

Financing the Burra Burra Mines, South Australia: Liquidity Problems and Resolutions *

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Although acclaimed as the richest copper mine in the world during the late 1840s and 1850s, the early years of activity at the South Australian Mining Association's [hereafter SAMA] Burra Burra Mine were fraught with problems, especially those associated with maintaining liquidity. This, despite copper content in the ore averaging between 22 and 23 per cent over the first 25 years of activity from 1845 to 1869, and with some commentators suggesting that the working of the mine was more akin to quarrying than conventional mining.¹ While the outcome saw prodigious dividends that averaged 300 per cent per annum over the first 21 years of activity, problems associated with distance from markets in Britain and India proved especially problematic during the early years of mining activity. While the liquidity problems were largely overcome after 1850, nevertheless strategies continued to be adopted so as to reduce costs in order to maintain liquidity and to ensure efficiency in the marketing of ores and copper. The story which emerges is that even the owners of the richest mine in Australia, and indeed for a period of time the richest copper mine in the world, had great problems in both maintaining liquidity and in seeing that they served their main goal of looking after the interests of shareholders. To overcome problems associated with marketing of produce and the controlling of costs SAMA adopted various innovative strategies but especially challenging was its role as the largest single employer of labour in Australia in the 1840s and 1850s. In this area they set out to not only control their workforce but to adopt wage strategies that proved of advantage to the Association. Labour was also exploited through the sale of materials to the miners, a practice that again guaranteed advantage to the employers.

Early problems and dilemmas

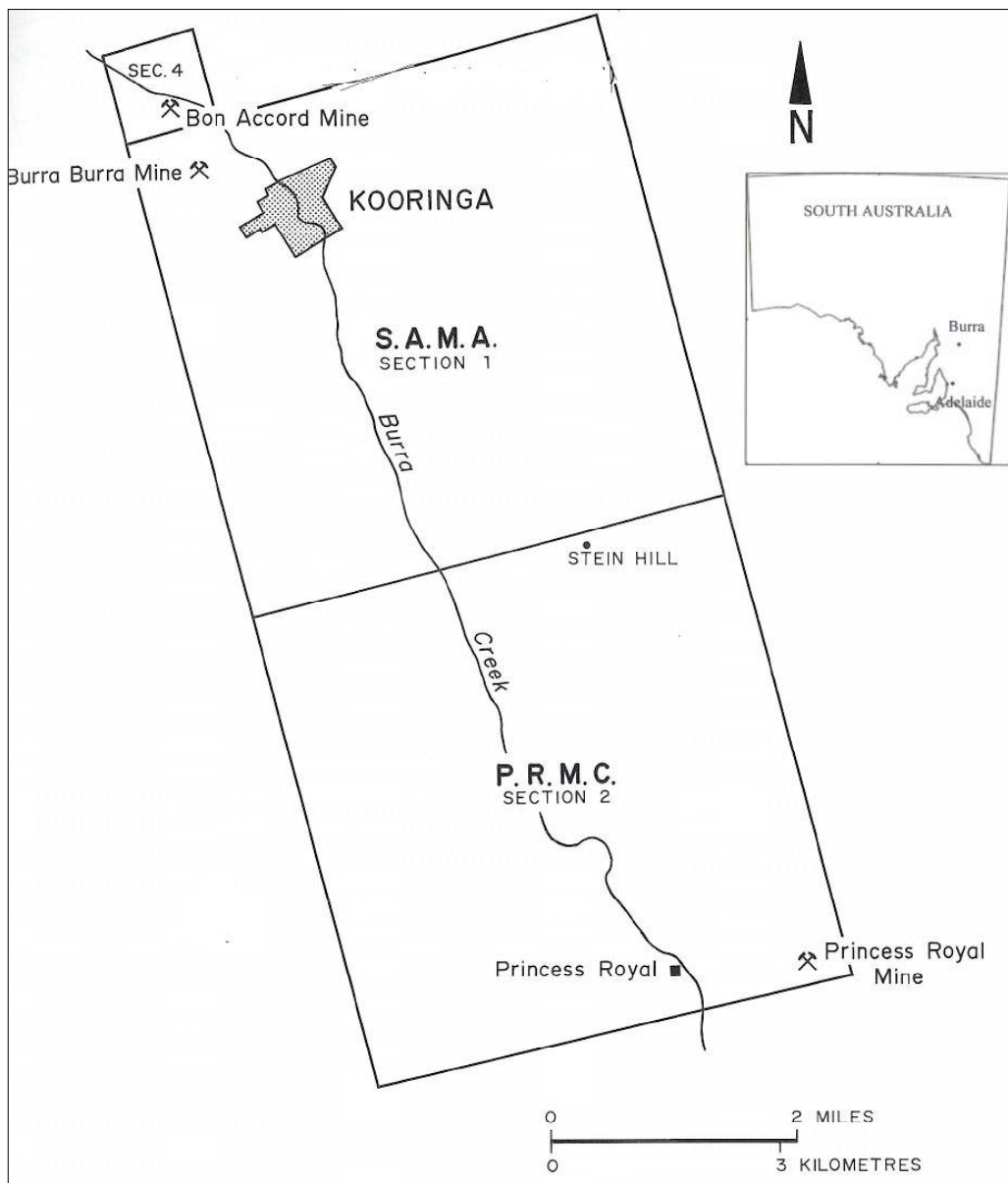
The Colony of South Australia was barely eight years old when a shepherd discovered the Burra Burra deposits in 1845. This coincided with another promising discovery at a site to be known as the Princess Royal.² In fact, the two deposits were so close that the colonial government in its wisdom decided that the deposits would be contained within the boundaries of a 20,000-acre lot, as determined under the Wastelands Act of 1842

and that the land should be sold as one block at £1 per acre. The Governor of South Australia further decreed that the required £20,000 could not be paid in bills but would have to be paid in cash within a stipulated period.³ Unfortunately, being in the midst of an economic crisis that had virtually placed the colony into bankruptcy, there was very little cash available, as illustrated by the fact that at that time, the two banks in the colony held between them only £2,600 in specie.⁴ With a race to try to raise the required funds, three contenders emerged, the so-called 'Nobs' who were comprised of a few of the wealthier merchants and landowners; the shareholders of SAMA, and the members of the 'Committee of the Mining Association for the Northern Monster Lode'.⁵ Collectively known as the 'Snobs' the representatives of the latter two groups were mostly petty merchants, shopkeepers and others of limited means considered to have pretensions towards social and economic elevation.⁶ Not one contestant for the two deposits had sufficient funds to meet the requirements and in the end they were forced to combine financial resources to pay the £20,000 into the government's coffers. Following resistance by the 'Nobs' to a merger, it was decided to allocate the two individual deposits by the drawing of straws, by which time the members of the Northern Monster Lode, by far the wealthier of the two groups with holdings of £10,105 as against the £2,215 held by SAMA subscribers,⁷ had agreed to combine with and join SAMA in their attempt to raise half the required land purchase cost.⁸ In the subsequent 'draw' for the copper deposits it was SAMA who won the right to the 'Monster Lode' as it became known, while the 'Snobs' won the right to exploit the Princess Royal [Figure 1]. Unfortunately for the latter, and illustrating the adage that mining is a lottery, their copper deposit was little more than surface deep and the company never paid a dividend,⁹ whereas the SAMA combine went on to mine extraordinary wealth from the deposit known as the Burra Burra Mine.

Despite this good fortune, SAMA was faced with a dilemma. Its total subscribed capital amounted to only £12,320, meaning that after payment of the moiety of the land purchase to the government there was only £2,320 in its coffers.¹⁰ To compound difficulties the mine was about 100 miles [160km] inland from Adelaide. There was no infrastructure, not even a dirt track from Port to mine, and certainly no housing or other amenities that of necessity had to be provided by the Association. Not only was it vital for SAMA to expend on such vital infrastructure but its workers had to be paid wages and money had to be found for stores. Funding inland carriage and cost of shipping the ores to overseas markets added to their woes. While early exploitation

from the mine proved prodigious, the problem lay in converting that produce into tangible funds so as to sustain activity and meet all costs.

Figure 1: Subdivision of 20,000 acre lot between SAMA and PRMC at Burra Burra



Source: Derived from Ian Auhl, *The Story of the 'Monster Mine': The Burra Burra Mines and its Townships 1845-1877*, District Council of Burra Burra, 1986, p. 105.

With the outlet for the ores in 1845 being on the other side of the world in Swansea, Wales, and with returns on sales being realized in Adelaide even under the best scenario some ten months or a year later,¹¹ the early years of activity posed great problems, compounded by the aforementioned depression that had hit South Australia. While there were two banks that could have offered credit, there was great reluctance to

do so. Edward Stephens at the Bank of South Australia refused to extend credit on the grounds that mining was too risky a proposition, while the London Directors of the Bank of Australasia had given written instructions to their local manager, Marshall MacDermott, that under no circumstances was he to do so.¹² Besides, there were legal restrictions on the banks from making advances on deeds of land and property until the late 1850s,¹³ a situation that caused discontent among both miners and agriculturalists in the colony.¹⁴

Yet another problem faced by SAMA was its organizational formation under the 'Cost-book' system. By Charter and Prospectus such 'No-liability' companies (taken directly from the Cornish method of organization) forbade the acceptance of credit except under security of property.¹⁵ However, as already noted, banking legislation was such that until the late 1850s collateral of land title deeds was unacceptable, thus making it impossible for this avenue to be pursued for raising of funds. In addition the banks found handling property in the form of minerals to pose an element of risk they were reluctant to adopt. Banks in the early years of SAMA's mining production were apparently more interested in servicing agricultural activity by accepting wool than they were in accepting ores – though even this was done indirectly through finance forwarded to merchants rather than through direct interaction between producers and the banks.¹⁶ Other strategies had to be adopted until they could be persuaded of the value of SAMA's custom.

An additional problem with Cost-book companies, and one faced by SAMA, was the propensity to pay out dividends, with pressure from shareholders often overriding the common sense retention of profits that could have been ploughed back into the development of the mine. This was seen in the early days of activity when the directors struggled to fund even essential services such as cartage or employment of additional labour that would have enhanced performance or that would have allowed them to more quickly develop essential infrastructure for the long term benefit of the organisation.

Marketing problems

Sales of ore to local customers or merchants would obviously have answered SAMA's dilemma. Not only was this administratively simple but it also cut the risks of speculating on foreign markets. However, before resorting to selling locally, the

directors were keen to test the market so as to establish pricing benchmarks and to build up a reputation for what they considered to be their superior ores.¹⁷ This delayed such a strategy from being adopted. Unfortunately for the Association, even after proving the ore values overseas, it found only limited interest, for local merchants had no experience in exporting ores and were extremely cautious because of limited market knowledge. Resistance was also associated with suspicion about the accuracy of SAMA's assaying.¹⁸ It was only 27 months after the opening of the mine on 29 September 1845 that SAMA made moves to allay such fears when it was agreed that although 'Parties ... from experience, [were now] able to give a fairly good guess as to the probable metallic contents of a heap of ore ...', SAMA would repay at market price any assay difference between Adelaide and Swansea percentages. The merchants were in turn obliged to repay SAMA for ores that were underestimated at Adelaide.¹⁹ Before this, home sales were sparse, the first substantial sale taking place in August 1847 when the firm of C. & F.J. Beck purchased 280 tons of ore at £13.10s per ton.²⁰ This was, however, an isolated case and only in the latter half of 1848 did other local merchants play a significant part in purchasing the Association's produce. Even then caution remained their policy, purchases being restricted largely to periods when price stability or an upward trend continued to be recorded for a substantial period of time, or when copper or ore proved attractive when used as ballast in conjunction with a merchant's wool exports. In times of uncertainty associated with wide price fluctuations speculation was avoided by local merchants, forcing SAMA to resort to its own direct marketing abroad [tables 1 & 2].

Table 1: Sales of Copper ores by SAMA 1845-1854 (£)

Period	Drafts sold to shareholders on London Agents £	Drafts sold by SAMA to Bank of Australasia on London Agents £	Receipts from inter-colonial merchants & Agents £	Receipts from SA purchasers £	Receipts from SA smelters *	Total receipts £
1845-46	Nil	10,024	Nil	204	Nil	10,228
1846-47	Nil	43,110	Nil	10	Nil	43,120
1847-48	Nil	63,001	Nil	49,837	Nil	112,838
1848-49	Nil	135,161	2,276	16,379	1,012	154,828
1849-50	2,000	80,330	6,950	1,012	21,172	165,372
1850-51	7,500	73,560	Nil	44,084	62,789	187,933
1851-52	7,469	74,890	Nil	12,451	57,504	152,314
1852-53	38,606	64,800	Nil	29,274	81	132,761
1853-54	16,103	Nil	Nil	44,468	1,074	61,645

Sources: *Minutes of Directors Meetings*, SAMA, BRG 22, 957, South Australian Archives; [SAA]; *Directors Out-letter Books*, BRG 22, 960, SAA; *Records of the Patent Copper Company, and the English & Australia Copper Company*, Cash book 7 and Ledgers No. 1, No. 2, No. 3, BRG 30, SAA.

*Returns were mainly in copper ingots and only occasionally was SAMA paid in cash by the smelters.

Table 2: Dispersion of SAMA Copper and Copper Ores 1841-1880

Period	Copper sales* (tons)	Sales to local merchants (%)	Cash sales to local smelters (%)	SAMA Consignments to Britain & India (%)
1845-50	12,776	41	1	58
1851-60	13,711	45	1	54
1861-70	10,177	76	nil	24
1871-80	3,130	0	100	nil

Sources: Minutes of Directors Meetings, SAMA, BRG 957, South Australian Archives [SAA]; Minutes of Meetings of Shareholders, BRG 22, 959, SAA; Directors Out-letter Books, BRG 22, 960, SAA; Records of the Patent Copper Company, and the English & Australia Copper Company, BRG 30, SAA.

**Note:* Expressed in terms of copper units. Tonnages include copper ore and copper sales with tonnages of ore being expressed according to the content of copper in the assay.

Periodic shipping shortages also proved problematic, a situation exacerbated by the British Navigation Acts that until 1850 prevented cargoes being taken by foreign ships from the colonies. This frustrating situation was illustrated in 1848 when after waiting months for sails to appear over the horizon, delight was turned to frustration when realized that the ships that did appear were German immigrant carrying vessels that were forced to leave Port Adelaide in ballast. Exacerbating the shipping problem in the early period of mining activity was also the reluctance by some ship-owners to carry copper ore, this because of lack of stowage knowledge and also from fear of spontaneous combustion associated with sulphide ores, though that problem was overcome when it became widely known that the Burra ores were oxides and carbonates.²¹

It is pertinent that most of the early local purchasers were merchants who were also members of SAMA's board of directors. For example C & F.J. Beck who purchased ores worth £21,780, and Montefiore & Co. who expended £2,375. C & F.J Beck at the time acted as South Australian agents for the Liverpool house of Duncan Dunbar and their purchases were probably made on behalf of that firm on a commission basis.²² Speculators appeared to be few and far between, and the inclusion of the Australian Mining Co., an English based concern interested in copper, proved to be a forced purchase, it 'not having an ounce to ship' from its own mine and having chartered several vessels in anticipation of full cargoes'.²³

Inter-colonial merchants, especially those based in Victoria, proved to be an important source of revenue over the life of the mine, with about half of their purchases being made in cash and a half in bills of exchange (usually drawn on Melbourne at 15 days after sight, though drafts at 3 days were not uncommon). However, few such sales

were made before the 1850s [Table 1], although it is possible that local agents bought on behalf of inter-colonial merchants. For example, it is known that the largest purchaser of SAMA's copper between 1855-56 and 1859-60 was the firm of Henriques & Co. who acted on behalf of Melbourne buyers.²⁴ It is pertinent that most of the inter-colonial firms that did participate were major wool exporters.²⁵ Their involvement in copper and copper ores can be surmised as being associated with: (i) an interest to purchase on their own account from motives of profit; (ii) their activities as commission agents for interested buyers abroad, as was also the case with some of their wool purchases; (iii) their desire to use the products as ballast to accompany their wool exports so as to reduce overall freight costs.

Selling directly to smelters was another alternative means of obtaining liquid funds, except that no South Australian smelter was capable of handling large quantities of ores until 1849 when the Patent Copper Company (from 1853 taken over by the English and Australian Copper Company) started production at Koorunga, close to the Burra Burra mines. However, this smelting arrangement precluded any financial transactions, for in their agreement with the Koorunga smelters, the miners obtained copper in return for their ores, while in turn, the smelters retained a proportion of the ores as payment for their smelting services.²⁶ This arrangement through payment-in-kind did nothing to solve SAMA's interest in obtaining monetary returns, as they were still left with the need to market the product.²⁷ Thus home sales proved sporadic, leading to problems for SAMA as the mine expanded and costs increased.

Local strategies

While the potential of the Burra Burra Mine as a rich producer was quickly realized, the initial establishment costs soon ate up the reserve of £2,320 and placed the directors in a dilemma: whether to continue expenditure on mining the ores, or whether to transport raised ores to Port Adelaide for shipping?²⁸ They had insufficient funds to do both²⁹ and as a stop-gap measure, and within a few weeks of the Mine's opening at the end of September 1845, the only strategy open to the directors was to borrow money from holders of SAMA scrip.³⁰ Thus, for example, it was noted in January 1846 that the sum of £1,280.14s.10d had been borrowed for the purpose of paying wages and cartage. Among the lenders were C & F. Beck who had loaned £150, C.S. Penny £300, and S. Stocks Jnr who loaned £145. For this service they were repaid with interest of 9s 10d,

26s.3d and 2s.5d respectively.³¹ In 1850 this practice was placed on a more formal basis when it was decreed that shareholders could deposit ‘not less than £500 nor in aggregate more than £10,000, to be held at interest at 6% per annum to be paid or called by either party on one days notice being previously given’.³² It was believed by the directors that in obtaining loans (not calls)³³ from shareholders they could avoid breach of the no-liability clauses of the Cost-book system, especially as they held collateral in the form of ore that had been raised. The sums borrowed proved most helpful to the directors in meeting SAMA’s obligations and in October 1851, for example, the amount received in deposit amounted to £14,890.³⁴

While the temporary loans were used as a means to allow the Association to function, the practice was later extended to suit the interests of shareholders who had spare cash to deposit and who were attracted by both the desire to help SAMA (and thus themselves) and to take advantage of interest rates that were set slightly above bank rates. Such services were later extended, with scrip holders being allowed to transfer sums of money, usually to London, via the Association (Table 1, column 2). The shareholders paid SAMA in Adelaide and in turn the Association transferred the value on deposit via bills of exchange and at a lower rate than charged by local banks. This practice appealed to the shareholders for unlike the banks, SAMA paid interest from the day they purchased the bill to the day of final usance, and in some cases even offered payment of interest until redeemed from the agent. Thus J & T Waterhouse in 1850 deposited £2,000 with SAMA in Adelaide, for which they received 10 per cent interest until the date the order was inscribed to be paid in London, with that arrangement being extended until the day the agent finalized the payment.³⁵ SAMA saw advantage in that it received immediate liquidity, it eliminated the problem of being given limited drawing rights by the bank and it saved them the cost of having the remittance being sent back to Adelaide by the agent, if indeed that course of settlement was required. To illustrate the importance of such transactions with shareholders, it is notable that between 1845 and 1870, SAMA negotiated over half-a-million pounds in this way, while its advances from the Bank of Australasia amounted to just over three-quarters of a million pounds.

Yet another strategy to utilise the funds of shareholders was associated with payment of dividends, especially those earned by members domiciled overseas. Aided by a buoyant market for copper that coincided with the boom associated with railway construction in Britain, share values had increased from £5 to £225 by September 1848 and dividends of 850 per cent had been paid to that date. With an increasing number of

shareholders moving overseas, problems of paying some of these dividends arose. On occasions when dividends were not picked up nor special arrangements made with an Adelaide agent of the shareholder to transmit them,³⁶ the Association felt warranted to utilise the funds for its own purpose until they were finally redeemed.³⁷ Overseas shareholders holding 10 shares or more could arrange for SAMA to transmit their dividends via letters-of credit or drafts³⁸ '...on their paying all expenses attending such payment'.³⁹ With the magnitude of dividend transmittances and the delay between mailing the drafts and their redemption overseas, SAMA was in effect master of the dividend funds, which again proved an important source to help the Association overcome its liquidity problems.

There were also negative aspects of the huge dividend payments made to shareholders, for in line with 'cost-book' practice it was expected that returns to shareholders should take precedence above all else. Despite the richness of the ores the danger was that being so far from the Swansea market, this desire to serve the interests of its shareholders would rebound upon the interests of the Association as a whole if returns were delayed or if there was a drop in the value of copper. And, indeed, in 1848 the directors found themselves financially exposed to a serious degree because of this reason and another related factor, this being associated with the actions of some, or possibly all of their tributors who had cheated their employers by falsifying the grades of ores they deposited with the Association.⁴⁰ This resulted in the values drawn on the Bank of Australasia, based on the percentage of copper in the ores before shipment, being excessive, for ores estimated at 35 per cent to 40 per cent proved in reality to be as low as 19 per cent.⁴¹ This deception left the Association and its overseas agents seriously exposed, for expected returns failed to reach the anticipated sums and led to deficiencies on some shipments.⁴²

Wage payments and currency problems

Utilising the resources of shareholders was not the only means of obtaining ready funds, and though not peculiar to SAMA alone, wage payment methods and charges made for mining stores allowed the Association credit, or helped reduce costs. This can be interpreted as benefits to the Association being accrued on the backs of their workers. Taking precedent from traditional Cornish practice the 'long pay' was one wage payment method adopted.⁴³ This practice saw the payment of bare subsistence to workers for a period of time before final settlement was made. Even daymen working

on an hourly basis received ‘subsist’ for a period of a month.⁴⁴ Tributers at first received settlement when sampling assays were agreed but this was soon changed to ‘the seventh Saturday after the expiration of the Take’.⁴⁵ At times this seven-week period was extended, it being explained that this would depend upon ability to get the ores to the port or the availability of shipping at Port Adelaide. For example, in June 1846 it was determined that at the next letting the workers should be told they would receive ‘A moderate subsist and that the balance of their wages will not be paid until the season enables the Association to get the ore away’.⁴⁶ The result was that in effect the miners provided credit to the mine owners. At least it can be said that the situation was superior to that experienced at the Kapunda and Montacute copper mines, where, claimed SAMA’s Secretary, Henry Ayers, it was practice to pay subsist for up to a period of 18-months before settlement took place. Payment at these South Australian mines was made only after their returns from overseas sales were received in Adelaide.⁴⁷

The strategy not only provided credit to the owners but was also a means to ensure a captive workforce. This was evident during the goldrush of the early 1850s when workers were leaving South Australia for the Victorian diggings in their droves. On that occasion Ayers directed Henry Roach, the Mine’s chief Captain, to refrain from finalising payment ‘until one month after settlement of their ores as by this means we shall prevent many of them having money to receive from leaving for the Diggings’.⁴⁸

Wage payments were problematic for the Association as they were probably for other employers in the colony and other parts of Australia. The major problem, one that was also shared with British employers, was the shortage of small denomination coins.⁴⁹ This and distance from Adelaide meant that payment strategies had to be adopted by SAMA to satisfy their workers. Thus, the Association produced its own notes, which it printed in denominations of 5-shillings, 10s, 15s and £1, and it also printed in larger denominations, especially when paying various ‘pares’ on settlement days⁵⁰ (See Figures 2A, 2B, 2C).

Notes were paid either to ‘Order’ or to ‘Bearer’ the latter being particularly dominant claimed SAMA’s Secretary, Henry Ayers, ‘since in nine cases out of ten, the men cannot write’⁵¹ [Figure 2B]. Such notes circulated locally and because of the Association’s high reputation they would even have been accepted in Adelaide. Practice being similar to other areas (and even in Britain) for much of the 19th Century, local

Figure 2A: SAMA payment note for 16 shillings, 1 March 1848, made out to John Rowe or Bearer

No. 190 1st March 1848. No. 190 Burra Burra Mines, 1st March, 1848.
To the Secretary of the South Australian Mining Association.
Order in favor of John Rowe or Bearer for £ 0:16:00
on account of [unclear]
£ 0:16:00 Supdt. Acct.
To the Secretary of the South Australian Mining Association.
SIR—
On advice hereof, please pay John Rowe or Bearer
the sum of Sixteen Shillings
on account of [unclear]
£ 0:16:00 Supdt. Acct.

Figure 2B: SAMA payment note for £10, 29 February 1848, made out to Sam Penglaze, to be paid on 'Order' but altered to be paid to 'Bearer'.

No. 174 29th Feb 1848. No. 174 Burra Burra Mines, 29th Feb, 1848.
To the Secretary of the South Australian Mining Association.
Order in favor of Sam Penglaze or Bearer for £ 10:00:00
on account of [unclear]
£ 10:00:00 Supdt. Acct.
To the Secretary of the South Australian Mining Association.
SIR—
On advice hereof, please pay Sam Penglaze or Bearer
the sum of Ten pounds
on account of [unclear]
£ 10:00:00 Supdt. Acct.

Figure 2C: SAMA payment note for £3, 26 August 1854, made out to the 'pare' at Pitch No. 1 and payable to Bearer.

No. 3277 26 August 1854. No. 3277 BURRA BURRA MINES. No. 3277
RECEIVED of the South Australian Mining Association an Order on the Secretary for THREE POUNDS payable to or bearer on account of [unclear]
Entd. by [unclear] Acct.
To the Secretary of the South Australian Mining Association,
Pay [unclear] or bearer, the sum of THREE POUNDS on account of [unclear]
£3 Entered [unclear] Acct.

Source: Figs 2A, 2B, 2C: 'Butts of Orders Issues for Wages and Certain Other Expenses', BRG 22, 1509, State Library of South Australia.

shopkeepers and traders would have accepted these notes in exchange for goods, with balances being paid to the workers in token coins or notes bearing the name of the trader or shopkeeper.⁵² When sufficient SAMA notes were collected by these providers of goods and services they would have been exchanged for legal tender by SAMA, or by the Bank of Australasia. This procedure again provided credit to SAMA between time of issue of the notes and redemption. In addition, while not being a major source of advantage, there was the chance that such notes would go astray, and Henry Ayers was adamant that if miners lost their orders 'they must bear the loss'.⁵³ Only in February 1860, soon after the Bank of Australasia opened a branch at Koorunga, did SAMA abandon the practice of supplying its own notes for relatively small payments. From that time on, the mine accountant was instructed to deposit a cheque with the Bank and to obtain notes and silver to the amount to be paid out on 'subsist day'.⁵⁴

Much has been written about the incentive that the tribute system gave to those skilled Cornish miners who worked in anticipation of the rewards should they mine a 'bonanza'. However, the chance of that happening was slim and with rare exceptions tributers wages approximated those of day-wage labour, as the captains who set the upset prices for the auctioned pitches based their calculations on the grade of observable ore and price of copper so as to anticipate the earning of 'standard' wages by the miners. On occasions pares earned under this level, sometimes just above, and while they tried all kinds of strategies to deceive the mine captains they seldom did, for the latter had themselves been practical miners chosen for their expertise and knowledge of all the tricks that miners would get up to in order to hide the true value of a pitch. While the occasional bonanza or 'sturt' no doubt helped maintain the tribute system by providing incentive and hope to the various 'pares', SAMA's directors became stricken with remorse when such occasions arose and did their utmost to drive the captains to set hard bargains. Not only that but when the rare bonanza did occur they chastised them. Henry Ayers noted in 1846 that 'Nothing does us so much real mischief as men making extravagant wages...'.⁵⁵ When tutworkers averaged £3.15s per week during December 1958, Ayers was quick to point out that this 'must be immediately checked. Our standard wage was 50/- [shillings] per week when provisions were far more costly ... I think therefore you might fairly reduce wages below that rate to 45/-'.⁵⁶ On other occasions mine captains were asked to provide explanations when the 'standard' was exceeded.⁵⁷ However, when wages fell below the expected 'standard' the directors also

showed concern, for such situations could lead to a discontented workforce and possible loss of workers.⁵⁸

Stores

Yet another way of reducing costs, and thus reducing liquidity problems, was associated with the sale of mining stores to the workers. This proved lucrative when the extent of the supplies is taken into consideration. Candles were a major item of consumption. In 1864, when mining activity was already in decline, it was noted that a total of 1,920 pounds of candles were provided to the 200 to 250 miners on a monthly basis.⁵⁹ With candles costing SAMA 2d per pound being sold to the miners at 12d a pound,⁶⁰ there were handsome annual returns, that would have amounted at that time to £645, a sum more than sufficient to have paid the annual salary of the Association's highly paid Secretary, Ayers. A similar story could be told for supply of fuses that in 1864 cost 2s 6d to 3s per coil but which were sold at 4s 6d,⁶¹ and also for other goods and tools supplied to the miners, including equipment such as the Association's crusher that was used to process the miners' ores.⁶²

Another means of reducing costs, not peculiar to SAMA alone, was to fabricate its own equipment and buildings whenever possible by utilising its own labour and materials. As an example of such saving, attention has been drawn to the use of old horse blanket material as an effective gasket used to seal the joints on the extensive body of piping used in the mine, at a time when it was usual for gutta percha (a rubber-like compound) to be used for this purpose in the mining world. Whether SAMA used the material as a cost cutting exercise or because the utility of the woven cloth was seen as just as effective is difficult to ascertain but it does raise the idea that utilising local materials proved more attractive than purchasing state of the art technology.⁶³

When problems later arose, one way of ensuring that profit levels were maintained involved careful selection of ores. For example in 1855 when drought caused input costs to rise, the miners were directed to raise only ores that assayed above 18 per cent. The directive did not mean that ores below this percentage could be dressed up to that level from lower grade ores but the instruction was as stated 'to raise only high quality ores, leaving lower grade ores for less costly times.'⁶⁴ This, however, was only a rare occurrence, as the directors generally frowned at picking out the eyes of the mine.⁶⁵

Welfare provision

Comment has been made on the ‘paternalistic’ nature of the employers,⁶⁶ a term that suggests magnanimity whereby welfare concerns and social obligations to the workers and families were part and parcel of the concern of the directors. Indeed Blainey went as far as to say that ‘In an age of laissez faire Burra was the most benevolent company in the land...’,⁶⁷ However, this is largely a myth as close inspection shows profit maximisation over social expectations was SAMA’s maxim. One example was associated with the supply of necessary infrastructure in the early days when the directors instructed their resident director at the mine, not to put stone flagging on the cottage floors, ‘so as to limit cost as much as possible’.⁶⁸ Another example is linked to SAMA’s approach when supplying a small cottage as a hospital (though most workmen refused to use it)⁶⁹ for it prohibited access to family members until 1872⁷⁰ when it was about to hand over responsibility to the local town Corporation. Not only that but it even refused to supply firewood to the hospital for heating purposes unless paid for from the worker funded ‘Club & Doctor Fund’, despite holding vast quantities in store.⁷¹

While prepared to administer the ‘Club & Doctor Fund’,⁷² SAMA showed no enthusiasm to contribute, relying upon its workers to finance the welfare provisions through wage deductions. Furthermore it often utilised the accumulated funds temporarily for its own purposes. The Association’s lack of generosity was also shown by their mean approach to those killed or maimed at the Mines and to their families, to the extent that in the case of a miner blinded at the mine his small weekly allowance was subject to annual review. At the end of 1865 the payment was reduced from 14 shillings to 7 shillings a week, though the directors announced they would pay 10 shillings if he was not on government rations.⁷³ Many tragedies were compensated with no help save payment of burial expenses,⁷⁴ while some requests by distressed widows of former employees were met with a blank refusal of aid.⁷⁵ There were rare occasions when magnanimous gestures were made, such as the time they agreed that ‘Widow Johns’ could occupy ‘a room’ free of rent following her husband’s death in a fire at the mine,⁷⁶ but this ‘generosity’ was probably linked to publicity and a plea for aid by the local media in an article headed ‘Thomas Prior, and Peter Johns a man with a wife and 5 young children suffocated’.⁷⁷ On another rare occasion they agreed to pay a young boy a small allowance out of the mine account after he had fractured an arm when working on the surface, because he had not worked long enough to qualify for payment out of

the Club & Doctor Fund.⁷⁸ Above all else, consideration for the interests of shareholders was predominant and minimal welfare expenditure can perhaps be seen as another way of reducing expenditure so as to enable payment of dividends.

Although costs were carefully vetted and cost-cutting methods adopted under the eagle eye of the Association's Secretary, Ayers,⁷⁹ such strategies overall played only a minor part in ensuring the success of the working of the mine, which as it developed saw the need for greater and greater access to cash and credit. As there were limits to local sales and opportunities, the focus moved increasingly to the marketing skills of the directors, who were forced to court the banks and to adopt strategies guaranteed to maximise opportunities on foreign markets.

Banking and advances

As previously noted, the Cost-book organisation of the Association, plus the reluctance of the established banks to extend credit on property posed a problem in the early days of mine production. Not only was there a prohibition upon lending on property but orthodox banking even frowned on lending on collateral furnished in the form of primary products. Butlin points out that even after passing of the Liens-on-Wool and Mortgages Stock Act of 1843, banks remained aloof from the practice, preferring that arrangement to be conducted by merchants – though in turn, the banks through conventional means financed the merchants.⁸⁰ However, as earlier explained, this back-door method of obtaining credit through the banks was not open to the Association, as merchants were tardy in purchasing SAMA's ores. Thus, forced to resort to their own devices the Association fell back to the age-old strategy of utilising the services of overseas agents and in persuading the banks to accept their ores, and later copper, as collateral.

It was with some reluctance that the Bank of Australasia extended funds for SAMA's ores, and this only because the local officials were aware that SAMA had also approached John Stephens, Manager of the Bank of South Australia.⁸¹ The directors' first success lay in obtaining £240 on the 30 tons of ore shipped to Swansea per *Margaret* at the end of 1845.⁸² This flat rate of £8 per ton was only a proportion of the value of the ores and did little to allay the Associations problems at that time. Living from hand to mouth, the Association's directors must have felt relieved when a month later the bank agreed to extend the lien on ore shipped to 'ore in stock' at the wharf in

Port Adelaide, receiving a payment amounting to £800 for 100 tons of copper ore.⁸³ While helpful, this was still too little to satisfy SAMA's insatiable appetite for funds, especially as road transportation and shipping were largely restricted to the summer months from October to April, a situation that saw accumulation of ores at 'grass' on the mine's dressing area. This situation threatened the viability not only of the mine but also the health of the colony that had become economically more vibrant because of the large multiplier effect generated by the Association's activity. The high quality of the Burra Burra ores and growing world demand for copper guaranteed collateral safety as far as the bank was concerned and this saw an extension of their largesse to providing payment for ores raised and ready for transportation at the mine.

This came about because fortunately, soon after the Burra Burra mines opened, Marshall MacDermott was transferred as manager of the defunct Western Australian, Perth branch of the Bank of Australasia, to the Adelaide branch. Fortunate that is for SAMA, because MacDermott who had previously been criticised in Perth for his lax lending policies continued this practice at his new abode. For this 'weakness' he was eventually castigated and dismissed in March 1852 by order of the Bank's London directors.⁸⁴ MacDermott's actions were greatly appreciated by SAMA and when he subsequently applied for the position of Justice of the Peace at Kooringa, SAMA's directors were happy to support him as he had 'always looked after their interests with competence'. Thus it was under his regime that in 1847 Ayers was able to

enclose two promissory notes for three thousand pounds (£3,000) each ... to be held as collateral security against any drawn accounts of the Association during this term ... there are now at the Burra Burra mines upwards of ... (6000) tons of Copper Ore on the surface which is ready for shipment and as soon as the state of the roads will permit it will be forwarded to Port Adelaide with the understanding that on its arrival there it is to remain subject to the Banks disposal as further security for the Associations overdrawn account until the sale is liquidated.⁸⁵

In addition, the bank extended its accommodation to the expected value of ores, and by February 1847 the 359 tons of 38 per cent ore on the *Royal Archer*, drew at '... the rate of ten pounds (£10) per ton of 21 cwts',⁸⁶ while the cargo of the *Harpooner*, assayed at 48 per cent average, drew at £12 per ton.⁸⁷ Such accommodation did not spell the end of concern by SAMA's directors, for the gap between shipping the ores, completing sales overseas and honouring their drafts on the Bank of Australasia, left them periodically in a parlous position as far as the Bank was concerned. Thus in December 1846 SAMA's

Board ‘... began to be very uneasy at the state of their affairs’, for at that time their balance owing to the Bank of Australasia was £11,772.9s.3d.⁸⁸ Fortunately at this time, some 12 months after despatch of its first ores, SAMA’s returns began to flow in from abroad and financial worries eased considerably thereafter, so much so that the directors felt confident enough to announce two dividends of 50 per cent to shareholders and to extend a wage rise to Ayers.⁸⁹ This also coincided with substantial local sales. However, the Bank supervisor, J.J. Falcon and the Bank’s London directors while now kindly disposed to the business transacted were far from enamoured with a situation that saw them basically bankroll dividend payments to SAMA’s shareholders. As Falconer stated:

It appears singular to me that a company which has been so successful, and has already paid back so enormous a sum beyond its capital to its proprietors, should consider it expedient or even creditable to anticipate its receipts, by borrowing money at 10 per cent for which to pay further Dividends – however so long as our advances are protected by so large a quantity of ore actually at the Port, and ready for shipment the account is safe and profitable one to us and we have no reason to desire any change in their mode of operation.⁹⁰

Five months later Falconer looked with ‘great anxiety’ when noting that in June 1848 the balance owed by SAMA

amounted to £55,697.12.7 a sum considerably exceeding one half of your allotted capital, which cannot I fear be prudently withdrawn for your general business without damaging and injuring the connexion of the Bank.⁹¹

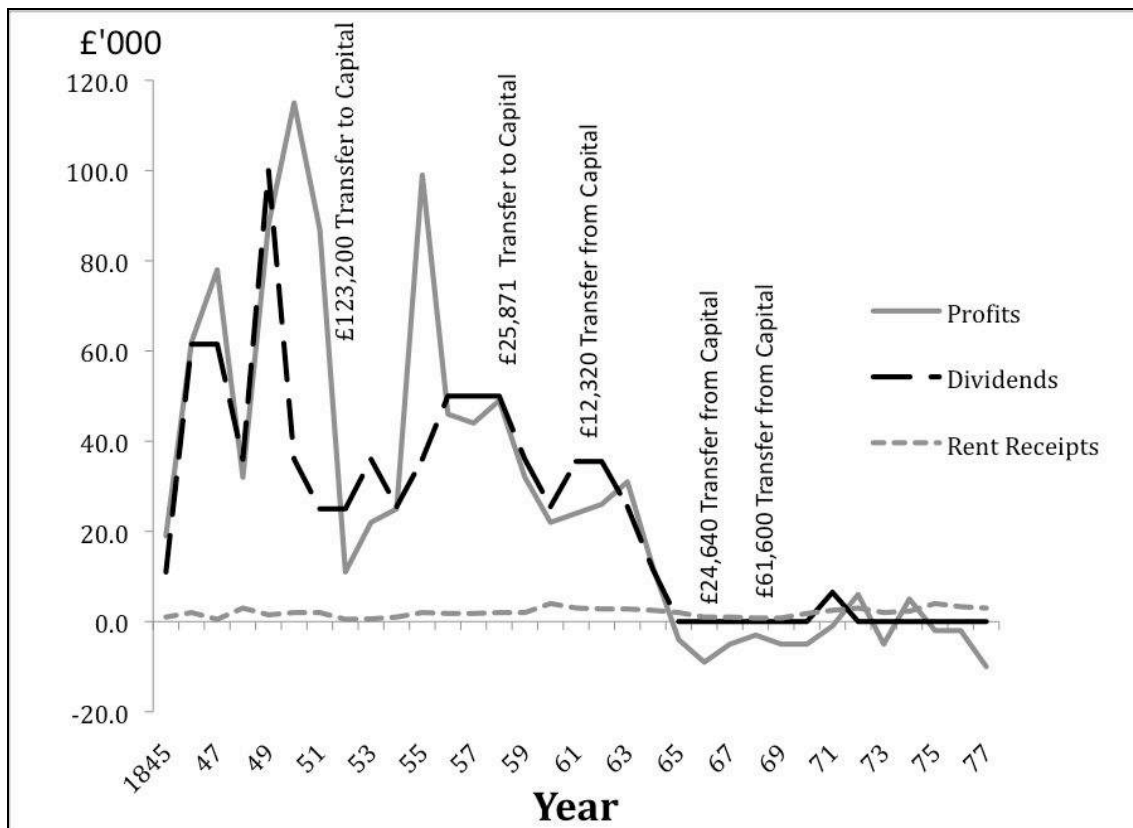
Not only that, but as he had earlier warned MacDermott, the situation had got out of hand and the Adelaide account with SAMA had proved an embarrassment to the

[London] Court by drawing upon them for funds which they do not possess, and cannot command, and if therefore it should become apparent to you that further advances will be required you must at once decline to afford such further aid, whatever the consequences may be.⁹²

The wisdom of Falconer’s words was borne out when in early 1849 it became clear that the returns on which advances had been made had been grossly overestimated. Not only had copper prices dropped substantially (34 per cent ores were claimed to have dropped by £6 per ton between July and September 1848)⁹³ but the position was exacerbated by the previously mentioned skulduggery of the tributers in falsifying their ore grades. This and attempts by the directors to set up a more onerous assaying system and an attempt to cut wages led to a 14-week strike by miners and teamsters deriving from these

incidents. Particularly malevolent to the interests of the Association was the stoppage by bullock dray carriers that prevented the carriage of ores to Port Adelaide.⁹⁴ In addition to adversely affecting production and cartage, the bullock dray embargo left the Association facing high penalty costs, for at the end of the strike there were 16-chartered vessels at the Port, all on demurrage.⁹⁵ The situation threatened to cripple SAMA and shook the directors' feeling of invulnerability. Thereafter common cost-book practice was abandoned and a more conservative approach taken to its dividend allocations when it was sensibly decided to set aside a sum of £123,200 to its Capital Account as a reserve against 'rainy days'⁹⁶ [Figure 3].

Figure 3: *Yearly profits, dividends and rental receipts SAMA 1845-1877.*



Source: Derived from figures contained in *SAMA Minutes of Directors Meetings, 1845-1875*, BRG 22, 957, and *Minutes of Meetings of Shareholders, 1845-1916*, BRG 22, 959, South Australian Archives.

Note: The dividend figures are those recorded in final balance sheets. They do not necessarily coincide with the year of payment. For example, the first two dividends of 50% shown in the chart as being paid in 1845 were actually paid in June and July 1847. Similarly, with the profits shown for 1845. The PAR value of the shares was £5.

In 1849, the problems of assaying were largely resolved with appointment of a new assayer and a new agreement whereby the Patent Copper Company converted Burra ores into copper at its Koorunga works adjacent to the mine. This saw SAMA

draw from the Bank at a flat rate of £65 per ton on its first shipment of 55 tons of 'Tough Cake Copper' shipped aboard the *Duke of Wellington* in early 1850,⁹⁷ and at £70 on a shipment of 200 tons per *Providence* to Calcutta, their first foray into that market.⁹⁸

Relations with the Bank of Australasia proved harmonious from 1850. The exodus from South Australia during the goldrush caused only few headaches for SAMA, for mining on a reduced scale continued. Manning at the mine fell from 1,013 miners in September 1851 to just 100 a year later, while production fell from 10,372 tons to 2,363 tons of ore in the same period. As production fell at half the rate of the manning of the mine, and as there were large reserves at grass when the exodus took place, SAMA took advantage of rapidly rising copper prices at that time⁹⁹ to increase its profits and to move out of the red with the Bank of Australasia.¹⁰⁰ The explanation for this is simple: when production was high so were the variable costs for wages, transport, fuel, etc., so that there was a high demand for liquidity in order to fund the expenses; when production was low, costs greatly declined and so did the need to borrow. With high copper prices, large stocks at grass augmented by working only ore deposits at the higher levels of the mine to send to the market, plus greatly reduced overheads the effect of reducing the Association's debts proved beneficial.

Agents and overseas marketing

While the Bank of Australasia, local sales, and sales to merchants were the lifeblood when meeting SAMA's demands for funds, the vital link when marketing on its own account (see table 2) and also in seeing that its accounts with the Bank were serviced, was the commission agent. Such agents provided the conduit by which bills of exchange were channelled and were also instrumental in marketing the Association's produce overseas.

SAMA's agents were chosen with care and strategies had to be adopted to ensure that they served the interests of the Association. In the first place, the directors called upon their brother directors and shareholders to recommend competent agency houses abroad. To ensure full compliance the persons who recommended a house were made responsible for any shortcomings that could eventuate. While there was no place in law to commit a person to honour any shortcomings by the agency they had recommended, in a small business community such as Adelaide, where the honour

system and ‘gentleman’s agreement’ was considered sacrosanct, there was little risk that any indiscretions would be ignored. All agents were apprised of the situation involving those who recommended their services, such as the note to Messrs E.J. Wheeler & Co., London, when informed that ‘Mr. Bunce personally guaranteed that in the event of your dishonouring the Drafts he would hold the Directors harmless’.¹⁰¹ Such a responsibility upon the recommending person was softened by the fact that agents paid them a commission on all sales or services performed for SAMA. However, from early 1853 when virtually the whole of SAMA’s lucrative British copper exports were directed through the house of Messrs. James Morrison & Co., the board took a harder line, insisting that they were very much against the custom of dividing the commissions with individual directors ‘who were supposed to have influence cargoes to them’, on the principle that no ‘individual member ... has sufficient influence to direct a consignment to any particular House’. Ayers further stressed that ‘... it is the act of the Board and they feel that if any reduction in the charges can be made ... the Company alone should receive the full benefit of the sale’.¹⁰² They obtained their requested reduction in charges and cutting out the middleman proved of direct benefit to the Association’s fortunes.

Agents were expected to perform a number of services. When SAMA exported copper ore they had to ensure that they avoided the machinations of the Swansea smelting cartel in trying to suppress prices. They were responsible for meeting drafts drawn on the Bank of Australasia and for purchasing any machinery and goods required for the Burra Burra Mine. They also settled freight, insurance and other charges on behalf of the Association and were responsible for settling accounts, and returning any surpluses from sales in the form of drafts, or specie. If need be they were expected to dip into their own reserves until they received reimbursement from sales of SAMA’s produce, being compensated if they did so.

While, as already explained, agents were chosen after recommendation, in the case of Messrs Jones & Younghusband of Liverpool, it was the fact that they were able to provide cheap freight from Port Adelaide on one of their ships that induced SAMA to utilise their services.¹⁰³ Agents were also expected to furnish market news that could help the Association – and with a number of agencies doing so, then cross-checking the information constituted a means of weighing up their worth and integrity. This also applied in India, where, Messrs. D.C. Mackey was asked to supply

periodical advices ... on the state of the copper market, price current etc., together with any suggestions you may think proper to offer on the kind and size of copper best adopted for shipment to your Port.¹⁰⁴

Checks were also made by directors who happened to venture abroad, although this was not without its weaknesses, as illustrated by the favours offered the house of Richard Hallett & Sons of London when SAMA's largest shareholder, John Benjamin Graham, became rather too friendly with the owner to the detriment of the Association.¹⁰⁵

Over time, a process of elimination occurred as flaws appeared, leading to utilisation of only two or three agencies. In India two major houses emerged, Messrs. Forbes & Co. of Bombay¹⁰⁶ and D. C. Mackey of Calcutta, the former being eventually dropped when realised that prices brought for copper in Bombay were lower than in Calcutta and because it was found the agent's charges were excessive.¹⁰⁷ When Mackey agreed to reduce their charges because of their virtual monopoly granted by SAMA, this sealed their positive standing in the eyes of the directors.¹⁰⁸ The only flaw revealed by the directors, which threatened 'an additional charge on sales', was the puzzling fact that their Adelaide weights did not tally with the scales in Calcutta. This induced the directors to deduce that 'placing an [sic] European on board the next ship will fully explain the matter. It seems to be a loss peculiar to Eastern Ports'.¹⁰⁹ No further complaints on this account were made and Mackey continued as SAMA's Indian agent, while in Britain the copper consignments became restricted to Messrs. James Morrison & Co., London, and Henry Edwards of Birmingham who received a small proportion of SAMA's exports.

Overall it can be said that SAMA was well served by its overseas agents. They provided a number of vital services in a situation where correspondents were many months away and where initiative and judgement had often to be taken on the spot. SAMA was also able to keep them under control through a system of checks and balances, although financial reward by being granted increasing shipments when they served the interests of SAMA's shareholders was the ultimate incentive.

Conclusion

Distance from market, the workings of the Navigation Acts that prevented foreign ships from conveying cargo in the early years of activity at the Burra Burra Mines, early restrictions on using minerals as collateral, plus the peculiar situation regarding the Cost-book system that forbade acceptance of credit, were eventually resolved. While

local merchants were at first reluctant to handle SAMA's produce they did so after their fears of handling a new commodity were overcome. Similarly, after some delay advances were granted by the banking system. The Bank of Australasia progressed from its early reluctance to accommodate the miners to seeing the benefits of lending on collateral and the more the Association was able to draw from that source and also from its agents then the less vulnerable was its situation. What is pertinent is that SAMA itself performed bank-like activities when it produced its own notes to service its own wage and other expenses in the colony, and when the interests of its shareholders were served through servicing their drafts abroad. Indeed, that service at times even outweighed the services provided by the bank when satisfying SAMA's liquidity requirements. Additionally, contingency funds were obtained through borrowing from shareholders. Through various other strategies such as the long-pay and by exploiting the miners through marking up the price of mining stores, and even by periodically utilising worker generated welfare funds, the directors were able to reduce costs and overcome liquidity problems when they arose. The paper illustrates that despite its title as the richest copper mine in the world in the 1840s and 1850s, there were still problems associated with distance from market that had to be overcome by the mine's board of directors and those problems included at times the need to temper their desire to satisfy the demands of shareholders for dividends by placing funds in reserve.

The paper in addressing the problems faced by an extremely successful mining company in the period under discussion also highlights problems that must have been faced by less endowed mining ventures. The reality was that having wealth stored underground was only part of the equation for a successful mining venture and that in colonial Australia many problems had to be resolved to ensure financial success. Distance from markets, small financial resources, legal restrictions on borrowing on land, lack of bargaining power with shipping and also commission agents, as well as the inability to face temporary financial crises must have been a barrier to the success of many ventures. This may help explain why so many promising mining prospects were forced to close their activities in the nineteenth century, their being unable to avail themselves of the resources or strategies adopted by the directors of SAMA at their 'Monster' Burra Burra Mines.

* This article is based on papers presented to the 13th Australian Mining History Association's Conference (in conjunction with the AHA) at Armidale, NSW, September 2007, and at the 7th International Mining History Congress, Bhubaneswar, India, December 2007.

Endnotes

¹ Swansea copper master, H. Vivian, recognized the mine as the most extraordinary in the world because of its richness. See, *The Mining Journal*, 9 May 1846, 12 February 1848, and 17 August 1850.

² Francis Dutton, *South Australia and its Mines with an Historical Sketch of the Colony, Under its Several Administrations to the Period of Captain Grey's Departure*, London 1846, reprinted Adelaide, 1978, pp. 254-6; 266-74, 278, 290-92.

³ *The South Australian Register*, 26 August 1845.

⁴ According to A.L. Gordon Mackay, *The Australian Banking and Credit System*, P.S. King, London, 1931, p. 31, in 1845 the total coin in circulation in South Australia amounted to £34,100 for a population of 22,460, that is, just over £1.10s per person.

⁵ Minutes of the Meeting of the Mining Association for the Northern Monster Lode, Business Records Group 22 [hereafter, BRG 22], 80/26, South Australian Archives [hereafter SAA].

⁶ For a fuller account of the machinations associated with the various parties, their social composition and the attempts to raise sufficient funds see, Ian Auhl, *The Story of the 'Monster Mine': The Burra Burra Mine and its Townships 1845-1877*, District Council of Burra Burra, 1986, pp. 34-41.

⁷ BRG 22, 957, *Minutes of Directors Meetings*, 18 August 1845, SAA; BRG 22, 80/26, *Miscellaneous Papers 1845-1892*, 19 August 1845, SAA. Douglas Pike, *Paradise of Dissent: South Australia 1829-1857*, MUP, Melbourne, 2nd edtn, 1967, p. 332, lists 18 shopkeepers, 11 merchants, 11 professional men, 10 gentlemen, 10 artisans, 8 farmers, 8 stockholders, 5 auctioneers and 4 manufacturers as original scrip holders of SAMA. However, the impression that they were all men of little wealth and background is misleading for some such as Captain William Allen and Emmanuel Solomon could well have been classified as belonging to the 'aristocracy' of the colony.

⁸ The supposition by the author is that the two bodies agreed to adopt the title of South Australian Mining Association because that company had already been registered, while the Committee for the Association for the Northern Monster Lode had only been brought into existence with the discovery of the Burra lodes. It is pertinent that some of the members of the latter committee also held shares in SAMA.

⁹ The mine produced ore worth only £7,000 before it was wound up. The 10,000 acres held by the company was sold for grazing purposes in 1851 at 18 shillings per acre. See, Ian Auhl, *Burra Sketchbook*, Rigby, Adelaide, 1970, p. 12; Pike, *Paradise of Dissent*, p. 332.

¹⁰ The difficulty of raising funds is reflected in the call that went out to SAMA shareholders to pay up the full amount of their shares or to increase their shareholdings when the intention of joining the 'Committee of the Mining Association for the Northern Monster Lode' was announced. To their later regret a number of the shareholders decided to forfeit their shares.

¹¹ In 1845, the average passage from Port Adelaide to the U.K. was 147 days, while the fastest passage per Westminster via the Cape took 100 days. See 'Miscellaneous notes contained in file Joseph Stilling & Co.,' BRG 26, SAA; *The Cambrian* [Swansea], 3 July 1846, reported that the first shipment of Burra ore to arrive in Swansea per *Amelia*, took 150 days.

¹² See, BRG 22, 957, 4 July 1846, p. 76; BRG 22, 960, *Directors Out-letter Books*, no. 220, 23 September 1846, no. 360, 17 August 1847, SAA.

¹³ See S.J. Butlin, *Foundations of the Australian Monetary System 1788-1851*, Melbourne UP, Carlton, 1953, p. 54, where noted that the Adelaide branch of The Union Bank of Australasia branch defied its charter from its opening in 1859 by making advances on security of land. However, this practice was not universal and Geoffrey Blainey, *Gold and Paper: A History of the National Bank of Australasia Limited*, Melbourne, 1958, p. 58, fn. 1, points out that the older established Victorian Banks were not legally able to take property as security until 1888.

¹⁴ For discussion of the limitations in this aspect of lending by SAMA's bankers, The Bank of Australasia, and the idea that the practice contravened orthodox banking practice, see, S.J. Butlin, *Australia and New Zealand Bank: The Bank of Australasia and the Union Bank of Australia Limited 1828-1851*, Longmans, 1961, pp. 25-26, 30, 93; Butlin, *Foundations of the Australian Monetary System*, pp. 503-5, 506, and Blainey, *Gold and Paper*, pp. 52-54.

¹⁵ For the position of SAMA with respect to this form of organisation see, Mel Davies, 'The South Australian Mining Association: An Early Australian Cost-book Company', in *Journal of Australasian Mining History*, vol. 1, no. 1, September 2003, pp. 31-50.

¹⁶ Butlin, *Australia and New Zealand Bank*, p. 93; Butlin, *Foundations of the Australian Monetary System*, p. 398; Alan Barnard, *The Australian Wool Market 1840-1900*, Melbourne UP, Melbourne 1958, pp. 117-19.

¹⁷ See BRG 22, 957, 13 January 1846, p. 76, SAA; see also Henry Ayers to Messrs. E.J. Wheeler & Co., London, BRG 22, 960, 7 November 1846, SAA, where the London agent was instructed to watch out for sheep droppings that might have contaminated the ores shipped per the *Tigress*.

¹⁸ This suspicion was warranted, as measured by the problems that led to the losses the Company sustained in 1848 and that were a contributing factor in the 'Great Strike' at the Burra Burra Mines in 1848. See Mel Davies, 'Cornish Miners and Class Relations in Early Colonial South Australia', *Australian Historical Studies*, no. 105, October 1995, pp. 568-95.

¹⁹ 'Mining in South Australia', *The Mining Journal*, 12 February 1848. Note: author's emphasis.

²⁰ BRG 22, 957, 3 August 1847, p. 164, SAA.

²¹ For detail on the shipping arrangements including the role of copper or ore as ballast, and on the reluctance to carry ores, see Mel Davies, 'Shipping Freight Costs: South Australian Copper and Copper-Ore Cargoes, 1845-1870', *The Great Circle*, vol. 20, no. 2, 1998, pp. 90-119.

²² BRG 22, 957, 23 March 1849, p. 239, SAA. At a later date C & F.J. Beck purchased on its own account.

²³ See, 'Mining in South Australia', *The Mining Journal*, 22 April 1848, and BRG 22, 957, 19 November 1848, p. 178, SAA.

²⁴ Letter to Hayward & Co, Melbourne, BRG 22, 960, no. 417, 24 April 1862, SAA.

²⁵ See, Barnard, *The Australian Wool Market*, *passim*.

²⁶ For detail on the arrangements see Mel Davies, 'Taking coals from Newcastle - smelting location and fuel costs at Kooringa, South Australia in the 19th century', *Journal of Australasian Mining History*, vol. 3, September 2005, pp. 34-57, esp. p. 41. Note that a few cash sales were made of low-grade ores.

²⁷ Only in the final stage of production in the 1870s when tonnages had dropped to very low levels did SAMA sell its ores directly to the smelters on a regular basis.

²⁸ See for example, Hy Ayers to Samuel Stocks, BRG 22, 961, *Letters to SAMA Mine Officials*, no. 14, 4 May 1846, p. 25, SAA.

²⁹ Costs of wages and carting rose substantially from about £300 to £400 per week in late 1845 to mid-1846, and between £1,000 to £1,400 from October 1846 to early 1847.

³⁰ Technically under the Cost-book system there were scrip holders rather than shareholders.

³¹ BRG 22, 957, 6 January 1846, p. 69, SAA.

³² *Ibid.*, 28 June 1850, p. 309.

³³ Note that under the cost book system it was expected that every day costs should be paid out of current receipts and because there would have been a time lapse between making calls and receipt of calls this could have disrupted activity. Thus 'borrowing' from members was a simpler alternative. Other complications included the right of scripholders to either relinquish their interest if they did not wish to meet a call, or if there was sufficient resistance, to close down the mine. For a more detailed explanation of this aspect see, Davies, 'The South Australian Mining Association: An Early Australian Cost-book Company', esp. pp. 33-35.

³⁴ BRG 22, 957, 9 October 1851, p. 377.

³⁵ *Ibid.*, 23 May 1850, p. 306.

³⁶ SAMA's Secretary, Henry Ayers, used his position to act as an agent for many overseas shareholders. In so doing he not only gained commission but also their voting rights, thus making him one of the most powerful members of the organisation.

³⁷ For example, see BRG 22, 957, 7 August 1851, p. 366, SAA, where moved 'That the balance to the credit of the "Unclaimed Dividend Fund" be borrowed for the general purpose of the Company'.

³⁸ Under 'letters-of-credit, interest was generally allowed after maturity, while with drafts no such payment was made as they had to be drawn at maturity. A draft was in effect 'an order' payable on demand. A letters-of-credit was more of a request and only paid if the London agent was in funds. However, this distinction is not always obvious in SAMA's records, and the terms tended to be used interchangeably.

³⁹ BRG 22, 957, 8 December 1846, p. 129, SAA.

⁴⁰ See Davies, 'Cornish Miners and Class Relations', esp. pp. 576-589.

⁴¹ No name but obviously Henry Ayers to Thomas, Burr, BRG 22, 960, no. 618, 8 September 1848, SAA.

⁴² For example, instead of providing an expected large surplus on ores despatched via the Trafalgar to agent Messrs Duncan Dunbar, there was a deficiency of £592. 13s 8d. See, Hy Ayers to Messrs Duncan Dunbar & Sons, London, BRG 22, 960, no. 755, 6 December 1848, SAA. For further information on drawing rights see, Mel Davies, 'Copper and Credit: Commission Agents and the South Australian Mining Association 1845-77', in *Australian Economic History Review*, vol. XX111, no. 1, 1983, esp. pp. 70-76.

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- ⁴³ Peter Mathias, *The First Industrial Nation: An Economic History of Britain 1700-1914*, Routledge, 2nd edtn, 1983, pp. 139-40.
- ⁴⁴ Hy Ayers to Hy Chapman, BRG 22, 961, no. 8, 30 March 1847, p. 87, SAA.
- ⁴⁵ *Ibid.*, Hy Ayers to W.H. Challoner, no. 423, 18 July 1855, p. 419. The 'Take' was the period between auction of a pitch in a mine and the end of the subsequent contract when the pitch was again put up for auction. The period of a Take could vary but was usually between six weeks to two months.
- ⁴⁶ Hy Ayers to Samuel Stocks, BRG 22, 961, no. 18, 1 June 1846, SAA.
- ⁴⁷ See, *Ibid.*, no. 14, 4 May 1846, p. 25.
- ⁴⁸ *Ibid.*, Hy Ayers to Captain Henry Roach, no. 325, 14 October 1851, p. 220.
- ⁴⁹ See Peter Mathias, *The Transformation of England*, Methuen, 1979, pp. 190-208. Henry Ayers noted in 1846 that 'As money is an article rarely seen at the mines it is recommended that the Postage of Letters to the North [to the Burra Burra Mines] be prepaid in Adelaide...', see, Hy Ayers to John Watts Esq., Postmaster General, BRG 22, 960, no. 181, 19 May 1846, SAA.
- ⁵⁰ Hy Ayers to Samuel Stocks, BRG 22, 961, no. 33, 5 September 1846, p. 58, SAA.
- ⁵¹ *Ibid.*, Hy Ayers to Thos Burr, no. 37, 9 February 1848, p. 146.
- ⁵² See Mathias, *The Transformation*, pp. 190-208. Butlin, *Australia and New Zealand Bank*, p. 11, states that in country areas storekeepers' notes were commonly used and did not finally vanish until the middle of the twentieth century. For South Australia, E.M. Yelland (ed.), *Colonists, Copper and Corn in the Colony of South Australia 1850-51, by an Old Colonist*, Hawthorn Press, Melbourne, 1970, p. 150, says: 'The Burra Company issues notes; the Copper Company the same; those of £1 or higher distinguished by colour. The tradesmen, of course follow the same system, and Boord Brothers and Hutchins, Storekeepers, issue their respective notes. All are payable in cash in Adelaide. Little other money is current, and silver is scarce; but as the storekeepers' notes ... are as small as ten shillings and seven shillings and six pence the want of change is remedied'.
- ⁵³ Hy Ayers to Samuel Stocks, BRG 22, 961, no. 28, 18 August 1846, and no. 36, 21 September 1846, SAA.
- ⁵⁴ *Ibid.*, Hy Ayers to W.H. Challoner, Accountant, no. 653, 20 February 1860, pp. 157-8. The opening of the branch was possibly motivated by the actions of the National Bank that opened a branch at Kooringa about this time. See, Blainey, *Gold and Paper*, p. 43.
- ⁵⁵ *Ibid.*, to Samuel Stocks Jnr, no. 22, 11 July 1846.
- ⁵⁶ *Ibid.*, to Captn Hy Roach, no. 795, 22 January 1858; see also examples *ibid.*, no. 2, 18 January 1849, p. 238; *ibid.*, no. 36, 24 May 1849; *ibid.*, no. 224, 20 December 1853, p. 133.
- ⁵⁷ See for example, *ibid.*, no. 2, 18 January 1849, p. 238; *ibid.*, no. 632, 24 July 1855, p. 420.
- ⁵⁸ *Ibid.*, no. 575, 21 September 1859, p. 379.
- ⁵⁹ BRG 22, 966, *Superintendent's Letter Book*, 16 December 1856 to 2 December 1865, no. 1153, 6 August 1864, SAA; In 1848 Ayers estimated that they would use 4 tons of candles a year, see BRG 22, 961, no. 43, 6 February 1848, SAA.
- ⁶⁰ W.H. Challoner to Hy Ayers, BRG 22, 966, no. 1060, 14 March 1863, and no. 1096, 1 October 1863, SAA.
- ⁶¹ Hy Ayers to various officials, BRG 22, 961, no. 36, 21 September 1846 and no. 37, 26 September 1846, SAA.
- ⁶² *Ibid.*, no. 226, 27 December 1850, p. 133.
- ⁶³ I am indebted to Anne Both for this information that was presented in her paper 'From Plants to Miners' Hats and Magnetic Exploders', presented to the 16th Conference of the Australian Mining History Association, Greymouth, New Zealand, 7 July 2010. For information on the horse blanket gaskets see J.E. Connell, *Burra Burra Mine: A Study of Pipes, Bolts and Gaskets from the Cornish Pump in Mophetts Shaft*, Report for Department of Environment and Planning, Adelaide, April 1986.
- ⁶⁴ *Ibid.*, Hy Ayers to Captn Henry Roach, no. 623, 6 June 1855, SAA.
- ⁶⁵ The only other occasion occurred during the goldrush of the early 1850s when labour shortages saw abandonment of all mining below the 20-fathom level and when similar instructions to raise only high quality ores were made.
- ⁶⁶ Geoffrey Blainey, *The Rush that Never Ended, A History of Australian Mining*, MUP, 2nd edtn, 1969, p. 111; Pike, *Paradise of Dissent*, p. 336.
- ⁶⁷ Blainey, *The Rush that Never Ended*, p. 111.
- ⁶⁸ Hy Ayers to Samuel Stocks, BRG 22, 961, no. 22, 11 July 1846, SAA.
- ⁶⁹ Hy Ayers to R.N. Moore, Colonial Surgeon, BRG 22, 960, no. 910, 13 March 1860, SAA.
- ⁷⁰ To Mr M.H. Furniss, BRG 22, 961, no. 74, 28 November 1872, SAA. For neglect of the town infrastructure and refusal to grant freehold to tenants in the township of Kooringa see Auhl, *The Story of the 'Monster Mine'*, pp. 116-7.

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- ⁷¹ See Hy Ayers to Captn H. Roach, BRG 22, 961, no. 621, 29 May 1855, SAA.
- ⁷² The club administration was only handed over to the miners in 1873 when the mine was in rapid decline. See, *ibid.*, Hy Ayers to Captn Sanders, no. 28, 29 July 1873, SAA.
- ⁷³ *Ibid.*, Hy Ayers to W.H. Challoner, no. 1177, 20 December 1865.
- ⁷⁴ To Dr Mayne, Kooringa, BRG 22, 960, no. 843, 13 July 1864, and to Mr M.A. Oakford, no. 849, 20 July 1864, SAA.
- ⁷⁵ For example, *ibid.*, Hy Ayers to Revd Henry Cheetham, no. 1367, 8 August 1851, and to Mr James Mill Patterson, *ibid.*, no. 261, 28 August 1857, SAA.
- ⁷⁶ *Ibid.*, Hy Ayers to Captn H. Roach, no. 958, 23 August 1860, SAA.
- ⁷⁷ *The South Australian Weekly Chronicle*, 21 April 1860.
- ⁷⁸ Hy Ayers to W.H. Challoner, BRG 22, 961, no. 492, 14 October 1856, SAA.
- ⁷⁹ As an example of his keen attention to the interests of the Association, Ayers in 1846 noticed a piece of ore weighing just over 12 pounds that was being used to prop up a cask at an Adelaide store. This, he was informed had been left there by a carter. To 'put a stop to our being robbed in this way' he advised prosecution for future cases. See, Hy Ayers to Captn Scott, BRG 22, 960, no. 229, 17 October 1846.
- ⁸⁰ Butlin, *Australia and New Zealand Bank*, p. 93; Butlin, *Foundations of the Australian Monetary System*, p. 398; Barnard, *The Australian Wool Market*, pp. 117-19.
- ⁸¹ *Ibid.*, p. 116; see also appeal to J.J. Falconer, Bank of Australasia, SAMA, BRG 22, 960, no. 43, 7 November 1845, SAA.
- ⁸² *Ibid.*, Hy Ayers to George Watson, Acting Manager Bank of Australasia, no. 59, 25 November 1845, SAA.
- ⁸³ *Ibid.*, no. 74, 2 December 1845, SAA.
- ⁸⁴ *Ibid.*, pp. 98, 117, 139; See also Anon., *A Brief Sketch of the Long and Varied Career of Marshall MacDermott, Esq., J.P. of Adelaide, South Australia*, William Kyffin Thomas, Adelaide, 1874, reprinted, Australiana facsimile edition no. 189, Adelaide Libraries Board of South Australia, 1969, p. 50, where mentioned that on one occasion MacDermott received a reprimand for allowing SAMA to obtain £72,000 in overdrawn account, the Bank's directors believing that such a large sum should not be extended to any one firm.
- ⁸⁵ Hy Ayers to Marshall MacDermott Esq., Manager Bank of Australasia, BRG 22, 960, no. 360, 17 August 1847, SAA; BRG 22, 957, 17 August 1847, p. 166, SAA. Whether MacDermott was authorized to issue the promissory notes (which he had done from about August 1846) is not known, but the practice was stopped following the issue of the note mentioned in the above quote.
- ⁸⁶ Hy Ayers to Marshall MacDermott Esq., Manager Bank of Australasia, BRG 22, 960, no. 281, 17 February 1848, SAA.
- ⁸⁷ *Ibid.*
- ⁸⁸ BRG 22, 957, 1 December 1846, p. 128, SAA.
- ⁸⁹ *Ibid.*, 8 June 1847, p. 157 and 29 June 1847, p. 159.
- ⁹⁰ Correspondence from Melbourne to Adelaide, Records of the Bank of Australasia, ANZ Bank Archives, Melbourne, A/117, no. 98, 1 February 1848, p. 262. I am indebted to Patricia Sumerling for drawing my attention to this correspondence.
- ⁹¹ *Ibid.*, no. 105, 29 July 1848, p. 287.
- ⁹² *Ibid.*, no. 107, 15 August 1848, p. 291, SAA; see also same sentiments in *Ibid.*, no. 102, April 1848, p. 276.
- ⁹³ BRG 22, 959, *Minutes of Meetings of Shareholders 1845-1916*, Report, 31 September 1848, SAA. A number of reasons were presented for the deteriorating trade situation by A.D. Gayer, W.W. Rostow, A.J. Schwartz, *The Growth and Fluctuation of the British Economy 1790-1850*, Clarendon Press, Oxford, 2 vols, 1953, vol. 1, pp. 304-5. The reasons included a tightening of the railway financial market following the end of the railway boom, abnormally large grain imports into Britain in 1846-47 that drained gold and exchange from Britain, a financial crisis in the United States and the European Conference in 1847 which brought disruption to trade and commerce, plus the disruption brought on by the revolutions and counter-revolutions in Europe in 1848.
- ⁹⁴ Davies, 'Cornish miners and class relations', pp. 568-95.
- ⁹⁵ *Ibid.*, pp. 545-68.
- ⁹⁶ Hy Ayers to John Benjamin Graham, *J.B. Graham papers, Private Records Group* [PRG] 100, 5 June 1850, no. 21, SAA; This sum represented the estimated value of the Company's landed property, buildings, material, plant, stores, and office furniture. See, SAA, BRG 22, 957, 29 September 1853, p. 78, SAA.
- ⁹⁷ Hy Ayers to Messrs. Richard Hallett & Sons, London, BRG 22, 960, no. 1037, 23 February 1850, SAA.
- ⁹⁸ *Ibid.*, Hy Ayers to Messrs D.C. Mackey & Co., Calcutta, no. 1273, 12 March 1851, SAA.

⁹⁹ See various references in BRG 22, 957 and 960 where recorded that from 1849 to September 1852 the price of SAMA's copper ranged from £71.10s to £78.10s per ton. Thereafter it rose rapidly from £85 in October 1852, to £95 in March 1853, £105 in April and to £120 in May 1853, though small parcels were sold for as much as £140. John R. Leifchild, *Cornwall: Its Mines and Miners*, Longman, Brown, Green & Longmans, London, 1855, p. 246, believed the cause of the price rise was 'chiefly owing to the great falling off in the returns from foreign mines, more particularly from the great Australian mine called the Burra Burra'. Whether this was so, is a moot point.

¹⁰⁰ See BRG 22, 957, 11 November 1852, p. 36, and 29 September 1853, p. 78, SAA.

¹⁰¹ Hy Ayers to E.J. Wheeler & Co., London, BRG 22, 960, no. 419, SAA [Original emphasis].

¹⁰² *Ibid.*, Hy Ayers to Messrs. James Morrison & Co., London, no. 1711, 6 December 1852.

¹⁰³ *Ibid.*, Hy Ayers to John Bibby & Sons, Liverpool, no. 422, 19 January 1848, and *Ibid.*, no. 423, 20 January 1848.

¹⁰⁴ *Ibid.*, Hy Ayers to Messrs. D.C. Mackey & Co., Calcutta, no. 1273, 12 March 1851.

¹⁰⁵ See, Davies, 'Copper and Credit', pp. 67-8.

¹⁰⁶ Messrs. Forbes & Co. was one of the four dominant houses at that port. See, Raymond J.F. Sullivan, *One Hundred Years of Bombay: History of the Bombay Chamber of Commerce 1836-1936*, The Times of India Press, Bombay, 1937, p. 11.

¹⁰⁷ Hy Ayers to Messrs. Forbes & Co., Bombay, BRG 22, 960, no. 1729, 3 January 1853, SAA.

¹⁰⁸ Note that in Calcutta, all SAMA's drafts were negotiated through the Oriental Bank which acted as Agent for the Bank of Australasia. In turn, SAMA's directors asked that all credits be passed to London in order to meet its drafts there.

¹⁰⁹ Hy Ayers to Messrs. Forbes & Co., Bombay, BRG 22, 960, no. 1729, 3 January 1853, SAA.