

## **Tales of Merton's Reward: the gold that Fred won**

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**W**ithin Australia, powerful mythic narratives have been constructed concerning the early days of specific gold rushes or diggings and the entrepreneurial activities associated with transforming a small gold show into a company-run gold mine. The tales told of Fred Merton and Merton's Reward gold mine are a case in point. They have been heavily mythologised in Western Australian reminiscence literature throughout the twentieth century. It is possible to trace the development of the Merton mythology from newspaper articles and other contemporary accounts through successive popular writings, none of which appeared until almost fifty years after the events that they portrayed. However, it is not the intention in the present paper to deconstruct the myth in full but only to consider aspects of it as they impinge on the case study of the gold that Fred won.

This paper provides a sharp illustration of the power of the individual in gold mining; there could hardly be a better example than Fred Merton whose control over his mine for almost three years from the discovery of the gold mineralisation was absolute. It also demonstrates the crucial importance of an understanding of an area's geological formation to a convincing interpretation of mining history and re-assessment of the mythmakers' arguments. In addition the article demonstrates the power of numbers as exemplified by detailed analysis of the gold statistics, the official gold production figures as recorded in the WA Government Gazette, old Mines Department records and contemporary newspaper articles. In a somewhat novel approach it will be shown how these bald numbers can be used to assess evidence from other sources concerning work practices and problems in gold production at the mine, and also to reveal new information about Fred Merton and his gold.

### **Background**

Early in March 1899 prospector Fred Merton was riding in search of a lost horse across a low unremarkable hill a few kilometres north of the gold mining lease that he was working at the time. He noted a wide expanse of iron-stained, rubbly quartz on the southern flank of the hill and determined to examine it more closely later. On his return

he discovered faint pin-pricks of gold in the quartz. He applied for, and was rapidly granted, a Reward Claim over the original quartz reef, and pegged two gold mining leases adjacent to it within a few days of his discovery. The deposit he had found was to become the Merton's Reward gold mine.

Merton's Reward is located approximately 35km NE of Leonora in the Mt Margaret Goldfield (see Figure 1). Historically, the main producing mines of the field were the Sons of Gwalia at Leonora and the Lancefield at Laverton. Merton's Reward was not in the same league as these two; to 1963 it had produced just under 2,000kg of gold, to Sons of Gwalia's 82,000kg and the Lancefield's 16,500 kg.<sup>1</sup>

**Figure 1:** Location map for Merton's Reward Gold Mine



As for Fred, very little is known about his background. He was born in Beechworth, Victoria in 1868.<sup>2</sup> His father Thomas was described in various documents as a cattle dealer, property owner or gentleman.<sup>3</sup> At least three of Fred's numerous brothers were involved in the mining industry; eldest brother Thomas was the inventor and patentee of the Merton ore roasting furnace and younger brothers Frank and Herbert were active on the WA goldfields, at times in partnership with Fred, at others separately.<sup>4</sup>

It is difficult to disentangle the early goldfields careers of Fred, Frank and Herbert Merton as they tended to become confused in the memories of the old-timers

and, in the case of Fred and Frank, impossible to distinguish in the registers of gold mining leases unless the full first name was given. The earliest unambiguous record of Fred's presence traced so far is in the Broad Arrow Goldfield in 1896.<sup>5</sup> From January 1898 until his find, Fred worked the Deerah (GML 406<sup>C</sup>) at Pig Well.<sup>6</sup>

Why the interest in Fred Merton and Merton's Reward? The mine was distinguished from its contemporaries by two factors; firstly the somewhat freakish combination of geology and topography which accounted for the rich gold distribution at the surface, and secondly, the actions of its discoverer. The easily broken soft quartz veins at the surface, their gold values boosted by supergene enrichment, became harder and more discrete lower in the mine.<sup>7</sup> Recent exploration has revealed the structural complexity of the ore-body, which would have rendered it increasingly difficult to trace at depth.<sup>8</sup>

As for the actions of its discoverer, Fred took the highly unusual step for a prospector, of developing his find himself. As sole proprietor, he bought and erected his own battery. He was his own mine manager, engineer, metallurgist and assayer (possibly) for almost three years. It could be argued that this was a position forced upon him by circumstance, as British investment in Australian mines had declined following the boom days of the earlier 1890s.<sup>9</sup> However, May Vivienne, in a vivid description of her visit to Merton's Reward late in 1899, stated that Fred 'would want a higher price, cash down, for his holding than has ever been paid for any mining property in Western Australia'.<sup>10</sup> Uren claimed that the figure being asked was £500,000, a sum so totally unrealistic that it is safe to assume that Fred had no intention of selling his bonanza at that stage.<sup>11</sup> This is not to say that he denied the possibility of a sale some time in the future. Charles Kaufman, mining entrepreneur and general manager of the Lake View Consols and the Ivanhoe was a frequent visitor to the mine; Fred was overheard telling him 'Keep coming Kaufman, and I'll sell her to you'.<sup>12</sup> Eventually, in January 1902, he did sell to Kaufman and the Rothschilds; together they formed the English company Merton's Reward Gold Mining Company Ltd.<sup>13</sup>

Although Fred left no written records, his story was taken up by authors such as Malcolm Uren, C.M. 'Diorite' Harris, Helen Wilson, Norma King, David de Havelland, Gordon Young and George Compton, who have all drawn on various aspects of the Merton mythology, and on each other, in their popular writings.<sup>14</sup> They tell tales of the cheated mate and the legal battle for ownership of the gold mine, of fabulous early

results and fortune rapidly amassed, of a gunfight between Fred and brother Frank, and of fraud and manipulation in the lead-up to the sale of the mine.

### The early results

‘Mr Merton is not a man who wastes time on any occasion’ wrote the *North Coolgardie Herald* of events in March 1899, ‘but this particular time he surpassed all records in the expedition with which he got to work’.<sup>15</sup> Within days of pegging the leases, he had men employed breaking and bagging stone. On 26 March, just 22 days after finding the deposit, he received 140 oz<sup>16</sup> of smelted gold from 20 tons of ore custom-milled at the Waitekauri battery, approximately twenty kilometres from Merton’s Reward, at a grade of 7 oz/ton.<sup>17</sup> Fred commented that the return would have been even more rapid had he not had trouble securing camels to transport the stone.

Table 1 shows the results obtained from each crushing of ore from March until the end of June when production ceased pending construction of the battery. All ore was sourced from the No 1 Open Cut, also known as the Bottom Quarry, which was the first reef found.<sup>18</sup>

**Table 1:** *Early gold production from Merton’s Reward gold mine, 1899*

Date	Ore treated	Gold therefrom	Grade*	Battery where treated
26 March	20 tons	140 oz	7 oz/ton	Waitekauri
2 April	79 tons	494 oz	6.25 oz/ton	Waitekauri
8 April	8.5 tons	71 oz	8.13 oz/ton	Leonora State
June	139 tons	722.75 oz	5.2 oz/ton	Richmond Gem
TOTAL*	246.5 tons	1,427.75 oz	5.8 oz/ton	

\* Grades and totals calculated

Source: March/April - *Coolgardie Miner*, 7 June 1899, p. 6.

June - *Government Gazette of WA*, 32, 21 July 1899, p. 2085.

The results obtained from Merton’s Reward in this period were impressive. Although the tonnages were comparatively low, the grades were amongst the highest recorded in the Mt Margaret Goldfield at the time.<sup>19</sup>

By the end of 1899 Fred Merton had won 3,307 oz gold which, even at a conservative £3.15s per oz, would have been worth £12,400. In contrast, the folklore attributed 12,000 oz of gold to the mine for the same period. Harris, Uren and de Havelland all stated that within a year Merton had obtained 12,000 oz from 5,000 tons - £45,000 worth - whereas Wilson claimed that he had won £40,000 worth in just three

months.<sup>20</sup> Fred was certainly becoming wealthy but not quite as rapidly, or as easily, as the myth would have us believe.

### **Fred's battery – an audacious purchase?**

Fred must have made the decision to purchase his own battery almost immediately after the first crushing at the Waitekauri as, by mid-April he was reported to be in Menzies arranging, amongst other things, to buy a ten-head battery from James Martin and Co. of Gawler.<sup>21</sup> Delivery was anticipated within eight weeks.<sup>22</sup>

Adverse comment began almost immediately. The general opinion was that Merton had been premature in ordering the battery and that it would have been better to have first advanced development work within the mine.<sup>23</sup> Of all the commentators interested in Merton's Reward, Uren was the only one to explain how exceptional Fred's actions were:

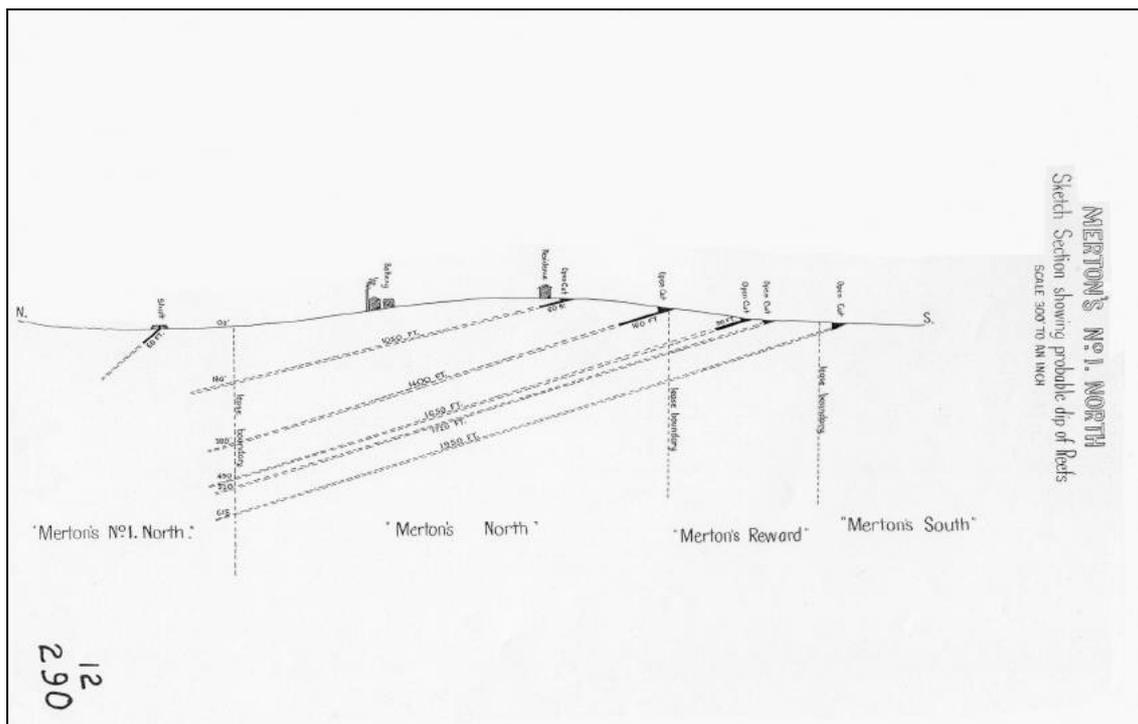
Most of the few successful prospectors reached this stage of the development of their finds and then sold out rather than face the outlay of a battery to crush the stone on the spot, but Merton bought his own battery and continued to secure rich returns ...<sup>24</sup>

Perusal of records such as the Bewick Moreing files or the *North Coolgardie Herald's* 'Special Mining Number' shows that this was so. For example, there is a report by Herbert Hoover in the Bewick Moreing files on a ten-day visit that he undertook to the Laverton area in October 1897. Hoover visited forty-two fledgling mining properties, most of them up for sale, including the Lancefield, the Augusta and the Craiggimore. At the Lancefield there was nothing to see but a few costeans,<sup>25</sup> which he duly sampled.<sup>26</sup> At the Augusta there was an incline shaft 65 feet deep, in which the vein averaged 2 ft wide, with a crosscut at the bottom (vein 6 ft wide) whilst at the Craiggimore Hoover described a shaft 90 ft deep with crosscuts at 45 ft and 90 ft deep extending 30 ft laterally into the lode formation. The respective prospectors were asking £2,500 for the Augusta, and £8,000 and a one-tenth interest for the Craiggimore.<sup>27</sup> In all, Hoover commented in his report on about half of the forty-two prospects, one or two of which were more advanced, but most less so.

What Hoover's report illustrates is that the normal *modus operandi* of experienced prospectors was to open up their prospect through development work just enough to demonstrate continuity of the gold-bearing formation and to allow for

sampling. At that stage, they would put the property up for sale, either outright or preserving a minority interest. Very few prospectors progressed further than this point, fewer still took Fred Merton's path of erecting their own battery; the expense was too great given the high risk involved. But then, Merton's Reward was totally unlike most other properties. Fred had found a gold-bearing system in which shallow dipping veins striking E-W combined with steeply dipping veins striking N-S. Supergene enrichment had concentrated the gold with the result that rich outcrops were exposed where the relatively flat-lying veins intersected the surface. Because of the gentle slope of the hill, these outcrops had considerable lateral extent (see Figure 2). With so much high-grade ore exposed at the surface, Fred's decision to take the risk of erecting his own battery is understandable.

**Figure 2:** Sketch section through Merton's Reward showing the shallow dipping, E-W striking veins



The steeply dipping, N-S striking veins would lie in the plane of the section. The No. 1 Open Cut was the third from the right.

Source: 'Report on Merton's No. 1 North lease, Mertondale, Mt Margaret Goldfield, WA', 19 June 1900, Bewick Moreing File No. 104, Dept. of Industry and Resources, Perth.

How well did Fred's battery perform? There can be no doubt that it amply repaid the outlay price, but equally there can be little doubt that it under-performed in terms of tonnage of ore treated. Gordon Young, who worked at Merton's Reward in

1905, wrote that, towards the end of Merton's tenure, a series of major accidents in the plant brought the battery to a standstill.<sup>28</sup> There is scant evidence to support this claim.<sup>29</sup> However, a review of the monthly gold returns for the mine from its inception until its sale in 1902 shows several apparent breaks in gold production. Could these have been due to mechanical failure? Or is there another explanation?

Table 3 shows monthly gold production for Merton's Reward from March 1899 to February 1902. The four-month hiatus in production from July to November 1899 coincided with the construction of the initial ten-head battery. It took much longer than the anticipated eight weeks for all the necessary materials to arrive at the mine-site. The *Malcolm Chronicle* reported two wagon teams passing through Malcolm on 13 June loaded with machinery and timber for the battery, but even in early August, the mine was still waiting for some parts of the pump and other 'incidentals'.<sup>30</sup> The battery was finally given a 'trial spin' on 1 September 1899.<sup>31</sup> The 1250 oz of gold recorded for November 1899 would have included gold produced during commissioning of the plant in September and October.

During November and December, a second ten-head of stamps was erected. The twenty-head battery is shown in Figure 3. There was no production recorded for January 1900. This may have been due, in part at least, to the general exemption granted to all mines in the Goldfields over the Christmas and New Year period.<sup>32</sup> No production was recorded for March 1900 but the 600 tons recorded for April was double the tonnage recorded in February. Similarly, no production in July was followed by 1,000 tons of ore in August, roughly double the average figure for April to June. Another three-month hiatus September to November 1900 was followed by December production approximately quadruple the monthly average at 2,200 tons.

Clearly there is a pattern emerging. The battery must have been operating more or less continuously throughout 1900 but the production was not being reported every month, as it should have been. Cumulative gold returns were being submitted at irregular intervals. Interestingly, for the cumulative returns the grade of the ore plummeted – 2.07 oz/ton in April as against 2.64 oz/ton in February; 1.02 oz/ton in August and the all-time low of 1.01 oz/ton in December 1900. What was happening? The answer is simple. Periods for which there were no gold returns from the mine coincided with Fred's trips away.<sup>33</sup> David McDonald, an old-timer who as a young man worked for Fred as a battery feeder, wrote that during his absences Fred left his brother Herbert in charge but '(Herb) was only allowed to work the poorer grade ore'.<sup>34</sup>

**Table 3: Monthly gold production for Merton's Reward, March 1899 to February 1902**

Date	Lease or Claim Number	Particulars of Plant - Milling No. Stamps	Area acres	Production			Mint value of gold/oz £ s d
				Ore treated tons	Gold therefrom oz	Av grade oz/ton	
March 1899	RC 1C		6	99.0	634.00	6.40	3 17 10
April 1899	RC 1C		6	8.5	71.15	8.13	
May 1899	No production recorded for Merton's Reward						
June 1899	638C		24	139	722.75	5.20	3 15 0
July 1899	No production recorded for Merton's Reward						
August 1899	No production recorded for Merton's Reward						
Sept 1899	No production recorded for Merton's Reward						
October 1899	No production recorded for Merton's Reward						
November 1899	RC 1C	10		500	1250.00	2.50	
December 1899	RC 1C, 638C	20	30	250	629.00	2.51	3 16 6
January 1900	No production recorded for Merton's Reward						
February 1900	RC 1C, 638C	20	36(?)	300	794.00	2.64	
March 1900	No production recorded for Merton's Reward						
April 1900	RC 1C, 638C	20	30	600	1244.80	2.07	3 17 0
May 18900	RC 1C, 638C	20	30	700	1500.00	2.14	
June 1900	RC 1C, 638C	20	30	400	1108.00	2.77	
July 1900	No production recorded for Merton's Reward						
August 1900	RC 1C, 638C	20	30	1000	1200.00	1.20	
Sept 1900	No production recorded for Merton's Reward						
October 1900	No production recorded for Merton's Reward						
November 1900	No production recorded for Merton's Reward						
December 1900	RC 1C, 638C	20	30	2200	2239.15	1.01	3 16 0
January 1901	RC 1C, 638C	20	30	300	400.00	1.33	3 18 0
February 1901	RC 1C, 638C	20	30	800	1200.00	1.50	3 17 6
March 1901	RC 1C, 638C	20	30	500	750.00	1.50	3 17 6
April 1901	RC 1C, 638C	20	30	600	900.00	1.50	3 17 6
May 1901	RC 1C, 638C	20*	30	800	1200.00	1.50	3 17 6
June 1901	No production recorded for Merton's Reward						
July 1901	RC 1C, 638C	30	30	1200	2000.00	1.67	3 17 6
August 1901	No production recorded for Merton's Reward						
September 1901	RC 1C, 638C	30	30	1000	4000.00	4.00	
October 1901	RC 1C, 638C	30	30				
November 1901	RC 1C, 638C	30	30				
December 1901	RC 1C, 638C	30	30				
January 1902	RC 1C, 638C	30	30				
February 1902	RC 1C, 638C	30	30				

\*10 additional stamps in course of erection

Source: *Government Gazette of WA.*

Evidently Herb was not to be trusted with the high-grade ore; neither was he allowed to bank the gold or submit the monthly gold returns. McDonald also commented that Fred and Herb were 'the only ones to clean up, retort and smelt the gold'.<sup>35</sup>

Despite these explanations for the apparent breaks in production and low grades, a question mark still hangs over the performance of the battery. McDonald described working conditions there as follows:

Fred erected twenty head of stamps and six of us feeders, knapped any stones required to be broken, the ore mostly soft quartz, did not warrant a rock-breaker ... Each man fed ten head of stamps and this meant two on each of three eight hour shifts, changing over at weekends.<sup>36</sup>

During 1900 the best monthly tonnage of ore put through the battery was 700 tons (in May) but the average for the year was just 433 tons. Twenty head of stamps working continuously twenty-four hours per day should have been crushing more than that. There was a problem but it was not mechanical failure. The Mertondale area suffered from a desperate shortage of water.

According to Richard Hartley, 'the critical factor that affected stamp mill operation on almost all of the eastern goldfields was the very limited supplies of surface water available for use as process water'.<sup>37</sup> Estimates of the amount of water used in stamp mills varied quite widely. Various sources quoted by Charleton in his 1903 treatise *Gold Mining and Milling in Western Australia* gave volumes ranging from 112 gallons of water per ton of ore milled to nearly 1,000 gallons per ton, but the figures were probably totals for both milling and cyaniding of the ore.<sup>38</sup> It should be noted that these volumes of water are not the total amount of water used but the amount lost or consumed during processing. Most process water was recycled. Water consumption increased in hot weather due to higher evaporation rates and also increased if the amount of slimes produced was high, as the presence of large quantities of slimes reduced the return water flow. McDonald reported that this was the case during his sojourn at Merton's Reward.<sup>39</sup>

Only when there had been good rains did the battery work at anything like capacity. In November 1899 the *Malcolm Chronicle* reported that it had been running continuously since the 'late rains'; they had been carting 2,000 gallons per day from a nearby creek, but the surface water was exhausted by mid-November.<sup>40</sup> The autumn of 1900 was also a very wet period. By 14 April, 218 points of rain had fallen for the

month, 454 points for the year. The *Malcolm Chronicle* reported grass springing up everywhere.<sup>41</sup> The abundant water supply was reflected in the good returns for the period April to June with 1,700 tons of ore being treated for 3,852.8 troy oz despite an accident to the pump which reduced production to just twelve days during June.<sup>42</sup>

By 1901 it appeared that the water problem had been overcome. The *Malcolm Chronicle* printed several encouraging snippets of information, such as: early in February, a ‘plentiful supply of water ... the twenty-head of stamps will now be kept going continuously’; on 16 February, ‘fifteen head of stamps are running ... a good supply of water is available’; and on 23 March, ‘the present twenty-head mill is running full-time’.<sup>43</sup> Fred Merton announced his decision to upgrade to a thirty-head mill.<sup>44</sup> Yet in an interview with the *Morning Herald* in April, Fred revealed that, ‘owing to the scarcity of water’, the twenty-head mill had run for only forty-four days in the first quarter 1901.<sup>45</sup> The messages were definitely mixed.

The most important measure of the efficiency of a battery, as of all treatment processes, is the percentage recovery achieved. Comparison of the amount of gold extracted with the amount of gold contained within the ore, established by assay, gives the percentage recovery. As examples, figures quoted for the battery at the Ivanhoe mine in Kalgoorlie were 64.89 to 70.2 per cent in 1898, 66.35 per cent in 1899 and 58.85 per cent in 1900.<sup>46</sup> Although Fred never revealed percentage recoveries for his battery, in March 1900 he reported a battery return of 2.5 oz/ton with approximately 6 dwt/ton going to tailings following modification of the screens.<sup>47</sup> These values equate to a recovery of 89 per cent, which, if correct, is excellent.

Was March 1900 an exceptional month? Possibly, but Fred commented that the modifications to the screens saved 10 dwt/ton, indicating a prior recovery of 76 per cent, which was still well above average. The *North Coolgardie Herald* in its ‘Special Mining Number’ quoted the total output from the date of beginning work to the end of December 1900 as 5,000 tons ore treated for 12,000 oz gold with 12 dwt in the tailings, which equates to an average gold recovery figure of 80 per cent.<sup>48</sup> It would seem from these figures that descriptions of Fred attributing to him ‘great mechanical ability and a lot of metallurgical experience’ were justified.<sup>49</sup>

### **Fraud, manipulation or tall tales?**

So far the production statistics have been used to assess the performance of the battery at Merton’s Reward but is there more that we can learn from them? Table 4 summarises

the gold returns for the four months February to May 1901. The grade of the ore remained constant at 1.5 oz/ton. This is not possible naturally. Gold is never distributed evenly through its host rock. The only way Fred could have achieved constant grade for four months was by manipulating the results.

**Table 4:** *Summary of monthly gold production, Merton's Reward, Feb – May 1901*

<b>Month</b>	<b>Tons ore</b>	<b>Oz gold</b>	<b>Oz/ton</b>
February 1901	800	1,200	1.5
March 1901	500	750	1.5
April 1901	600	900	1.5
May 1901	800	1,200	1.5

It was easily done. All that was needed was to build up a small reserve of gold by holding some back in the best months, which could then be used to even out the grades in the following months. Fred and Herb Merton were the only ones involved in the retorting and smelting of the gold, so it would have been simple for Fred to have made the appropriate adjustments to hold the grade steady at 1.5 oz/ton for four months.

Was this practice fraudulent? Debatably, it was not fraudulent as long as all the gold used came from the mine because, at the end of the mine's life, the final production figures would accurately record the total gold won.<sup>50</sup> However, if the gold used to top up deficient monthly production came from another source, or was recycled gold from the same mine, fraud was definitely being committed.

Fred Merton was not alone in the practice of maintaining a constant grade. In 1904-05, the Royal Commission into the conduct of the Great Boulder Perseverance Gold Mining Company Ltd revealed that several Kalgoorlie mines kept secret bullion reserves with which to even out their monthly gold outputs.<sup>51</sup> The revelations sparked an intense debate into the practice. Mine managers such as Richard Hamilton of the Great Boulder, Robert Nicholson of the Ivanhoe and Frank Moss of the Kalgurli and Hainault mines gave evidence that a secret bullion reserve equivalent to one half to one month's gold output was considered essential for the maintenance of even returns.<sup>52</sup> According to Richard Hamilton, failure to maintain such a reserve might result in a 25-30 percent variation in gold returns, for 'such a fluctuation would affect the market probably to the detriment of the shareholders'.<sup>53</sup> So the Kalgoorlie mine managers were

pursuing this questionable line of conduct in order to keep their shareholders happy? In that case, why was Fred doing it? He did not have any shareholders - he owned his mine outright – so the reasons given for their actions by Hamilton, Nicholson *et al* did not apply to Merton's Reward. What other possible advantage was there for him? The only logical reason would appear to have been to make the mine more attractive to potential buyers. The fact that he ceased the practice after four months was probably due to the construction of the extra ten head of stamps. When they came online, the monthly output would naturally have changed.

There is a tale that Fred used fraudulent means to increase his gold returns by salting the battery box. The method used differed significantly from that outlined above. According to Compton, Merton used to clean up the battery on Thursday morning and take the gold to be lodged at the bank in the afternoon. He would withdraw as gold sovereigns about half the value of the gold deposited, pay his accounts in town and then return to the mine in time for the Friday payday.<sup>54</sup> He paid good wages; McDonald stated that he got £1 per shift.<sup>55</sup> After the men were paid, Fred would fill his money-belt with the amount needed for the week and then he would tip any surplus sovereigns into the battery box!<sup>56</sup> He was, in effect, inflating the grade of the ore. Compton acknowledged that it was not known if Fred's action was an isolated incident or 'occasional piece of flamboyance' or a 'consistent ploy to increase the apparent productivity of his mine when perhaps the mined grade was falling'.<sup>57</sup>

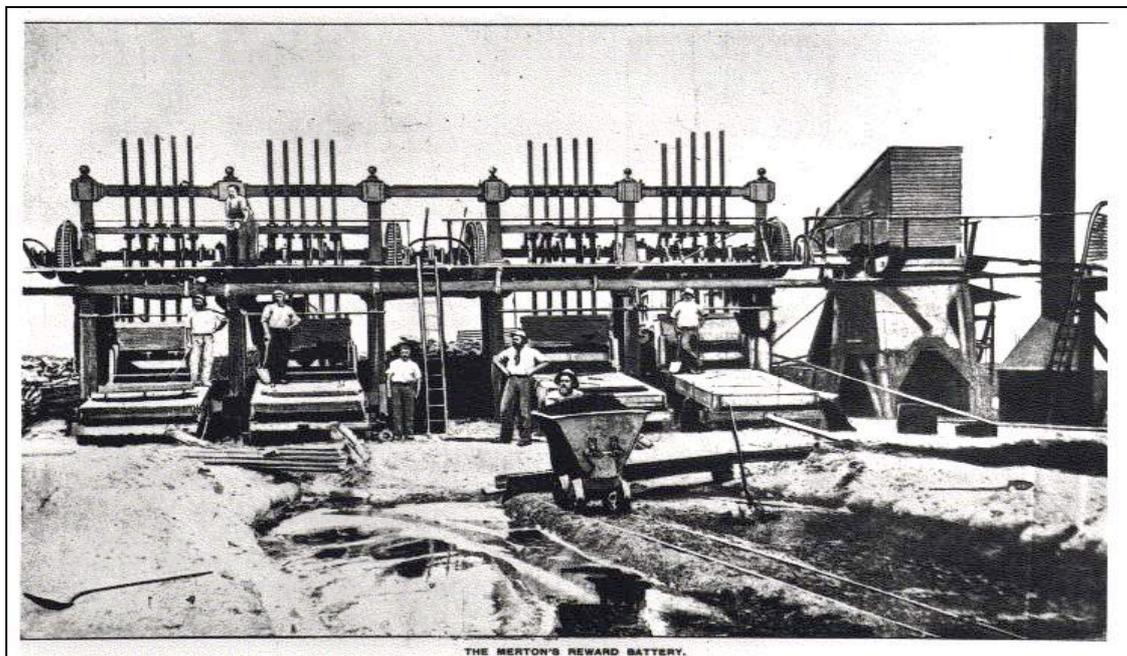
There are several reasons why the idea that this was a consistent ploy to increase the grade of the ore is nonsense. Consider this - how many gold sovereigns would be required to increase the grade of the ore by just 0.1 oz/ton? Obviously the number would vary from month to month depending on total production. For March 1901, when 750 oz gold was won from 500 tons of ore, an extra 50 oz of gold would have been needed to raise the grade from 1.5 oz/ton to 1.6 oz/ton, whereas for May 1901 the additional amount would have been 80 oz. A gold sovereign contained 0.2354 oz pure gold; in order to add 50 oz of gold to the battery box approximately 215 sovereigns would have been needed.<sup>58</sup> Fred would have had to toss, on average, 54 of the coins - coins which were supposedly surplus to needs - into the battery box each week to achieve a paltry 2 dwt/ton improvement in the grade. Somehow this does not seem probable.<sup>59</sup>

Another problem with the story is its timing. When was this salting of the battery box supposed to have happened? Compton apparently had the tale direct from an

old-timer who, as a young fellow, had worked for Fred Merton.<sup>60</sup> From Compton's description this would appear to have been David McDonald, who probably commenced work at Merton's Reward in the latter half of 1900 and left before construction of the final ten-head of stamps in May 1901.<sup>61</sup> Looking at the production returns for that period, the grades were the lowest recorded during Fred's management, from a low of 1.01 oz/ton in December 1900 to the 'high' of the constant 1.5 oz/ton from February to May 1901 - hardly indicative of salting to inflate the grade!

It is more plausible that the salting of the battery box, if it happened at all, was a once only, or very occasional, act of flamboyance, which may have been combined with other actions to inflate the grade. Fred may have been fudging the figures in terms of the tonnage of ore treated; however, even if he were, he would still have had to add or subtract gold during processing to maintain constant grade. If consistent salting or manipulation was happening, it had to be in the gold room where it could be controlled and where only Fred and his brother Herb worked.

**Figure 3:** *The twenty-head battery at Merton's Reward*



Source: 'Special Mining Number', *North Coolgardie Herald*, 24 April 1901. Courtesy Battye Library.

So, despite the accusation of salting of the battery box and the possibility of fraudulent tonnage figures, the only incontrovertible manipulation or fraud concerning the gold production from the mine was in February to May 1901 when the grade of the ore stayed constant at 1.5 oz/ton.

It has been suggested that the gold that Fred won sent him slightly crazy. He was said to have ‘spilt gold as though he were pouring molten iron or copper’ and to have played with it, fashioning little statues and other ornaments out of it.<sup>62</sup> The photograph of Fred and his gold in *Twentieth Century Impressions of WA*, reproduced here as Figure 4, shows that there was some truth in the tale, for perched on top of the pile of gold is a small statue of a prospector.<sup>63</sup> Young commented:

It is hard to give credence to all the reports of the strange behaviour of this fellow, but his known actions certainly gave the impression that here was a mine so rich in gold that it could be chucked about regardless. Some tales got about that all this was designed and calculated to attract an unwary buyer.<sup>64</sup>

**Figure 4:** *Merton’s Reward – the owner and his gold*



Source: *Twentieth Century Impressions of WA*, PWH Thiel and Co, Perth, 1901. Courtesy Battye Library.

Be that as it may, Fred Merton had succeeded far beyond the dreams of most prospectors. When the battery was hung up at the end of September 1901 it had produced approximately 18,000 fine oz of gold worth £76,500. Arguably, had there been more water available the returns would have been far greater.<sup>65</sup> Even so, Fred’s gamble in erecting his own battery had paid off and he had been amply rewarded for his audacity. With the sale of his mine he returned to the eastern states to enjoy his wealth,

leaving behind only vague rumours of his later life and an extremely healthy mythology.

### **Acknowledgements**

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### **Endnotes**

<sup>1</sup> Production figures for the Sons of Gwalia and the Lancefield: Roy Woodall, 'Gold in the Precambrian Shield of Western Australia', in C.L. Knight (ed.), *Economic Geology of Australia and Papua New Guinea, vol. 1. Metals*, The Australasian Institute of Mining and Metallurgy, Melbourne, 1975, pp. 175-184. For Merton's Reward: Peta Chappell, 'Historical Report on the Merton's Reward Area, vol. 1. Merton's Reward Gold Mine', unpublished report, Ashton Gold WA Pty Ltd, 1990, pp. 38-40.

<sup>2</sup> *Victoria Register of Births*.

<sup>3</sup> *Victoria, Beechworth Directories; Rates Books*, Burke Museum, Beechworth; Marriage Certificate, Fred Merton and Alice Thomson, NSW Register of Births, Deaths and Marriages.

<sup>4</sup> Patent No. 17744, 27 November 1900, Victorian patents (manuscript), MF 367 (Series 2), State Library of Victoria; Registers of Gold Mining Leases, Broad Arrow Goldfield and Mt Margaret Goldfield, Dept of Industry and Resources, Perth.

<sup>5</sup> Register of GMLs, Broad Arrow GF, DOIR, Perth.

<sup>6</sup> Frederick Merton's evidence at Supreme Court trial, 13-14 September 1899, in Appeal Book, William Callagher Plaintiff (Respondent) and Fred Merton Defendant (Appellant), Supreme Court Office, Perth WA, 28 September 1899. Item no. C53/1899 Callagher v. Merton, Cons. 3580, WAS 577, WAA 44, State Records Office, WA.

<sup>7</sup> The term supergene enrichment, as applied to gold, defines the process associated with rock weathering whereby primary gold minerals, such as native gold, gold-silver alloys, gold tellurides etc, are dissolved by circulating saline groundwaters in the presence of oxygen and re-precipitated as pure gold in a more reducing environment.

<sup>8</sup> Kelvin Fox, formerly Senior Exploration Geologist, Leonora Region for Sons of Gwalia Ltd, *pers comm*. Sons of Gwalia explored for gold in the Mertondale Belt from 1996 to 2004, including extensive drilling campaigns centred on Merton's Reward. Some excellent gold intersections were obtained immediately north of the old mine and also between the old workings but it proved impossible to model a gold mineral resource rigorous enough to satisfy the JORC Code (see <http://www.jorc.org/main.php>), because of the structural complexity of the geology.

<sup>9</sup> By 1901, 82 percent of London registered Western Australian mining companies extant in 1896 had disappeared. J.W. McCarty, 'British Investment in Western Australian Gold Mining, 1894-1914', *University Studies in History*, 4, 1961-62, p. 13.

<sup>10</sup> May Vivienne, *Travels in Western Australia: being a description of the various Cities and Towns, Goldfields and Agricultural Districts of that State*, 1902. Reprinted by Hesperian Press (Perth), 1993, p. 153. Unfortunately, Fred Merton was absent from the mine at the time of May Vivienne Buckley's visit.

<sup>11</sup> Malcolm Uren, *Glint of Gold*. Robertson and Mullens, Melbourne, 1948, p. 187.

<sup>12</sup> Geoffrey Blainey, *The Golden Mile*, Allen & Unwin, St. Leonards, N.S.W, 1993, p. 44; David McDonald, 'Autobiography', undated, MN1124, Acc 3406A, Battye Library, Perth, p. 83. Kaufman figured in most of the mythmakers' tales as the prospective buyer to whom Merton was prepared to sell for £500,000.

<sup>13</sup> The capitalisation and assignment of the equity in the company exemplified the model for British mining companies revealed by McCarty. He stated that half to two-thirds of the capitalisation of a company went to the vendors and promoters, but that frequently secret agreements were in place by which the vendors appeared to receive half the value in shares when in reality they received perhaps just ten percent. The object of this ploy was to provide evidence of the great value of the mine, and thereby

inflate the value of the shares. J.W. McCarty, 'British Investment in Overseas Mining, 1860-1914', Ph.D thesis, University of Cambridge, 1960, p. 116.

<sup>14</sup> Uren, *Glint of Gold*, pp. 186-187; C.M. Harris, 'The Margaret and the Murchison Fields', *Early Days – Journal and Proceedings of the WA Historical Society*, 3, 7, 1945, p. 23; H.H. Wilson, *Westward Gold!*, Rigby, 1973, p. 127; Norma King, *Colourful Tales of the Western Australian Goldfields*, Rigby, 1980, pp. 71-74; D.W. de Havelland, *Gold and Ghosts*, Hesperian Press, Perth, 1985, pp. 201-202; Gordon Young, *Under the Coolibah Tree*, Andrew Melrose, London, 1953, pp. 203-204; George Compton, 'A circulating load', *Goldfields Mining Journal*, 1, 7, 1992, pp. 22-23.

<sup>15</sup> 'Special Mining Number', *North Coolgardie Herald*, 24 April 1901, pp. 68-69.

<sup>16</sup> For weights and measures throughout the text note the following conversion rates:

1 troy oz (the standard measure of gold) = 20 dwt = 31.10348 g; 1 dwt = 1.555 g;

1 kg = 32.15074 troy oz; 1 (long) ton = 1.01605 tonnes; 1 dwt/ton = 1.58 g/tonne;

1 foot = 0.3048 m; 1 mile = 1.609 km; 1 acre = 0.4047 hectares; 1 (imperial) gallon = 4.546l

<sup>17</sup> *Malcolm Chronicle*, 18 March 1899, p. 2; *Coolgardie Miner*, 7 June 1899, p. 6.

<sup>18</sup> *Ibid.*, 24 March 1900, p. 2.

<sup>19</sup> A survey of monthly gold production for selected mines and leases in the Mt Margaret Goldfield that were contemporaneous with Merton's Reward, commencing production in the period August 1897 - December 1899, has been prepared. Approximately 100 monthly production returns for the selected gold producers were obtained from the *Government Gazette* and collated by date; the returns were then re-sorted by grade of ore, revealing twelve individual returns with grades higher than 4 oz/ton, including the March, April and June returns for Merton's Reward. Peta Chappell, 'Merton's Reward Gold Mine: reconstructing the mine and deconstructing the myth', M. Phil thesis (in preparation), Murdoch University.

<sup>20</sup> Harris, 'The Margaret and the Murchison Fields', p. 23; Uren, *Glint of Gold*, p. 187; de Havelland, *Gold and Ghosts*, p. 201; Wilson, *Westward Gold!* p. 127. The erroneous gold production figure can be accounted for as follows. The author of 'Special Mining Number', *North Coolgardie Herald*, 24 April 1901, p. 69, wrote that the total output from 'the date of beginning work to the end of December was 5,000 tons for 12,000 oz of gold', meaning total output to the December before the time of writing, i.e., to the end of 1900. The anonymous author of *Twentieth Century Impressions of WA*, PWH Thiel and Co, Perth, 1901, p. 253, misinterpreted this as the total output from commencement to the end of December 1899.

<sup>21</sup> *North Coolgardie Herald*, 12 April 1899, p. 2; *Malcolm Chronicle*, 15 April 1899, pp. 2-3.

<sup>22</sup> *Ibid.*, 21 April 1899, p. 3.

<sup>23</sup> *Ibid.*, 11 May 1899, pp. 2-3. In contrast, at the Leonora Gold Blocks, the syndicate which owned and managed the mine did not install its own battery until the incline shaft had been sunk to the 150 ft level, with 1,000 ft of driving on the 100 ft level to open up the stopes, and crushing at public batteries had incurred expenditure of £1,600. See 'Special Mining Number', *North Coolgardie Herald*, 24 April 1901, p. 66.

<sup>24</sup> Uren, *Glint of Gold*, p. 187.

<sup>25</sup> 'Costean', a trench through soil or overburden to expose the underlying bedrock or lode.

<sup>26</sup> Hoover's best sample assayed 14 dwt but he commented that 'as usual, the prospectors firmly believe that it averages 2 oz, and their price is correspondingly absurd'. Herbert Hoover, 'Reconnaissance Trip for the London and Western Australian Exploration Co Ltd.', 12 October 1897, unpublished Bewick Moreing & Co. report; private copy received courtesy of Don Reid. A fragment of this is archived in Bewick Moreing file no 64, pp. 99-94, DOIR, Perth [pages are numbered backwards].

<sup>27</sup> Hoover's conclusion was that the Lancefield, Augusta and Craiggimore would warrant further investigation when the prospectors dropped their price. Hoover, 'Reconnaissance Trip', 1897.

<sup>28</sup> Young, *Under the Coolibah Tree*, p. 204.

<sup>29</sup> It is hard to believe that the local newspaper, the *Malcolm Chronicle*, would have failed to report any major accidents.

<sup>30</sup> *Malcolm Chronicle*, 17 June 1899, p. 3; *Ibid.*, 5 August 1899, p. 2.

<sup>31</sup> *Ibid.*, 9 September 1899, p. 2.

<sup>32</sup> The Christmas/New Year general exemption from work was designed to permit men working far from their families' time to journey home for the festive season. The duration of the exemption varied from goldfield to goldfield being based on distance from the main centres of population.

<sup>33</sup> A calendar of Merton's movements was drawn up from newspaper reports. This confirmed the coincidence of periods of non-reporting of gold returns with Merton's travels away from the mine.

<sup>34</sup> David McDonald, 'Merton's and Mertondale as I Knew Them', *Coolgardie Miner*, 13 November 1952, p. 4.

<sup>35</sup> *Ibid.*

<sup>36</sup> David McDonald, 'Autobiography', pp. 88-89.

<sup>37</sup> Richard Hartley, 'A History of Technological Change in Kalgoorlie Gold Metallurgy 1895-1915'. Ph.D thesis, Murdoch University, 1998, p. 62.

<sup>38</sup> A.G. Charleton, *Gold Mining and Milling in Western Australia*, E.& F.N. Spon, London, 1903, pp. 131-133.

<sup>39</sup> McDonald, 'Autobiography', p. 89.

<sup>40</sup> *Malcolm Chronicle*, 18 November 1899, p. 2.

<sup>41</sup> *Ibid.*, 14 April 1900, p. 2.

<sup>42</sup> *Ibid.*, 14 July 1900, p. 2. This was the only mechanical failure reported by the paper that year.

<sup>43</sup> *Ibid.*, 9 February 1901, p. 2; 16 February 1901, p. 2; 23 March 1901, p. 2.

<sup>44</sup> *Ibid.*, 23 March 1901, p. 2.

<sup>45</sup> *Ibid.*, 20 April 1901, p. 2. Of the 44 days, eight were in January, the remaining 36 in February and March; *Ibid.*, 9 February 1901, p. 2.

<sup>46</sup> Charleton, *Gold Mining and Milling in Western Australia*, p. 227. General figures quoted for percentage recoveries ranged from 55-65 per cent.

<sup>47</sup> *Malcolm Chronicle*, 24 March 1900, p. 2.

<sup>48</sup> This included gold that was treated at other batteries before the erection of the Merton's Reward battery. 'Special Mining Number', *North Coolgardie Herald*, 24 April 1901, p. 69.

<sup>49</sup> Young, *Under the Coolibah Tree*, p. 203.

<sup>50</sup> However, the practice could lead to fraud as was found to be the case in the Royal Commission to inquire into matters pertaining to Great Boulder Perseverance Gold Mining Company Ltd, Kalgoorlie, 1904-05. At the Great Boulder Perseverance, a combination of inflated ore reserve estimates, prolonged falling monthly output and a secret reserve of gold led to disaster. The gradual fall in output 'was obscured by doctoring the returns in the manner described until finally, the secret reserve being exhausted, the facts had to come out, and there was a collapse' both in the share price and in the reputations of the mining professionals involved. *Engineering and Mining Journal* [hereafter *EMJ*], 24 November 1904, 78, 21, p. 819.

<sup>51</sup> Evidence given at the Royal Commission to inquire into matters pertaining to Great Boulder Perseverance Gold Mining Company Ltd, Kalgoorlie, 1904-1905, as reported in *EMJ*, 1 December 1904, 78, 22, p. 860.

<sup>52</sup> *Ibid.*

<sup>53</sup> *Ibid.* The problem that many commentators had with this practice was the secrecy involved; the amount of the bullion reserve was rarely revealed even to the directors of the company, neither was it necessarily shown on the annual balance sheet. As the editor of the *Engineering and Mining Journal* opined: 'a fluctuating output and a secret reserve represent a state of equilibrium comparable to a powder magazine enclosing a small boy armed with fireworks', *EMJ*, 24 November 1904, 78, 21, p. 819.

<sup>54</sup> Compton, 'A circulating load', p. 22.

<sup>55</sup> McDonald, 'Merton's and Mertondale', p. 4.

<sup>56</sup> Compton, 'A circulating load', p. 22.

<sup>57</sup> *Ibid.*

<sup>58</sup> Eddie J. Cummings (ed), *Renniks Australian Coin and Banknote Values*, 21<sup>st</sup> edn, Renniks Publications, NSW, 2004, pp. 60-61.

<sup>59</sup> For February or May 1901 when the gold produced was 1,200 oz, the extra gold required to increase the grade to 1.6 oz/ton would have been 80 oz and the number of sovereigns required to achieve this 340, or approximately 85 per week.

<sup>60</sup> Compton, 'A circulating load', p. 22.

<sup>61</sup> McDonald, 'Autobiography'. McDonald was sparing with dates in his account of his life but did record that he passed Christmas 1900 at Mertondale. He stated that he worked on the twenty-head battery and that Merton had no intention of increasing the number of stamps, which means that he must have left before the extra stamps were installed in May 1901. McDonald himself never recorded the tales and opinions expressed by Compton's 'old-timer'.

<sup>62</sup> Young, *Under the Coolibah Tree*, p. 204.

<sup>63</sup> *Twentieth Century Impressions of WA*, PWH Thiel and Co, Perth, 1901, p. 253.

<sup>64</sup> Young, *Under the Coolibah Tree*, p. 204.

<sup>65</sup> It should be noted, however, that at any given time, there is a finite amount of available gold in an ore deposit. With more water, the gold in Merton's Reward might have been won more quickly with the result that Merton obtained more gold and the company less.