

here (and there were some early ones among us who ding to view this magnificent spectacle) can remember een. The blaze and the splendour of the coruscations south were almost blinding, but very little thunder followed. A smart rain fell briskly for about an hour, but left no marks of its effects in the morning.

Today (Sunday the 16th) we attended divine service in the church which was most respectably filled both morning and evening. The Rev. Mr Pollitt preached two excellent sermons (extempore) well adapted to the nature of his congregation, and the singing was accompanied by a seraphine. All the assembly appeared remarkably orderly and attentive.

The mail to this place comes in every weekday except Monday.

17 February—Of the Burra Burra Mine²²—the world's wonder—it might seem useless for us to attempt any sufficient description, most particulars respecting it being well known to persons taking an interest in such subjects. We however decide, *non obstante*, to record our own impressions on viewing it: which obstinacy may excusably arise from a long sojourn in the colony, a feeling for interests, and a want of opportunity, up to this hour, of personal observation.

We had made a cursory survey of the mine and its situation on the 15th, but on the 17th we went to visit it in detail, and worked our way in and out among the various busy spots, where the ore was extracting from the various shafts, commencing with Captain Roach's. Our companion descended Kingston's old shaft, which was in full work, and ascended by a new shaft, after winding and wading through various passages in this labyrinth of excavations. We next saw the ore crushed, jigged, and washed, and then laid out, to be assayed, weighed and bagged for smelting. We then ascended the engine-house and its various stories to view every part of the steam-engine, which is fifty-three horse-power. The water pumped up here at Roach's Shaft is not good, barely

²² Burra Mine. See: *South Australia and Its Mines*, F. S. Dutton, pp. 288-96; *Mines of South Australia*, J. B. Austin, pp. 18-23; *The Rush That Never Ended*, G. Serle; *Paradise of Dissent*, D. H. Pike.

drinkable; but from some shafts a flow of very sweet and good water is obtained.

The circling whims, with their horses in brisk motion, the buckets alternately racing up and down, the barrows rattling on tramways to deliver the contracted ore, the crushing and the jigging, the engine in motion, and the drays at work or arranging in rows and relieving their horses, of which a hundred were often turned loose together in a large yard, and all looking well fed; the busy employment of the individuals in front of the various houses and scattered dwellings, among others that of Captain Roach, at the end of a row with its neat green palings; the company's offices, where all seemed in a bustle, and the continual passing of men and boys among the piles of ore; altogether formed a scene new and striking to us on this our first visit to the 'Great Burra Burra'. We obtained some lovely specimens, particularly a few splendid ones of malachite which abounds in this mine; and we returned, wondering as well at all these things as at the employment given to nine-hundred persons in these works.

From the mine we proceeded in the afternoon to the Smelting Works; but Mr Williams,²⁴ the Superintendent, was absent, not to return till evening; and as these works are not shown without an order, we left our credentials in the office, and appointed to call on the morrow.

18 February—We set out today to inspect the Smelting Works of the Patent Copper Company,²⁵ and a clerk handed us over to

²⁴ Thomas H. Williams.

²⁵ *Patent Copper Company*—1848, 11 December the foundation-stone was laid by William Giles, Esq. (1791-1862); manager of the South Australian Company; at the Works of Messrs Schneider & Company; Patent Copper Company; *Southern Australian*, 19 December 1848, p. 2.

'1849—Fifth Stack or chimney is in course of erection, four being complete. Furnace and furnace house are in course of erection, also mechanics shop, offices, cottages for the workmen, etc. Operations will probably start in April.' *Southern Australian*, 20 February 1849, p. 2.

April—At three o'clock, the new furnaces were ready for lighting; and on this occasion—so important to the future prosperity of South Australia—I was invited by Mr Walters (of London) to set fire to the first; and I have since been informed that "Latimer's Candle", as the stack was in jocular contrast named, has not been, and will not be, "put out."

"To give you an idea of the establishment, the smelting house, with six stacks of chimneys, is 210 feet long. It is thought, hereafter, it may be

a Mr Jones, a good-looking, as well as a good-humoured Welshman, from Glamorgan; in whom the copper-fires do not appear to have made any reduction in a goodly presence. Jones showed us everything worth notice in this remarkable place. We had scarce, however, approached the refining department, to which Jones conducted us first, before we were politely accosted by an extremely hot-looking individual, who requested *in limine*, to acquaint us of a certain custom of visitors here, which consisted in giving the workmen as much as we pleased—the more the better. After satisfying this tribute, the hot individual withdrew, to imbibe internally that moisture, the outward expenditure of which his trade obliged him to. We now entered the pandemonium of refinement; there are three large refining furnaces; from whence we saw the pure copper extracted in red hot ladles; we then saw the moulds receive each ladleful, forming one cake, which, before hardening, was stamped P.C.Co., by a boy with a brand; and this brand Jones himself operated upon the copper-cakes, in exemplification. From this place we were conducted to a large shed, where several cakes, forming the contents of a large mould, were separated with a hammer by another boy. This separation produced a number of flakes, or laminae, which strewn the ground, and which, we were told, were collected and smelted again.

We were now shown into the smelting department, of sixteen furnaces, in three ranges, in two of which ranges the flues underground, and have one common vent in a beautiful brick chimney of excellent workmanship. Here we were again informed of a custom extremely similar to that prevalent in the refining branch, namely, to pay equal tribute; we referred delicately to what we had before done; but were further informed that there was no community of sentiment between the two parties, which we (silently) regretted. Having adjusted this affair, we traversed all the ranges of this second pandemonium; saw furnaces roaring, ores roasting, copper and slag cooling, and men poking and stoking on every side, while out of doors wood was being delivered extended six-fold.' Letter from Bishop Short. *Annals of the Diocese of Adelaide*, W. Norris, p. 67.

June—'Patent Copper Company is in full operation.' *Southern Australian*, 19 June 1849.

ered to the mouths of the devouring monsters, ready at hand to feed the fires; while drays, loaded with wood, were arriving every instant, and were seen from every distance, to replenish the forest of cut logs and long wood piled up, circling the whole area of the works, and filling every available space. We understood the consumption to average 150 tons daily, a load being two tons; but there were instances in which drays (very large and strong, we conclude) brought five tons for a load, and we pity the bullocks. All this wood comes from the Murray Scrub, seven miles east of Kooringa. To the Murray River the distance is fifty-five miles, as a friend informed us who had travelled it on horseback. The road is not bad, and at Baldina, about twenty miles from Kooringa, is water. Beyond Baldina, for the remaining distance, the country is wholly without it. The number of persons employed in these works is several hundreds, but we could not learn how many. Mr Williams' residence had a very light and villa-like appearance as contrasted with the dark works; and viewed in front from a distance, bore no bad resemblance, in its arched upper story, to a pigeon-house on a large scale.

We visited Mr Pollitt's parsonage this morning. Mrs Pollitt we had the pleasure of seeing, but the reverend gentleman was absent on a mission to marry his reverend friend Mr Bagshaw,²⁶ at Penwortham.²⁷ This parsonage house will be a good one when finished, but complaint was made of the delay.

Fourteen miles from this place, on the Broughton River,²⁸ are the farm and residence of Mr Bristow Hughes,²⁹ called Bundalere.³⁰ Captain Hughes³¹ is also located about twenty miles from

²⁶ Rev. John Charles Bagshaw, MA (1818—).

²⁷ Penwortham, 81 miles north of Adelaide.

²⁸ Broughton River flows west to Spencer's Gulf, enters the sea south of Port Pirie.

²⁹ John Bristow Hughes (1817-81), 'Bundaleer', pioneer pastoralist. See: *Pastoral Pioneers of South Australia*, R. Cockburn, vol. I, pp. 42-3.

Herbert Bristow Hughes (1820-92), 'Booyoolie'. See: *Pastoral Pioneers of South Australia*, R. Cockburn, vol. I, pp. 44-5.

³⁰ Bundaleer—now part of the Bundaleer Reservoir.

³¹ Captain Sir Walter Watson Hughes (1803-87), 'Hughes Park'; discoverer of the Moonta and Wallaroo Copper Mines. See: *Dictionary of National Biography*, P. Meynell; *Representative Men of South Australia*, G. E. Loyau, pp. 137-8; *Pastoral Pioneers of South Australia*, R. Cockburn, vol. I, pp. 136-7.

great formation's limestone. The ground being soft and easily worked, a tremendous amount of timbering has to be employed to secure the drives, and in going underground one walks through miles of these galleries without seeing anything but timber, and in some places the passages have been so narrowed with these supports that a stout person would find some difficulty in squeezing himself through. There is less to interest the casual visitor underground at the Burra than there is in many other mines far inferior in mineral wealth. A large quantity of the ore consists of what is called "smalls," and this, as well as much of the other ores, is so coated with the "country"—or soil in which it is found—that it would escape observation by the uninitiated. Here and there in the workings you may come upon a splendid bunch of red oxide and malachite, and the specimens of blue and green carbonates to be found in the mine are extremely beautiful. It is a singular circumstance, but the miners agree in saying that there is not a regular lode in the Burra mine; however, if there is no lode, there is plenty of copper without it, the whole country being impregnated with it. The Burra appears to be one vast "pocket" full of copper. Its original appearance in a huge boil on the surface was so remarkable that numbers of persons undertook the journey from Adelaide—quite an adventure to many in those days—for the mere purpose of seeing this wonderful deposit of ore. A vast hollow is now shown at one part of the mine, about 100 yards in diameter, and 30 or 40 feet deep, whence thousands of tons of the richest ores were taken. This great hollow, however, is owing perhaps as much to the sinking of the ground, because of the large amount of excavation which has been performed in following the copper below. The ores obtained from this mine have been chiefly red oxides, very rich blue and green carbonates, and malachite. Native copper has also been found. Many very beautiful specimens of all the varieties named have been procurable from the Burra Burra, and are to be seen ornamenting the mantelpieces or cabinets of an immense number of houses in the colony.

To proceed with a brief history of the mine; it was discovered by a shepherd named Pickitt, in 1843, and in order to secure the fee simple of mineral land it became necessary to purchase a special survey of 20,000 acres, paying the Government for the same in specie. The survey was taken on August 16th, by Messrs. C. H. Bagot and G. F. Aston on behalf of themselves and others, afterwards called the Princess Royal mining company, and by Messrs. William Allen and Samuel Stocks, jun., for themselves and others, who afterwards became incorporated with the South Australian mining association, which name is still borne by the Burra company. These two parties were called respectively the "nobs" and the "snobs," the former representing the "aristocracy" of the colony, and the latter the merchants and tradespeople. The nobs were unwilling to combine with the snobs in a joint stock company for carrying on the mine, and therefore, although they united to purchase the ground—as neither party could, unaided, raise the hard cash—so soon as the survey was completed the land was divided by drawing a line through the centre from east to west. Lots were then drawn for the land, and the "snobs" became the fortunate proprietors of the northern portion of the survey, and on which the Burra mine existed. The Princess Royal property was ultimately sold for pastoral purposes at 18s. an acre.

The first directors of the South Australian mining association, and who were appointed to manage the affairs of the Burra mine, were Messrs. Charles Beck, James Bunce, John Benjamin Graham, John Bentham Neales, William Paxton, William Peacock, Christopher Septimus Penny, Emanuel Solomon, and Samuel Stocks, jun. Mr. Henry Ayres was appointed secretary. Operations were commenced immediately, the number of miners employed being 10, under the superintendence of a captain, and with a smith to sharpen and repair the tools. The first shot was fired on the 29th September, 1845, blasting a large mass of rich ore, and in a short time several drays were loaded for the port. The workings were carried on with vigour, and the produce of the mine surpassed the most sanguine expectations entertained on its discovery. The original working capital of the company was only £1500; but with a mine so rich and so easily worked that amount proved sufficient, until the sale of ore increased the funds available for working expenses. During the first 6 years of the history of the Burra, nearly 80,000 tons of exceedingly rich ore were raised and shipped to England, yielding a profit to the company of £438,552; a pretty good result from an original outlay of £10,000 for the land. At the close of the first 6 years since the opening of the mine, the number of hands employed was upwards of 1000; but at this time the newly discovered gold-fields in Victoria attracted a large proportion of our population, and especially the miners, who left in such numbers that only 100 were left at the Burra—the Kapunda mine suffering in like manner; indeed, I believe at one time only 5 or 6 men remained

at Kapunda, including the captain and purser. This state of things produced a serious check on the working of the mines; at the Burra, where pumping engines had been erected, the machinery was of necessity stopped, and the water let in; the comparatively few men who remained being employed in working above the water level. For the greater part of three years the mine continued thus; the Government then took the matter into their serious consideration, and rightly deeming the prosperity of the colony to be dependent, to a great extent, on that of its mining interest, they adopted measures for the introduction of a number of Cornish miners. When these immigrants arrived, the water was pumped from the mine, and full operations were resumed, and have been carried on with comparatively trifling interruptions until the present time. The greatest number of hands employed was in 1859, when it amounted to 1170 persons. The discoveries at Wallaroo caused some of the miners to remove to that locality, and several were attracted by the reports of the great richness of some of the mines in the far north. A still larger departure of miners took place in consequence of inducements held out to them by a certain coal mining company in New South Wales. Prior to this time, however, the working of the mines at Wallaroo and in the far north had tended to raise the rate of wages, and it was deemed advisable by the directors of the Burra to confine their operations to those workings above the 55-fathom level; the water was, therefore, let into the lower part of the mine—from the 70-fathom level to the 55—and it is found that at the present rate of wages larger proportionate profits can be realised, without incurring the expense of pumping and working the lower levels. The yield of ore has ranged for many years from 10,000 to 13,000 tons a year, the produce of the ore giving an average of from 22 to 23 per cent of copper; or about 2500 tons of pure copper when smelted, and yielding to the colony an average annual amount of at least £225,000. The total amount expended in the colony by the Burra company, up to the present time, is about £1,700,000, of which upwards of £1,000,000 has been paid in wages. The gross profits amount to £850,080, of which £714,560 have been divided among the shareholders, and £135,520 added to the capital stock, while £10,560 remained undivided. The above description, from Austin's mines of South Australia, pretty accurately describes the state of these mines, allowing for their further development since 1864.

In the Melbourne exhibition of 1866, were exhibited by the Hon. H. Ayers, the following 80 specimens of copper ore:—Nos. 1 to 10. Ten specimens of malachite or green carbonate of copper, containing from 50 to 60 per cent. of metallic copper. These specimens are merely roughly polished by the miners who extracted them from the mines, and are capable of a much higher polish if submitted to the regular process by a lapidary. Nos. 11 to 20. Ten specimens of red oxide of copper, more or less mixed with native or virgin copper, containing from 70 to 90 per cent. of metallic copper. Nos. 21 to 40. Twenty specimens of malachite or green carbonate of copper, of varied and singular formation, representing the smoothness and gloss which that substance frequently carries in a natural state. Nos. 41 to 46. Six specimens of blue and green carbonate of copper, exhibiting various forms of crystallisation. Nos. 47 to 56. Ten specimens of dark blue carbonate of copper, highly crystallised. Nos. 57 to 66. Ten specimens of blue carbonate of copper, in many varieties of crystallisation. Nos. 67 to 76. Ten specimens of green carbonate of copper. Nos. 77 to 78. Two specimens of sub-oxide of copper, or rubby copper ore. Nos. 79 to 80. Two specimens of virgin or native copper.

BURRA, MOUNT, or BUSH INN or GLESCOPE (Co. Grey), is the name of a post office on the Glencoe station (E. J. Leake's), and on the main road from mount Gambier to Robe town. It lies 2 miles N.E. of mount Burr, 3 miles S.W. of mount Gambier, 3 miles W. of mount Edward, 10 miles S.E. of mount Muirhead (volcanic,) and 10 miles S.S.E. of mount Graham (volcanic.) Lakes Leake and Edward are 4 miles E. and Reedy creek 25 miles N.W. The district is exclusively a pastoral one, both cattle and sheep being grazed in large numbers. The nearest places are mount Gambier, 25 miles S.S.E.; Tarpeena 18 miles E. by S; Macdonnell bay 40 miles S.S.E., and Robe 60 miles N.W. The communication is by horse or private conveyance, the mails being carried on horseback. With Adelaide the communication is by Koussevell's coach twice a-week, from Tarpeena via Penola and Wellington, or by steamer from Port Macdonnell or Guichen bay (Robe.) The distance by the coach route is 329 miles. There is one hotel at Mount Burr—the Bush inn. The surrounding country is partly mountainous, with much stringy-bark and numerous grassy rises, the remainder consists of swampy flats, with patches of tea-tree scrub. The population is small and scattered.



FILM 10
NO 9 (DETAIL)

GRAVES ENGINE HOUSE AND
CORNISH STACK FROM EAST

BURRA
13-12-78

