

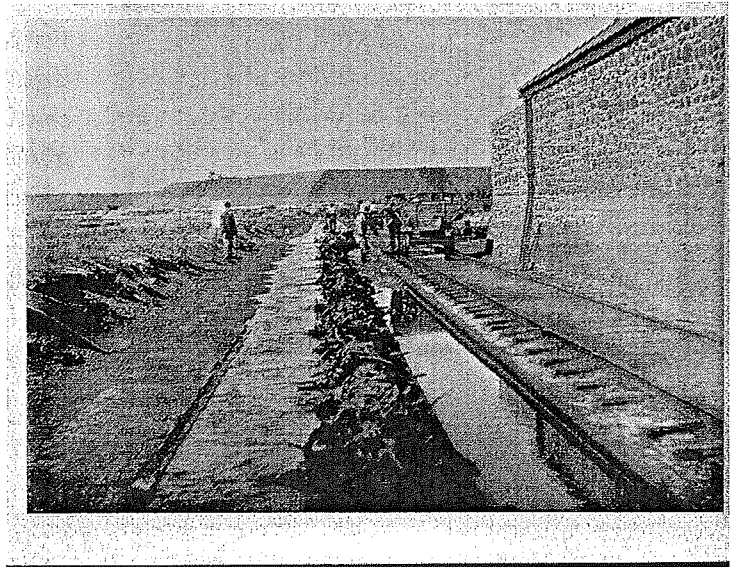
History of Moonta Cementation



from "The People's Weekly" 1943 by Oswald Pryor

"The projected closing down of the cementation works at Moonta marks the end of a long and interesting chapter in the history of the Moonta Mines. It began in the nineties following the discovery that seepage from the skimp's heaps, caused by rain, produced copper precipitate when brought into contact with scraps of iron. There was no mystery in the process the old alchemists knew all about it, and any High School boy knows that iron is placed in copper sulphate (BLUESTONE) the metal changes places.

The first plant was a crude arrangement of boxes filled with scrap iron, into which flowed the copper bearing waters draining from Richman's Heap. A little later small quantities of mine water were pumped on top of the heap to increase the flow. The result was a highly concentrated solution of copper sulphate of beautiful peacock green colour. Over a period of a few years hundreds of tons of high class precipitate were recovered by this primitive arrangement. The late Mr. T. A. Davey was in charge, and his chief assistant, Mr. A. V. Dawson is still on the job.



The results were so encouraging it was decided to leach the tailings heaps on a comprehensive scale, sole credit for which was due to the initiative of Mr. H. Lipson Hancock, who had recently succeeded his father as manager of both mines.

In 1900 Senor Antonia Delgado came from the Rio Tinto mine in Spain to design and put into operation the necessary plant. He knows no English except a couple of expletives and several interpreters were engaged in turn to assist him. They were not very helpful and he soon picked up enough of our language to enable him to dispense with interpreters.

A large amount of work was involved in the new undertaking, which was estimated to cost not more than 20,000 pounds. There were 2 1/4 miles of cast iron, wood lined pipes, through which the leaching liquors were pumped to the tops of the heaps, and 2 1/2 miles of earthenware pipes to convey the copper liquors to the precipitating canals. Another 2 1/2 miles of cast iron pipes brought seawater from Rossiter's beach to Ryan's pumping station. Three thousand feet of wooden canals and six wood lined tanks 60 by 30 feet were constructed without the use of a nail and all the joints were caulked with pitch and oakum. So well did the Spainard do his job there has never been a sign of leakage.

Moonta ore was amenable to cementation treatment because the sulphides rapidly oxidised when exposed to air, and the results exceeded expectations. Still there was opposition from some shareholders, led by Mr. Mortimer Stuckey, who claimed to have metallurgical experience. Stuckey was chairman of the

It was estimated that the heaps would be worked out in ten years, but considerable quantities were meanwhile being added from the current mining operations and by purchase from other mines. Also there were large quantities of very rich slime, which had not been taken into account.

Mr Delgado had no experience in leaching slimes but he hoped to improvise a method for their successful treatment, which added considerably to the cementation resources. The erection of pumping plants was mainly in the hands of Mr R. Eustice under Mr. Hancock's direction as Mr Delgado was not a practical engineer. The pumps were steam driven, later converted to diesel oil by the present company. The quantity of water circulated was at the rate of 30,000 gallons per hour. All liquors after the copper content was removed, were again pumped back to the heaps. Being rich in iron salts, they accelerated the oxidising reaction in the heaps. The iron liquors were corrosive, and a special alloy was formulated. It was ultimately catalogued by the Worthington pump company as 'the Moonta alloy'.



The plant came into full production in 1903, and Senor Delgado having completed his two years contract, returned to Spain, where he entertained Mr Hancock while on a trip aboard in 1908.

For twenty years, until the company went into liquidation in 1923, the treatment was carried on continuously, except for two short cessations. The average yearly production was approximately 700 tons of fine copper. The present company has since added a substantial amount to the total production.

There are 1 1/2 million tons of skimping, including 119,000 from Hamley Mine and 13,000 tons from Paramatta. Richman's heap alone contains 600,000 tons and is 60 feet high. All waste material was originally dumped without regard to further possible treatment, but of six skimp heaps only one was on porous ground, and the old 'skimp jerker' moved that to a better site.

Some may question why so much copper was thrown away to waste. The answer it hat metallurgists had not then found a way to separate finely disseminated particles of ore from waste rock. Floatation eventually solved the problems, and if it had come fifty years earlier there would have been no cementation at Moonta.

The precipitating plant was probably a copy of one in Spain, but it is unique in Australia, and many mining and metallurgical heads came here to inspect it. Some of them were Mr. G. D. Delprat, accompanied by his daughter, Lady Mawson, Messrs H. W. Gepp, Robert Sticht (of Mt Lyedd) Adam Boyd (Mt Morgan) and others equally well known.

