid, the effect of which is to bring off a black tar, thus purifying the oil. The oil is subjected to more distillation that includes solutions of caustic soda. It takes one month before all the extractions are completed."



The retorts in 1879 - a Bench of 16 Retorts in operation on the right, another Bench of 16 Retorts almost complete, on the left[557]

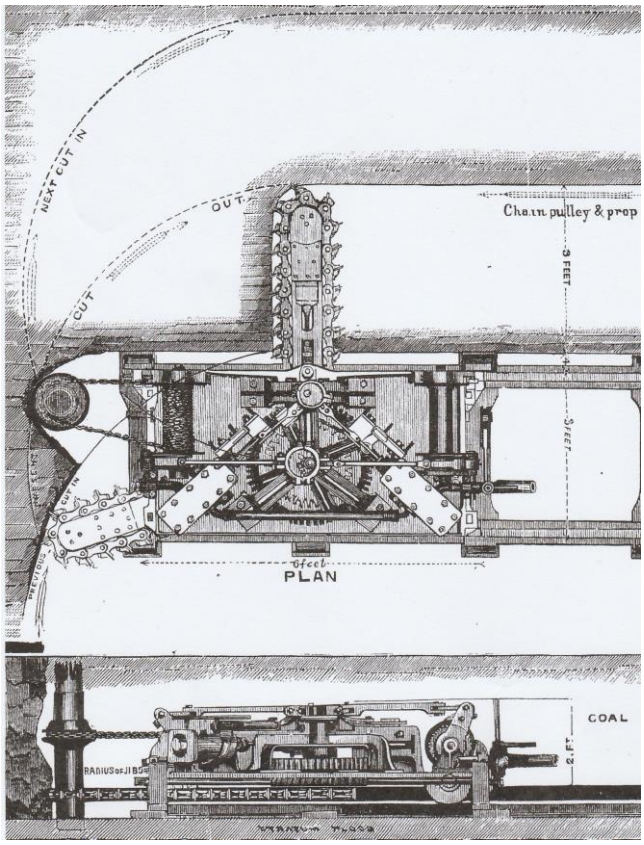
Ruins of the Retorts[558]

[556] NSW Mines Department Annual Report 1879, p.33.
[557] Source: G. Hicks.

A complete village that was largely self-supporting was established in the valley. The Australian Kerosene Oil and Mineral Company brought experienced workmen with their families from Scotland, as the oil shale industry was well established in that country. Eventually, approximately three quarters of the population in the valley were of Scottish extraction. The Australian Kerosene Oil and Mineral Company became one of Australia's pioneering industrial enterprises. Its kerosene, candles and other products supplied Australia with goods that previously had to be imported.

Joadja Creek was the first coal or shale mine in Australia to use a mechanical cutter to undercut the coal seam. Mr Alexander Russell was the Company's mine manager until 1896. He had previous experience in Scotland of working shale mines with coal cutters, and he persuaded the Company to purchase the coal cutting machines.

The imported machine was a Gartsherrie coal cutter, that was approximately 60 cm high and ideal for the thin seam being worked at Joadja Creek. The machine was powered by compressed air, and cut up to three times more than manual undercutting could achieve, in the same length of time. The cost of undercutting was reduced, and shotfiring with expensive blasting powder was no longer required. Subsequently, the Company purchased another two coal cutters.



The Gartsherrie Coal Cutter[559]

The mining method utilised by the Company could be described as "advancing longwall" having a face width of 250 ft (76 m).

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[558] Source: L. Wright, photo taken in 1998.
[559] Dr A. J. Hargraves "History of Coal Mining in Australia" 1993, p.25.

To support its mining activities, the Company had a mixed farm that sold produce such as fruit, vegetables and milk to the inhabitants of the valley. On the opposite side of Joadja Creek to the industrial complex and village, the Company Planted thousands of fruit trees. Later, orchards and vineyards were Planted on top of the mountain with pine trees Planted to serve as wind breaks. A total of 6,700 fruit trees were Planted in the orchards.

The orchards became a prosperous industry that was able to supply produce to the Sydney market with hundreds of cases of fruit. The range of fruit grown included cherries, apples, pears, peaches, plums, quinces, apricots and walnuts. An average of 100 cases of fresh fruit per day were marketed in Sydney. [560]

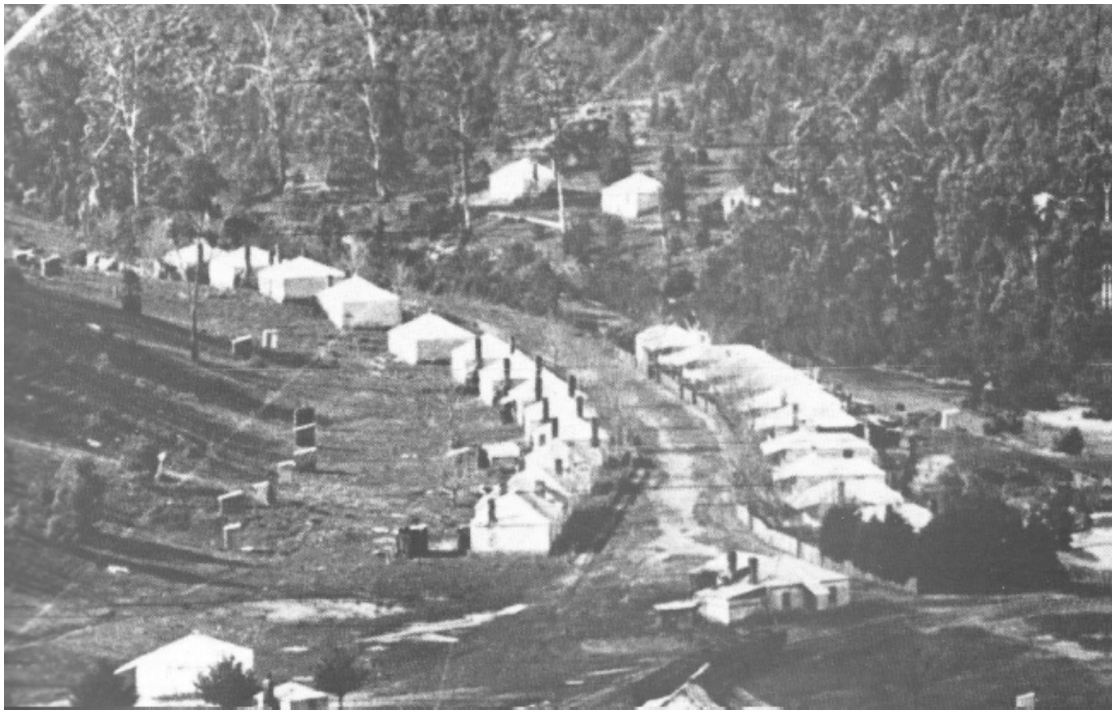
The village of Joadja Creek was constructed adjacent to the industrial area. There was a divide in the type of housing provided. A street called "Stringy Bark Row" had slab houses with bark for walls and roofs, and this housed the miners and their families.

In 1882, twenty new brick houses were constructed and this became known as "Brick Row." Later it was renamed "Carrington Row" in honour of the NSW Governor Lord Carrington who visited the site. The mine manager and the company directors lived in this street.

Deciduous trees were Planted on the northern side of the houses, to provide shade from the intense summer sun, and allow the warmth of the sun onto the buildings in winter. An outdoor toilet was constructed at a respectable distance, from the rear of each house.

A home with bark for roof and walls in Stringy Bark Row in 1881[561]

[560] L. Knapman "Joadja Creek, the shale oil town & its people 1870-1911," 1988, p. 94.
[561] L. Knapman "Joadja Creek, the shale oil town & its people 1870-1911," 1988, p. 49.

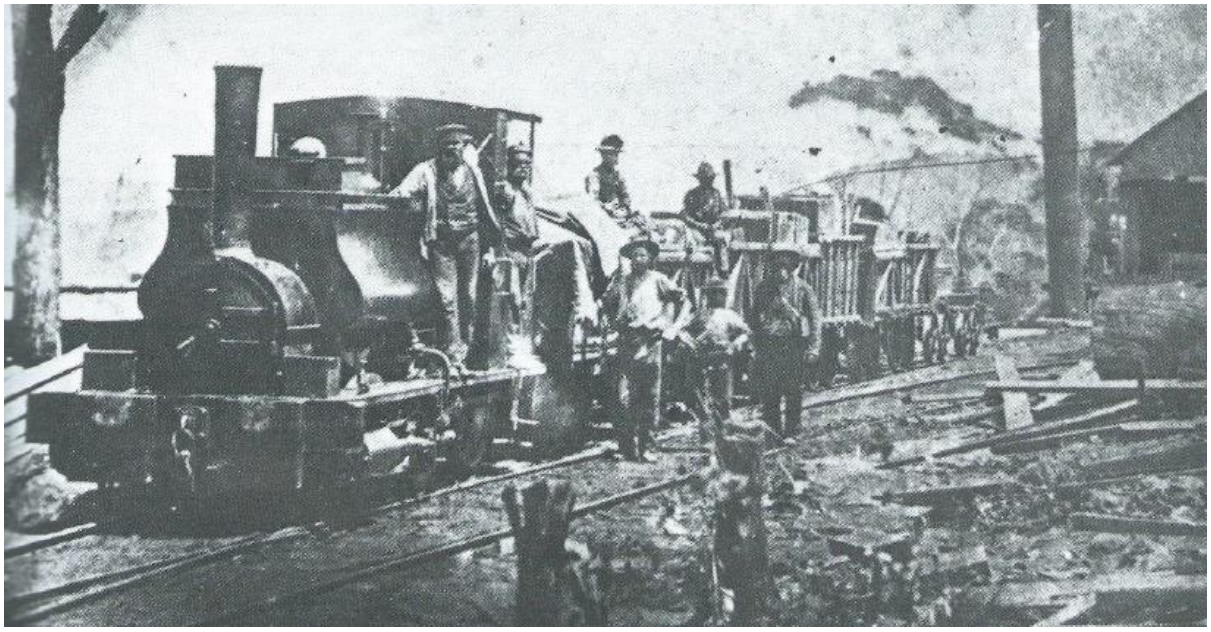


The brick houses in Carrington Row[562]

Houses in Carrington Row circa 1998[563]

[562] L. Knapman "Joadja Creek, the shale oil town & its people 1870-1911," 1988, p. 49.
[563] Source: L. Wright.

The original Schoolhouse was a very basic slab hut, completed in 1883, with more than 100 children attending the school. At its peak, more than 1,200 people resided in the Joadja Creek valley community.



Train leaving Joadja for the journey to town with passengers seated on top of waggons[564]

In 1885, the Australian Kerosene Oil and Mineral Company recapitalised by increasing its capital by 50 % to 75,000 pounds. In 1890, the Company recapitalised again, marking the beginning of the Company's decline. Ultimately the Australian Kerosene Oil and Mineral Company was restructured in 1891.

The remaining reserves of torbanite were thinning. Cheaper mass manufactured kerosene from North America was flooding into the world market, including Australia. The final blow was that the Commonwealth Government of Australia removed the four pence per gallon import duty, on Kerosene.

The total production of torbanite from Joadja Creek was 381,000 tonnes by the end of 1902 and the Company formally notified the NSW Mines Department of the closure of the mines in October 1903.[565]

Devastating bushfires swept through the Southern Highlands area in 1905 and destroyed much of the Company's infrastructure. Fortunately, the orchard trees were not destroyed as they were bare at that time of the year. In 1906, The Australian Kerosene Oil and Mineral Company went into voluntary liquidation.

The orchards continued to function until the 1920s. The machinery operating the inclined tramway from the valley orchards to the top of the mountain, was closed down in 1924.

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[564] L. Knapman "Joadja Creek, the shale oil town & its people 1870-1911," 1988, p. 29.
[565] NSW Department of Mines Annual Report 1903, p.78.

Today, the public can visit this site on fully guided or self-guided tours of the Joadja Creek ghost town via http://www.joadjatown.com.au on Saturdays and Sundays, or by appointment. The local tourist centre is the Southern Highlands Tourist Centre, in Mittagong.

Location Map of Collieries in the Southern Highlands in 1972[566]

[566] Joint Coal Board Annual Report 1972, p. 287.