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'WE DID OUR DOUGH, IN BENDIGO'

by
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Introduction

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In the mid-1930s Bendigo Mines Ltd (BML), a subsidiary of Gold Mines of Australia Ltd (GMA), a sister company to Western Mining Corporation Ltd (WMC), spent over $1 million ($35 million in today's money) reopening gold mines on the Bendigo Goldfield. With great fanfare BML established three major new shafts, did extensive underground work, built a stamp battery and associated plant and acquired George Lansell's 'Fortuna Villa'. The short-lived effort was a financial disaster and led to the jingle, '*We did our dough, in Bendigo*'.

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In the 1970s WMC decided to reassess the Bendigo field using the data available to it from the 1930s work. They obtained exploration licences in 1978, reopened the Williams United Shaft and processed some bulk samples through a purpose-built plant. By the time a development proposal was prepared and an Environmental Effects Statement submitted the gold price had fallen. Great Bendigo Goldfields Ltd was incorporated in 1987 to raise funds from WMC shareholders and residents of Bendigo, but the public float did not proceed. In 1992 after spending about $20 million WMC withdrew from field and sold its interests to Bendigo Mining NL for $1.6 million. Once again the jingle rang out, '*We did our dough, in Bendigo*'.

This paper endeavours to compare the factors which influenced the managements of GMA and WMC to withdraw from the Bendigo Goldfield.

The Gold Mines of Australia Episode

Like most other Australian goldfields Bendigo had produced most of its gold prior to the beginning of the 20th Century. Total recorded production up to 1934 was 16 million ounces - second only to Kalgoorlie's 22 million ounces. With the rise in the price of gold in 1930 the Bendigo field warranted a thorough reassessment.

Melbourne mining engineer, Edward Dyason, had maintained an interest in the Bendigo Goldfield through Bendigo Amalgamated Mines (BAM), a company he had formed during World War I to amalgamate many of the dormant leases on the Bendigo field. BAM resumed operations but post-war inflation crippled his ambitions and operations ceased in 1922. Having faith in gold he retained the leases.

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When William S ('WS') Robinson formed Gold Mines of Australia Ltd (GMA) in 1930 Dyason was quick to promote the Bendigo field as worthy of re-examination. Robinson was receptive to this and had GMA geologists examine the mines and review all the available material. They were greatly assisted in this work by HO Moline, General Manager of BAM. Based on their report Robinson was able to interest some of his London friends into investing in a programme of mine development.

Robinson instructed GMA's Managing Director, G Lindesay Clark, to proceed with the formation of a company to take over the BAM properties and initiate a programme of exploration and development. In his 1983 memoirs, *Built on Gold,* Sir Lindesay Clark records that Dyason's '*titles fell somewhat short of WS's expectations but, as he said, the essential thing was to ensure the goodwill of the* (Victorian) *Government*'. Sir Lindesay went on to give a good account of the nature and extent of the Bendigo field and some detail of the unusual system of synclines and anticlines which, he noted, differed greatly from

I saw it - Gilbert had it with him

goldfields in Africa and North America.

The six page Prospectus of Bendigo Mines Ltd (BML) was issued on 28 March 1934 indicating that of the 1,200,000 shares of $1.00 each, 460,000 were offered to the public at 20 cents on application and 80 cents on call. Of these 300,000 were to be taken 'firm' by the Underwriters while the Vendors, Exploration Syndicate NL, received 40,000 fully paid shares for their leases. There were 700,000 shares in reserve of which 500,000 were on option to the Underwriters at premiums of 25 cents for two years and 50 cents for four years.

The maximum amount of money that could be raised, with premiums, was $1,347,500.

The Underwriters, each of which was in some way associated with WS Robinson were;

Gold Mines of Australia Ltd - (A Collins House company formed by WS in 1930)
Metals Investigation Pty Ltd - (A Collins House company dominated by WS)
Union Corporation Ltd - (A South African gold company with an interest in GMA)
Central Mining and Investment Corp Ltd - (A South African company in GMA)
Case, Pomeroy & Co. (Inc) - (A New York company involved with GMA & WMC)

The directors of the BML were, Edward C Dyason, (Sir) Colin Fraser, Sir Walter Massy-Greene, Thorold Field, Lindesay Clark and Hugh McKinstry.

The London Advisory Committee consisted of; AJ Brett, JO May, TR Palmer, and WS Robinson and the New York Advisory Committee; Walter S Case, CG Holmquist and Donald McLaughlin

All of the above individuals, except EC Dyason, were connected with the 'Collins House Group' and in particular, Gold Mines of Australia and its sister company, Western Mining Corporation. Dyason, a mining engineer, was the principal of Edward Dyason & Co, of Queen Street, Melbourne.

Bendigo Mining shares were listed on the Stock Exchanges at, Melbourne, Sydney, Brisbane, Adelaide, Perth, Hobart, Launceston and Bendigo. The subscription list was only open for two days, 4th and 5th April, 1934 and all the shares were taken up.

The objects of the Company were 'to engage in the gold mining industry in Australia, and more particularly at Bendigo'. The area available to BML covered 930 hectares, embracing over 60 km of anticlines and synclines.

Soon after BML was formed four subsidiary companies were floated to hold specific leases - their names reflecting the 'line of the lode' involved. The authorised capital of these companies was;

Carshalton (BML) Mines NL,	$800,000
Napoleon (BML) Mines NL,	$600,000
Nell Gwynne (BML) NL,	$550,000
Derby (BML) NL,	$142,500

Bendigo Mines Ltd held a controlling interest in, and acted as General Mangers, of each of these subsidiary companies and BML was, in turn, managed by Gold Mines of Australia. Thirty eight year old mining engineer Lindesay Clark was Managing Director of GMA and he was very much influenced by the opinions of the Chairman, Sir Colin Fraser (a geologist), and WS Robinson (an entrepreneur). Robinson was based in London and he held the purse strings through Gold Exploration and Finance Co of Australia

(GEFCA) which owned 97% of WMC and 62% of GMA.

Much of the preliminary geological investigation was done by Dr Hugh McKinstry and Dr John B Stone prior to the floating of BML. McKinstry and Stone were two of the eminent Harvard geologists brought to Australia by Robinson (on the suggestion of Walter Case) to examine properties available to GMA and WMC. Dr Stone was later appointed Chief Geologist to BML.

McKinstry was impressed with the large amount of data made available to him by Dr H Herman, Director of the Victorian Geological Survey. He also acknowledged the help given him by a young graduate mining engineer, William M Morgan, who thirty years later became WMC's Managing Director. In his 1933 report McKinstry wrote; '*As Mr Clark very pertinently points out, vertical development is likely to be more successful than horizontal development, since the saddle reefs are of great longitudinal but limited vertical extent*'.

(c.1935.)

Within a year of its formation, BML published a 30 page illustrated glossy booklet describing the history and geology of the Bendigo field and the programme of development undertaken up to April 1935. The history and the geology of the field were very well described but are not relevant to this paper other than to say that a thorough knowledge of the field was a prerequisite to the programme of development proposed. What was significant, however, was the description of the developmental work to be done and nature of the equipment used. The booklet states that, '*Bendigo Mines, and its subsidiary companies, were fortunate to obtain the services of Mr Lucien Eaton, a consulting engineer with long experience in mine equipment and development, to advise on these matters. Standardisation of equipment, layout, and working methods has been effected as far as practicable and great care has been exercised in the design and selection of the plant.*'

Following Eaton's proposal three new shafts were established. They were all at the southern end of the field and were named for the reefs they were designed to develop, namely; Carshalton, Napoleon and Nell Gwynne. Each was equipped with a 23 metre high steel headframe, electric winder, two electrically driven air compressors, a changeroom for 120 men, a workshop, store, office and manager's residence. The headframes were the largest yet erected at Bendigo and were capable of working to a depth of 1220 metres. Each shaft was 5.3 metres by 1.6 metres, with four compartments. The cages held 10 men, the skips two tons and the rope speed was 300 metres per minute. All plant and equipment was new. A large central workshop and an Assay Office were located near the Napoleon Mine and later a 30 head stamp battery was located nearby. All electric power was supplied from an extension of the SECV line from Castlemaine.

descrip.

Shaft sinking progressed rapidly at each site with six men working in each shaft on a three shift basis. The shafts had wooden sets every 1.5 metres. Plats were cut at every 30 metres and exploratory crosscuts were driven out to the anticlines. At 150 metres major levels were developed with 2.5 metre square drives to the north and south for electric locomotive haulage. Lateral development connected the three shafts which were about 1400 metres from the Carshalton to the Napoleon and 2300 metres on to the Nell Gwynne. Between the shafts further cross cuts were developed from rises and winzes between the drives. Electric fans for ventilation and electric lighting were provided underground.

The glossy booklet also stated that, '*The programme will enable the three anticlinal lines to be opened for their full lengths on the companies' holdings by sinking and equipping only three shafts. At the same time full facilities will be provided for large-scale and economical production in a very short period following ore discovery.*'

In 1935 Dr Donald Mc Laughlin, Professor of Economic Geology at Harvard University, visited Australia to review the work of 'his team'. On Bendigo he reported, '*I recommend the exploration directed by Bendigo Mining Ltd as a bold venture, in which the chances for large gains justify the very serious risk of loss that must necessarily be assumed.*'

Later, Terence Conolly, another Harvard geologist hired by GMA, endeavoured to improve the structural knowledge of the field by mapping the sources of all prior gold production from the Bendigo field. To achieve this he had KJ Dickenson and a team of eight assistants collate the data contained in thousands of weekly mining reports which appeared in the *Bendigo Advertiser* over the previous 60 years. It took them two years! (The results of this work, together with other BML historical records, are now housed at the Melbourne University Archives but the whereabouts of the model Conolly constructed is not known.)

Despite the quality of the scientific effort and expensive developments, by 1937 no major discovery had been made by Bendigo Mines Ltd and the company was in trouble.

A 30 head stamp battery was built to treat the ore recovered from development in the hope of recovering some cash. It treated about 47,000 tons of ore from which only 7,347 ounces of gold were recovered. The value of the gold won at the then price of about $17.50 per ounce provided revenue of about $128,000 – far short of the initial investment.

A new company, Bendigo Mines NL (BMNL), was formed in April 1937 with a capital of $1,275,000. It took over all of the assets of Bendigo Mines Ltd and the latter company was placed in liquidation. Shares in BML were exchanged share for share in BMNL. The effect of this strategy was to transfer the 'Proprietary' status of the company into that of a 'No Liability' company in which shareholders are not obligated to subscribe to calls. As a result 193,307 shares were forfeited for non payment of calls.

The new company carried on until November 1937 when it announced that, '*Because of disappointing results attending development work by subsidiary companies, operations ceased in November 1937. The assets are being realised, but there is no possibility of any return to shareholders.*'

There is little wonder that those who were involved recalled the experience with some embarrassment and that the jingle, '***We did our dough, in Bendigo***', rang out in the halls of Collins House for many years thereafter.

What was the cause of this failure?

There is little doubt that the large expenditure on new plant and equipment capable of full-scale production before any ore had been found was a mistake which absorbed funds which would have been better spent on exploration. Sir Lindesay Clark in his memoirs remarked that, '*The choice of a man of Eaton's background in iron ore mining was unfortunate, as in iron ore mining the ore usually occurs in big masses and the question of whether the ore is there or not scarcely arises. This was not so at Bendigo.*' Sir Lindesay went on to say, '*The Bendigo problem was seen as one of economic development of a system of spurs and saddle reefs; it should have been, as a preliminary, a prospecting programme to determine whether the assumed spurs and saddle reefs in fact existed in McKinstry's selected area. The plan proposed by Eaton was quite beyond the resources the principals were prepared to provide.*'

The end came in 1937 when the South African shareholders, in particular, were unwilling to provide additional funds for the Bendigo project. Most of the remaining shareholders decided to invest in Central Norseman Gold Corporation, which they deemed (correctly) to have a better chance of success.

The three headframes, winders, compressors and associated buildings were also sold. One set went to

WMC's Triton Gold Mine near Cue in Western Australia. It remained there until about 1950 when it transferred to Great Western's Bullfinch Mine and finally in 1967 to the Durkin Shaft at Kambalda Nickel Operations, where it now stands. The second went to Central Norseman's Ajax Shaft and later the Regent Shaft and the third was sold to Peko Mines and moved to the Northern Territory.

Among the assets sold was *Fortuna Villa,* a grand mansion which BML had bought in 1934 for $4800 for use as recreation centre for staff. It stood on the New Chum Lease and was built, and later extended, by George Lansell - the 'Quartz King'. There was only a stable between his mansion and a thundering 100 head stamp battery. The property was sold in 1938.

The shareholders got nothing.

The Western Mining Corporation Episode

By the late 1970's the Board of Western Mining Corporation (WMC) had its faith in gold restored when the gold price rose dramatically. WMC became Australia's largest gold producer with operations in Western Australia, Northern Territory, Victoria and Fiji producing over one million ounces of gold annually. The Victorian interests resulted from a modest programme of gold exploration which continued after WMC took over GMA in 1960. WMC Senior Geologist, Reg Clappison, conducted this work from his base in Stawell and concentrated his effort in the Stawell and Clunes areas. (Stawell showed the greatest promise and a programme of underground development began in 1980 as a 50/50 Stawell Joint Venture with Central Norseman Gold Corporation. Production began in 1984.)

There was a degree of optimism about the future of gold production in Victoria and Roy Woodall, WMC's Director of Exploration, approved a proposal to re-examine the Bendigo Goldfield based on the fact that the Bendigo goldfield had not been scientifically explored and that drilling technology had improved enormously since most of the operations on the field ceased in the early 1920s'. An Exploration Licence covering the whole field was obtained in 1978 and an office established at Eaglehawk on the northern outskirts of Bendigo.

In its endeavour to assess the Bendigo field WMC benefited from the accumulated information which had been compiled by KJ Dickenson for Gold Mines of Australia in the 1930s. WMC reviewed all of the GMA material deposited in the Melbourne University Archives and copied any available data from the Department of Minerals and Energy. They also acquired or copied all the mining information published in the Bendigo Advertiser up to 1954 when mining operations ceased. Armed with this information new plans of the field were drawn which included geological data, mine openings and production results. This was the most comprehensive review of the field ever undertaken and represented thousands of hours of detailed effort. A number of areas were targeted for drilling.

Diamond drilling commenced in 1979. At the time exploration and mining were nonconforming land-use activities in the Bendigo region and WMC had to negotiate the necessary changes with the four local governing bodies before embarking on a drilling programme. When drilling on Crown Land nearby residents and the local Council had to be given notice prior to commencement of operations. Hours of drilling were restricted and noise suppression equipment had to be used. Innovative diamond drilling techniques developed by WMC elsewhere were applied at Bendigo. Directional drilling and controlled wedging enabled multiple intersections to be obtained from deep targets at a fraction of the cost of separate holes. Many high-grade intersections were discovered in this innovative programme and several areas were selected for more intense drilling.

Follow-up traverse diamond drilling confirmed the potential of these areas and this was followed in 1983 by a closer patterned reverse circulation (RC) percussion drilling programme to obtain larger samples from near-surface target areas to depths of up to 200 metres. This work identified several areas of significant potential on the North Garden Gully, North New Chum, South Carshalton, South Nell Gwynne and Birds anticlines. By the end of 1985 the Company had spent more than $7 million on the initial assessment which included 322 RC percussion and diamond drill holes.

In 1986 it was decided to spend another $4 to $5 million to reopen the old Williams United Shaft on the New Chum Line of Reef in order to examine the condition of the workings, the nature of the orebody and to obtain bulk samples for testing. The Project Manager, George White, indicated that it was intended to go down to a depth of about 100 metres and test the country with up to 1,000 metres of lateral development. He went on to say that it was intended to lower the water level to 100 metres by pumping and to treat the water and remove 75% of the arsenic before releasing it into the Sydney Creek. The disposal of ground water, which is high in arsenic, is one of the difficulties of mining in Bendigo. The temporary dewatering led to the building of five evaporation ponds at Woodvale.

In March 1987 an appropriately qualified mining engineer, Colin Cruickshank, was appointed Resident Manager of the Project and he supervised the dewatering and rehabilitation of the Williams United Shaft. A working level was established at 71 metres and a loading station at 91 metres. A small treatment plant was built to treat the ore from the lateral development and bulk samples mined.

At the same time underground diamond drilling was carried out from the Williams United Shaft but no significant mineralisation was encountered. The old Carshalton Shaft which had been sunk by GMA in 1935-6 was also dewatered and surface facilities were established. The shaft was rehabilitated to 50 metres in preparation of underground exploration.

Whilst the potential of the Bendigo field looked attractive WMC had several other major developments progressing at the same time which drew heavily on its available resources to the extent that in the latter part of 1986 it endeavoured to interest other parties in the development of the Bendigo field. WMC published a booklet '*The Bendigo Gold Project*' - a glossy publication which stated, '*This private tender document is designed to provide potential tenderers with an outline of Western Mining Corporation Limited's Bendigo Gold Project. ... WMC is inviting selected persons to submit tenders for the purchase of a 20% interest in the project. The successful tenderer will be required to enter into a purchase and sale agreement, a joint venture agreement, and a management agreement in the form contained in the project documents. ... In the event that no tender is successful WMC will consider offering the interest in the project to the public through a separate company created for that purpose.*'

This search for a joint venturer was in vain and the public company option was progressed. Apart from sharing the risks, the proposal to form a public company was also contemplated because some local groups were contesting WMC being granted exploration rights to the entire Bendigo field. It was thought that by forming a public company with local shareholders and representation on the board would overcome this and other objections.

There was considerable publicity at the time of the announcement of the float of Great Bendigo Goldfields Ltd in mid August 1987. Great Bendigo planned to raise $34.5 million through the issue of 115 million 20¢ shares at 30¢ each. Bendigo residents, the Bendigo Building Society, Sandhurst Building Society and WMC shareholders were to be offered shares. WMC Finance Ltd was to under-write the issue. It was expected Bendigo resident, Barry Capp, would become Chairman. The planned float of the public company, however, was deferred pending receipt of approval from the Victorian Government to proceed with the mining programme. The approval was long in coming and in the meantime public interest waned and the float never took place.

A 250 page, *Bendigo Gold Project- Environment Effects Statement,* was prepared Kinhill Engineers Pty Ltd and WMC and submitted to the Government in December 1987. It contained a lengthy description of the proposed mining and processing operations and how the various environmental impacts would be controlled and managed. This led to a number of objections and the holding of long public hearings over several months before the project received approval.

In April 1989 WMC's Managing Director, Hugh Morgan, announced that WMC would stop all underground work and review its position. He said this action was prompted by '*frustrating delays in winning Government approvals and the lower gold price*'. The Government reacted by '*softening its stance on some of WMC's obligations*' following a meeting with the Minister of Industry, Technology and Resources, Mr White. Work resumed in June.

A limited amount of surface diamond drilling was carried out over the next two years and in October 1991 WMC announced that the project had been reclassified as an exploration activity. Underground work was discontinued and a re-evaluation of all results began.

In June 1992 WMC wrote off approximately $20 million in relation to the Bendigo Gold Project and offered it for sale. It was sold in October 1992 to Bendigo Mining NL, for $1.6 million, plus a royalty on future gold production. The sale and purchase agreement included all leases, licences, exploration databases, plant and equipment. In a parallel agreement Bendigo Mining also secured a signed deed with the directors of several Bendigo based private companies to discontinue various legal actions against WMC regarding access to certain areas.

Sadly history repeated itself and once again the jingle rang out, `***We did our dough, in Bendigo***'.

Why did WMC withdraw from the Bendigo Goldfield?

Apart from the fact that the management of WMC was convinced that there were far more favourable investment opportunities available to it elsewhere, there was no single factor which caused WMC to abandon the Bendigo Gold Project - it was a combination of external events and circumstances. The more significant of these were:

The price of gold declined by $200 per ounce during the period under review.
The Federal Government discontinued the tax exemption on profits from gold.
The Victorian Government imposed unacceptable environmental constraints.
The restrictive, outdated mining regulations in effect in Victoria at the time.
The administrative difficulties in dealing with four municipal councils.
Opposition from some local businessmen to WMC holding such a large area of leases.

In April 1989 when WMC announced that it would cease operations at Bendigo there were about 50 local people dependent on the project and it was reported in the `*Herald-Sun*' that `*the closure came out of the blue*'. One contactor, Mr. Sam Tehira said that `*I feel the shut down is political - the Government and the Greenies have kept obstructing things. It is not Western Mining's fault.*' The article went on to say, '*Bendigo environmentalist, Mr. Peter Cox said "greenies" would be used as a scapegoat for the failure of the project. He maintained environmentalists had never been opposed to underground mining, only to the WMC operations. "It is common practice for mining companies to make it seem the entire viability of a region is dependent on mining, but this has never been a reality. Gold mining in Bendigo offers only short-term community benefits, Mr. Cox said. The reality is that Bendigo is not a town in decline and gold mining never offered the area long-term job options anyway.'*

Interestingly when I was visiting Sir Lindesay Clark at his home in 1983 about the time his memoirs, *Built on Gold,* were being published I told him about the Bendigo Gold Project and he looked at me, hesitated and responded by saying, '***We did our dough, in Bendigo***'.

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Postscript

Nothing in this paper should be construed to infer that any current or future efforts to revive gold mining at Bendigo will suffer the same fate. On the contrary - the technical, economic and political factors are markedly different and the present day activities have benefited from the accumulated knowledge and experiences gained during the GMA and WMC episodes.

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