The Cornish at Burra, South Australia *

By R. KEITH JOHNS

Copper mineralisation was discovered 100 miles north of Adelaide, adjacent to Burra Creek, in 1845 by a shepherd named William Streair. Shortly thereafter another shepherd, Thomas Pickett, discovered similar outcrops – eight miles to the northeast.[1] When these were brought to the attention of interested developers, competition for acquisition of what were perceived to be mineral lands of great potential was complicated by Governor George Grey's requirement pertaining to Special Surveys beyond the surveyed Counties, through payment of £20,000 for a single 20,000 acre block. The sum represented a major hurdle to the aspirations of would-be developers.

Rival bids, in due course were resolved as being from two groups:

- One, representing capitalist and pastoral interests, including the operators of the Kapunda copper mine, who were referred to as 'The Nobs'.

- And the other, an amalgamation of 'The 'Committee of the Mining Association for the Northern Monster Lode' and the South Australian Mining Association (formed in 1845) representing a group of mainly Adelaide business identities, referred to as 'The Snobs'.[2] [By each party agreeing to contribute £10,000 they were able to satisfy the financial requirement for allotment of the single block, prescribed in the form of a rectangle, of length not more than double the width.

The Special Survey was undertaken in August 1845 of a block eight miles x four miles to barely encompass the two centres of interest (at diametrically opposed corners) and now to be split into two equi-dimensional sections (each of 10,000 acres), ownership of which were decided by ballot on 23 September 1845. 'The Nobs' drew the Princess Royal in Section 2 – and this proved to be a deposit of little consequence for the 'Mining Association for the Northern Monster Lode'.[3]

At the north-western extremity of Section 1, Burra Burra Mines would be based on surface indications which were described as 'of great purity, 14 feet in bigness, cropping through the surface to the extent from 3 feet to 6 feet above the ground'.[4] Through the initiatives of the South Australian Mining Association, The 'Snobs' comprised the fortunate owners of this property. The local newspaper reported that

'both parties seem perfectly satisfied with the decision; each affirms they have procured the half they wished for'.[5]

The South Australian Mining Association, which dated from16 April 1845 for the purchase of, working or sale of the mineral lands in the Colony preceded any knowledge of the discovery of copper mineralisation in the Burra region. Now, having secured and paid for the rights to one half of the Burra Creek Special Survey (on 20 August 1845) the directors felt free to advertise for a Captain for their new mine.[6] Twenty applications were received for the position; but a local newspaper reported that 'some of the candidates did not know B from a bull's foot'![7] They couldn't have done better than recruit Thomas Roberts – the author's maternal great-great-grandfather.

Thomas Roberts, first Captain of the Burra Burra Mines

The earliest, clearly identifiable ancestor of this lineage is Hannibal Roberts who married Alice Bawden on 20 October 1770 (some six months after Captain James Cook planted the British flag at Botany Bay). Their family of nine included the name of Thomas twice (when the elder one died, aged two years); of two named Anne; and of three named Catherine. Tragically, the first set of twin girls who were named Catherine and Anne both died within two years of birth. They were succeeded by a further set of twin girls, on whom the names Catherine and Anne were again bestowed. Alas, this Catherine didn't survive early infancy and the name was further recycled (for the third occasion) on the youngest of the issue.

During research, the author chanced on another family who lived in Cornwall at that time, by the name of Hornblower – they were designated Jabez, Jethro, Joanna, Jesse, Jemima, Jonathon, Joseph, Jemima (again), Julia, Jecholia, Jedida, Jerusha, and Josiah – very Cornish, but not a Jack nor a Jenny among them![8] Meantime, Thomas Roberts (above) of Perran – ar – Worthal married Anne Rawlings. He was a miner in the Parish of Gwennap, five miles south west of Truro; three of their sons were miners – Thomas in the Greenwith mine; Jonathon and Emmanuel at Greensplat; another, Henry, was a mason. The younger Thomas and wife Hannah (nee Webb), together with their five children, arrived in South Australia on the *Sir Charles Forbes* in June 1839. They were accompanied by his younger brother Jonathon, wife Amanda and a son.[9] The brothers acquired adjoining allotments in George Street, Thebarton. In 1844 they were listed as having land sown to wheat at Fourth Creek. In early August 1845 they were

both engaged by the newly formed South Australian Mining Association to open up a copper bearing lode at Montacute Mine, less than 10 miles east of the City. The work was discontinued on 30 August 1845 and they were paid £12 for their month's work.

Figure 1: *Hannah and Thomas Roberts (First Captain of the Burra Burra Mines), 1845.*

Source: R.K. Johns Collection

One should declare one's interest – and divulge that there were 88 shareholders of the South Australian Mining Association holding 2,464 shares, each of £5 – they included:

- ROBERTS, Thomas, of Adelaide, miner, (3 shares)
- ROBERTS, William, of North Adelaide, gentleman, (7 shares)
- ROBERTS, Jonathon, of Adelaide, miner, (1 share)

Thomas Roberts, Captain of the Burra Burra Mines, would take 10 miners with him to Burra, with experience in Cornwall; they included his brother Jonathon and his son, William, the author's great-grandfather. In a letter signed by Henry Ayers, Secretary of

the South Australian Mining Association, dated 24 September 1845, detailed instructions (for which Ayers became renowned) were addressed to Roberts:

> The 10 miners and mining smith engaged by you for one month from this date will be under your control. Your pay will be £3 per week, the pay of each man 35/- per week, the whole party finding themselves in rations and paying their travelling expenses, the luggage and stores for the men being conveyed to the mine by drays employed by the Association. A cart with 2 horses is provided for conveying the men to the mine, but as the cart will contain tools the whole of them must ride and walk in turn.
>
> On arrival of the first party at the mine, if the horses are not too much jaded by their journey, you will send one of your party to meet the walking party in order that as little delay takes place on the road.
>
> No times must be lost on arrival to obtain ore for loading the drays which accompany the party and for any other drays that may be hereafter despatched.
>
> You will commence the working of the mines as you think most advisable not only for the purpose of raising as much ore as possible during your present engagement but with a view to future operations.
>
> As you take with you two tarpaulins for the use of the men you need lose not much time in erecting huts.
>
> You will brand the cart and horses and all other articles that you can with the brand of the Association and you will be held responsible for the safekeeping and careful management of the tools, materials etc. provided for the use of the party.
>
> You must communicate to me (for the information of the directors) all particulars with reference to your operations by every opportunity that offers and particularly to the probable quantity of ore that you could raise <u>within a month</u> with your present party and if it would be desirable to put a greater number of men immediately.
>
> I understand there is a bunch of ore superior to the ore you know of towards the south east of the great lode, and you will use every spare moment in examining the land, and if you can send me in a plan of what you discover, it would be satisfactory to the directors.
>
> The sappers and miners are now on their way out to survey more land at the north-east angle of our boundary; you will consider it part of your duty to examine this and report especially on it, sending in samples of what you find with the direction in which the lodes, if any, appear to run. I wish you to understand that on the success and good management you are able to display on this occasion will depend on some degree how far the directors will patronise you in their future operations.
>
> Before the expiration of your engagement you will again hear from me.[10]

On 29 September 1845 the first charges of gunpowder were fired to expose a large mass of rich red oxide of copper. In the course of a few hours after the arrival of the party at the site 'about 10 tons of the most splendid copper ore was placed in the dray and departed for Adelaide the following morning'.[11] A few days later, 16 more drays and their drivers were sent up to bring away their loads of ore; within the first

seven days, the products of the mine were valued at £700 – shares leapt 220 percent in value overnight.

Initially, mining operations were more like quarrying. No special skills, except perhaps for the use of gunpowder for blasting, were required. Further, the ore needed very little treatment and was readily separated from the country rock. In the first year of operations, 1,200 tons of dressed ore were produced from workings that comprised 29 shafts ranging up to 140 feet in depth, and levels aggregating one-and-one-half miles in length.[12]

'The Monster Mine', as it was often called, served to create an atmosphere of copper mania in South Australia. It assured the Colony a period of unprecedented growth, prosperity, and world renown, as it contributed a large proportion of world copper output. It was referred to as 'The 8th wonder of the world', for specimens of ore were displayed not only in Adelaide, but also in Cornwall, at the Barbican in Plymouth, and at the British Museum. The population of the Colony was to be quadrupled in seven years and the value of mineral exports came to exceed the value of its wool and grain.[13] By 1851, with a population of 5,000, the mine supported the largest inland settlement in Australia – being exceeded at that time only by Sydney, Melbourne, Hobart, Adelaide, Launceston and Geelong – of the Burra number, 55 percent were women and children; 25 percent were men and boys employed by the mine; 10 percent were employed by the smelters; the balance (10 percent) were men in shops, inns, trades, professionals in town; or engaged as pastoral and agricultural workers, in the district.[14] At this stage, when it reached its productive peak of 24,867 tons of ore raised, the mine employed 427 underground and 586 on the surface.[15]

The speed with which the mines, the townships and a smelter (the largest outside Swansea, in Wales) were developed is truly remarkable – of course, they weren't lumbered by such modern day enlightenments as Government approvals, feasibility studies, Environmental Impact Statements, Occupational Health and Safety issues, nor Aboriginal Land Rights claims – nor were there mobile phones to distract them.

Mine development had a major impact at a critical period in the Colony's early history on migration and upon infrastructure. Employment afforded to large numbers of all grades and ages was the most important impact since mining, smelting and associated activities were labour intensive. Thus, the Secretary of the South Australian Mining Association was able to assert that 'You might safely say all South Australia was indirectly employed by the Burra Burra Mines'.[16]

The Mines

While the Cornish miner at home might be portrayed as a sturdy, independent cottager (with a goatee beard), and sleek (with feasting on pasties and currant cake), seldom without a hymn book, playing euchre, and indulging in a spot of wrestling in his spare time, the harsh truth of his working life was a miserable, dangerous, and even squalid existence. In reality, he was likely to have been the rent-owing occupier of a damp cottage, gaunt (on a diet of potatoes and pilchards) and addicted to the local beer shop. It has been said that, at St. Just, the miners never minded working underground because they never saw the sun anyway.[17]

It is little wonder that Cornish miners were attracted to South Australia at this time – and much of Cornish migration, with free or assisted passage was in response to demand from the new mines at various times.[18] Their skills would make them useful as well-sinkers, ditchers, quarrymen and masons, also. Not only were the tin and copper mines at home in decline, through exhaustion of reserves – and closure due to increasing costs of recovery and extreme depths from which ore was being won; but new opportunities were now on offer – free passages for themselves and their families, higher wages, improved living conditions, a milder climate, and a dry, well ventilated, less exhausting, healthier, shallower, less hazardous mine. Miners were recruited specifically to work at the Burra Burra Mines, directly from Cornwall; local agents were appointed to select migrants, arrange passage and (on occasions of pressing urgency) bounties were paid and funds disbursed.[19]

Burra Burra was to become a transplanted Cornish mine[20] – mining practice was translated directly from Cornwall, and the Cornish system of tribute and tutwork and surface men was introduced by March 1846. Tutworkers were engaged on non-productive but necessary dead-work tasks underground, such as shaft sinking or cross-cutting at a fixed price per fathom (which depended on ground conditions and requirements). They would provide their own tools, gunpowder and candles – and might earn up to £2 per week. Tributers were in the nature of subcontractors; the takers of each 'pare'[21] would bid for a pitch in the mine at monthly setting days, to be paid at so much in the pound for the payable ore they sent to grass. They had not only to excavate the ore, but also to raise, dress and arrange it according to quality before they could claim their proportion. The system was well favoured by the miners and by 1848 they could expect to earn in excess of £2 per week. Landers were paid £1.7s and whim boys

from 8 shillings per week.[22] The Captains provided the middle management of the mine; and, on them, its smooth working depended – not only in the work under ground, but also in the handling and maintenance of machinery, supervision of the dressing floors, pitwork in the shafts, and the supply of mine stores. Captain Henry Roach (from Redruth) was superintendent of the Burra Burra Mines for 21 years of its most productive period from 1847 to 1868.[23] Other long serving mine captains included Matthew Bryant, Richard Goldsworthy, William Mitchell, Samuel Osborne, Samuel Penglaze, Philip Santo, John Congdon and Thomas Boswartha – Cousin Jacks all.

The extent of the workings, their depth and the nature of the orebody hardly compared to those at home. Burra Burra was a comparatively safe mine; there were 15 fatal accidents in 32 years of mining[24]– a testament to rock stability and to precautionary measures adopted. Most accidents resulted from rock falls or collapse of unsupported openings when drives were being extended or stopes were being timbered. Likewise, accidents at the surface were rare.

Mining was undertaken by parties working by candle-light in 3x8 hour shifts; likewise, smiths to sharpen the miners' tools. Vast quantities of candles were used underground – as a miner might use up to three candles daily, 3 shillings being deducted weekly from his earnings as payment for candles and gunpowder.[25] In 1856 a candle factory was established and a chandler appointed to the mine. Ventilation of the workings was relatively easy, necessitating the sinking of only a few air-shafts to maintain circulation.

The mine workings would be required to be dewatered, to allow recovery of ore below the water table. When water was struck in Kingston's Shaft in 1847, horse whims were erected to raise ore or water, as required. The first Cornish beam pumping engine was erected in 1849 at Roach's Shaft (to supersede four horse whims and displace 40 horses) to keep the water down to the 30-fathom level for the following three years. The transport of the great engines for this and in 1852 for Schneider's Shaft; and in 1860 for Morphett's Shaft together with their Cornish boilers, their heavy beams and pit work from Cornwall were great achievements. The great wooden jinker that was used in the carriage of Morphett's Engine is preserved at Burra – it was hauled by 40 bullocks from Port Adelaide and was supported by a convoy of 40 drays for the engine pieces. It took two months for the journey – the cylinder weighed 18 tons and was 80 inches in diameter; the bob weighed 30 tons.[26]

Figure 2: *Water wheel, Morphett's enginehouse and winding house, 1867*

Source: Courtesy Primary Industries and Resources South Australia

The engines, in turn, when commissioned would be christened in the Cornish custom by breaking a bottle of champagne against the bob wall. The arrival of Morphett's Engine was celebrated by the lighting of bonfires, dancing, and the conduct of wrestling matches – together with plenty of beer and pasties. Working at eight strokes per minute it would raise over 16 million gallons of water per week, operating continuously day and night for the next 17 years; it had cost £4,500 and was to consume 10 tons of firewood daily.[27]

Sunday observance was a feature of Burra life during the mine's existence. Certainly nothing on the mine itself moved on the Sabbath except the pumping engine - the only sound came from the regular dull thud of the beam of the engine and attached rods which descended underground to control the level of water, in a remarkably quiet manner.

As was the practice in Cornwall, medical and associated welfare relief was provided in case of accidents or illness for the men employed at the mine, each of whom contributed 6 pence per week (amounting to £500/year) for the salaries of two resident doctors; and £500 for support of the sick-club which extended to sickness at home.[28] The Burra Lodge of the Independent Order of Oddfellows (and similar benevolent societies) attended to financial difficulties that might follow illness or other

loss of employment incurred by its bread-winning membership. While miners worked underground in some physical danger, the mine was considerably safer than its Cornish counterparts – being also free of such lung disorders as consumption, phthisis and silicosis which resulted from mining of siliceous ores in Cornwall and elsewhere.

The mine captains, senior officers, and their families resided at the mine site; nearby, were changing rooms for the men, company offices, stores, workshops of engineers and mechanics, stables for about 100 horses, sheds for carts, barns, a timber yard and saw pit.

Townships and cultural life

In early 1846 the planned company township of Kooringa (freehold, within Section 1) was laid out by the South Australian Mining Association. Its substantially built cottages, offices and public buildings, the Burra Hotel, a Wesleyan Chapel, a school, a police station, and a hospital were constructed of local stone and flagging. They stand today as monuments to the skill of Cornish stone masons, accustomed to the erection of engine houses at home.[29]

There would, soon, be a desperate shortage of accommodation for miners, labourers and smeltermen. Their solution was to excavate closely spaced cave homes for themselves in the steep-sided alluvial banks of Burra Creek. The dugouts comprised one or more rooms according to the size of the family; in some of the huts, several families lived (amounting to perhaps 20 souls); at least one operated as a boarding house, of five rooms.[30]

The census of 1851 revealed that 40 percent of the Burra population lived like wombats in streets of honeycombed dugouts, extending over a distance of three miles along both banks of Burra Creek. They were rent free; they were within the company town; and they were permitted by the company. They were said to be clean, neat, cosy in winter and cool in summer; whitewashed inside and, sometimes, outside. Many were fitted with paling verandahs and lean-to's. Their chimneystacks (made of casks or palings) were set on holes opening to the footpath above. It was said 'As you pass by, you can always know what is being cooked – and many anecdotes are told of fish, flesh, and fowl disappearing up the chimney, being hooked up by some practical joker'.[31]

But there was a downside; unsanitary conditions including the casting of refuse before the door, to numerous pigs at the dugouts, gave rise to outbreaks of typhus,

small-pox, typhoid fever and epidemics of measles, whooping cough and croup; the resulting high mortality (75 percent of whom were children of less than 7 years of age) was undoubtedly attributable to lack of sanitation.[32]

It was only a matter of time before pestilence and flash floods would drive out the subterranean population. The first flood in February 1850 destroyed 80 dugouts. Destructive floods in May, June and July of 1851 were enough to deter further occupation of such excavations as water rose to unprecedented heights, destroying the structures and displacing the occupants, scattering their furniture and livestock downstream. Notice was given that as from the first day of December 1851, no person residing in the caverns of the Burra Creek was to be employed by the company. Those continuing to reside therein would be regarded as trespassers and treated as such.[33] The building of 33 cottages, enclosing Paxton Square, would accommodate some of those displaced from their dugouts. Notwithstanding, reports of later floods (in 1859 and 1860) referred to inhabitants again being washed out of the creek. Only two dugouts have survived to provide visual evidence of the once swarming population of (so called) 'Creek Street'.

**Figure 3:** *Dugouts, 1980*
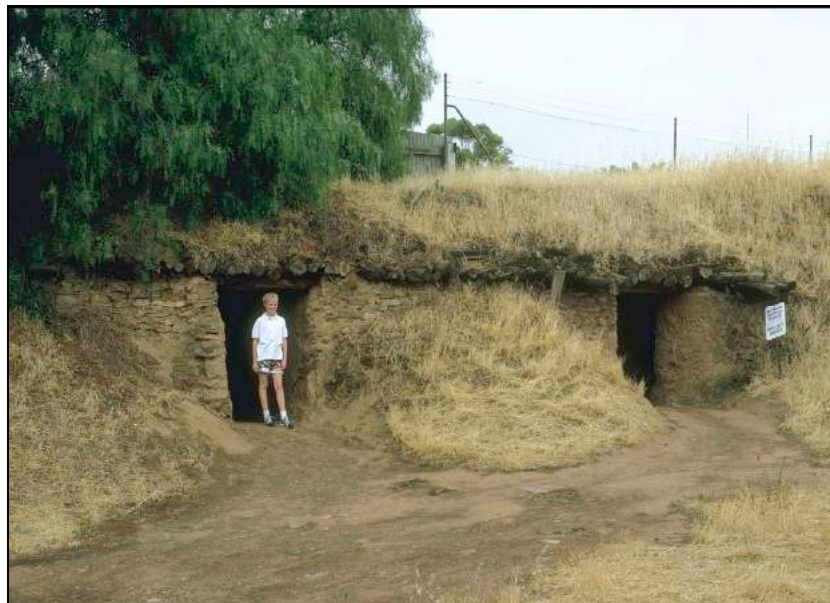
Source: Courtesy Primary Industries and Resources South Australia

Towns were established (by private enterprise and the government) outside and along the South Australian Mining Association property boundary (separated from Kooringa by the smelters). First and foremost was Redruth, dating from 1849. To the

delight of the Cornish community, the new Government town and its streets bore names of Cornish towns – thus Truro, Sancred, Helston, Ludgvan, St. Just, Tregony, Morvah, Mevagissey, St Day, Illogan, Lelant, Trembeth, St Agnes, Crowan and Fore were recognised. Government offices including gaol, police station, courthouse and (later) the railway station would be some distance removed from Kooringa township.

Figure 4: *Burra Townships*
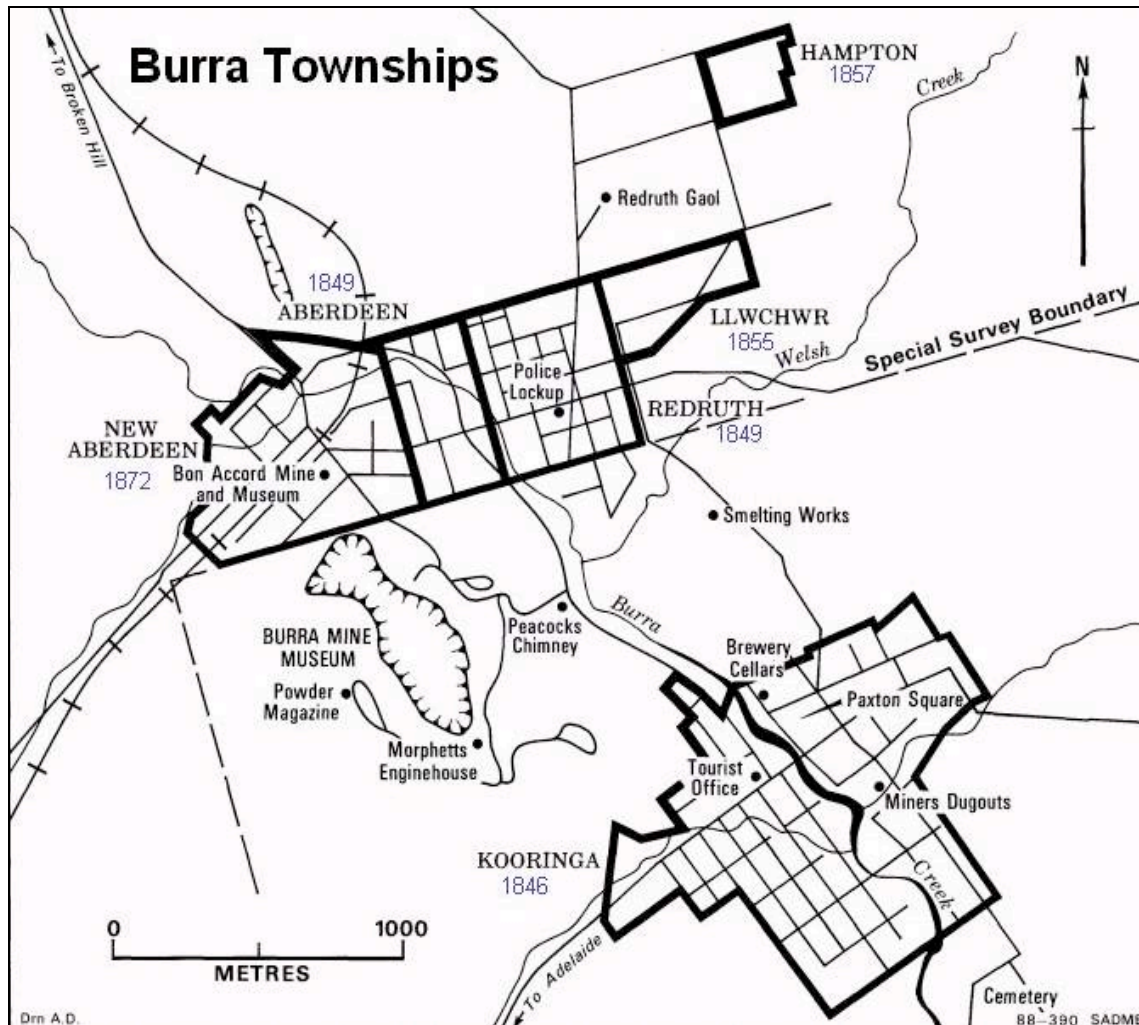
From 1855, the village of Llwchwr with street names such as Aberavon, Cwmavon, Llanelly, Lysnewydd, and Penclawdd, that would again have been familiar to the housed smeltermen and their families who had been drawn from Wales. A Scottish speculator laid out Aberdeen in 1849 - it included Bon Accord Mine. Hampton, an English village, was established in 1857. Others that were soon abandoned, forgotten, or stillborn and existed in little more than a name include Copperhouse,

Lostwithiel, New Aberdeen, Graham, Nelson, Princesstown, Westbury, Roachtown, Yarwood, Millerton, Warapoota and Clonmel.[34]

Captain Isaac Killicoat, a Cornishman responsible for smelterworks' purchase of ore from the mine and for sale of its product, was the principal founder of modern day Burra; he was elected Chairman of the first District Council of Burra Burra formed in 1872.[35] Until that time the mining community was split into five distinct townships - divided physically and socially, each with its own churches (especially those of Methodist sects), shops, hotels, school and post offices. Each had its own name and identity, with its own social life centred around church, school, hotel or lodge.

Unlike the situation that emerged in the Moonta/Kadina/Wallaroo area, water supply for the townships was not a problem – copious quantities of an underground reservoir of potable water were pumped from the mine (and would continue to supply the populace for the following 120 years). However, timber was soon stripped for miles about – for use on the mine and for domestic purposes. From being a place of sheoaks and with its rounded hills lightly timbered with eucalypts (and clothed with wild flowers in spring), Kooringa became a barren wasteland within a few years of the mine opening. The biggest trees went up in industrial smoke; vast herds of goats (that were greatly favoured by the Cornish) stripped the remaining foliage bare. And the large gums along the course of Burra Creek were early sacrifices as furnace fuel.

The Cornish character of Burra derived from the survival and development of cultural and social traditions and religious conditions from Cornwall. It was almost a requirement, as a Cornishman and a miner, to be of Methodist persuasion (no matter whether Wesleyan, Primitive, Bible Christian, or United). It is claimed that under the influence of religion, as with their counterparts in Cornwall, the reforming Methodists played a significant role in transforming 'frontier' Burra from a raw and riotous mining camp into a peaceable, Christian and law-abiding community.[36] At first disorganised and leaderless, the arrival of families and the stance taken by lay preachers, many of them from the ranks of the miners, saw sanity turn the population from 'vulgarity and intemperance' to a more sober state of affairs.[37]

Burra would seem to have been a lively but not lawless place and offences were not the result of greed for possession of any mineral (as it would be on the goldfields, elsewhere, at that time). The mining of copper would not lead to disputes over mineral claims – and no bushranger was ever interested in holding up a convoy of copper.

Figure 5: *Bible Christian Chapel, 1850*
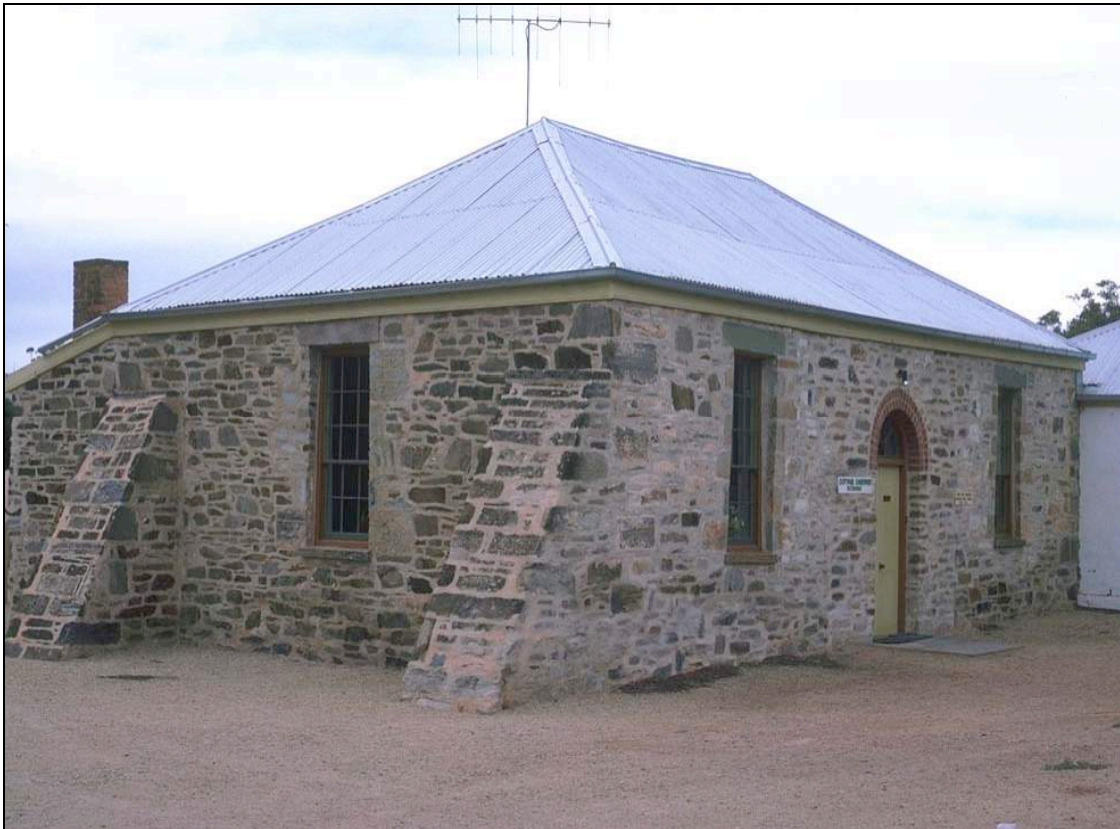
During the life of the mine, most crime was drink-induced; this possibly stemmed from payment of high wages; and at a time when the legal minimum drinking age was 12 years - and boys, who were then employed as bullock drivers and mine workers, soon became men and adopted men's habits. Of all the Colonies, South Australia had the widest trading hours, viz 5:00 am until 11:00 pm on weekdays, and 1:00 – 3:00 pm and 8:00 – 10:00 pm on Sundays - and there was no shortage of public houses: they included four in Kooringa - 'The Miners Arms', 'Burra Burra', 'Smelters Home' and 'Pig and Whistle'; in Redruth – 'The Courthouse', 'Bushman's Home', 'Cornish Arms' and 'Redruth Arms'; in Aberdeen – 'White Hart' and 'Bon Accord'; Lostwithiel and Copperhouse were served by 'The Racecourse'. They were well served by a brewery, first established in 1849 and owned by the Burra Burra Hotel. This was later to be succeeded by the Unicorn Brewery (the cellars of which are still accessible).

In 1846, four constables (two of them mounted) were stationed at Kooringa. In the following year a police station, stable and lock-up cells (which are now the property

of the National Trust) were erected on the Police Reserve in the Government township of Redruth. Redruth gaol, erected in 1856 was the first country gaol in South Australia.

Figure 6: *Redruth Gaol, constructed 1856*

Source: Courtesy Primary Industries and Resources South Australia

The first school was operated by Wesleyan Methodists from 1846. By 1851 there were five private schools. By 1861, some 574 children were being educated: it represented about one half of the children of age 7 - 13 years – and was comparable with attendance elsewhere throughout the Colony.[38]

An aspect of Cornish cultural influence that was of particular significance was the popularity and survival of Cornish wrestling, sometimes embracing an extensive series of matches held over three days in the Cornish style – it survived in Burra until closure of the mine. It was legal (unlike bare-fisted fights which were frowned on) and became an annual Christmas event, staged at the rear of the 'Miners Arms' Hotel, where there was plenty of manure, sawdust and ale. On entering the ring, the contestants would shed their coats and waistcoats and don strong canvas jackets, fastened with strings instead of buttons. They were said to have been quite friendly affairs and were (essentially) tests of strength. The contestants stood on their feet and engaged in

clinches (so-called 'hitches'), attempting to out-manoeuvre their opponents with muscle, feet and leg dexterity, and take them to the ground. Referees (called 'sticklers') moved round the ring to adjudicate on 'falls'. The one left standing was declared the champion.

Other traditional Cornish holidays were celebrated at Burra, including:

- St Piran's Day, in honour of the patron saint on 5th of March. In 1848, for instance, the opening event was a race, (by two teams of ten) to catch a stout black pig let loose at 10am; it was followed by other sports. Soon after noon about 1,000 had gathered at the ring, set for 22 wrestling matches. The amusements went on until sundown – aided (it was said) by a booth on the ground which supplied copious brandy and ale.
- The Duke of Cornwall's birthday.
- Mid Summer Eve which was recognised by the Cornish community, despite this being mid winter in their new country. It was customary to fire salutes (with charges of gunpowder stuffed into hollow logs) at the beginning of the day and to end it with enormous bonfires, fuelled by tar, wood and anything that would burn.
- Whit Monday was also celebrated. It was on Whit Monday in 1859 that newly formed Burra Cricket Club played its first match – tradesmen and shopkeepers vs 'hard-fisted' miners.[39]

End of mining activity

Cornish miners were still being recruited to the Burra Burra mines, directly from Cornwall, in 1876 – latterly, to search for new lodes and the extension of old ones in the underground levels. During the period 1845-1877, 51,600 tons of copper metal equivalent were produced from the treatment of 234,600 tons of ore. But the decline in the price of copper, expense entailed in pumping large volumes of water, and decrease in copper grade had become too much. Morphett's Engine was stopped and the water allowed to rise; employees were dismissed and the mines were closed on 13 November 1877. Miners left Burra to mine 'wherever rumour led them'; to the gold fields of the eastern States, to Wallaroo, Kadina, Moonta, the Flinders Ranges and Broken Hill. Skeletal remains of the 150-year old pump houses and other buildings stand today as architectural *Diprotodons* of the extinct Cornish mining era.

* <u>Note:</u> This article is based on a paper presented by the author at the Twelfth Annual Conference of the Australian Mining History Association, Kadina, South Australia, July 2006.

Endnotes

[1] H. Ayers to J.C. Ware, Kooringa, 12 December 1851, South Australian Mining Association, Business Records Group 22, [hereafter BRG 22], 960, *Directors Out –letter books*, State Library of South Australia [hereafter SLSA], p. 51; Ian Auhl, 'Thomas Pickett – Shepherd and Discoverer of the Burra Burra Mine – 1845', in *Burra – A Glimpse of the Past*, National Trust of SA, Burra Branch, ca.1969. Streair received payment of £8 for intelligence relating to his find; Pickett was paid £10 for his information.

[2] The Monster group was an independent group that held the majority of shares and only agreed to submerge their identity with SAMA because they could not raise the whole of the required £10,000. See, M.J. Davies, 'The South Australian Mining Association and the Marketing of Copper and Copper Ores 1845-1877', MA thesis, University of Adelaide, 1977, pp. 10-11.

[3] J.B. Austin, *The Mines of South Australia,* Adelaide, 1863, p. 19; Ian Auhl, *The Story of The "Monster Mine" – The Burra Burra Mine and its Townships*, *1845-1877,* Investigator Press Pty. Ltd., 1986, pp. 33-41.

[4] *Register*, 20 August 1845.

[5] *South Australian*, 23 September 1845.

[6] *Directors Half-Yearly Reports***, '**Report of the Directors of the South Australian Mining Association*,* to the Scripholders at the General Half yearly meeting held 15 October 1845', BRG 22, 25, SLSA, where stated that, 'The Mines are named The "Burra Burra" Mines from their being situated near the creek of that name and the word "Burra" meaning in the native language "great". The name of the present working is Wheal "Grey" '.

[7] *South Australian Gazette and Colonial Register,* 4 October 1845.

[8] *Journal of the Trevithick Society,* No.4, p. 18, 1976.

[9] *Biographical Index of South Australia,* (1836-1885), vol. III – South Australian Genealogy and Heraldry Society Incorporated, 1986.

[10] *Minutes of Directors Meetings*, 24 September 1845, BRG 22, 957, SLSA.

[11] *South Australian Gazette and Colonial Register,* 4 October 1845.

[12] *Directors Half-Yearly Reports***, '**Report of the Directors of the South Australian Mining Association, to the Scripholders at the General (Half-yearly) meeting held the twenty-first day of October 1846', BRG 22, 25, SLSA. As reported, there were almost 200 men employed in production of high grade green and blue carbonates of copper and red oxide with native copper; 400 drays carted ore to Port Adelaide. Smelting works were being erected. Within Kooringa township (laid out over 40 acres) cottages were being constructed and planning was in hand for school, hotel, chapel and police station. World copper prices were buoyant and shareholders were set to receive handsome dividends for the ensuing 20 years. The price of refined copper *at Adelaide* was to rise from an *average* of £75 in 1845 to an average of £116 in 1854, with the *highest price* of £120 per ton being recorded in 1855, see Davies, 'Marketing of Copper and Copper Ores 1845-1877', Appx. 9 and Appx 23.

[13] *Ibid.,* Appx. 13. This was certainly the case from 1846 to 1851.

[14] G. Blainey, *A Land Half Won,* Melbourne, 1980, p. 119.

[15] *Minutes of Meetings of Shareholders, 1845-1916***, '**Report of the Directors of the South Australian Mining Association*,* to the scripholders at the Annual General Meeting held on 16 April 1851', BRG 22, 959, SLSA, listed the Establishment as comprising: 269 Tributors, 116 Tutworkmen, 11 Timberman, 217 men on ore dressing, 54 boys on ore dressing, 12 men weighing ores, 4 boys weighing ores, 9 landers, 38 whim boys, 28 carters, 7 stablemen, 24 carpenters, 2 painters, 6 stone masons, 7 mason's labourers, 8 smiths, 8 strikers, 2 engineers, 1 fitter, 4 engine men, 4 firemen, 6 sawyers, 124 labourers, 16 officers, 2 surgeons. The year of greatest employment at the Burra Burra Mines was 1859 when 1,125 men and boys were employed; their weekly wages were as follows: to boys, 12s; youths, 18s to 20s; labourers, 27s to 35s; miners, 35s to 45s; engine-drivers 46s to 60s; engineers, 60s to 96s; other mechanics, 49s to 70s. On 20 April 1859 the price paid for Burra copper metal was reported as being £115 per ton.

[16] R.K. Johns, *Sir Henry Ayers, First President of the Institute, and the Burra Burra Mines,* The Australasian Institute of Mining and Metallurgy Centenary Conference, Adelaide, 1993.

[17] D.B. Barton, *A History of Tin Mining and Smelting in Cornwall,* Penzance, 1967.

[18] Philip J. Payton, *The Cornish Miner in Australia, - Cousin Jack Down Under,* Dyllansow Truran, 1984.

[19] Philip Payton, *The Cornish Overseas*, Alexander Associates, Fowey, Cornwall, 1999, esp. pp. 177-182.

[20] A point strongly emphasised in Mel Davies, 'The South Australian Mining Association: An Early Australian Cost-book Company', *Journal of Australasian Mining History*, vol. 1, no. 1, September 2003, pp. 31-50.

[21] At Burra, a 'pare could range from two to eight workers.

[22] For further comment on wage rates see, Auhl, *Monster Mine*, Ch. 9.

[23] Ian Auhl, *Burra and District, A Pictorial Memoir;* Lynton Publications, Blackwood, SA, 1975, p. 14.

[24] Auhl, *Monster Mine*, pp. 288-89,

[25] *Ibid.,* p. 97; Mel Davies, 'Cornish miners and class relations in early colonial South Australia: the Burra Burra strikes of 1848-49', *Australian Historical Studies*, vol. 26, no. 105, October 1995, p. 581, where noted that the candles purchased by SAMA for 2 pence per dozen were sold to miners for 12 pence, and that fuses bought for 2s 6d to 3s per coil were sold to the miners for 4s 6d.

[26] Auhl, *Monster Mine*, pp. 198, 202-03.

[27] *Ibid.,* p. 211.

[28] For further comment see, Auhl, *Monster Mine*, p. 98; Davies, 'Cornish Miners', pp. 581-82.

[29] Greg Drew, *Discovering Historic Burra,* SA Department of Mines and Energy, National Trust of South Australia (Burra Branch) and the Burra Mine Museum, 1988.

[30] *South Australian*, 16 April 1850.

[31] *Register,* 13 January 1851.

[32] See Auhl, *Monster Mine,* p. 129.

[33] *Ibid.,* p. 130.

[34] The attraction of these outside towns lay in the freehold titles granted to householders, whereas SAMA only allowed leasehold. See, *District Council of Burra Burra 1872-1972, A History of Local Government*, The South Australian Gazette, pamphlet no. 53, 1972, p. 7 and *passim;* Auhl, *Monster Mine*, p. 117.

[35] His son was to follow in his father's footsteps as be elected mayor of Burra.

[36] Davies, 'Cornish Miners', pp. 568-595.

[37] *Ibid.,* pp. 568-595, and esp. pp. 590-91.

[38] Auhl, *Monster Mine*, p. 271.

[39] Payton, *Cornish Miner in Australia*, p. 72.