

**MERTON'S REWARD GOLD MINE:
RECONSTRUCTING THE MINE
AND
DECONSTRUCTING THE MYTH**

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I declare that this thesis is my own account of my research and contains as its main content work which has not previously been submitted for a degree at any tertiary institution.

.....

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Merton's Reward Gold Mine: then ...



... and now



Top: Merton's Reward *circa* 1900. Fred Merton stands in front of a timber structure (a crib) supporting the roof (the back) of the underground workings. Bottom: *circa* 2004. These appear to be the same workings. The crib has been replaced with sturdy timber props. (Courtesy Navigator Resources Ltd, both images)

ABSTRACT

Prospector Fred Merton discovered gold near the town of Malcolm in Western Australia in March 1899 and took the bold step of developing his find as sole owner/manager. When he sold to British interests in January 1902, his audacity had won him fortune – approximately £84,202 worth of gold plus the proceeds of the sale – and fame. Or should that be infamy?

This thesis addresses two aspects of the history of Merton's Reward gold mine. It analyses the evolution of the mythology that developed around Merton and his mine throughout the twentieth century, and it investigates how and why the mine developed as it did, firstly under Merton's management and then that of a typical British mining company.

The Western Australian gold boom of the 1890s generated numerous tales of prospectors and bonanzas but there has been little discussion or analysis of the authenticity of these myths in either the reminiscence literature or scholarly histories. The well-documented mythology surrounding Merton and his mine provides an excellent subject for this type of investigation. Its origin is revealed in misinterpreted and biased newspaper reports of the time.

The mine itself developed into a sprawling confusion of randomly named quarries, shafts, and associated workings, sorely in need of clarification. Detailed examination of the records demonstrates the importance of geology as a factor in its development. When integrated with other factors including finance and the influence of the individual, Merton's Reward provides a rare opportunity to compare management style in the two phases – the one-man show and the company operations – of the gold mine's life. Although Merton ran the mine for his own benefit he followed locally accepted mining practice. He understood the limitations of his style of management and sold when changing conditions within the mine threatened to surpass them.

Despite a full complement of staff appointed to professionally manage development of Merton's Reward and despite the company producing roughly twice as much gold as

Merton, it failed to achieve a return on its investment. The geology of the mine defeated it.

This case study starkly illustrates the insurmountable difficulties associated with chasing a failing orebody at depth, the main reason for closure of the majority of Western Australia's outback mines. Merton is demonstrated to have been highly competent, both as prospector in his choice of ground and as mine owner in the timing of his departure.

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Mine Plans

(located in map pockets at back of volume)

No.		DMP Plan No.
Plan 1	Mertons Reward G.M. Coy. General Plan [July 1903]	1/290
Plan 2	Mertons Reward G.M. Coy. Longitudinal Section looking West December 1903	17/290
Plan 3	Merton's Reward G.M. Longitudinal Section looking West [including assays] [April 1904?]	4/290
Plan 4	Mertons Reward Gold Mining Co. Ltd. Mertons Reward Mine [Composite Plan] 1907	- [based on 14/290 & 15/290]

Derivation of the plans

The DoIR disclaimer that appears on Plans 1,2 and 4 applies also to Plan 3 and to DMP plans 11/290 and 12/290, which are reproduced as Figures 4.4 and 4.5. The originals of Plans 1 and 2 were prepared by the staff of Merton's Reward Gold Mining Company Ltd in 1903; the copies reproduced here were obtained as scans from the DoIR, the predecessor of the DMP. They have not been materially altered but were 'cleaned up' – the background of one being very blue and of the other very orange.

The original of Plan 3 was prepared by Bewick Moreing personnel in 1904. The scanned copy obtained from the DoIR proved to be badly distorted so a folded paper copy in my personal possession was used as the basis for the reproduction included herein. Extensive cleaning up was necessary to remove the effects of years of folding but no alterations were made to the drawing itself.

Plan 4 is not strictly speaking an original mine plan. In 1990 the Department of Mines permitted Ashton Gold WA Pty Ltd to redraw original blueprints 14/290 and 15/290, which had been prepared by Merton's Reward Gold Mining staff progressively up until April 1907 – the most recent date found labeling the workings on the plan. It is reproduced here as scanned by the DoIR.

In order to print the mine plans at A1 size the scales of Plans 1 and 4 had to be reduced; this was not necessary for the two Longitudinal Sections, Plans 2 and 3, which are printed at original scale.

Of the mine plans which are used as figures in text, DMP plans 11/290 and 12/290 are reproduced as drawn by Bewick Moreing personnel in 1900 as Figures 4.4 and 4.5, whereas Figures 4.3 and 5.1, based on DMP plans 1/290 and 17/290 respectively, have been amended and annotated by the author of this thesis to highlight specific details of the mine.

The DMP holds other historic mine plans for Merton's Reward gold mine but the four large scale plans selected for inclusion in this thesis between them effectively illustrate the development of the mine and the difficulties in deciphering that development.

Abbreviations

AGSO	Australian Geological Survey Organisation
AIME	American Institute of Mining Engineers
AR	Annual Report
AusIMM	The Australasian Institute of Mining and Metallurgy
BIF	banded iron formation (geological)
BM	Bewick Moreing Company Ltd files
<i>CM</i>	<i>Coolgardie Miner</i>
DoIR	Department of Industry and Resources, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
<i>E&MJ</i>	<i>Engineering and Mining Journal</i>
E-W	direction of strike (trend) of veins or other geological features
GF	Goldfield
<i>GGWA</i>	<i>Government Gazette of Western Australia</i>
GM(s)	Gold Mine(s)
GML	Gold Mining Lease
GSWA	Geological Survey of Western Australia
<i>JCMWA</i>	<i>Journal of the Chamber of Mines, Western Australia</i>
<i>KM</i>	<i>Kalgoorlie Miner</i>
LMA	London Metropolitan Archives
<i>MC</i>	<i>Malcolm Chronicle</i>
MDAR	Western Australia Mines Department Annual Report
<i>MH</i>	<i>Morning Herald</i>
MRGM Co Ltd	Merton's Reward Gold Mining Company Limited
MRSEL	Mining Reports of the Stock Exchange of London
<i>NCH</i>	<i>North Coolgardie Herald</i>
N-S	direction of strike (trend) of veins or other geological features
NSW	New South Wales
RC	Reward Claim
SROWA	State Records Office of Western Australia
<i>Trans IMM</i>	<i>Transactions of the Institute of Mining and Metallurgy</i>
USA	United States of America
WA	Western Australia

Units of Measurement and Conversion Factors

Original units have been used throughout this document. Gold was measured in Troy weight as fine ounces (oz), pennyweights (dwt) and grains (gr).

1 acre	= 4840 square yards = 0.404 685 6 ha
1 chain	= 66 feet = 22 yards = 20.116 8 m
1 foot (ft)	= 12 inches = 0.3048 m
1 gallon	= 4.546 09 x 10 ⁻³ m ³
1 grain (gr)	= 0.041 667 pennyweight = 0.064 798 918 g
1 inch (in)	= 25.4 mm
1 mile	= 1760 yards = 80 chains = 1.609 344 km
1 ounce, Troy (oz)	= 20 pennyweights = 480 grains = 31.103 477 g
1 oz/long ton	= 30.612 24 g/t
1 oz/short ton	= 34.285 71 g/t
1 pennyweight (dwt)	= 24 grains = 1.555 173 8 g
1 dwt/long ton	= 1.530 612 g/t
1 dwt/short ton	= 1.714 286 g/t
1 ton, long	= 2240 pounds = 1.016 047 t
1 ton, short (U.S.)	= 2000 pounds = 0.907 185 t
1 yard	= 3 feet = 0.9144 m ³

Source: D.A. Berkman and W.R. Ryall (eds), *Field Geologists' Manual*, AusIMM, Melbourne, 1976

Currency:

1 pound sterling (£1) = 20 shillings = 240 pence

1 sovereign = £1 as a gold coin

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