

## **Snowy River Gold Dredging Ltd: A Successful Adelaide Dredging Company, 1938-1957**

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In 1938, Snowy River Gold Dredging Limited [hereafter SRGD] was formed in Adelaide to build and operate a gold dredge in a distant river valley on the West Coast of the South Island of New Zealand. With a head office and its Board located in Adelaide, and its operations in another country, at first glance this company appears to be cast in the mould of the free-standing mining companies formed 40 years before that in London to operate gold mines in distant parts of the world. However, unlike the great majority of the thousands of British free-standing mining companies formed which failed, SRGD was a very successful operation.

The Snowy River dredge worked from 1941 to 1957, dredging 300 hectares of valley floor and treating some 13 million cubic metres of low-grade alluvium to produce more than two tonnes of gold. Profitably dredging alluvium that contained only one portion of gold for every 20 million portions of waste, the company paid dividends in every year of its operation, returning to shareholders distributions totalling 404 per cent on its £70,000 capital<sup>1</sup> (Table 1).

This creditable performance was also in stark contrast to that of the six other gold mining companies that had Australian operations and which were listed on the Stock Exchange in Australia the same day that SRDG was listed in September 1940 – not one of them ever paid a dividend.

The story of this obscure Adelaide mining company raises several questions:

- Why was the Snowy River Dredging Company able to succeed when most free-standing transnational mining companies failed?
- Why did it succeed compared with most of the other Australian goldmining companies floated at the same time?
- Why was this company, which would operate in such a distant location, floated in Adelaide?

The free-standing company was a distinctive form of global company or international enterprise which flourished in the age of high imperialism, 1870-1914. It was a company typically based in London that owned purely overseas operations.<sup>2</sup> Thousands of free-standing mining companies consisting of little more than a small

head office staff and London board of directors were formed in the City to operate mines abroad.<sup>3</sup> These arrangements offered a means of channeling and monitoring overseas investments to specific overseas ventures on behalf of passive British investors, while the *raison d'être* for formation of such companies often lay in the ready availability of funds to promoters in the London market.<sup>4</sup>

Some 8,400 mining companies were formed in London between 1880 and 1913, and only a tiny proportion of these were profitable.<sup>5</sup> An example of this failure is provided by the abysmal record of British investment in US mines where only one in nine of the 518 companies floated in London between 1860 and 1901 to operate these mines ever paid a dividend, and the dividends of only ten companies, or one in 50, returned dividends equalling or exceeding the capital invested.<sup>6</sup>

The failure of most British free-standing transnational mining companies was mainly due to inadequacies of management.<sup>7</sup> The problem was exacerbated by the generally poor standard of British mining promoters, who were 'poorly informed.'<sup>8</sup> This is in contrast to Snowy River Gold Dredging Limited where management was proficient, reflecting the high standard of technical expertise that had developed in the dredging industry in New Zealand. The company's eventual results bore out exactly the promoters' predictions concerning capital costs and recovered gold grades that had been made in the prospectus, thus illustrating the degree of sophistication in testing and assessing dredging ground that had been achieved in New Zealand.<sup>9</sup> Benefits can also be associated with the advanced technological level that had been attained in the design and construction of New Zealand dredges. SRGD was fortunate that it did not have to develop nor introduce new technology, because experimentation and technological innovation can be costly and difficult.<sup>10</sup>

One of the keys to the unusual success of SRGD also seems to lie in the fact that the promoters had the perspicacity to appoint two local directors in New Zealand to the board.<sup>11</sup> Resident in Greymouth, they were less than an hours' drive from the company's scene of operations. In this respect, although SRGD has the appearance of the traditional transnational free-standing mining company model described by Wilkins, its standard of supervision was much higher because of the proximity of these local directors.<sup>12</sup> In fact, with the exception of some companies operating in Bendigo, SRGD probably had more members of its board of directors living within less than an hour of its operations than most companies operating gold mines in Australia at that time.

The other Australian gold mining companies that listed the same day as SRGD, all had underground mining operations, or were attempting to reopen old mines (these companies were Ajax South Gold Mine NL, Blue Spec Mines NL, Forbes Carshalton Gold Mining Co NL, Golden Sovereign NL, New Don NL, and South Nell Gwynne Gold Mining Company NL).<sup>13</sup> The companies often experienced difficulties when testing unpredictable irregular ore bodies or in experiencing unforeseen technological problems associated with opening up deep old mines. In contrast, by its very nature as horizontally disposed alluvium, dredging ground is readily assessable by simple techniques including churn drilling and check shaft sinking. The alluvium in the Snowy River valley was quite shallow, with an average thickness or depth of only six metres. Despite the often patchy nature of gold grades in such alluvials, recoverable grades and reserves can be readily calculated from the results of a programme of drilling undertaken on a grid pattern, so that the samples obtained should be representative of the material being surveyed.<sup>14</sup>

Such were the advantages enjoyed by SRGD that they outweighed the benefits of the benign taxation regime enjoyed by gold mining in Australia in comparison with New Zealand at that time.<sup>15</sup> Not only were gold mining profits tax-free in Australia, but dividends paid by goldmining companies were also tax-free. In New Zealand, goldmining company dividends were taxable in shareholders' hands, there was a gold export duty of 12s 6d an ounce on all the gold produced (a royalty of 8.33 per cent), and goldmining companies, including SRGD, had to pay New Zealand company tax on their profits. There was also an additional dividend tax of 10 shillings in the pound on dividends declared, once dividends paid amounted to double a company's capital.

### **Links with Adelaide**

Initially I was intrigued by the possibility that Snowy River Gold Dredging might provide a case study of the Adelaide tradition of financing mining development in remote localities, the best-known example of this being the vital Adelaide connection with the early development of the Golden Mile at Kalgoorlie.<sup>16</sup> However, there was only a casual link between Adelaide and the Snowy River project, which was almost coincidental: the promoter of SRGD, A.J. (Andy) Davy had lived in Adelaide, and had relatives there, and it was because of this that he turned to Adelaide for the initial

financial backing for his project. Davy was a welder and boilermaker who became a dredging engineer when he worked for Bulolo Gold Dredging in Papua-New Guinea.<sup>17</sup>

The increases in the price of gold in the 1930s stimulated interest in dredging projects in New Zealand.<sup>18</sup> An existing large and successful dredging operation located on the West Coast of the South Island, Rimu Gold Dredging Co. Ltd., which had been sponsored by the General Development Company of New York, floated a company, Grey River Dredging Co. Ltd., to install a large dredge on the Little Grey River.<sup>19</sup> Construction of this dredge commenced in late 1937 at Ikamatua, which is near the confluence of the Snowy and Little Grey Rivers. Davy was appointed supervising engineer of the dredge construction. He became intrigued with the dredging possibilities of the nearby Snowy River valley, and he set up a syndicate with some local prospectors and pegged various gold claims and negotiated options with farmers over their freehold land in the valley. Needing capital to finance the large drilling programme that would be required to prove that the valley was a viable dredging proposition, Davy approached his niece's employer in Adelaide, F.M. Hughes.<sup>20</sup> An importer and retailer of chinaware and crockery in Adelaide, Hughes was an enthusiastic mining investor prepared to dabble in an exploration syndicate.

Hughes found that Adelaide investors were keen to participate in financing the proving up of a dredging prospect in a remote valley in New Zealand. Only ten years before, Guinea Gold NL had been floated in Adelaide on a gold prospect in the even more remote mountains of New Guinea, and this had led to the eventual development of Bulolo Gold, a spectacular dredging success.<sup>21</sup> A non-listed public company, Snowy River Gold Dredging Syndicate No Liability, was formed in Adelaide with a capital of £20,000 to acquire Davy's claims and options, and to undertake a drilling programme in the Snowy valley involving 125 holes and four check shafts. The holes were drilled 30 to 60 metres apart on grid lines that were 200 metres apart.

When this drilling indicated reserves of 9-million cubic metres of wash, estimated to contain nearly 63,000 ounces of gold worth £470,000, of which £263,000 was expected to be profit from dredging these reserves, a new £70,000 company, Snowy River Gold Dredging Limited, was formed in Adelaide to take over the syndicate, exercise the options, and install a dredge.<sup>22</sup>

The dredge, it was estimated, would cost £34,000 to construct, and Davy was appointed supervising engineer. With a bucket capacity of a quarter of a cubic metre, and designed to operate at 24 buckets a minute, the Snowy dredge could handle nearly a

million cubic metres a year. It could dig to a depth of 10 metres below water level.<sup>23</sup> The dredge weighed 800 tons, and the pontoons on which it floated were some 25 metres long, and were deep enough for a man to stand upright inside. They were constructed of steel. The dredge was welded rather than riveted.<sup>24</sup> The 12 metre high superstructure, which housed the winch controls and machinery, including the revolving screens or trommels and the usual gold saving tables, gold room and workshop, was some 20 metres long and 10 metres wide. The dredge was operated by electricity supplied by the district power scheme.

The dredge floated in a six metres-deep pond, digging ahead with its endless chain of buckets bringing the alluvium on board where it was screened and run over tables where riffles trapped the gold before the alluvium was dumped behind the dredge, so that the pond itself actually moved forward through the dredge ground. Tailings were disposed of to the rear of the dredge by the sluice box method, allowing a rough and ready rehabilitation of the dredged land as the dredge worked its way through the valley. This was in marked contrast to earlier dredging operations in New Zealand which had created environmental havoc, destroying valley flats by leaving piles of rocks behind them.<sup>25</sup> In the Snowy's *modus operandi*, the larger rocks screened out of the alluvium and deposited behind the dredge were covered by the sifted wash dirt which was discharged by a sluice box that projected out further behind the dredge than the rock chute. This method of debris disposal resulted in the screened-out rocks being covered by a fairly flat layer of finer gravel and sand. Native grasses and other plants were planted to establish a rough pasture, and on portion of the dredged land the company also undertook re-forestation, establishing plantations of pine trees.<sup>26</sup>

In the vicinity of its operations the company acquired and renovated houses, and also constructed some, so as to attract and retain a married, and hence more stable workforce. Employing a total of 14 men, the venture operated three shifts around the clock six days a week, with two men on the dredge each shift, and the remainder – the engineer, a tractor driver, and those engaged clearing scrub ahead of the dredge and in restoration work behind it, *etc* – on day shift. Shifts were rotated allowing shift workers a 'long weekend' every third week.<sup>27</sup>

The number of buckets dredged each shift was meticulously recorded, and a measure of efficiency of operation continually scrutinised by the Directors was the percentage of available hours the dredge actually worked each fortnightly period. Down-time was necessary for repairs, and the replacement of worn parts and bucket

relipping, and also the weekly wash-up of gold recovered.<sup>28</sup> The wash-up was always attended by one of the New Zealand directors. The company issued fortnightly production reports to the Stock Exchanges, so that investors were kept fully informed. These share market reports included the number of hours spent dredging in the reporting period, the number of cubic yards dredged and the ounces of gold produced.

Implementation of the Snowy dredging project was initially delayed by the onset of the war. Because of wartime restrictions and lack of materials and delays in getting vital electrical switch gear from the UK, the Snowy dredge was not completed until January 1941. The dredge worked from 1941 to 1957,<sup>29</sup> dredging through a six kilometre long by about half-a-kilometre wide strip up the Snowy River valley. It excavated to an average depth of about six metres and produced more than 60,000 ounces of gold by profitably handling and sorting alluvium that contained only about a seventh of a gram of gold in every cubic metre of wash dirt dredged. This meant that to recover an ounce of gold (about a level tea spoon of gold dust), 200 cubic metres of alluvium had to be dredged – this is a metre-thick block five metres deep by 40 metres wide along the face of the cut. Initial costs were less than four pence per cubic metre. Dividends fluctuated, but averaged 20 per cent per annum.

Post-war inflation of costs eventually closed down the New Zealand gold dredging industry. Prices doubled in New Zealand during the period that the Snowy River dredge operated from 1941 to 1957, while the gold price increased by two thirds from £7. 10s an ounce to £12. 10s.<sup>30</sup> After having faithfully fulfilled the predictions made in its prospectus, the Snowy River dredge was beached in 1957, and ignominiously cut up for scrap – but a not so ignominious was the 800 tons of scrap metal.

This faithful fulfilment of prospectus predictions was the hallmark of the unusual success of the SRGD Company. Some of the free-standing British mining companies that failed were also dredging companies, but they did not exhibit the professionalism of the Adelaide company in its accurate assessment of its dredging ground, the expert selection and design of its equipment, the technical expertise of its management, and its high level of supervision.

**Table 1:** *Snowy River Gold Dredging Limited production statistics \**

Alluvium dredged <i>Cubic metres</i>	Gold recovered <i>ounces</i>	Grade <i>grams/cubic metre</i>	gold sales (net) <i>£</i>	profit <i>£</i>	dividends paid <i>£</i>
<b>1941</b> (9.7 hectares dredged)					
437,272	1,946	0.14	15,913	9,213	-
<b>1942</b> (24.9 hectares dredged)					
826,647	7,018	0.24	57,939	39,612	28,000
<b>1943</b> (19 hectares dredged)					
860,236	5,826	0.21	45,684	25,136	14,000
<b>1944</b> (15.2 hectares dredged)					
958,543	5,031.5	0.16	41,008	23,784	21,000
<b>1945</b> (16 hectares dredged)					
962,121	5,411	0.17	46,384	28,135	14,000
<b>1946</b> (15 hectares dredged)					
880,772	4,028	0.14	34,070	17,886	14,000
<b>1947</b> (14.4 hectares dredged)					
832,157	3,890	0.15	38,256	20,566	17,500
<b>1948</b> (16.4 hectares dredged)					
733,811	3,693	0.15	35,214	13,206	10,500
<b>1949</b> (17.4 hectares dredged)					
827,253	4,734.5	0.18	46,029	17,684	3,500
<b>1950</b> (15.8 hectares dredged)					
861,979	4,948.5	0.18	70,497	37,041	14,000
<b>1951</b> (21.4 hectares dredged)					
915,248	3,959.5	0.13	57,801	28,246	17,500
<b>1952</b> (21 hectares dredged)					
824,181	3,150	0.11	45,205	19,100	14,000
<b>1953</b> (16.8 hectares dredged)					
819,106	2,866.5	0.11	43,079	11,458	7,000
<b>1954</b> (13.0 hectares dredged)					
696,824	3,182	0.14	46,553	9,491	7,000
<b>1955</b> (20.8 hectares dredged)					
696,946	2,582	0.12	37,777	5,961	7,000
<b>1956</b> (17 hectares dredged)					
754,614	2,968	0.12	43,244	15,426	7,000
<b>1957</b> (17 hectares dredged)					
664,402	2,333	0.11	34,583	9,100	-
<b>Totals</b> (292.2 hectares dredged)					
13,552,120 cm	67,523 ozs.	0.155 g/c.m.	£739,240	£302,938	£196,000
				plus liquidation dividends	£86,917
				Total dividends	£282,917

Area dredged each year in hectares; alluvium dredged in cubic metres; gold recovered in ounces; gold grade in grams per cubic metre; net gold sales, profit, and dividends paid, in Australian pounds.

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## Endnotes

<sup>1</sup> Brian R. Hill, 'Distant Gold: A business history of Snowy River Gold Dredging Limited,' unpublished paper, Adelaide, 1993, p. ii.

<sup>2</sup> Mark Casson, 'An Economic Theory of the Free-Standing Company,' in Mira Wilkins and Harms Schröter, (eds), *The Free-Standing Company in the World Economy, 1830-1996*, Oxford, 1998, p. 99.

<sup>3</sup> The British invested substantial amounts of capital in overseas mining companies in the late 19<sup>th</sup> century and until 1914. The rate of British investment in mining companies operating abroad is estimated to have increased from about £9 million a year in the 1880s, to £20 million a year in the 1890s, then declining to £10.5 million a year until 1914. See, J.W. McCarty, 'British Investment in Overseas Mining,' PhD thesis, University of Cambridge, 1960, pp. 4-7.

<sup>4</sup> Mira Wilkins, 'The free-standing company, 1870-1914: an important type of British direct investment,' *Economic History Review*, vol. XLI: no. 2, 1988, pp. 259-282.

<sup>5</sup> Charles Harvey and Jon Press, 'The City and International Mining, 1870-1914,' *Business History*, vol. XXXII: no. 3, July 1990, p. 99; Jean-Jacques van Helten, 'Mining share manias, and speculation: British investment in overseas mining 1880-1913,' in J.J. van Helten and Y. Cassis (eds), *Capitalism in a Mature Economy: Financial Institutions, Capital Exports and British Industry, 1870-1939*, Aldershot, 1990, pp. 160 *passim*.

<sup>6</sup> The 518 companies had a nominal capital of £77.7 million. Only 57 of them paid any dividends, aggregating just £11 million by 1915. See, Roger Burt, 'British Investment in the American Mining Frontier,' *Business and Economic History*, vol. XXVI: no. 2, Winter 1997, pp. 515, 523; Clark C Spence, *British Investment and the American Mining Frontier, 1860-1901*, New York, 1958, pp. 216, 217, 230.

<sup>7</sup> Mira Wilkins, *Free standing company, 1870-1914*, p. 271, says that despite the high mortality rate of overseas companies, British investment was so readily forthcoming for so many years because as some enterprises were profitable, the potential for success existed: 'Free-standing companies were presented in such a way as to generate confidence, even though the prospectus might cloak the reality, few investors appreciated the management difficulties inherent in these schemes.'

<sup>8</sup> Roger Burt, *British Investment*, p. 523.

<sup>9</sup> Initial operating costs also bore out the promoters' prospectus predictions. However, these estimates had been made under pre-War conditions, and price inflation during the War and especially in the years after the War pushed up the dredge operating costs. Prices doubled in New Zealand during the years the dredge operated from 1941 to 1957. This cost problem was ameliorated to some extent by increases in the gold price over this period, from £7.10s- an ounce to £12.10s.

<sup>10</sup> Clark C. Spence, *The Conrey Placer Mining Company*, Helena, 1989, p. 29, *passim*, esp. p. 43.

<sup>11</sup> They were a mining engineer/surveyor who had been involved in the assessment of the dredging reserves, Tom Learmont, and a local businessman who had invested heavily in the venture, J. S. (Jock) Robertson, a Greymouth timber miller.

<sup>12</sup> As part of their supervisory diligence, one or other of these directors always attended the gold wash-ups on the dredge. These took place weekly until 1943, and subsequently fortnightly.

<sup>13</sup> 'Stock Exchange of Melbourne' file, Melbourne University archives. Some of these companies which had mines located in the Bendigo region did have local directors, but to little advantage.

<sup>14</sup> Canadian Department of Mines, *The Yukon: Its History and Resources*, Ottawa, 1909, p. 97.

<sup>15</sup> The effect on the industry of the differing tax regimes is detailed in a pamphlet issued by the New Zealand Gold Producers Association, *Gold Tax Reform*, Wellington, 1936.

<sup>16</sup> R.M. Gibbs, 'The Real Poseidon: South Australians and the Golden Mile in the 1890s,' *Journal of the Historical Society of South Australia*, no. 4, 1978.

<sup>17</sup> For background on the floating of Placer Development Ltd and Bulolo Gold Dredging Ltd *vide* Trevor Sykes, 'Emotions high, but Placer could have been Australian,' *Australian Financial Review*, June 1-2, 2002, p. 10.

<sup>18</sup> In 1930, the gold price in New Zealand was only ten shillings an ounce more than the £3.15s price fixed in the 19<sup>th</sup> century gold rushes. In 1932, the export value rose by 26 shillings to an average £5.8. 8 and the following year gold went up by a further £2. In 1934, it reached £8. 4s an ounce. See, J.H.M. Salmon, *A History of Gold-Mining in New Zealand*, Wellington, 1963, p 270.

<sup>19</sup> J.H.W. McGeorge, *Dredging For Gold*, Melbourne, 1964, p. 24.

<sup>20</sup> Davy's niece, Miss Ray Davy, who also invested in his syndicate, was Hughes' secretary.

<sup>21</sup> R.M. Gibb, *Bulls, Bears and Wildcats. A Centenary History of the Stock Exchange of Adelaide*. Adelaide 1988, p. 221.

<sup>22</sup> Snowy River Gold Dredging Limited prospectus, Adelaide, 1938.

<sup>23</sup> *Idem*.



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<sup>24</sup> A. Keith (Sandy), personal communication Invercargill, 1993. Sandy Keith was dredgemaster of the Snowy dredge every year of its operation. In 1937 and 1938 Keith had been dredgemaster of the Mossy Creek dredge, which worked a tributary of the Snowy River. The veteran dredgerman's dredging career began in the early 1920s when he worked on the Upper Nevis dredge. He had also worked on the Golden Terrace on the Shotover, at Gillespie's Beach, and on the Brian Boru dredge at German Gully, near Ngahere.

<sup>25</sup> T.J. Hearn and R.P. Hargreaves, *The Speculator's Dream. Gold Dredging in Southern New Zealand*. Dunedin, 1985, pp. 61-74.

<sup>26</sup> Darrell Latham, *The Golden Reefs. An Account of the Great Days of Quartz-Mining at Reefton, Waiuta, and the Lyell*, Nelson 1984, 2<sup>nd</sup> ed. 1992, pp. 419-20.

<sup>27</sup> A. Keith (Sandy), personal communication, Invercargill, 1993.

<sup>28</sup> After fortnightly wash-ups were introduced in 1943, the dredge worked some 85-90 per cent of possible working time each year. Much effort was devoted to building dams to control the water level in the dredge pond. Because the Snowy did not have an elevator tailings disposal, but was a sluice box discharge dredge, a sufficient level of water had to be continuously maintained in the dredge pond to enable the dredge to float high enough to keep the sluice box clear so that it could discharge properly. The project would have operated even more efficiently if the property had been dredged from up the valley heading downstream, as there would have been a solid face on the downstream side of the pond to hold the water better. The dredge had to work upstream because the dredge construction site had been located down the valley because of the proximity to the railway line on which the building material for the dredge, 800 tons of it, was delivered.

<sup>29</sup> 'Table 3, Bucketline gold dredges in the Reefton Goldfield', in J.M. Barry, *The History and Mineral Resources of the Reefton Goldfield. Resource Information Bulletin 15*, Wellington, 1993, p 20.

<sup>30</sup> J.H.M. Salmon, *History of Gold-Mining in New Zealand*, p. 270.