ABSTRACT

The 108 year history of the Mount Morgan mine has been told and retold but little attention has been paid to the sixty-one year history of Mount Morgan Limited. It is now over twenty-three years since production ceased, so fewer people remain who were associated with this period of the mine history. Most are unaware of the reasons for its success or failure, and of the management decisions that ultimately affected the lives and prosperity of the Mount Morgan community. Consequently, there have been areas of narration, especially in this latter period, which have drawn either praise or criticism, often without sufficient and accurate historical detail by way of comparison. The thesis addresses these shortcomings across the relevant areas, drawing principally on primary material contained in company archives lodged with CQUniversity, Rockhampton and supported by pertinent secondary literature. By examining areas of ‘praise or criticism’ in the operation of Mount Morgan Limited, and placing these within the context of the broader mining community, the thesis offers a new analysis of the history of the mine.

The thesis establishes that, while returning significant dividends to its shareholders, and providing a guaranteed income, social and educational support to generations of Mount Morgan people, the Company failed to expand its activities and initially disregarded the surrounding environment. In evaluating these commercial, social, operational and environmental areas of its operations, the thesis addresses not just the perceptions of the triumphs and disappointments of Mount Morgan Limited, but also examines its relationship with the broader mining community, both national and international. It addresses the extent to which the Company followed or departed from industry practices elsewhere, including the extent of influence exerted by directors and senior staff, the introduction of a welfare scheme and social initiatives, as well as its persistent, but ill-fated attempts to diversify its operations.
Mount Morgan Limited
The Triumphs and Disappointments
1932- 1990

Ray Frank Boyle
A thesis submitted in total fulfillment of the Requirements of a Degree of Doctor of Philosophy in the Division of Higher Education

Central Queensland University

May 2014
Declaration

I, Ray Frank Boyle, do solemnly and sincerely declare that apart from material contained in my own MA, my own consultancies, conference papers and published articles, all of which are fully acknowledged, the material contained in this thesis has not been published before. I further declare that the main text is an original work.

............................................

Ray F. Boyle.
Acknowledgments

My thanks for inspiration, guidance and support during the preparation of this thesis are due to a number of people.

Of greatest importance has been the love and support of Greta, my wife of almost fifty-nine years who, despite her own health problems, has put up with my many periods of disappearance to my study and to my computer. Without her support, which she has freely given during the many periods of study throughout our marriage, the task would have been impossible. I thank her for all she has done. Our four daughters and their families continue to give much needed love and support to us both.

My supervisor, Professor Denis Cryle has once again provided discipline, guidance and kindly encouragement, especially during some difficult periods of the candidature. His insightful comments have, on many occasions, brought me back to the reality of the thesis.

The principal source of primary research material has been the Mount Morgan section of the Capricornia Collection within the library of CQUniversity; I must acknowledge the assistance and courtesy of all library staff who, without exception, have helped especially during the difficult year when the library was closed for refurbishment and access to the Collection was restricted. Especial thanks to the Ms Kelli Stidiford, librarian in charge of the Collection, and Ms Cathy Dennis for their assistance in guiding me though the maze of files in the Collection and in the acquisition of additional material.
I have drawn heavily on the records held by Ossie Wilson, my old friend, colleague and former Mount Morgan Manager of Operations, who has been kind enough on several occasions to correct my own recollections with ‘that might be what you thought happened but the reality was …’.

Other colleagues who have provided details unavailable from the Collection are Dick White, the late Arthur Gerard, John Elliston, AM, Trevor Bowen, Laurie Toppenberg, and Bob Johnson. The late Dr. Meredith Foxton, MBE (nee Sheil) willingly contributed material about her father, Glenister Sheil. I have acknowledged each in the text.

My fellow members of the Engineers Australia National and Queensland Heritage Committees, of the Australasian Institute of Mining and Metallurgy Heritage Committee and Mel Davies, OAM of the Australasian Mining History Association have, from time to time, made contributions to my work.

As I acknowledged in my MA thesis, ‘it was the atmosphere of continuity of staff and story, which was the Mount Morgan Mine during my 35 years there, which helped so much in my locating characters and events from the extensive archival material available on this great operation. My final tribute is to my mentors and friends of the past whose knowledge and love of the Mine laid the foundation for my own dedication to the place’.
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Acronyms

A&R  Angus and Robertson (Publishers) Pty Ltd
A&U  Allen and Unwin Pty Ltd
ABRES  Research Bureau within the Department of
       Agriculture, Fisheries and Forestry
AC  Alternating [electrical] current
ACF  Australian Conservation Foundation
ADB  Australian Dictionary of Biography
AGGSNA  Aerial, Geological and Geophysical Survey of
        Northern Australia
AMHA  Australasian Mining History Association
AMEC  Association of Mining and Exploration Companies
AMIC  Australian Mining Industry Council
ANU  Australian National University
ASARCO  The American Smelting and Refining Company
         Australia Proprietary Limited
AWU  Australian Workers Union
CAPCOL  The Capricornia Collection, CQU Library
CQHER  The Central Queensland Herald
CQU  Central Queensland University
CREB  Capricornia Regional Electricity Board
DC  Direct [electrical] current
DNRM  [Queensland] Department of Natural Resources and
       Minerals
QIT Queensland Institute of Technology
QITC Queensland Institute of Technology, Capricornia
QMAG Queensland Magnesia
REN Rockhampton Evening News
RFB Ray (Ray) Frank Boyle
RFBCOL Personal papers held by R. F. Boyle
RGS Rockhampton Grammar School
RMB Rockhampton Morning Bulletin
RWGW Richard (Dick) William Grenville White
SMH Sydney Morning Herald
SUP Sydney University Press
The AusIMM The Australasian Institute of Mining and Metallurgy
The IEAust The Institution of Engineers, Australia (Engineers Australia)
UQP University of Queensland Press
UWAP University of Western Australia Press
WMC Western Mining Corporation

**Terminology**

The thesis has been prepared to the standards recommended in the *Style manual, for authors, editors and printers*, sixth edition, 2002, reprint 2007, John Wiley and Sons Australia Ltd, [the Style manual]. In particular, the text has applied the documentary-note system of citation relating to the use of capitalisation and italics in publication references, in footnotes and in the bibliography.

The two public Companies which operated the Mount Morgan Mine were the Mount Morgan Gold Mining Company Limited and Mount Morgan Limited. In the records of Mount Morgan Limited, the two companies are known respectively as The Old Company and The Company. Throughout this thesis, this is how the companies are described.
Both companies, perhaps originally in an unplanned way, adopted a standard of capitalising the names of areas of the Mine, staff positions and Board events. Examples of these descriptions are the Mine, the Open Cut, the Works, the Mill, the Smelter, the General Manager, the Chief Engineer, the Board and the Directors. Under the heading ‘deference and distinction’, the Style manual discourages the use of this convention because “it gives the impression of an ‘us and them’ attitude that is inappropriate”.

Nevertheless, because all the records and Company publications researched adopted the practice, it has been used throughout this thesis. Capitalising was not adopted in describing equivalent situations in other operations.

Frequently in early Company records, newspaper articles, and even in published histories and reviews, the names of the town and the Company are incorrectly stated. The correct name of the town is Mount Morgan, not Mt Morgan and the registered name of the Company is Mount Morgan Limited. It is not Mt Morgan Limited, Mt Morgan Ltd or Mount Morgan Ltd. The correct terminology was rigorously enforced in Company publications following the production, under General Manager Glenister Sheil, of the 1952 Guide to operations of Mount Morgan Limited. In this thesis, such errors quoted in works cited have been allowed to stand without alteration.

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1 The Style manual, p.120.
2 MML, Guide to operations of Mount Morgan Limited, first edition with data to June 1951, issued in August 1952 for the First Ordinary Meeting of the Australasian Institute of Mining and Metallurgy (inc), CAPCOL D15/319.
Measurements and Currency

Weights and measures

During the period of Company operation 1929-1971, Imperial units were in common usage in Australia. Although Peko adopted the metric system in its Annual Reports from 1979, for continuity, all units quoted in the thesis are Imperial.

The following factors may be applied to convert Imperial units to Metric units:

- 1 ton = 1.016 tonnes
- 1 ounce troy = 31.1 grammes
- 1 ounce troy = 20 dwt
- 1 dwt = 1.56 grammes
- 1 inch = 2.54 cm
- 1 foot = 0.305 m
- 1 mile = 1.61 km
- 1 acre = 0.405 ha
- 1 sq mile = 259 ha

Mine Level References

All levels and survey co-ordinates used by both companies which operated the Mine were related to the collar of the Crown Shaft which had been sunk from a point near the original top of Ironstone Mountain. This was designated 0.00 elevation and 0.00 horizontal references. All mine levels were measured downward from this reference point [e.g. No 4 dam RL 557 was below the proposed level of water in the Cut RL470, see Chapter Six, p.230] and all horizontal distances were measured north, south, east or west from this datum. During the 1970s, this system was changed, with levels referred to sea level and in Metric units. However, as with other Imperial-to-metric changes, Imperial units have been used throughout out the thesis.

Money

Until 14 February 1966, when a system of decimal currency was introduced, Australian currency [Imperial] was in pounds (£.), shillings (s.) and pence (d.). This thesis extends over 16 years past this conversion date but, for continuity, currency used until 1968 and the acquisition of Mount Morgan by Peko will be expressed in Imperial units; thereafter decimal currency will be used. Australian Imperial currency is designated ‘£’; Australian decimal currency is designated ‘$’. As Geoffrey Blainey has pointed out in *The Rush that never ended*, (p. xiii) the study ‘would have appeared more consistent if the £ had been converted automatically to the $ in all the chapters, but such a conversion could be misleading’.

Conversions are as follows:

- One pound (£1) = 20 shillings (20s.)
- One pound (£1) = 240 pence (240d.)
- One shilling (1s.) = 12 pence (12d.)
- One pound Australian (£1) = two dollars Australian ($2)
Photograph One

The ‘Big Stack’
The Symbol of Mount Morgan since 1905

[Cover of MMLAR 1961]
Introduction

Background

The Mount Morgan Mine has had an interesting and complex history! The following brief summary of that history will provide background material for those not familiar with the location and history of the Mine.  

The Central Queensland city of Rockhampton sits astride the Fitzroy River, at latitude 23.4 south and longitude 150.5 east. It is 322 miles (522 km), by air, north of the Queensland capital, Brisbane. In 1853, the Archer Brothers travelled overland north from Eidsvold Station, on the Upper Burnett River in search of good grazing land. After passing along the flats of the Dee River, on which the township of Mount Morgan now stands, they discovered the Fitzroy River, settling on good land just to the west. Three years later, a tiny settlement, the most northerly in the Colony of New South Wales, was established as a small port on the Fitzroy River. It consisted only of a cluster of a dozen or so crude buildings and housed a contingent of black trackers.

Gold was first discovered in Central Queensland when, in 1858, the ill-fated Canoona rush brought as many as fifteen thousand to the tiny riverside settlement of Rockhampton. They soon found there was little gold and, suffering incredible hardships, the majority returned south, some not even getting off the boats. However, some stayed to provide much needed labour to the growing pastoral interests of the hinterland while, among

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5 Dr Lorna McDonald, OAM, Rockhampton a history of city and district, UQP, St Lucia, 1981, [McDonald], pp.17-19.
6 The Colony of Queensland was created by Letters Patent on 6 June 1859 so, in 1856, the little settlement was still a part of the Colony of New South Wales. Viewed 23 April 2014, <http://foundingdocs.gov.au/item-did-60.htm>
7 Canoona is about 25 miles north-west of Rockhampton.
those who stayed, there were wealthy merchants who established business undertakings to support these pastoral developments. A number of these merchants, with previous experience in mining ventures, became involved in gold mining prospects around the district.

During the next twenty years, the names of a small number of these businessmen kept appearing in the lists of backers and owners of the many small gold operations which ringed the town. In 1892, a local journalist, F W Sykes, recorded that gold had been found in every direction around Rockhampton’. 8

Located about 25 miles south-south-west of Rockhampton, just south of the Tropic of Capricornia and overlooking the Dee River, was Ironstone Mountain. 9 The mountain was partly on the northern end of Calliungal station and partly on the 640 acre selection, Glen Gordon, owned by the Gordon family. From the late 1870s, fossickers had been winning large quantities of alluvial gold from the creeks that surrounded the mountain on three sides, but no one recognised that the source was this apparently worthless mountain. Only William McKinley, Calliungal out-station overseer, had realised its potential and had won gold to supplement his meager wage. He had sworn his family to secrecy about his discovery.

Local Mount Morgan historian, B G Patterson, has recounted the circumstances under which McKinley’s son-in-law betrayed his secret to the Morgan brothers and their subsequent claims that they were the discoverers of gold on the mountain. 10 The Morgans quickly realised the

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8 FW Sykes, The Mount Morgan gold mine, Queensland, an authentic treatise on the mine, works and treatment, up to date, 1st October 1892, together with a concise history of the mine and district and schedules, tables and summaries, John Sands Printer, Sydney, 1893, [hereinafter Sykes], p.14.
9 Approximate latitude 23.6 south, longitude150.37 east. See Map 1.1.
10 BG Patterson, ‘The story of the discovery of Mount Morgan’, lecture delivered on 27 May 1947 to the [Royal] Historical Society of Queensland, pp.19-20. ‘While the
richness of the ironstone rock and set up a syndicate with three Rockhampton businessmen who had already invested in the Morgans’ other mining ventures. Their total investment was £2,000 for a half share in the venture.

From the beginning, the operation recovered extraordinary quantities of gold from relatively small amounts of difficult-to-treat ore. Initially, almost fifty-percent of the gold was lost to tailings dumped in the river. This is the first recorded instance of environmental pollution in the history of the mine.

Rees Jones tells of the complicated splitting of the Syndicate shares into relatively small parcels, returning members their original investment while leaving the majority interest still in their hands. The Syndicate survived legal action by claim jumpers, claims finally dismissed by the Privy Council, while metallurgical developments overcame the loss of gold in the treatment plants. In 1886, the Mount Morgan Gold Mining Company Limited was registered with the vendors, the former syndicate members, holding seventy-six percent of the one million £1 shares. Soon, however, share speculation raised the price to a short-lived £17/10/- and the

Morgans deserved their good fortune [in exploiting the discovery], the real discoverer was William McKinley’.

They were solicitor William Knox D’Arcy, grazier William Pattison and banker Thomas Skaratt Hall. These three subscribed £2,000 to acquire a half share in the property. They were later joined by Hall’s brother, Walter Russell Hall. By late 1883, the Morgans had sold their interest to the others, convinced the claim would peter out’

By 1912, the remaining Syndicate members had sold out to the Nagrom Syndicate. See Blainey, (Ed) *If I remember rightly – W S Robinson memoirs*, Cheshire, Melbourne, 1967. They escaped the down-turn in profits that followed.

Comprehensively documented but see the most recent in Ken Mc Queen ‘Early developments in treating pyrites and refractory gold ores in Australia’, JAMH, October 2012, pp.88-102.

The Old Company operated from 1886 to 1927, succeeding the Syndicate of Rockhampton businessmen which owned the mine from 1882 to 1886.
inevitable crash ruined many who had believed shares would rise to twenty pounds.16

By November 1892, the shareholders had received a return of 345 percent on their investment, with dividends of £100,000 a month being common.17 As the grade of oxidised ore declined so too did dividends but, by 1906, the shareholders were still receiving an annual dividend of fifteen percent.18

At the turn of the 20th century, the gold-rich oxidised ore had begun to give way to a massive pyritic copper ore body and the large dividends of the previous years had diminished. As increased tonnages of this new orebody were required, mechanised open cut mining of the upper levels supplemented the existing underground stopes. While the demand for copper during World War I maintained a reasonable return, following the post-war slump in copper sales the Old Company entered a period of recurring loss.

By 1912, operations in the large, mechanised, Open Cut had given way to increased mining of the extensive underground workings. In 1915 Adam Alexander Boyd, a well known mining engineer, was appointed General Manager. He was to have a profound influence on Mount Morgan for the next thirty-three years. Apart from managing an operation with falling financial returns, he dealt with increasing industrial activity, almost annually, until 1921 when the mine closed for nearly a year. Finally, in September 1925, a thousand angry men marched on the mine, ejecting the officials and shutting off all electric power. With no underground ventilation, and probably because of spontaneous combustion of the pyritic

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16 Among those affected was original syndicate member, William Pattison whose ‘attempts to bolster the market and save his friends permanently embarrassed his finances’. June Stoodley, ADB on-line entry, Viewed 25 October 2006, <www.adb.online.anu.edu.au/biogs/A650466b.htm>.

17 Monthly dividends peaked at £125,000 in July 1889. Sykes, Schedule C.

18 Dividends were now paid quarterly instead of monthly, MMGMCo Auditor’s Report, 30 June 1906 – dividend for the year was £150,000.
ore, an uncontrollable fire broke out destroying the heavily timbered underground workings. The mine was flooded in an attempt to quench the fire but the disaster effectively ended all large scale mining. 19

Early in 1925, with the Old Company facing serious losses from its existing operations, Adam Boyd had proposed returning to open cut mining and adopting new treatment processes. However, despite test work, carried out between 1925 and 1927, demonstrating his plan was feasible the Directors accepted the contra-opinion of an American mining engineer who recommended against it. In July 1927, the Old Company placed itself in voluntary liquidation, returning over one hundred and nineteen percent of their capital to the shareholders, largely from the sale of its diversified investments. It had paid over £11 million in dividends, returning over 500,000 percent on the original investment 20

In its forty-five years of operation, the Old Company produced 5,345,000 ounces of gold and 140,000 tons of copper from its single orebody. It had diversified into refining its copper at Pt Kembla, the manufacture of copper products, fertiliser manufacture and the mining of coal and limestone. Locally, the Mount Morgan fortune had helped change Rockhampton into a prosperous regional city. Nationally, its shareholders had invested in commerce, pastoral and industrial ventures while, internationally, it was D’Arcy’s dividends that funded the discovery of oil in the Persian Gulf.

In liquidation, the Old Company left un-mined proven ore reserves of almost eight million tons, reserves that provided an incentive for the establishment of a future mining company. 21

20 Of £2,000 by the three Syndicate members
Adam Boyd was Agent for the Liquidators and, for the next two years with a skeleton crew of workers, he sold off much of the local infrastructure while cleaning up accumulated copper laden materials for sale.  

Water that had flooded the underground mine to control the fire had leached copper from the ore. Boyd now pumped this copper-laden water over scrap iron, precipitating copper, selling it on behalf of the Liquidators. The practice provided valuable experience and infrastructure for Boyd’s next venture.

In 1929, Adam Boyd joined a group of Sydney investors to form a new company, Mount Morgan Limited. In the middle of the Great Depression, the Company could raise only £95,394 of its £200,000 nominal capital. However, it secured what remained of the Old Company assets in Rockhampton and Central Queensland for £70,000, but leaving little working capital.

Recovery of copper by precipitation from the mine waters provided the only income but, with copper prices falling by almost sixty-percent, by early 1932 the Company was in danger of closing. In July, a £15,000 government loan enabled tests work to confirm the feasibility of Boyd’s plans, allowing full scale operations to commence in October. In February 1933, the Company repaid the loan, with interest. In December it paid its first interim dividend of £17,208/16/- and the Company began the thirty

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22 J Kerr, Mount Morgan: gold copper and oil, JD & RS Kerr, St Lucia, 1982. [Hereinafter Kerr], p. 183.

23 These were the copper precipitates and clean-up of dusts, ore and other copper-bearing materials.


26 ibid, Chapter Two, discusses the struggle to resume mining
four year period of operation discussed in succeeding chapters of this thesis.27

The changing scale of operations and levels of output 28

Beginning in 1933 with less than one hundred employees and mining only 47,000 tons of ore, the Company produced 14,500 ounces of gold and 235 tons of copper. By 1939, total ore treated had risen to almost 940,000 tons, producing a peak output of almost 74,000 ounces of gold and 2,800 tons of copper29. There were nearly one thousand employees.

Until the merger with Peko-Wallsend Investments Ltd in 1967-68, the output of gold and copper remained relatively constant but the ratio of overburden removed to ore treated had increased dramatically.30 By the end of 1967, the Mine had treated over twenty-three million tons of ore to produce 1,488,712 ounces of gold, and 108,830 tons of copper.

Employment had peaked at one thousand three hundred and fifty but averaged about one thousand. Up to ten percent of these were apprentices and cadets.

Under Peko, the out-turn of copper reached its highest ever tonnage 31 and even in 1979, as the reserves approached exhaustion, the smelter produced almost five thousand tons of copper and almost 26,000 ounces of gold.32

27 Dividend reported in MMLAR, year ended 26 June 1934, p.18. As will be detailed later, the Company operated as an independent operation until taken over by Peko.
28 The source of the date reported here may be found in the MMLARs and PWLARs. They are summarised in Appendixes 5.4, 5.6 and 5.7.
29 This was the combined throughput of sulphide ore at the Concentrator [later named No1 Mill] and oxidised ore through the Oxide Mill. This gold production was not exceeded until 1964-65 when 1.3 million tons of ore yielded 80,030 ounces of gold. Two years later approximately the same throughput yielded 103,355 ounces and there were 1018 employees. See Appendixes 5.4, 5.6 and 5.7.
30 This ‘advance’ overburden removal was carried out in order to uncover more ore. By 1965, the total material mined for the year exceeded four million tons.
31 Of 9,587 tons in 1973-74.
Mount Morgan and the wider mining community.

The hypothesis is ‘that during its operating life the Mount Morgan mine fitted the pattern of governance established by national and international mining companies’ and certainly, Mount Morgan has had a significant, albeit a diminishing, place in the overall history of mining in Australia. It was the first of the second generation of Australian metalliferous mines to open but Mount Morgan mine closed in 1990 while, in 2014, its siblings continue to operate.

Of the two operating companies, the Old Company had the most influence through its enormous dividends, its technical innovations and for its investments nationally and overseas. In 1891, dividends exceeded those of mines around Ballarat and Bendigo. The Gympie mines provided the financial crutches for the crippled Queensland economy and Charters Towers was considered the most productive gold field in Australia. But, in 1891, the single orebody at Mount Morgan outperformed the seven mines around Gympie and the one hundred on the Charters Towers field.

Technically, the Old Company led the way in the practice of chlorination of refractory gold ore, it embraced open cut mining using early rail-mounted excavators and it was among the first to introduce electric lighting on its mining plant. Mount Morgan dividends enabled its shareholders to invest in industrial, commercial and pastoral enterprises while Walter Hall’s share of these dividends indirectly led to the formation of the Walter

32 Including some output derived from Mt Chalmers ore.


34 Mount Morgan dividend £300,000, the dividend from Ballarat was £230,466 and from Bendigo £148,937, Sykes, p.84.

35 G Blainey, The rush, p.83.

36 ibid, p.99.

37 ibid. Charters Towers dividends were £272,347. Gympie, £53,876
and Eliza Trust.\textsuperscript{38} And, as mentioned above, it was William Knox D’Arcy, an original investor, who provided the funds to explore for oil in the Persian Gulf. The discovery of this oil gave Britain a strategic advantage during World War I.\textsuperscript{39}

On the other hand, as a gold producer, the Company was relatively important as an employer during the latter days of the Great Depression. The Commonwealth government recognised its importance when, in 1932, it decided to support the gold mining industry – a decision that resulted in the granting of the £15,000 research loan.\textsuperscript{40} During World War II, the Federal government allowed Mount Morgan to continue as an important gold producer, principally because its copper output was needed for the war effort.\textsuperscript{41} As Boyle has detailed, during the early years of the war, Mount Morgan produced almost 4,000 tons copper out of the national output of 21,000 tons.\textsuperscript{42} However, it was soon overtaken by Mount Isa, which produced 12,000 tons in its first year as a copper producer.\textsuperscript{43} By 1975, the proportion of copper from the Mine had dropped to less than four percent of the Australian production for that year.\textsuperscript{44} Although it maintained a steady output of gold and copper to the end of its life, its total copper output was miniscule when compared with that of Mount Isa and Mt Lyell.\textsuperscript{45} However, despite a decline in its standing relative to the

\textsuperscript{38} K Fraser, \textit{A remarkable gift, 100 years of the Walter & Eliza Hall Trust}, Custom Publishing, UQP, St Lucia, 2012.
\textsuperscript{39} Kerr, pp112-113.
\textsuperscript{40} Boyle MA, pp.93-94.
\textsuperscript{41} Ibid, pp.189-190 discusses the effect of reduction of operations in the Eastern Goldfields of WA during the war. See also Hasluck, \textit{The Government and the People, 1942-1945}, pp. 314-316.
\textsuperscript{42} Butlin and Schedvin, \textit{War Economy 1942-1945}, Table of Selected Minerals Production, p. 455.
\textsuperscript{43} ibid, pp. 198-199.
\textsuperscript{44} Charlie Wyche, ‘The Mineral Industry of Australia, Minerals Handbook’, 1977, Table 4, p. 96 shows Mount Morgan blister out-turn in 1975 was 8,341 tons compared with Mount Isa 150,118 tons and Mount Lyell 28,242 tons. Table 1, p.84 shows total Australian production was 218,961 tons.
\textsuperscript{45} G M Mudd, ‘The sustainability of mining in Australia: key production trends and their environmental implications for the future’ research report No RR5, Department of Civil Engineering, Monash University and Mineral Policy Institute, 2007, p.71. Table 7, Tabulates (in descending order) significant Australian copper projects (<25kt cu),
growth of the rest of the industry, it was the single orebody that provided the wealth. Its overall strength lay in the reputation of its technical staff, the sixty-eight year consistency of its output, its significant tax-free dividends and the constancy of its level of employment.

The tax-free status of the Company.

Throughout the thesis, mention will be made of the tax-free status of the Mine and of local suggestions that this was a reason the Company failed to diversify away from gold production.

By Commonwealth legislation introduced in 1924, the Old Company had been exempt from the payment of income tax, provided forty percent of its total income was derived from the production of gold. 46 This concession came too late to benefit the Old Company which ended major production following the industrial troubles and the underground fire in September 1925. But the Company continued to enjoy this exemption throughout its operating life. 47 It was careful, towards the end of each financial year, to selectively mine higher grade gold ore so as to guarantee it achieved the forty percent gold target. As will be discussed in Chapter Five, it accumulated significant tax-free reserves which Peko transferred to the holding company soon after the take-over. 48


46 ‘Inquiry into the Taxation of Gold Mining’, August 1986, Chapter 8, section 8.1.2, pp. 84-85: The Inquiry was told a 1924 Senate amendment to the income tax laws to include those gold producers whose output included substantial amounts of copper, was designed around “Mount Morgan Ltd” [sic]. This is an error, the company operating Mount Morgan in 1924 was still the Mount Morgan Gold Mining Company Limited. Cited in Boyle MA, pp.208-209. However, a war-time gold tax was levied on gold producers between September 1939 and September 1947. Boyle MA, p. 209.

47 Chapter Six will discuss proposed government changes to the Act and the effect these changes had on the continuation of mine rehabilitation programmes.

48 See Chapter Five.
Literature Review

This literature review will address those publications which have relevance to Mount Morgan and outline those relevant to the overall history of mining in Australia and overseas. Works which have particular reference to the several themes of the thesis will be reviewed in detail in the appropriate Chapters.

Because of the controversy surrounding its discovery, the glamour of its fabulous dividends and the importance of the national and international influence enjoyed by the Old Company, researchers have published extensive accounts about most aspects of that operation. Mainstream historians have devoted little space to Mount Morgan but regional authors have written much, 49 although the authors of most of this material published it before or at the turn of the 20th century when the Mine was still a ‘quarry of gold’. 50 By contrast, although the overall history of the less glamorous Mount Morgan Limited has been well documented, 51 no serious analysis has been made of its triumphs or disappointments.

The pre-eminent author of Australian mining history is Professor Geoffrey Blainey, AC, and while mining studies are only part of the extensive, but sometimes controversial, material published by him, 52 the extent of his mining works overshadows that of other Australian mining authors thus

49 Boyle MA, Introduction, pp.25-26, discusses these publications.
50 McDonald, p.305, was quoting A. B. Wilbraham’s description of 1887.
51 This is principally in Company publications. Mount Morgan Limited operated from 1929 to 1968 as a public company; from 1968 until 1982 as part of the Peko-Wallsend group of companies; from 1982 to 1988 part-owned by Peko and from 1988 until 1993 under the ownership of a succession of mining and investment companies. The Queensland government assumed control of the property in 1993.
qualifying him as an important source of material for this thesis. In a writing career spanning almost sixty years, Blainey’s writing has covered a wide range of mining topics, from his overall study of Australian mining in *The rush that never ended* 53 through the history of individual mine sites 54 to mining economics 55 and mining people. Writing *The rush*…in a style that one reviewer called ‘stimulating and lucid’, 56 Blainey has made a complete survey of the history of the Australian mining industry and has, since then, narrowed his research to write detailed histories of the major mining fields that are comparable in timeline and mineralogy to Mount Morgan. This thesis will likewise narrow the study of the Company to specific social and economic themes.

In his *The peaks of Lyell*, 57 *The rise of Broken Hill*, 58 *Mines in the spinifex* 59 and *The golden mile* 60 Blainey has traced the discovery, development and operation of four mining fields, three of which have now survived for more than a century. He has written (or edited) biographical works such as *The steel master - the life of Essington Lewis* 61 and *If I remember rightly – W S Robinson memoirs* 62 - both men were major players in the industry - and he has contributed to Australian Dictionary of

53 Blainey, *The rush.*
54 Except for a study of Mount Morgan; Ruth Kerr suggests "I understand he was asked but declined ‘due to pressure of work’”, R Kerr, examiner’s comments on Boyle MA, 1995. In *The rush*, fourth edition, Chapter Twenty, Blainey discusses Mount Morgan’s history until 1917 and there is fragmented mention of Mount Morgan in p.304 et seq.
Biography entries about mining people. His newspaper articles, reviews, conference papers, keynote addresses, journal articles, television documentaries and broadcasts provide important input to the thesis.

The papers contained in the Journal of Australasian Mining History [JAMH], published annually by the Australasian Mining History Association [AMHA] since September 2003, ‘embracing all aspects of mining history, mining archeology and heritage’ are written by academic historians, local historians and people who have been employed in the mining industry. These papers cover a wide range of topics, some of which are relevant to this thesis. They range from a study of welfare at Mount Lyell through a semi-technical paper on the metallurgy of the recovery of gold, the industry-wide connections of the Collins House Group, to examinations of the boom and bust operations of the Cobar mines and Mount Boppy. These last two have some parallels with the operating history of Mount Morgan because of their repeated collapses and

65 The Australasian Mining History Association [AMHA], JAMH, UWA, ISSN – 1448-4471. The name has been changed from the original ‘Australian’ to ‘Australasian’ to reflect the involvement of New Zealand membership.
66 Displayed as a ‘banner’ on the cover of each Journal.
67 Each Journal contains brief biographies of the authors.
68 C Fox, ‘Work and welfare at Mt Lyell, 1913-1923’, JAMH, Vol. 1 No 1, September 2003, pp. 51-78, will provide and interesting comparison with the Mount Morgan scheme.
69 RW Birrell, ‘The extraction of gold by amalgamation and chlorination’, JAMH, Vol. 2, September 2004, pp.17-34. This paper is of particular relevance to the operation of the Old Company.
70 GM Ralph, MBE, ‘The Broken Hill – Collins House connection: mining personalities’, JAMH, Vol. 2, September 2004, pp.198-221. With commonality of directors, the Electrolytic Smelting and Refining Company,[ER&S], Pt Kembla, the Company copper refiner from 1939-1965, was part of the group collectively described as the Collins House Group’, ibid, p199.
resurrection. Of particular use is the extensive bibliography of mining literature available from the Association.\footnote{This is available on CD from the Secretary AMHA at UWA, viewed 4 April 2005, \texttt{<http://www.econs.ecel.uwa.edu.au/AMHA/Biblio/bibnsw.htm>}.}

Over the past one hundred and twenty years every mining field in Australasia has employed staff who have been members of The Australasian Institute of Mining and Metallurgy [The AusIMM],\footnote{The Institute (originally the Australasian Institute of Mining Engineers) was founded in 1893. [Sir] Arvi Parbo, \textit{Down under – mineral heritage in Australasia, an illustrated history of mining and metallurgy in Australia, New Zealand, Fiji and Papua New Guinea} [hereinafter Parbo \textit{Down under}], The AusIMM, Parkville, Monograph 18, 1992, pp. 260-262.} rightly described as ‘the organisation of technological professionals in the [mining] industry’.\footnote{ibid, p.260.} John Drew has listed the various publications to which these members have contributed;\footnote{JM Drew, \textit{Mining people a century – highlights of the first hundred years of The AusIMM 1893-1993} [hereinafter Drew, \textit{Mining people}], The AusIMM, Parkville, 1993, Appendix 4.} they range from conference proceedings,\footnote{Especially the ‘Proceedings of the Centenary Conference’, The AusIMM, Parkville, 1993, which, for example, contained a paper on Captain’s Flat, which mine is mentioned in Chapter Six.} monographs \footnote{M. Radmanovich & JT. Woodcock (Eds), Monograph No. 3 – ‘Broken Hill mines – 1968, 1968 Annual Conference of the AusIMM, Broken Hill.”. JD Campbell, Monograph No 16, ‘Hidden gold: the central Norseman story: an account of structural geological studies and ore-search at Norseman, Western Australia, 1990.} to technical papers. This information, along with biographical entries, obituaries and heritage papers published in the Institute \textit{Bulletin},\footnote{The AusIMM \textit{Bulletin} – Journal of the Australasian Institute of Mining and Metallurgy, ISSN 1034-6775.} provides a broad record of the operation of the Australian industry. Many contain facts that are relative to the themes of the thesis.

The most comprehensive coverage of the history of Australasian mining which has been published by the Institute is in Sir Arvi Parbo’s \textit{Down under – mineral heritage of Australasia}.\footnote{Parbo, \textit{Down under}.} This is a compilation of addresses given by him to members of the various Institute branches during
his Presidential year. Parbo’s overall view of the various mines differs from Blainey’s histories that are more detailed. 81 He has included the contributions of senior people who worked on mining sites across Australia, New Zealand, Fiji and New Guinea. 82 Sir Arvi has acknowledged this researcher as providing material used in the chapter ‘The mining heritage of Central Queensland’ 83 which provides an overall history of Mount Morgan and mentions people connected with the operation. Parbo’s compilation includes technical material, mining education, 84 government interaction with mining 85 and the important role of the Institute in the operation of the mines 86 In particular, in his chapter ‘People make it happen’, 87 Parbo discusses the work of the technological professionals across the industry. He refers to several sites important to this thesis as well as introducing, for the first time, the contribution of women to mining. Throughout the book, he details the diversification that each mine achieved (or attempted to achieve). These facts are especially relevant to the study of the Mount Morgan efforts to exploit its subsidiary resources of coal and pyrites which will be further discussed in Chapter One of this thesis. The monograph, combined with extracts from Parbo’s addresses to mining industry, commercial and community gatherings, 88 provides useful material for several of the thesis themes. Complementing Parbo’s work is John Drew’s Mining people a century – highlights of the first hundred years of The AusIMM 1893-1993. 89 Although it lacks information on the early education and training of individuals, it provides details of the careers of those who were part of the mining fraternity.

81 Except in Blainey, The rise of Broken Hill. In the preface, Blainey acknowledges ‘the book is more a collection of essays than an orthodox history’; quoted by Drew, Mining people, p.324.
82 Parbo acknowledges the contributions of each person in notes at the end of each chapter. Parbo, Down under.
83 ibid, pp.71-78.
84 ibid, ‘Education for the mineral industry’, pp. 190-200.
87 ibid, pp. 264-266.
89 Drew, Mining people.
Expanding that study of members of this group, this thesis will document and study the policies and managerial influence of Adam Boyd, Malcolm Newman, Keith Cameron, Glenister Sheil, other professional staff and the so-called outsiders during the life of the Company.

Like Sir Arvi, who succeeded him as Chairman of Western Mining, Sir Lindesay Clark was a mining engineer who has written a mining history!\(^{90}\) In his *Built on gold – recollections of Western Mining* \(^{91}\) Clark begins with the establishment of a small company, Gold Mines of Australia Limited [GMA], a year after Mount Morgan Limited took over the Mount Morgan mine from the Old Company. He traces the development of GMA into the Western Mining Corporation Limited [WMC], which became one of the major mining houses of Australia. \(^{92}\) Containing a great deal of technical material, the book nevertheless provides details of the operation of over thirty mining sites with which that company was involved, and this material enabled comparisons to be made between the development of WMC and the apparent stagnation of Mount Morgan Limited. \(^{93}\) As with Parbo’s and Drew’s works, Clark provides word pictures of the careers of mining people some of whom had an influence on the destiny of Mount Morgan. \(^{94}\)

While Mount Morgan was influenced by the technical, commercial, industrial and environmental history of Australian mining, the impact of international mining cannot be ignored. With a narrative beginning nearly

\(^{90}\) Both Parbo and Clark were assisted in preparing these publications by Gilbert Ralph, MBE, manager of WMC Publications. Both acknowledge his contribution in introductions to their respective books.


\(^{92}\) And part of the Collins House group, Ralph, ‘The Broken Hill – Collins House connection’.

\(^{93}\) Especially in the areas of exploration for and development of new ore bodies and in the area of diversification away from gold mining. See also G. Ralph’s ‘The origins of Western Mining and some of the men who shaped it’ in The AusIMM, *Proceedings of the Centenary Conference*, pp. 367-376.

\(^{94}\) As for example Keith Cameron, Clark, *Built on gold*, pp 53, 96,115 and 116; Lew Westcott, ibid, pp.6, 15, 34 and 53.
six thousand years ago, mining has spread over every populated continent, has affected every economy and even the lives of the most primitive humans. Consequently, there are similarities in the stories of the discovery, development, decline, recovery and environmental impact of mines across the world. As a result, we can argue that no mine can stand alone in the areas discussed in this thesis.

For all but the last eight years of its operating life, Mount Morgan escaped direct involvement with large overseas mining companies yet indirectly, through the mobility of mining people, it was exposed to the policies and procedures of these behemoths. Except for the acceptance of international technical innovations, the spread of multinational companies across the world, as described by Arrington & Harris, Cain & Hopkins, Carter, Harris, Harvey and Press, Jambour et al.

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96 As for example a comparison of the discovery of the Californian gold at Sutter’s Mill by relatively unskilled people with the discoveries at Mt Lyell, Broken Hill, Coolgardie and Mount Morgan. The latter discoveries are discussed in Chapter Six.
100 Described by Georgius Agricola of 16th century mining in Germany, p.1; worldwide problems will be compared with those of Mount Morgan in Chapter Six.
101 When Peko sold a 40% interest in the tailing retreatment plant to the Anglo-American group of South Africa.
102 For example, MML Managing Director [and later Chairman], Keith Cameron had worked for GMA which was largely owned by New Consolidated Goldfields of South Africa, by Zinc Corporation and by Imperial Smelting Corporation Limited. Clark, *Built on gold*, p.3 and p. 96. Alan McAskill [GM 1935-37] had been Chief Engineer for Mt Isa mines owned by the American company ASARCO.
Machado & De M Figueirôa, Moody, Tilton & Landsberg, Verespej, and Williamson appear to have had little effect on the Company, by virtue of its relative financial independence. Still, the involvement of such players as the Rio Tinto group, Consolidated Goldfields of London, the Anglo-American Corp of South Africa Ltd and ASARCO with other Australian mining houses seems to have influenced both the level of national copper production and the relationship of the mining industry with government instrumentalities.

Themes and Sources

In keeping with the mining historiography discussed earlier, this study confines itself to a single operation, the new company over the period 1932-1990, but will be informed by the national and international

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114 With WMC in 1960 to form Tarraji Copper Pty Ltd, Clark, Built on gold, p. 170
115 By acquiring Mt Lyell, Blainey, The peaks of Lyell, pp.318-319.
117 At Mt Isa, Blainey, throughout Mines in the spinifex.
118 In approaches to government Tariff Board hearings seeking copper price stability, as in CAPCOL, M14/1291.4.7.
119 Although the Company operated from 1929, during the first three years there was a struggle to survive so these years are not discussed in detail. Peko effectively lost control of the Company in 1982, but the study considers some elements to the final
literature, including direct comparisons on specific issues, as well as
addressing insights and limitations in the local sources. Rather than
adopting a strictly chronological and linear narrative, the thesis follows
Blainey and Parbo by identifying and developing a range of themes
fundamental to the history of the mining industry in order to pursue a
multidimensional and comparative approach.

This study augments the existing historiography of Mount Morgan by
paying attention to the rationale behind the decision making processes and
the impact of external influences. While introducing some of the technical
details of the operation, it presents a more detailed examination than ever
before of the way in which management approached operational problems.
There were the challenges of expanding the business, in the way in which
they treated the employees’ lives, of how they dealt with the changes that
followed a perceived loss of autonomy and finally how their environmental
policies affected the surrounding community. The thesis provides a sound
basis for future, even more detailed, examination of each theme.

There are areas of the history of the Mount Morgan mine that have drawn
praise or criticism, often without sufficient and accurate historical detail to
support their authenticity. This thesis will address shortcomings in the
research by presenting a set of themes relevant to these areas of praise or
criticism. The thesis begins with a study of the relevant themes from the
perspective of the Old Company and addresses, not just the perceptions of
the triumphs and disappointments of Mount Morgan Limited but also
examines the relationship of the mine with the broader mining community.

Specifcally, these themes will include an examination of the many
attempts to diversify the operation, the relationship of the mine with the

closure of operations in 1990. However, because of the influence of later owners
and the Queensland government, Chapter Six will extend the study past 1990 to the
beginning of 2013.
town; the social importance of its welfare scheme and its training of apprentices, cadets and staff. Additionally, consideration of an apparent loss of autonomy through the so-called merger with Peko-Wallsend Limited will answer questions about the ultimate demise of the operation. Finally, an analysis of the development of the environmental disaster that is the Dee River, the Company’s attempts to address the problems and questionable decisions by subsequent owners, will complete the study.

It is the triumphs and disappointments of Mount Morgan Limited - 1932 to 1990, that are of principal interest to this research. Nevertheless, because the Company had risen from the ruins of its more famous and prosperous predecessor, the Mount Morgan Gold Mining Company Limited, this analysis must also consider the influence of the Old Company. There are several aspects to consider when attempting to justify this claim. Firstly, there are physical and social factors involving the operation, each of which had an influence on its commercial and public image. Secondly, the Company inherited the technical records and physical remains of the Old Company, but of most importance was the corporate memory handed down through the continuity of staff. Each of these features played an important part, for better or worse, in the development and operation of the Company.

The most important factor that determines the need to consider the Old Company in this study is the continuity and overlapping of senior staff which continued from the days of the original Syndicate until 1985, when the link was finally broken with the retirement of a thirty-year veteran.120 There is a national parallel with the Mount Morgan experience of staff permanence in the record of the Mt Lyell company. Blainey records that, from 1893 until 1966, there had been only four secretaries and four general

120 Appendixes Intro 2 and Intro 3 tabulate this continuity.
managers each of whom (except, naturally, the first secretary and the first general manager) had long experience with the company. 121

The local histories of Mount Morgan all list the names of senior management and staff. 122 Beginning with Sykes, 123 these sources progress through the works of Patterson, 124 the Guides to the operations of Mount Morgan Limited, 125 Company publications issued for the information of shareholders, 126 papers in the Proceedings of The AusIMM, 127 the Annual reports of both companies 128 to the relatively recent histories by Kerr, 129 McDonald 130 and Boyle. 131 Even the sometimes inaccurate work of Cyril Grabs 132 contains material about people of the Old Company that will feed into sections of the thesis argument. From these publications, a timeline demonstrates the significance of this continuity of staff. 133

122 The lists are not always complete – generally, they contain only the names of senior people although Sykes listing is the most comprehensive.
123 FW Sykes, *The Mount Morgan gold mine, Queensland, an authentic treatise on the mine, works and treatment, up to date, 1st October 1892, together with a concise history of the mine and district and schedules, tables and summaries*, John Sands Printer, Sydney, 1893, [hereinafter Sykes].
125 The Company published these booklets firstly for the information of delegates to the AusIMM conferences of 1952, 1953, 1960 and 1974 and then continued as guidebooks for public visitors to the Works, as for example in CAPCOL, M14/1566.9.
126 As in *Mount Morgan Limited, Queensland, March 1939*. This booklet has short biographies of senior staff and a photograph of all the executives, CAPCOL M14/1566.21.
127 And its predecessor the Australasian Institute of Mining Engineers [AIME]. Papers in the Transactions of the AIME Vol. XV, Parts I and II, 1910 and the Proceedings of the AusIMM 1939, 1952, 1953, 1960 and 1974 First Ordinary Meetings and Empire/Commonwealth Conferences all contain names of senior staff who were employed at the mine during the relative periods.
128 All contained details of director and management and from time to time mention of the activities of senior staff – especially in connection with staff training and overseas visit
130 L McDonald, *Rockhampton a history of city and district.*
131 Boyle MA.
133 While the thesis is about Mount Morgan Limited, it is impossible to ignore the total history of the mine so Appendix Intro 1 provides the reader with an overall, outline
The Queensland Government Mining Journal, through the publication of Mining Warden’s and Mining Inspector’s reports provides valuable backup to the Company General Manager’s reports to the Board and useful biographies of staff.

There are contra-indications that this continuity, and that of long-serving directors of the Company, may not always have acted to the advantage of the Company. Commenting on this opinion, former Peko-Wallsend chairman Sir John Proud said ‘my overall impression the Mt Morgan was not well served by some of its Board members over the period under review’. It seems that forty years earlier L B Robinson had passed a similar judgment when he suggested members of the MML Board had a measure of self-interest in preserving their tax free dividends. By exploring the local sources and integrating this information into the several themes, the thesis aims to prove or disprove the importance of these long-serving people.

The survey and assay records of the Old Company guaranteed that the Company could evaluate, develop and exploit the potential of the ore body extant when it assumed control. Further, the engineering records and

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134 None of the directors of the Company had been directors of the Old Company. However, several directors served the Company for periods of twenty to thirty years. See MMLARs and Appendix Intro 3. Boyle, MA, studies the boardroom problems where several directors appear to have been reluctant to embrace a new approach to the development of the mine.

135 Personal letter from Sir John Proud to RFB, 4 October 1994 commenting on his review of the Boyle MA thesis, the original letter is in RFBCOL.

136 Memo from LB Robinson to J R Govett, [chairman CZC Consolidated Zinc Corporation], 29 May 1952, 'Notes on a talk with Eric Morgan, pyrite supply. Possibility of CZC investment in Mt [sic] Morgan, 'earlier talks with WSR, [W S Robinson] directors shareholdings'. University of Melbourne Archives, W S 'Robinson Collection', LB Robinson (associated and interesting mines, 1946-1956). 'The Board collectively holds too many shares, and as taxation rises, become more jealous than ever to preserve their tax-free income'. At 30 June 1938, Boyd had held 36,224 shares; with those of his son Eric and his daughters Enid and Gwynned he controlled 119,440 shares or 5.7% of the ordinary capital, MML, returns of members, NSWSA, File 5/3392A. By contrast, in 1967, Broinowski held only 1,500 shares.
equipment it inherited ensured a cheap entry and continuance of operation, but the question must be raised whether these apparent advantages were in fact disadvantages, locking the Company into out-of-date decisions and policies.

While the management of many mines destroyed their archival records when operations ceased, researchers into Mount Morgan history can be grateful that the mine management donated most of its material to the Capricornia Collection within the Rockhampton Campus of Central Queensland University. The Collection contains all the mining and survey plans, assays, almost all the engineering drawings from the turn of the 20th century, letters, documents and reports as far back as 1882. Most importantly there are over 500 full and half plate glass negatives covering the period 1882 until about 1925 along with photographs, slides and movies from 1932 until 1990.

The sometimes-difficult CAPCOL archives, with files extending over some 100 metres of storage space, provide the bulk of the primary research material used in this current study. However, this researcher’s own private collection of letters, memos, files, reports, and workbooks accumulated during a thirty-five year career with the Company supplement this source. This same long association with the mine, most of it at middle and senior management level, resulted in personal contacts with past employees, extending from former apprentices and other employees

137 “Most of the records of Captains Flat were ‘tossed down the shaft’ when the mine closed in 1962”, Ted Reynolds, private communication with RFB at the AusIMM Centenary Conference, 4 April 1993.
138 Capricornia Collection is hereinafter shown as CAPCOL. The web site for the index of CAPCOL holdings is included in the bibliography. The Company did not pass on commercially sensitive material (such as the files of negotiations for the supply of electric power) to CAPCOL.
140 CAPCOL does not hold copies of these items. After submission of this thesis, RFB will donate this material to CAPCOL.
through senior management to former Board members. Additionally, long-term membership of professional engineering bodies and their committees\(^{142}\) has ensured access to the corporate memories of folk in the industry but who had no direct contact with Mount Morgan.

Physical constraints have prevented travel that would have allowed access to copies of primary material known to be held in other institutions.\(^{143}\) However, the rapid technological advances in electronic communication with many of these sources helped to minimise this problem. These same tools and the assistance of the CQU library staff have provided access to the secondary material in publications and journals not otherwise physically available. The researcher’s own engineering and heritage consultancies\(^{144}\) as well as government reports and publications\(^{145}\) present other opinions that often contradict previously published knowledge.

The CAPCOL archives are extensive but the resource is a difficult one to interpret. As a matter of expediency, the library staff indexed the material in the order in which they received it from the Mine but there has yet been no further attempt made to re-order or re-index the resource to facilitate access.\(^{146}\) There is apparent duplication of information in different boxes and this duplication leads to difficulty in interpreting the data. While the contents appear to be the same in each box, this is not always the case and it has been necessary to cross check each of the suspect boxes before

\(^{142}\) Of the AusIMM since 1953 and Engineers Australia [IEAust] 1950-1960, 1970 onward, as a corresponding member of the IEAust National and Queensland Heritage Committees and as a member of the AusIMM Heritage Committee.

\(^{143}\) As for example in the Queensland State Archives, Australian Archives and the University of Melbourne Archives.

\(^{144}\) For example, RF Boyle, ‘The Cultural and Heritage Significance of Selected Buildings and Structures at the Mount Morgan Mine - Volumes 1 & 2’, MML Decommissioning Reports No’s 61 & 62 for Queensland Department of Natural Resources and Minerals [DNRM], January 1999. See also listing in the bibliography.


\(^{146}\) Boyle MA, p.246. It is unlikely this will change, as the Collection is under-resourced, available to researchers only one day a week with staff working on the collection only on that day.
stating an opinion. In several cases items which would be more appropriate to be in CAPCOL have also been discovered in the library general manuscript collection. This researcher is fortunate that his intimate knowledge of the operation has alerted him to these shortcomings; however, a guide to the Mount Morgan Collection would be to the advantage of future researchers.

Research Questions and Chapter Structure

Chapter One asks whether the ‘missed opportunities’ were unfortunate developments or good fortune?

While the financial returns were relatively small when compared with those of the Old Company, for all but twelve years of its life as an independent public company Mount Morgan Limited paid total tax-free dividends exceeding six million pounds \(^{147}\) while building up substantial tax-free reserves. These returns were derived only from the treatment of its gold/copper ore. During its entire life, the Company failed in its attempts to take advantage of the vast resources of pyrite, the secondary resource within its orebody, for use in the manufacture of fertiliser. Furthermore, it had attempted, unsuccessfully, to develop the Central Queensland resources of coal and limestone at the same time failing in its attempts to discover new ore bodies or to establish itself in locations remote from Mount Morgan.

The thesis will ask why management did not grasp opportunities to grow and will examine a number of the areas considered by the Company. There were earlier attempts to explore and develop remote mining fields, but, especially in the Tennant Creek area, these were abandoned. For over

\(^{147}\) Equivalent to $12 million. Includes ordinary and preference dividends. See Appendix Intro 4 for the financial outcome of the operation 1932-1968.
a quarter of a century, unsatisfactory marketing contracts for its gold/copper output ensured that there was a perennial cash flow problem, inhibiting external growth. For over sixty years, the gold mining industry enjoyed tax exemptions, under conditions, on income from gold production. It has been argued that maintenance of this tax-free status affected Company decisions involving the establishment of projects that would generate taxable income, jeopardising the financial viability of the Company. These claims will be investigated. Overall, did any poor judgment of management affect the efforts to expand? However, given there may have been external commercial and bureaucratic factors over which the Company had no control, was it fortunate that it did not succeed in at least one project?

Chapter Two critically examines the criticism that ‘they made millions’ but “they never done nothin’ for the town”.

Because of the passage of time, there are fewer people now living in Mount Morgan who had crossed the Dee River daily to be part of the Works, or who remember the prosperity that came from the Mine. Consequently, many of the new residents, who have settled in the town to enjoy the climate and the cheaper properties, have no concept of what happened on the Mine side of the river. Many are critical of the stories of wealth that left the town and do not understand the contributions made by the Company to the fabric of the town.

It is important to redress, from the Company point of view, this lack of local awareness, examining the relationship between the Company and with the town in order to prove or disprove the assertion that the mine “never done nothin’ for the town”. The thesis will not conduct a sociological analysis of life in the town, nor will it make an extensive study of townspeople’s attitude to Company policy or of any community
lobbying of the Company for infrastructure support.\textsuperscript{148} Rather, the thesis will select the more significant infrastructure projects which the Company supported asking whether by assisting with them, there may have been implied operational advantages to the Mine. Other projects may have benefited the majority of townsfolk, but at least one may have advantaged only a select minority. What were the motives behind the Company driven community initiatives and what was their effect on the life and structure of the town? Finally, was the donation of significant infrastructure to the town a final gesture of good will or simply a way of shedding its town side liabilities?

Chapter Three will ask what prompted the Company to expand its Works Committee to an association known within the community as ‘The Welfare’.

For forty-nine years, the Company supported a successful joint Company/employee association. Officially styled the Works Committee, it was generally known as ‘The Welfare’. Originally established as a conduit of communication between management and workers and designed to forestall possible industrial problems, the scheme expanded to allow a form of profit sharing to be introduced. It was extended by providing substantial sporting facilities, the administration of which was the responsibility of an employees’ committee. When final closure was looming, the committee was disbanded and the facilities were gifted to the community.

It can be argued that, when considering the detail of the Welfare, themes of paternalism, class, and perceived social divisions involving management, the so-called elites and the workers, should be explored in depth. However, as the title of the chapter indicates, the study will concentrate on an

\textsuperscript{148} However, in appropriate places, the thesis will discuss Council’s approaches for support for the electricity and water schemes, the request by the Golf Club for relocation of its facilities and the transfer of the Museum to more suitable premises.
analysis of the motives and mechanisms behind the expansion of an already existing consultative committee from management’s perspective. Furthermore, the Chapter suggests that a detailed examination of the reasons for a rise in worker militancy in the mid 1950s will not be made, requiring a study of the hundreds of individual industrial files in CAPCOL. Rather, these files will provide labour historians with wide-ranging material for a comprehensive study of the scheme from the workers’ point of view.

Instead, by comparing the format of the association with that of other national schemes, especially within the mining community, the thesis will consider whether the Welfare was unique. It will ask whether this concept of profit sharing and the provision of sporting amenities were replicated throughout the mining industry. At the same time, the records will determine whether this Company policy was intended to engage the trust of the community. Did management construct the programme for purely altruistic reasons or was it, as has been suggested, a cynical industrial ploy? Furthermore, as the nature of industrial activity changed from local to state-wide involvement, did the Company enjoy any advantage from its profit sharing? Finally, as queried in the previous chapter, what were the motives behind the final donation of the infrastructure to the town?

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Chapter Four, entitled ‘Mount Morgan managed its most important asset’, examines the long-term legacy of education and training.

Mines, and the industries that process their products, are complex organisations which, to operate safely and successfully, must employ technically trained staff and skilled operatives. From the beginning of the 20th century until it closed, the Old Company had pursued a programme of training tradesmen and operatives to satisfy its needs. The Company built on these programmes, drawing on former staff that had been part of its predecessor’s strategies. Over the period of this study, as many as four generations of Mount Morgan families were employed at the Mine and many of these employees enjoyed the benefit of these training initiatives.

The Chapter will examine the programmes of support for trade, diplomate, undergraduate and graduate training put in place by the Company. It will compare these with contemporary training standards, especially in relation to those of other mining companies. However, in order to support the argument that this was one of the Company triumphs the chapter will, where appropriate, give some attention to the history of national and state-wide technical training. To determine the possible motives behind the level and detail of employment policies, it will put questions about possible self interest. It will ask whether these initiatives were predicated on the opportunity to employ the low cost labour of school leavers as apprentices and cadets. Was this policy a public relations exercise aimed at guaranteeing parents would not leave the town to further their children’s careers? And the chapter will examine whether the suggestions by cynical commentators that, in the early selection process, there may have been bias towards particular groups of parents, schools or even religious groups. Furthermore, what, or who, prompted the later appointment of cadets and apprentices who had no familial connection with the town?
Chapter Five will discuss the Peko years and ask whether Mount Morgan’s loss of autonomy was for better or for worse?

On 20 March 1968, after operating for thirty-nine years as an independent public entity with majority Australian owners, the Company became a wholly owned subsidiary of Peko-Wallsend Investments Limited, also Australian owned. This followed a short battle against a hostile takeover bid by foreign interests. At the time, Peko was experiencing a rapid upward spiral of growth, building on a cash flow bonanza generated by the recent discovery of its very rich Juno gold orebody. Mount Morgan was Peko’s first acquisition and other mining and industrial assets soon accelerated the investment portfolio. Although few changes were made to the on-site management structure, decisions made at board level meant Mount Morgan benefited from major capital expenditure on new and more modern plant and from an increase in exploration activity. But, as the Peko group grew, Mount Morgan was increasingly affected by financial and technical policies within the parent structure. Finally, because of severe financial losses, Peko was forced to shed part of its Mount Morgan holdings to one of the foreign participants in the original hostile takeover bid. The subsequent breaking up of the Peko group meant Mount Morgan Limited existed in name only.

Beginning with a study of the circumstances surrounding the takeover, the thesis will question whether the Company would have survived under the previous management given the relatively small capital base, the dwindling, more inaccessible, ore reserves and the lack of significant capital expenditure on new plant. On the other hand, from the limited Peko records available, the chapter will determine whether the acquisition of Mount Morgan was in the best interests of the Peko Group or was Sir John
Proud’s contention that Peko did not receive a substantial return for its investment in Mount Morgan correct? 150

By exploring the way in which Peko policies affected the morale of the existing staff, the study will ask whether outside influences in the design and construction of capital works overshadowed the opinions of locally experienced staff. Did convoluted accounting procedures lead Peko to misinterpret the viability of the mine or did the local management ensure it continued in spite of, rather than because of, Peko? Peko embarked on the construction of large, technologically complex, smelting plant at Warrego in a relatively remote area of the Northern Territory and staffed by relatively inexperienced personnel. Records suggest that, by ignoring the Mount Morgan years of copper smelting experience, Peko set itself on a path of massive financial losses that badly damaged the group.

Chapter Six asks whether the Company had ‘a disregard for the environment’ or was this ‘an historic problem”? It also asks how the Company’s environmental policy compares with other like companies.

Of all the technical, economic, social and industrial legacies left behind by the Mount Morgan Mine, it is its environmental destruction that has claimed the most public attention and raised the most criticism. Throughout the life of the Old Company, little heed was paid to the health of the river below the Mine, to the denuding of the hills for mining timber and fuel or indeed to the problems caused by the fumes from its treatment plants. However, even worse, a Company decision post 1937 to establish pyritic waste dumps and a new treatment plant directly above the river condemned the fresh water dams and the river to horrendous pollution. For almost forty years, management paid little attention to ongoing pollution

150 Former Peko Chairman, Sir John Proud Personal letter to RFB, 4 October 1994, RFBCOL.
until, perhaps reflecting the new world-wide environmental attitude, they began a programme of rehabilitation. New owners cancelled the partially completed work as the mine neared closure.\footnote{The site is now controlled by the Queensland Government with strategies centered on addressing the effect rather than the cause of the problem. The contents of the over-full abandoned Open Cut now present the risk of a catastrophic discharge into the river system and are a menace to the safety of properties downstream. The problem is discussed in Chapter Six.}

In order to further prove the hypothesis that the mine ‘fits the pattern of governance established by national and international mining operations’ the study will place the actions of successive management in perspective in relation to contemporary environmental attitudes, not only of mining people but of the community in general. It will investigate whether the rehabilitation programmes instituted at Mount Morgan from the early 1970s were the result of these changes or whether the environmentally sensitive Peko Chairman, John Proud, drove them. And the study will examine these initiatives, why subsequent owners discarded them and why government regulators allowed them to do so. The effect of climatic conditions, surrounding topography and the proximity of settlements to Australian mines with a similar chronological history to that of Mount Morgan will enable a comparison to be made of historical environmental degradation on other Australian mines like Mt Lyell and Captains Flat.

Woven throughout these themes are the names and the involvement of people whose input and actions, both on and off the field, helped to determine the fate of the operation. The thesis will examine the work of these individuals, placing them as having made a positive or negative contribution to the triumphs and disappointments of the Company.
Chapter One
Failed Diversification?

Introduction
Throughout its life, the profits of Mount Morgan came from mining an ore body that had varied from the gold-rich oxidised material at the top of the mountain to the copper/gold/silver ore that lurked below the rich cap. Lennon says the composition of this latter resource was complex. He describes the ore as pyritic, containing copper, iron and sulphur (CuFeS₂). And, apart from the gold and copper to be extracted from the Mount Morgan mine, it was the sulphur contained in this extensive deposit that had the greatest potential to extend the life of the Company and to increase its profitability. The Old Company, while trying to ignore its presence, had used pyrites to manufacture the sulphuric acid essential in the production of chlorine for gold extraction and later it had exploited the impurity in its temporary adoption of pyritic smelting.

The Old Company invested outside the mine, clearly to provide outlets for its products or as sources of supplementary raw materials for its treatment plants. Other successful mining companies in the late 19th and 20th centuries had followed a similar path so that, given the finite nature of

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1 'During the first twenty years of operation [of Mount Morgan], gold was the only metal extracted. It was not until the underground operations reached the 320 feet level from surface that copper mineralisation appeared, which became dominant below the 450 feet level. Subsequently it was recognised that pyrite (iron sulphide), chalcopyrite (copper) and pyrrhotite (iron sulphide) were the predominant sulphide minerals with minor sphalerite (zinc)'. Tony Hope, The Hope factor, Mineral discoveries Australia Papua New Guinea & the Philippines, A. R. Hope, Riverwood, Chapter One, ‘Mount Morgan gold copper mine, Queensland’, p.2.
3 BW Lennon, ‘The sulphide ore treatment plant at Mount Morgan’.
4 Patterson, ‘A history of the Mount Morgan gold mine, 1908-1927’, describe, how pyritic material was also used to leach copper from the ‘nuisance’ material that had intruded on the gold ore body and later to partly fuel the blast furnaces producing blister copper.
mining ore bodies, it was in the Company’s best interests to pursue avenues of diversification. For over forty years, while actively pursuing the pyrite market, the Company unsuccessfully explored other avenues for expansion. It proceeded with only a few and achieved only limited success in these.

The chapter concentrates principally on the sulphide question, perhaps leading to the impression that the chapter is unbalanced. However, the archival records, the Annual Reports and Chairman’s Addresses at the Annual General Meetings all concentrate on this aspect of diversification. There are files and mentions of other prospective projects but, for most of the Company’s independent life, it was the exploitation of the pyrite resource that received the most attention. The Company believed this was the most attractive option, given the perception that government subsidies would provide financial encouragement.

The chapter will consider the role of the Australian Government as it encouraged the exploitation of indigenous sources of sulphur and will ask whether the Company was fortunate it did not succeed in the pyrite struggle as world sources of sulphur multiplied. However, it will also ask why management ignored other, apparently attractive, prospects.

**Why Diversification?**

The commercial definition of diversification is ‘[to] spread [investment] over several enterprises or products [especially] to guard against loss’ but the attitude of Australian mining industry has been variable in its approach to diversification; generally, it has stayed in the field in which it has the greatest expertise – in mining or in industries related to mining. In

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6 Even after the Peko takeover, for a short time the Company continued its struggle to establish a market for its pyrite.

7 The principal of ‘having someone else pay’ is discussed on page 82.

adopting this approach, maximising the return from each of its operating mines, the industry has not necessarily satisfied the requirements cited in sustainability studies. This concept, although unrecognised during the period of this study and therefore not available to the Company executives of the time, contains points that are relevant to several chapters of this study.

The mining booms of Mount Morgan, Broken Hill and Kalgoorlie in the latter part of the 19th century together with the bonanza that has come from the extraordinarily high, so-called, commodity prices at the beginning of the second decade of the 21st century demonstrate that investment in mining ventures, although potentially risky, can be financially rewarding.9 However, both the Old Company and Mount Morgan Limited operated at a time when the world believed that mining was an extractive industry. The attitude was ‘dig it up and it is gone forever’.10 Realising that the policies of exploitation and abandonment were no longer publicly acceptable,11 the authors of the book *Seven questions to sustainability - how to assess the contribution of mining and minerals activities*,12 state that no mining/mineral activity has an indefinite life.13

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11 Not only in mining.


13 Ibid
To manage these wasting assets responsibly, these authors also argue that:

…limited-term mining projects [should] serve sustainability objectives if they… build viable long-term capacities, strengthen communities and rehabilitate damaged ecosystems.\(^{14}\)

If the resources which support communities are finite, what strategies need to be put in place to ensure long-term sustainability? The obvious answer is to maximise the life of the resource at a local level, while returning a satisfactory benefit to the shareholders. This is best achieved by technical improvements to mining and treatment, by introducing cost-saving management practices, by looking at different local minerals that could be treated alongside the principal mineral, but most importantly by exploration for economic minerals within practical transport distances from the mine site. On the other hand, exploration for and, development of enterprises distant from the principal mine, increasing the profitability and life of a company, will do nothing in the long run to prolong the life of the communities reliant upon the mine.

Geoffrey Blainey, in *The golden mile*, by arguing that most London investors treated Kalgoorlie as ‘a gambling counter’\(^{15}\) has confirmed this failure. Others have given examples of how, in those early days, most abandoned their mines and the adjacent communities when the ore was exhausted.\(^{16}\) Not that Australia was alone in this with the relics of hundreds of American ghost towns dotting the landscape of the United States testifying to the ‘boom and bust’ approach to exploiting the mineral wealth of that country.\(^{17}\) Abandonment did not always result in the

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\(^{14}\) ibid.
\(^{16}\) HH Wilson, *Gateways to gold*, Rigby, Sydney, 1969, records visits to abandoned gold townships in the Murchison goldfields of Western Australia.
demise of a community. When the Broken Hill Proprietary Company Limited,\textsuperscript{18} which had made huge profits from their earliest operation at the Hill, wrongly assumed their Broken Hill bonanza ‘would give out’,\textsuperscript{19} and abandoned their beginnings - and Broken Hill, that city was fortunate there were others on the field who helped to ensure its survival for another century. Towns like Captain’s Flat\textsuperscript{20} and Mt Coolon\textsuperscript{21} with only one operating mine to support them barely survived the closure of their mines – but the gold towns of West Wyalong, Charters Towers or even Ballarat, with no further serious mining,\textsuperscript{22} prospered by developing the areas of agriculture, educational institutions or commerce for their continued existence.

\textsuperscript{18} By 1921 while 63\% of the shareholders lived in Australia the majority of shares were held in Britain, Blainey, \textit{The steel master – Essington Lewis}, McMillan, 1971, p.58.
\textsuperscript{19} Blainey, \textit{The rush}, p.264.
\textsuperscript{20} ‘The small township of Captains Flat is facing the grim prospect of becoming a ghost town as the Lake George Mines’ equipment goes under the auctioneer’s hammer.’\textit{The Canberra Times}, 8 February 1963.
\textsuperscript{22} The high price of gold in the late 20th century caused, an often temporary, resurgence of mining around Charters towers.
Map 1.1
Central Queensland, showing major centres around Mount Morgan

[MML survey plans 1960, CAPCOL, 6-99, cc from RFBCOL].
**Avenues for Diversification:**

In the history of gold and copper mining, Central Queensland has had only one Mount Morgan in size and riches! Nevertheless, while the local orebody has been proven to be finite, the surrounding area contains a range of other mineral resources. The Company operated beside a socially developed community housing an experienced workforce. The development of these resources, within easy reach of the mine, and geared to use its administrative facilities, may have extended the presence of the Company in the township.

John Kerr has presented a comprehensive plan showing the gold prospects of Central Queensland in the years leading to the exploitation of the Mount Morgan ore body. There was copper from Peak Downs and the Adolphus William mine, the Great Fitzroy mine recovered copper at Mt Chalmers. The batteries of the Hector mine custom crushed gold ore while the Morgans won gold from Mt Wheeler. However, most of the region’s gold was alluvial, won from creeks and streams. There was low grade copper ore at Many Peaks, ironstone from Iron Island in Keppel Bay and limestone from Marmor, each of which supported the Old Company smelter, although changes in processing closed the first two. Again, towards the end of the life of the mine, there was exploration of the Mount Morgan orebody was exhausted in 1981 after almost 100 years of mining.

**Notes:**

23 The Mount Morgan orebody was exhausted in 1981 after almost 100 years of mining.
24 Significant although not rich as, for example, the district surrounding the Mt Isa mines.
25 Kerr, p.9.
26 ibid, pp.6, 49, 154.
27 Also known as the Dee Copper Mine, H Kearney, undated, unpublished ‘Dee copper mine history’, Kerr, pp20-21, 117, 163 and 231. Hope, pp74-75, Reports in CAPCOL M14/1316.11.
29 Kerr, pp.9, 10, 12, 76, 117.
30 Mined by the Morgan Bros with interests held by D’Arcy, all of whom were later to win fortunes from Mount Morgan, Kerr, pp.17, 19.
32 ibid, p.106. Patterson lists other sources of flux as Kabra, Targinnie and Mt Etna, ibid, p.102.
33 ibid, p.101.
Moonmera mountain range to the east and the ranges to the south east. Exploration at Moonmera and Struck Oil, despite the presence of interesting molybdenum and copper assays, proved these prospects to be uneconomical. Now over thirty-three years after Mount Morgan stopped mining, the area to the south east has continued to defy exploration attempts to prove its viability.

Photograph 1.1

MML Board 1960

[MMLAR 1960, p.2]

35 Hope, email to RFB, 15 February 2013.
36 Hope, pp.75-76.
37 K Wright & A Taube, ‘Mineral potential in Central Queensland’, Geopeko unpublished reports, October 1975, RFBCOL, not found in CAPCOL.
38 Hope, email to RFB, 15 February 2013.
39 The late Ron Kitchen, email to RFB 22 October 2009 discussed then current exploration.
40 Some had been members from 1938. By 1962, Newman, Krutschnitt, Owen and O’Sullivan had retired. Photograph previously reproduced in Boyle MA, p.216.
During its operating life, by committing significant intellectual capital, and not insignificant monetary resources, the Company looked for ways to expand. It surveyed a number of local opportunities, especially those analysed in a paper ‘Summary of the potential for fertiliser and chemical industries in Central Queensland’. In the event, none of the prospects canvassed was pursued. But there were undeveloped materials that Mount Morgan did access and if fully exploited for processing at the mine could have given the Company a diversification advantage. There are extensive limestone deposits at Marmor, Ambrose, the Caves and Struck Oil; but while the Old Company developed Marmor as a source of flux for its copper smelter, the Company sold the property in the early 1930s in order to save the caretakers wages and the government fee. Magnesite deposits at Kunwarara were used to manufacture refractory bricks. The process was abandoned for technical concerns and the leases on this property were surrendered in September 1930, again to save expenses. This decision deprived the Company of the opportunity to develop what is described as the largest deposit of magnesite ore in the world. The Old Company had developed a coal mine at Blackwater only to abandon it in favour of the closer but, as it proved, less attractive resource at Baralaba which the Company embraced and tried, unsuccessfully, to expand. There are even suggestions that management ignored the discovery of the extensive Moura coal measures close by its Baralaba mine. The Fitzroy River delta has significant underground concentrated brine resources and, during the 1950s, the Company provided technical assistance towards the

41 Unknown author [possibly Director Jan McShane who had prepared a separate study on calcium carbide] the paper is identified only as ‘Sydney August 1961’, RFBCOL.
42 Boyle MA, p.78.
44 Boyle, MA, p.78.
46 RL Whitmore, Coal in Queensland, from federation to the twenties 1900-1925, UQP, Brisbane, 1991, Also Hope, p.78.
47 Whitmore traces the political posturing indulged in by the Old Company when deciding whether to mine at Blackwater or Baralaba.
48 Hope, pp.78-79.
establishment of a locally launched company, Central Queensland Salt Industries. However, it failed to follow up on the exploitation of the chemical properties of salt. Other companies have used the salt as feed for a local secondary industry, manufacturing chlorine and sodium cyanide.

Early in its life, the Company set up an exploration arm, examined the establishment of a copper refinery, considered exploiting the district resources of limestone and coal for the manufacture of calcium carbide, calcium cyanide and cement, and entered the aggressively competitive ready-mix concrete and aggregate business in New South Wales. It attempted to develop an export market for its coal and finally established a small iron ore mine in the Northern territory.

Keith Cameron’s sudden death ended the Company’s independence and the priorities for future development of the Company, as outlined in his report to the Board in June 1967. Of these priorities, only the fourth, ‘new projects other than mining’, put in place well before his death, was

49 Kerr, p.221.
50 There was a proposed joint venture to manufacture caustic soda, letter in CAPCOL D15/477.3.
52 In his memo to the Board of 9 June 1967 Cameron recommended the Board consider its priorities as:
  Priority 1: Mineral exploration in the Mine proper and in the nearby Mount Morgan district
  Development of the maximum priority of the ore – currently the outstanding unexploited component is pyrite
  Mineral exploration at Mt Bundey and in the surrounding district
  Priority 2: Mineral exploration outside these areas of principal interest
  Priority 3: Investment in mineral projects
  Priority 4: New projects other than mining – direct operation or investment.
In this document Cameron further argued ‘we are in constant danger of missing attractive prospects because we are not geared to suit the circumstances’, CAPCOL, D15/476.
achieved. Delays in realising proceeds from its copper production required unhealthy overdrafts, the policy of paying relatively large/regular dividends, and the constant demand for capital expenditure on plant additions, seem to have inhibited its opportunities for growth. But it cannot be ignored that, for the greater part of its life, the Board members were conservative and indeed they seem to fit the argument that there was an ‘old boy’ network both at the Mine and on the Board. At the Mine, there were operational advantages in having long-term employees but, within the Board, this long association may have resulted in an excessively cautious approach to entering new enterprises. Mount Morgan legend has it that the Company’s reluctance to enter new enterprises generating non-gold income would jeopardise its tax-free status. This legend is unfounded, as income from pyrite, although taxable, was ruled not to be included with the Company gold income;

Under Cameron, a new subsidiary, Morgan Mining and Industrial Company Pty Ltd [MMIL], was formed to distance the parent from any tax disadvantage. Newman and Cameron represented a new

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53 A 2½% interest in a consortium [NABALCO] formed to develop the Gove bauxite leases adjacent to the Gulf of Carpentaria, MMLAGM, 4 November 1965, p.3. Through its financial advisers, Darling and Company, headed by MML Director Broinowski, it invested in a number of commercial and industrial enterprises CAPCOL D15/463.6 lists Mount Morgan investments.

54 Boyle MA, p.113.

55 ibid, pp 217-219 discusses the old boy network at the mine. Sir John Proud, commenting on the Boyle MA, contended that ‘Mount Morgan was not well served by some of its Board members [during the period 1929-1950]’, Personal letter to RFB, 4 October 1994, RFBCOL.

56 Appendix 1.1 lists the names and periods of service of both Directors and General Managers.

57 As implied by H B Robinson, memo from L B Robinson to J R Govett, 29 May 1952.

58 Speech, Mr. Geo Pearce MHR, Capricornia, in Federal Parliament 5 June 1952 announced ‘income from the sale of pyrites shall be accounted for separately from the income derived from the sale of gold and copper and shall be subject to tax’.

59 MMLBM 25 March 1965, CAPCOL M14/1432.4.

60 Acting Chairman 1948, Chairman 1949-1962 After stepping down voluntarily as Chairman, Newman wished to continue as a Director but was defeated at the 1962 AGM when he failed to gain the 75% of votes required because of his age. RMB, 9 November 1962.

approach but this appears to have been a questionable alliance. Neither seems to have been successful in steering the Board away from the mine at least until 1962 when Cameron became Chairman, controlling a relatively new Board.

Photograph 1.2
Keith Addison Cameron.
[CAPCOL: STA-002]

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62 ‘Keith Cameron, although [he is] nominally Managing Director, most of the Board, and particularly the present Chairman [Newman], are very prone to assume his functions’, memo from L B Robinson to J R Govett, 29 May 1952. There was a similar situation in 1929 that Deputy Chairman Campbell had ‘frequently by-passed RT Thompson, the Managing Director’, Boyle MA, p. 150, fn3.

63 At the 1962 AGM long-term directors Owen (1938-1962) and O’Sullivan (1938-1962) retired because of new age conditions imposed on directors while Newman and Krutschnitt were defeated as detailed above. They were replaced by new Directors including J H Broinowski who succeeded Cameron as Chairman on his death.
It was Cameron who engineered the long-term contract for the sale of blister copper to Japan and the Company had previously warned a Tariff Board enquiry on copper that, if it failed to stabilise the price paid to Australian producers for their copper:

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\text{The copper industry can, if forced to, protect itself ... by refining and possibly fabricating overseas, but such a step would throw the Australian refining and fabricating business into confusion and it is to be avoided if at all possible.}
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Immediately after the signing of export contract a Government ban on the export of Australian copper, brought on by the closure of Mount Isa during the Pat Mackie strike, threatened to destroy the sales. Eventual approval brought windfall funds to the Company accounts, as immediate payments by Japan for the blister copper were added to the pipeline payments owed by the Australian refiner. These extra funds enabled Cameron to present the Board with a new scenario for external development.

Despite his efforts, Cameron

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64 Copy of contract with Sumitomo Shoji Kaisha Limited, 2 November 1964 CAPCOL M14/1317.4 CAPCOL M14/1317.5-6 contains copies of correspondence and memos relating this contract.

65 MML, ‘Evidence presented to the Tariff Board Enquiry on Copper’, p.18, March 1954, CAPCOL, M14/1291.16.


67 It had taken five months for The Electrolytic Refining and Smelting Company [ER&S] to produce gold from Mount Morgan blister copper so delaying the payment to the Company. Memo, ‘Report on gold realisation’, Secretary to the Board, 9 October 1958, CAPCOL, M14/1431.4.

68 At 9 June 1967 the Company had ‘a total surplus of some $4.5 million’. See memo from Cameron to the Board, 9 June 1967, ibid.

69 The substantial tax credits on the Company books are discussed in Chapter Five.
oversaw failures. It was under his management that the Company experienced one of its most serious losses through its investment in Associated Aggregates Ltd and it was he who led the way to the short-lived Mount Bundey project.\(^70\)

But it was the development of a market for its pyrite that occupied the Company intentions, even into the early days of Peko ownership, so this chapter will focus most attention on that theme.

**Pyrite and Fertiliser**

Explaining the role of fertilisers in agriculture, *Technology in Australia 1788-1988* details how cheap fertilisers have been used for years to improve Australian soils, which are notably deficient in phosphorus.\(^71\) It was this need to replenish these elements that gave the Company its greatest encouragement to align itself with agriculture. Indeed, in 1961 Newman told the thirty-second annual general meeting of the Company that there had been

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\ldots \text{astonishing results [of the] exhaustive practical demonstrations by} \\
\text{the CSIRO of adding superphosphate to the spear grass lands, millions} \\
\text{of acres in extent, stretching from Bundaberg to Mackay} \ldots [\text{which} \\
\text{had shown}] \text{that the beef cattle numbers in the area can be increased} \\
\text{from two millions to six millions.} \quad 72
\]

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\(^70\) Another Mount Morgan fable [unsustantiated but hinted at in Hargreaves, OH with Betty Cosgrove 9 November 1992] is that entry into each may have been on the influence of one Director, who was alleged to have an interest in the subject leases.  


\(^72\) The Chairman mentioned the use of superphosphate had increased production in the North Queensland sugar industry, MMLAGM, 2 November 1961, p.3.
Hope and Lennon have both emphasised the presence of sulphides in the Mount Morgan orebody.\textsuperscript{73} Although causing difficulties in treatment,\textsuperscript{74} the pyritic ore was an attractive resource and after the recovery of copper and gold from the ore, a pyrite concentrate could be produced.\textsuperscript{75} This material contained up to fifty percent sulphur,\textsuperscript{76} which in turn could be processed to generate sulphur dioxide for sulphuric acid manufacture.\textsuperscript{77} There was, however, pyritic material in which the gold/copper content was below the economic cut-off grade. Newman told shareholders that ‘although there is little doubt that the sulphur content of the newly proven Sugarloaf

\textsuperscript{73} Hope, \textit{The Hope factor}, p.2. and BW Lennon, ‘The Sulphide Ore Treatment Plant at Mount Morgan’.
\textsuperscript{74} BW Lennon, ‘The Sulphide Ore Treatment Plant at Mount Morgan’.
\textsuperscript{75} The pyrite was suppressed during the flotation of gold/copper and the tailing from this section were refloated under different conditions to produce a pyrite concentrate.
\textsuperscript{76} Letter No. N-6781 of 4 March 1974 to Adelaide and Wallaroo Fertilizers Ltd guaranteed sulphur content of 45%, CAPCOL M14/1325.3.
\textsuperscript{77} See Glossary, Appendix Two.
quartz/pyrite envelope will add to its value, it cannot yet be assumed that this pyrite material will be mined for its sulphur content alone. He went on to say that 'should the value of pyrites increase so that this envelope material is payable… the known reserves in this orebody would increase by over five million tons. Again, in 1952, he added that when recovery of pyrites was taken into consideration ‘the life of the mine would be increased by 50%’. Without a market for the pyrites, the residue remaining, after treating only ore payable for its gold/copper values, contained this sulphur. What was highlighted was the possible recovery of the gold in solution in the pyrite, gold that could be reclaimed by cyanide only after the pyrite had been roasted in the sulphuric acid process. The income from this gold would have been a tax-free bonus. The eventual failure to exploit the pyrites has meant this gold is still unrecovered in the tailings placed in the Open Cut from the 1982-1990 tailings retreatment plant.

While it is important to outline the reasons the government had been so enthusiastic in its attempts to promote the Australian manufacture of fertilisers and the reasons for its policy of encouragement by subsidy, it was the manufacture of sulphuric acid that was really its main concern. For centuries, sulphuric acid has been one of the universal and

78 The extent of what became known as the ‘Sugarloaf’ orebody was announced at the MML AGM, 18 November 1951. See also comment in Boyle MA, pp 214-215 and fn.110.
79 MML AGM, 18 November 1951.
80 ibid.
81 MML AGM, 30 October 1952, p.3.
83 In the year ended 29 June 1952 the pyritic concentrate contained 1.7 dwt/ton gold [compared with a head grade of ore treated of 2.19dwt/ton], MMLAR 1952, Table 2, p.12. CSIRO work in 1939 identified gold in the pyrite, Cairns Post, 9 October 1939, p.10. K McQueen, JAHM, October 2012, pp.88-102 discusses gold in pyrite.
fundamental chemicals in a range of manufacturing processes. The requirement to guarantee the supply of sulphuric acid became critical in the late 1930s with war approaching. Witnesses to a Tariff Board enquiry in 1938 argued that ‘Australia must maintain adequate supplies of sulphuric acid … in times of national emergency’. The enquiry further discussed the continuance of the existing bounty on sulphur produced in Australia from pyrites, sulphur ores or concentrates and the support this subsidy would give to pyrite producers. This was not the first occasion on which the government awarded a sulphur subsidy. Articles in the Sydney Morning Herald during 1923 and again in 1928 reported on parliamentary debates that discussed the merits of subsidy vs. duty as a method of controlling the inflow of sulphur from external sources and the stimulation of local supplies. The National Archives contain files of bounties paid to fertiliser companies between 1932 and 1938. In 1923, a SMH report said that Mt Lyell had ceased pyrite production because of the government’s substitution of a subsidy with a duty on imported brimstone.

After World War II, following the sponsorship of assisted migrants by the Commonwealth Government, a fresh round of policy discussions began as the pressure to use fertilisers to improve agricultural output increased. These migrants were encouraged to ‘clear and develop land and increase

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86 Ibid. T M Owen of Lake George Mines Ltd, Captains Flat contended that the removal of the subsidy would result in the mine being closed. Owen’s connection with Mount Morgan and pyrites will be discussed later.
88 SMH, 2 May 1928, page18 Ibid.
agricultural production’.\(^\text{92}\) This drive to use fertilisers was a logical strategy because just as mining communities have suffered by the depletion, and eventual exhaustion, of their mineral resources there are many examples throughout history of agricultural communities flourishing and then failing, ‘often because farming eroded the soil, [or] exhausted the soil’s nutrients’.\(^\text{93}\)

In 1932, Adam Boyd, undoubtedly familiar with the way the Old Company had taken advantage of the pyrite deposit,\(^\text{94}\) followed the lead of Mt Lyell, which in the early 20\(^{\text{th}}\) century had exported its pyrite to Melbourne as feedstock for the manufacture of fertiliser at its works there.\(^\text{95}\) But Boyd was unsuccessful in convincing fertiliser companies to use Mount Morgan pyrite.\(^\text{96}\) Perhaps later Tom Owen had influenced the Company pyrite policy given he had told the 1938 Tariff Board that his company, Lake George Mines, ‘had spent more than £25,000 … in investigating the extraction of elemental sulphur from pyrites’.\(^\text{97}\) Again, in


\(\text{94}\) Patterson, ‘A history of The Mount Morgan gold mine 1908-1927’, especially in the use of pyrite to produce sulphuric acid for chlorine manufacture.

\(\text{95}\) Blainey, The peaks of Lyell, pp179-183 discusses the role played by Mt Lyell in developing the manufacture of fertiliser and the use of its pyrites. He points out that, in 1894, the company had known reserves of only two years of payable ore in the Mt Lyell mines. Consequently, they decided to exploit the huge deposits of pyrites containing 48 percent sulphur but less than 1 percent copper. Their fertiliser works were so successful that by 1911, they were manufacturing almost a third of the Australian fertiliser output.

\(\text{96}\) BW Lennon, ‘Production of pyrite at Mount Morgan’, CAPCOL, M14/1565.1.

\(\text{97}\) Up to 1938, Owen was Technical Consultant to MML and General Manager of Lake George Mines, Captains Flat. From 1938 to 1962 Owen was a Director of MML. For Tariff Board hearing, SMH, 16 September 1938, p. 17, viewed 12 January 1012, <http://trove.nla.gov.au/ndp/del/article/17519214>. 
1947, Chairman Morgan had foreshadowed the probability that the Company ‘may be requested by the Government to submit a proposal for the manufacture of sulphuric acid using Mount Morgan pyrite’ 98 But little effort was put into pyrite production and sale until the entry of Malcolm Newman and a new management team in 1950. 99

For fourteen years, Newman, with a successful history of developing pastoral properties through the cultivation of improved pastures, 100 worked hard on the development of the pyrite asset. His plans were four-fold. 101 Firstly, he tried to build the domestic market for the concentrate through existing end-user facilities, secondly he sought to encourage the pastoral and agricultural industries to realise the increased production that fertiliser use could bring, 102 and then he attempted to attract large international chemical companies to construct new fertiliser plants in Central Queensland. Of most importance to the life of the Mine and Mount Morgan, he investigated the direct production of sulphur onsite at the Mine. In his search for information, he travelled the world often accompanied by members of the technical staff, 103 and he enlisted the advice of world experts in the field. 104 As Company and Government agencies announced each new initiative, waves of public interest at the

98 MMLAGM, 30 October 1947, p.3.
99 BW Lennon, ‘Production of pyrite at Mount Morgan’, says ‘pyrite production was limited in the pre-war years because of the problems of increasing the capacity of the milling plant for its primary purpose of recovering gold and copper’. Wartime restrictions required the Company to concentrate on its main output - gold and copper, Boyle, MA, Chapter Seven, ‘The war years, 1939-1945’.
101 Within months of becoming chairman, Newman made a fact-finding tour of overseas chemical firms in order to establish contacts and to gain knowledge of the various processes that used pyrite as a base. MML chairmen’s address to the MMLAGM Subsequent MML ARs and Chairman’s addresses trace the several attempts to enter into joint venture partnerships. Newman’s successor Keith Cameron continued the struggle.
102 For example there is anecdotal evidence he visited the Central Queensland grazing property Collaroy with the idea the Company might purchase the property as a ‘showcase’ for the use of fertiliser.
103 Among whom was a young metallurgist, Loy Hennessy who was to rise to become General Manager and a Director of the Company.
104 Reported in MMLAGMs.
growth potential for the region were regularly displayed in the local press.  

Australian companies, including Mount Morgan Limited, were encouraged, by years of Government persuasion and financial subsidies, to follow the pyrite path. The Government argument was that Australia should develop indigenous sulphur resources to insulate it from a worldwide shortage of sulphur and to conserve its US dollars.  

Over succeeding years, as supplies of brimstone fluctuated, the government vacillated between support and denial. Ultimately, within twenty years, the threatened shortage did not eventuate. Supplementing an increased output from the traditional American sulphur deposits, unlimited sources of sulphur came on stream as countries addressed environmental concerns about sulphorous discharges from smoke stacks and the ‘rotten egg’ gas from natural sour-gas wells. As a result of this new paradigm, during the late 1960s, significant quantities of sulphur became available from Canadian gas wells. By 1972, the Australian

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105 RMB articles CAPCOL M14/1371, 1422 and D15/259.  
107 Hydrogen sulphide $\text{H}_2\text{S}$. Chemical equation for the conversion of $\text{H}_2\text{S}$ to $\text{S}$ in Mellor, pp. 487-488. See definition of ‘sour gas’ in Glossary, Appendix Two Newman had actually flagged this development when he told the twenty-third AGM that ‘the world shortage of sulphur is rapidly being overcome …by the increasing use of pyrites and by the recovery of sulphur from waste gases’, MMLAGM, 30 October 1952, p.3. In his 1946 edition, p 437, Mellor had already preempted the removal of $\text{H}_2\text{S}$ from ‘the waste gases of metallurgical operations’ would become increasingly important’ as a source of sulphur.  
government abandoned its indigenous sulphur policy and cancelled the subsidy payment associated with it.\textsuperscript{109} Operating pyrite producers were forced to close operations so the Company’s failure to enter the fertiliser industry, based on its pyrite resource, was fortuitous. Its early success would have ended in financial disaster.\textsuperscript{110}

The government appears to have based its policies on the confidential report, ‘Shortage of material essential to rural production’,\textsuperscript{111} which presented a useful study of the history, shortage of supply and the prediction of the future usage trends of superphosphate and ammonium sulphate.\textsuperscript{112} The superphosphate supply problem was the result of a shortage of the sulphur stock required to manufacture sulphuric acid,\textsuperscript{113} rather than of the solid phosphate rock, supplies of which from Ocean and Nauru Islands were being restored to pre-war levels as plant and equipment were progressively rebuilt after hostilities ended.\textsuperscript{114} The literature points out the sulphur shortage in Australia stemmed from restrictions imposed by the United States of America on the export of brimstone.\textsuperscript{115} American brimstone was recovered from underground deposits of solid sulphur\textsuperscript{116} with estimated reserves less than twenty-five

\begin{itemize}
\item \textsuperscript{110} Both Brukunga (SA) and King Mine in Norseman (WA) ceased operations on 31 May 1972 ‘concurrent with the end of the government’s pyrite policy’. ibid.
\item \textsuperscript{111} Commonwealth Department of Commerce and Agriculture, Bureau of Agricultural Economics, ‘Shortage of materials essential to rural production, July 1950’, p.78.
\item \textsuperscript{112} ibid, Section XI, ‘Fertilisers and agricultural chemicals’, pp. 778-786.
\item \textsuperscript{113} ibid, p.82
\item \textsuperscript{114} ibid.
\item \textsuperscript{115} ibid, p.83.
\item \textsuperscript{116} ‘Sulfur, one of the major natural resources of Texas, occurs in important commercial quantities in the calcite caprock of some of the salt domes on the Coastal Plain, in the Permian Castile gypsum in numerous localities, and in secondary gypsite material in the Toyah Basin of Culberson and Reeves counties’. See ‘Sulfur Industry’, Viewed 21 February 2014, <http://www.tshaonline.org/handbook/online/articles/dks04>. Sulphur is recovered using the expensive Frasch process, see Glossary, Appendix Two.
\end{itemize}
years. 117 Australia, unlike the United States of America, has no source of elemental sulphur, 118 but it has enormous reserves of sulphides and sulphates that could provide an alternative but less metallurgically attractive source of sulphur. 119 Administered by the Commonwealth Tariff Board, under several Sulphuric Acid Bounty Acts from 1954 to 1971 and the Pyrite Bounty Acts from 1960-1971, 120 prospective producers were seduced by the promise of payment of a bounty if the market price of imported brimstone fell below a certain level. 121 The attraction of a subsidy encouraged three South Australian fertiliser manufacturers and one mining operator to establish Nairne Pyrites Ltd to produce pyritic concentrate from deposits at Brukunga and rail them only 25 miles west to the Adelaide fertiliser works. 122

There were a number of scenarios that had to be considered when deciding which companies would be viable operators from which to source the pyrite. Although written well after the collapse of the Government programme, Ken Palmer’s comments in his contribution to

117 Reserves of elemental sulphur occurred naturally in salt domes, as deposits around volcanoes and within sedimentary beds. See PIRSA Minerals - Mineral Resource Potential – Sulphur, viewed 22 February 2005, <http://www.pir.sa.gov.au/pages/minerals/commodity/sulphur.htm?sectID=245&tempID=7>. Mellor, p.434 lists the other main locations around the world of the occurrence of free or native sulphur and in ibid Fig 161 draws an imaginary line to show the location of these deposits.

118 Keith Cameron to the Tariff Board 28 October 1966, p.4, CAPCOL, D15/458.1, Mellor, p. 434 does not mention Australia as a source of native sulphur.

119 ‘Shortage of materials essential to rural production’, p.83.


121 ibid, pp 1-2.

the August 2005 newsletter of the Combustion Institute would have been particularly apposite. Palmer questions whether:

Superphosphate [should be] manufactured where the sulphur is produced or where sulphuric acid is made, or where the phosphate is mined, or where the fertiliser is to be used.

Palmer’s proposition that the superphosphate should be produced where the phosphate was mined was unsound given that, in the 1950s, the principal sources of phosphate rock were the remote Ocean and Nauru islands. Manufacture in Australia seemed the logical decision given that the phosphate rock could be imported into any of the ports of Australia. An unidentified consultant, GB Dickinson, argued that the cost of the sulphuric acid produced depended on the distance the pyrites had to be transported, pointing out the problems of rail haulage and access to adequate port facilities. Supporting this contention, Blainey points out that shipment of Mt Lyell pyrite to the Melbourne plant suffered from transport problems and that ‘during and after the war … a stockpile of sulphur [in the form of pyrites] lay in huge rain-washed dumps at Queenstown and Strahan awaiting transport to the mainland’.

The principal pyrites resources in Australia at the time were located at Mt Lyell, Tasmania, Captains Flat, NSW, Brukunga, SA; King mine, WA

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124 ibid.
125 GB Dickinson, ‘Australian pyrite for export’, p. 9. A copy of this paper has the FLH notation ‘file pyrite, S [Sydney] O [office], 17 March 1966’ but is otherwise unidentified. Copy in RFBCOL.
126 ibid, in particular the restriction in size of ships available to transport and production of pyrites from Mt Lyell.
and Mount Morgan. Most of the superphosphate consumed in Australia between 1944 and 1950 was sold in Victoria with some of that supply passed on to South Australia and Tasmania. Table 34 in the ‘Shortage of materials essential to rural production’ report shows the Australian sales of superphosphate during this period. Table 35 from the same report lists the estimated demand, by state, for superphosphate in the year 1950-51.

The deciding factors appear, therefore, to be whether it would be more appropriate to manufacture superphosphate at or near the source of the pyrite or close to a seaport to feed the major end use of the final product. Because it was located so far from the existing fertiliser factories and the main consumption centres, the potentially high transport cost of the raw material mandated that Mount Morgan policy should be to establish fertiliser works in Central Queensland, close to the source of pyrite. This was exactly Newman’s plan - to build a chemical plant near the port of Rockhampton or the port of Gladstone, both of which were accessible by rail from Mount Morgan.

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128 GB Dickinson, *Australian pyrite for export*, pp. 8-9 lists further resources at Mt Isa, Roseberry and Renison Bell mines in Tasmania and at Kalgoorlie but these were not considered in 1950.
129 Commonwealth Department of Commerce and Agriculture, Bureau of Agricultural Economics, ‘Shortage of materials essential to rural production’, Table 34, p.80.
130 ibid, Table 35, p. 82.
131 There was only one fertiliser works in Queensland – ACF & Shirley’s at Pinkenba, Brisbane.
132 With a sulphur content of ca 50%, two tons of pyrite had to be transported in order to generate one ton of sulphur at the factory.
133 Rockhampton’s deep water port was at Pt Alma close to the Fitzroy River mouth. See ‘History of the Gladstone Ports Corporation Limited’, viewed, 22 August 2012, <http://www.gpcl.com.au/AboutGPC/HistoryofGPC.aspx>. Gladstone was, until the early 1960s and the construction of the Queensland Alumina plant, a struggling port, ibid. A bottleneck in the rail corridor from Mount Morgan to the ports was the short Abt rail link down the Razorback range but a suitably graded deviation, to handle Moura coal traffic, replaced it in 1953.
A disadvantage facing all users of pyrite driven sulphuric acid plants was the much higher capital and operating costs than those using elemental sulphur. 134 An article in the March 1951 issue of *Time* magazine recorded that these costs were up to twice the capital and as much as five times the operating costs of projects using elemental sulphur. 135 Compared with the Brukunga operation, where pyrite production bore the total operating costs from mining to concentration, the Mount Morgan mine had the on-site advantage of being able, when producing pyrite from currently treated ore, to write off part of the cost of mining, crushing and grinding the ore containing pyrite against the cost of recovering gold and copper. 136

This is the point made by Keith Cameron when he told the Tariff Board:

> The production cost of pyrites – or more precisely – of the recoverable sulphur in the pyrites, from an ore body containing only pyrites is, by the nature of things generally higher than from a composite orebody and in at least one of the two Australian cases I mentioned, this is certainly so. 137

Cameron had previously told a meeting between Australian copper producers 138 and officers of the Department of Trade on 7 March 1957 that the production of pyrite from current throughput of ore would make a significant contribution to the income derived from copper output. He said:

134 MV Mutler & G Warren, ‘Burning pyrites compared to sulphur,2009’, *The Southern African Institute of Mining and Metallurgy, Sulphur and sulphuric acid conference* 2009 compares relative costs and efficiency of the production of sulphuric acid by each of these processes.


136 These operations were necessary to the recovery of the metals whether pyrite was produced or not. This advantage would be lost when retreatning stored tailings to produce pyrite. The total costs would then be reflected in the cost of the pyrite.

137 Keith Cameron to the Tariff Board 28 October 1966, p.4, CAPCOL, D15/458.1 Cameron had not named the mines.

138 Representatives of Mt Isa, Mt Lyell, Mount Morgan, and Peko Mines attended the meeting.
.. if the Mount Morgan Limited was able to dispose of its pyrites – as it was encouraged by the government to believe it would – this would have meant about £30 per ton towards the cost of copper production.  

Cameron’s argument, that the Government had a moral obligation to recognise that the Company’s financial outlay to set up the plant for pyrite production was the result of Government policies, fell on deaf ears. However, the Tariff Board did agree, after it realised the pyrite strategy had failed, to extend the subsidy arrangement to 1970.

It is impossible, in this study, to discuss every detail of the minutes of the multiple Tariff Board hearings but the best overall examination of the first years of the policy is in the evidence given by Glenister Sheil to a hearing in 1959. In his submission, Sheil traced the history of the company, outlined progress of the Government policy from 1950 onward and summarised the Company’s financial commitment to the recovery of pyrite. By contrast, the Financial Reports in the MMLAR files fail to give this information and are lacking details of profits from pyrite sales. Sheil also argued the advantages that a successful outcome would have on the town. A more up-to-date financial summary formed part of a letter of 27 April 1967 from Loy Hennessy to the Tariff Board, updating

139 CAPCOL, D15/458.1.
140 There is sufficient material in these hearings and associated correspondence to justify a ‘stand-alone’ paper.
142 Ibid, pp.10-12. Detailed supporting evidence is given in Appendixes A-T and in a series of drawings. These figures are summarised on p.13; the Company had already spent £621,527 on work directly attributable to forward planning for the production of 180,000 tons/year of pyrites.
143 MMLAR, 30 June 1957 report ‘Gross surplus from sale of pyrites £8,025’ or 4% of the profit from gold/copper production.
144 Ibid, pp.16-18.
The financial figures in attachment 20a give a snapshot of current pyrite income and costs for 1965, 1966 and seven periods to 15 January 1967; they indicate a fall in sales from £15,151 in 1965 to zero in 1967; there was a corresponding fall in bounty earned from £96,457 to zero. The net profit was £6,980, but in the year to 15 January 1967, there were no transactions, indicating the market for pyrites was dead.

Photograph 1.4
Pyrite Paddock dump No. 2 Mill Tailings Dam
February 1956
[CAPCOL Neg. No. 63-B]
For location of this dam, see Map 2.1

145 MML letter No.L.8955 of 27 April 1967 to the Secretary, Tariff Board enclosed six sheets of data as public evidence and five sheets as confidential evidence.
146 The figures quoted in the latter part of this chapter followed the changeover from Imperial to decimal currency and while the several files expressed the amounts in decimal units, they have all been reproduced here in Imperial units for continuity.
The reality was that the Company operations were not geared for efficient handling of pyrite concentrate! From 1953, all the pyrite concentrate produced in No. 2 Mill \(^{147}\) was dried in open paddocks by the crude method of winnowing using a small diesel excavator. They were then transported by motor truck into 10 ton Government bottom-dump rail wagons and moved to either the port of Rockhampton or to the Port of Gladstone for shipment to Brisbane, or to Newcastle. \(^{148}\) Obviously concerned that an economic supply of pyrite could not sustain this inefficiency, Cameron told shareholders at the 1966 MMLAGM that the Company was upgrading its pyrite facilities in anticipation of future sales.

\(^{147}\) ‘Guides to the Operations of Mount Morgan Limited’ produced from ca 1953 onward.

\(^{148}\) The Brisbane works were ACF & Shirley’s at Pinkenba. See letters re shipment to this firm in CAPCOL M14/1327.3-7. At Newcastle, the fertiliser works of Sulphide Corporation, Cockle Creek. History, viewed, 18 April 2013, <http://www.niha.org.au/article.php/2010112010295938>.
of pyrite.\textsuperscript{149} In August, the Board had already given approval for extensive capital works for Mount Morgan and Gladstone.\textsuperscript{150} A 1998 heritage study of selected buildings and structures at the Mine details the extent of this project.\textsuperscript{151} In the largest single capital expenditure in its history,\textsuperscript{152} the Company committed to the construction of a new bank of flotation cells at No. 1 Mill, and new pumping systems to transfer the pyrite concentrate slurry to a filtration plant discharging directly into rail wagons at a new rail loading facility near the old Gold Room.\textsuperscript{153} At the Gladstone port, a proposed storage shed of 20,000 ton capacity, and a suitable reclaim system, would enable efficient ship loading.

This was a bold move, given the available records show that between 1950 and 1966 the Company produced only 480,000 tons of pyrite,\textsuperscript{154} all of it for the domestic market. Averaging 30,000 tons a year, throughput was subject to the vagaries of lack of acid water and troughs of demand.\textsuperscript{155} By the 1966 AGM, even as Cameron was announcing the planned capital works, the domestic market for pyrites had finally

\begin{itemize}
\item \textsuperscript{149} MMLAGM, 11 November 1966, p.3.
\item \textsuperscript{150} On 25 August 1966 the Board had approved a total cost of £291,000 ($583,000) for this project [Job No. C387], MMLBM, CAPCOL M14/1431.4.
\item \textsuperscript{152} At the mine. The establishment of the Mt Bundey iron ore mine in the Northern Territory was greater at an estimated £400,000 ($800,000). Memo, Cameron to the Board, 9 June 1967, p.2, CAPCOL M14/1431.4. However, the scope of the project may have been downgraded because in ‘Notes to accompany cash forecast summary’, 27 September 1966, p.2 item 3, CAPCOL M14/1432.4 the total cost of Mt Bundey had been estimated at £1 million ($2 million).
\item \textsuperscript{153} Mount Morgan engineering drawings of these plans may be found under the CN heading within the drawing files of CAPCOL, <http://library-resources.cqu.edu.au/collection/mount-morgan-mine/drawings/>.
\item \textsuperscript{154} General Manager’s reports, MMLARs 1948-1966. This was far short of the 180,000 tons a year the company had hoped to produce. ‘Tariff Board Enquiry into Sulphuric Acid Bounty Act 1954, Sydney, 1 October 1959, evidence … on behalf of Mount Morgan Limited by G Sheil’, CAPCOL D15/305.2. ‘Mount Morgan pyrites could be sold at the rate of 250,600 tons a year for 20 years’. FL Hennessy, 26 May 1967 letter L-9320 to the Secretary, Tariff Board.
\item \textsuperscript{155} While flotation of the copper/gold required an alkaline environment, pyrites was floated in an acid environment. Acid water for the pyrite cells at No 2 Mill was pumped from No 4 Dam. OAW, Email to RFB, 19 March 2013.
\end{itemize}
disappeared but nevertheless the Board was confident of its prospects of winning a contract for the supply of pyrite to Japan. Soon after, the Board suspended all major works on the proposed upgrading of the pyrite facilities. This decision was perhaps influenced by the total lack of sales in the preceding seven months, the poor performance of the mine during the extraordinary drought years 1963-1966, the commitment to the Mount Bundey iron ore project, and consideration of Cameron’s long-term expansion projects.

And this was how Peko management found the project when it assumed control of the mine.

In the hiatus that followed the ‘merger’ with Peko-Wallsend Investments Limited, there was a lapse of ten months before any more work was done on the project. Then the pyrite project was revitalised, but only

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156 Sales for the year 1965-66 were only £725. See MML letter.L.8955 of 27 April 1967 to the Secretary, Tariff Board.
157 Chairman’s Address, MMLAGM, 11 November 1966, p.3. The contract was dependent upon ‘a Japanese customer’ being able to obtain ‘the necessary import fund allocation’, ibid. This contract did not eventuate: FL Hennessy told the Secretary, Tariff Board, letter L-9320, 26 May 1967 that ‘the failure of the Nippon Mining Company Limited to import pyrites is [because] that there is currently an oversupply of pyrites in Japan.
158 On 2 February 1967 the Board had suspended ‘all major work on this project’. By that time an amount of £12,605 ($25,210) had already been expended on the flotation machines and by memo 2,890, 3 November 1967 Hennessy requested approval to spend an additional £32,195 ($64,390) to complete the cells. The memo justified the additional expenditure by advising the cells would be used as part of the normal Mill equipment and would generate an extra £19,500 ($39,000) a year in additional metals recovery. The meeting approved the additional expenditure, CAPCOL M14/1431.4.
159 As recorded in the Hennessy document, MML letter .L.8955, 27 April 1967 to the Secretary, Tariff Board.
160 MMLAGM, 11 November 1966, Cameron comments on the drought and the losses sustained by its subsidiary Associated Aggregates Limited.
161 ‘Notes to accompany cash forecast summary’, 27 September 1966, p.2 item 3, CAPCOL M14/1432.4. Over the same period, investment of Cameron’s windfall funds from his copper contract had earned interest of almost £77,500 ($155,000).
162 See CAPCOL M14/1431.4 for Cameron’s memo to the Board of 9 June 1967.
163 Finalised June 1968, the last meeting of the MML Board was on 7 December 1967 before Peko attained partial control, CAPCOL, M14/1431.4.
164 Capital job 387 covering ‘pyrite flotation, filtering, stockpiling and loading facilities’ was to be ‘carried over [until] further orders are obtained for pyrite’, Technical Meeting, 27-29 May 1970, section 2.8.1. Then ‘no further work was
the flotation cells, earthworks for the rail siding and the construction of the Gladstone facility were ever completed. 165 With the pyrite market in doubt, it appears the flotation machines did not produce any pyrite concentrate. 166 To all intents and purposes, following the collapse of the Government’s subsidy scheme in 1972, 167 the market for pyrite and the attraction of the Company’s entry into the manufacture of fertilisers had ended once and for all. 168 Finally, Peko sold the Gladstone facility to the Gladstone Port Authority without ever transferring pyrites to ships. 169 It appears that here the pyrite struggle ended, as did Mount Morgan’s diversification attempts with the Mount Bundey operation which closed in February 1972. Equipment was transferred to Peko Mine while houses and staff were relocated to the fledgling Ranger Uranium project. 170

There is no doubt, as a stand-alone company, Mount Morgan Limited, although at times a precarious survivor, was financially successful.
Within this chapter, the text and accompanying attachments chronicled the Company failure to achieve its full potential. It ignored the opportunities that lay on its door-step, it abandoned exploration of mineral prospects one of which, thirty years later, provided the funds which precipitated its loss of independence.

Clearly, management did not take into account the potential of the surrounding district. For example, the Company did not set up a cement works, it dismissed the opportunity to recognise the Moura coal field, and it recognised that the salt works it helped to establish could form the basis for a successful chemical industry but it took no action to use these resources. Importantly, it failed to capitalise on the promise of its own operating coal mine. In each case, others grasped the possibilities and established successful industries that benefited the district. The chapter has asked whether these decisions reflected the conservative attitude of a largely staid Board or whether there were practical considerations involving the more important commitment of funds to the efficient operation of its main source of income - the mine. The available records do not provide a clear answer to these questions. However, the commitment of funds to the payment of tax-free dividends has been sometimes argued as being more important than expenditure on some item of plant recommended by the Mine staff.

Boyle has incorrectly argued that the Company’s early success into widespread exploration, through its subsidiary Mount Morgan Developments Ltd, was principally hindered by, what Noel Kirby called, ‘Adam Boyd’s lack of spending mentality’ suggesting that, unlike his contemporary Lindesay Clark, Boyd attempted to operate without committing sufficient funds to properly complete the task. 171 While

171 Boyle MA, pp147-149 suggests ‘the Board had been luke-warm about the scheme, secondly there really was not the capital available to fund Boyd's expansionary
nothing came of their exploration efforts, MMDL investigated over 780 properties, spending almost £41,000; its ultimate failure was the inability to attract capital to develop its prospects. Further, there was the debacle that followed the unsound investment in Sulphide Gold (Junctions Reef) Limited which operated a small gold mine near Orange, NSW. In the 21st century, this region has indicted reserves of over a quarter of a million ounces of gold.

The most important consequence of the failure of MMDL was the abandonment of its exploration of the Tennant Creek field in 1937. Contemporary mines Noble’s Nob and Eldorado situated within the area explored were hugely successful and ultimately the whole area became the platform for the spectacular rise of the Peko organisation – which eventually became owners of Mount Morgan. The Tennant Creek saga will be developed in Chapter Five as the Peko takeover is discussed. Nevertheless, it is amazing that Boyd, with his experience of the ‘ironstone cap’ at Mount Morgan did not capitalise on the similarity of the ‘cap’ at Tennant Creek. Furthermore, the Tennant Creek area was remote and isolated until the wartime construction of the bitumen highway between Darwin and Alice Springs changed the economics of mining the field. In fairness to Boyd, without extra external capital, the cost to the Company of remaining on the field may well have been outside the resources of Mount Morgan as it sought to restructure the worn-out plant it had inherited from the Old Company.

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172 SMH, 10 December 1938.
173 Boyle MA, p. 176, discusses the convoluted relationship between Directors of Mount Morgan Limited, Mount Morgan Developments Limited and Sulphide Gold (Junction Reefs) Ltd.
175 See Appendix.1.1 which links Mount Morgan with the Tennant Creek field. This appendix is also relative to Chapter Five.
Several areas which the Company pursued were unsuccessful because of outside influences. The manufacture of calcium carbide, which could lead to production of calcium cyanide and manufacture of plastics, was a project with promise and was well researched both by staff and technical directors. But the emergence of plastics produced from petrochemicals put paid to the project. Cameron’s entry into a minority holding in the quarry and ready-mix concrete industry in New South Wales was a disaster brought about by the incompetent management of its majority shareholder. That aside, even after the Company assumed majority control and revisited the management structure, problems of poor technical control and the highly competitive nature of the industry seem to have been beyond the Board’s ability to comprehend. Cameron’s assessment that ‘the story of Associated Aggregates Limited is not a happy one’ was apposite.

The greater part of this Chapter has dealt with the attempts to exploit the pyrite content of the orebody and to enter the fertiliser manufacturing industry. Newman, Cameron, Sheil and teams of very competent young metallurgists lead by Loy Hennessy, Ossie Wilson and Henry Muller worked for over two decades to develop this resource but, as argued in the body of the Chapter, the Company was fortunate not to succeed.

Exploitation of the pyrite faced logistical difficulties with Mount Morgan perennially short of water, an essential input to manufacture, together with its distance from existing fertiliser factories and the areas of substantial

178 Based in Cootamundra, NSW.
179 MMLAGM, 17 November 1966, p.4.
fertiliser consumption. But it was the menace of cheaper sources of sulphur that was the greatest problem.

The Australian pyrite industry was doomed from the start because, although the Federal government had promised financial support, their hypothesis was wrong – sulphuric acid produced from imported elemental sulphur was cheaper than that from pyrite, and reliable sources of sulphur were never really in question. The final blow that ended the government interest was the development, for environmental reasons, of the production of sulphur from gas wells and flue gases from ‘smoke stacks’. The only stand-alone pyrite producers which had committed to supplying fertiliser factories closed when the pyrite bounty was removed. Mount Morgan would undoubtedly have done the same, leaving the EZ plant at Risdon, Tasmania, to succeed by treating its flue gases to produce sulphur.

The title of this Chapter is ‘Failed Diversification’ and quite apart from the speculation of Board lethargy and perceived quarantining of capital to meet mine expansion and shareholder dividends, the Chapter has satisfied the question raised in the title. It has been demonstrated here that, by neglecting to take into account the potential of the surrounding district, by making poor management decisions about those existing projects which had proceeded, the result was indeed ‘Failed Diversification’. But in view of the eventual market collapse and the burden of outside influences, the failure to develop the pyrite resource was indeed a stroke of good fortune.

Mount Morgan may have failed to achieve anything other than to operate, successfully, a single mine for thirty-five years but its sound financial position at the end of 1967 encouraged predators to bid for what remained. The battle and its aftermath will form the substance of Chapter Five.
Chapter Two

They made millions but “they never done nothin’ for the town”.¹

It is over twenty-two years since the mine finally closed and there are few people living in Mount Morgan who had crossed the river daily to be part of the Works or who remember the prosperity that came from the mine. Consequently, many of the new residents who have settled in the town to enjoy the climate, and the cheaper real estate, have no concept of what happened on the Mine side of the river.² Instead, it is the acknowledged and well documented environmental disaster that surrounds the site extending for kilometers down the Dee River, together with the belief that, because there were few shareholders among the employees and residents, all the money the Company made had left the town that people remember. In making these statement they ignore the contribution made by the Mine to the local economy, to the welfare of its employees, to the good of the town and to the training of young people.

The changes in the composition of the population began in 1976, when the mine first reduced staffing levels, escalating after the final closure of 1990, when a major influx of new residents began. At the time, there was a common belief that none of the millions won by the mine had benefited the workers, that all the money had left the town and as a result “they [the Company] never done nothin’ for the town”.³ This and succeeding chapters, will demonstrate that these newcomers have had no financial dependence on, or memory of, the operation of the mine. Consequently,

¹ Telephone comment by a ‘new’ resident to RFB, June 18 2004.
² The late Stan Lean OAM, former police sergeant and Mayor of Mount Morgan, ‘I had been ill advised when I first arrived in 1984 that the Mines did nothing for the town, [that] money was made and taken from the town and not spent in the town’, Email to RFB, 12 October 2005. Jim Leigh, OH with Betty Cosgrove, 15 September 1992.
³ The statement by ‘roadrider’ that ‘very little of the precious metal [gold] has stuck to the town’ seems to indicate this opinion has migrated to ‘outsiders’, viewed 17 February 2011, <http://www.roadrider.com.au/_webapp_296827/Mt_Morgan>.
any remaining evidence of the social influence of the Company is overshadowed by the public perception of the environmental problems left by the mine and by a lack of understanding of its operating history.

Apart from a guaranteed income enjoyed for almost forty-four years by up to one thousand three hundred and fifty employees⁴ there are a number of areas in which the town benefited from the Company input. While not always offered for altruistic reasons, the positive social efforts of the Company cannot be ignored. The extent of these programmes is too great to be covered in a single chapter so this discussion will be divided into three parts. The current chapter will analyse those factors that can be recognised by the hard infrastructure that remains, Chapter Three will consider the industrial and social legacy of the Works Welfare scheme. Chapter Four will investigate the policies of trade, technical and graduate training that propelled generations of young people into rewarding national and international careers. The outcomes of these latter initiatives are more difficult to quantify than the rest, but from a humanitarian point of view they are probably of the greatest importance.

This chapter concerns the interaction of the Company with the town of Mount Morgan; Lorna McDonald describes life in the town during the very early days of the Old Company⁵ and John Kerr, in his definitive work *Mount Morgan: gold copper and oil*, broadly traces the history of metalliferous mining in Central Queensland. Kerr examines the operation of the Mount Morgan mine in detail but devotes only four pages to describing life in the town.⁶ Betty Cosgrove accurately points out that little published material has dealt with the human aspect of the Mount Morgan history under the Old Company and that ‘most existing

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⁴ See wages paid to employees, MMLAGM, 15 October 1964.
⁵ McDonald, pp. 328-330.
⁶ Kerr, pp.79-82.
historiography of Mount Morgan deals with mine experience and tends to rationalise any criticism from whatever quarter'.

Certainly this style of writing continued throughout the life of Mount Morgan Limited. Perhaps the Company continued this approach by publishing monographs to foster and maintain its image, to bolster shareholder confidence, to present its technical achievements at Institute of Mining and Metallurgy conferences, to inform the hundreds of visitors to the mine and to mark the 75th Anniversary of Morgan’s ‘discovery’ of the Ironstone Mountain gold. These and papers prepared for the Royal Queensland Historical Society by staff member and resident historian B. G. Patterson tell the same story and all of them tend to perpetuate Company myths, particularly about the management styles from 1932 onward.

7 Cosgrove, PhD, p3.
8 Boyle, MA, p. 7.
Map 2.1
MML General Surface Plan, 1960
Indicates the proximity of the town
[MML survey plan 11.35, CAPCOL, no reference, copy from RFBCOL]
Until the mid 20th century, it was the norm for mining communities to be set up within walking distance from their mines thus establishing the social influence of the mine on the people through their physical proximity. While others have skirted the social history of the town, Cosgrove has competently documented town life under the Old Company, arguing that management made little attempt to endear itself to the people of Mount Morgan. With an attitude that was largely one of distance, the Mine contributed little to the physical infrastructure or services essential to a relatively isolated community.  

Countering the claim that ‘all the money left the town’ the payment of wages to a large workforce had a flow-on effect to town business; the extent of which cannot be ignored. Unlike most mines which generally started as greenfield operations and which had to build and fund their supporting townships, the Company had begun mining in 1932 beside a town which had been well established for fifty years. But thereafter Company policies provided some township services and facilities.

The local perception that management had committed little capital to support the town was compounded by the long-term effect the 1927 closure when only a few men, led by Adam Boyd, were retained to dispose of the Old Company assets. For the town the economic situation, over the following five years, was desperate. Later, this series of events tended to translate into distrust in those who continued to live in the town. Boyd’s struggle to reopen the mine has been well documented by McDonald, Kerr, Boyle and Boyd himself. Grabbs has accurately recorded the sacrifices made by the workers of the time, forgoing their 44 hour week to work an additional four hours, forgiving their Sunday

9 Confirmed by Kerr, pp. 114-117.
10 Chapter Five will look at a similar effect after the retrenchments in 1976.
11 McDonald, pp.323-324.
12 Kerr, pp. 214-216.
13 Boyle MA, Chapter Two, ‘The start of the new company, 1928-1932’ especially pp. 46-47 and a diagram of the operation in map four, p. 54.
overtime rates and taking shares in the struggling company. 15 The ‘start-up’ of July 1932 brought fresh hope and an assurance of a new life for the town 16 but, despite this stability, there is anecdotal evidence that some of the old-timers remembered the arrival of the telegram from Melbourne in July 1927 which had said simply ‘cease operations.’ 17 The widely held belief, paralleling Cosgrove’s assessment of the Old Company attitude, was that, on each occasion the Company made applications to the Industrial Court for changes to award conditions, management would hold the threat of closure over the employees. The result was that residents spent little extending or maintaining their properties. 18

Perhaps we should consider modifying the widely held criticism that the mine never done nothin’ for the town to read ‘the mine did less for the town than other mining companies have done’! This statement appears to be true if we look, for example, at the community work done by other mining companies. Former Utah employee Ross Thomas remembers that, in the mid 1960s, the company built the Blackwater Community Centre, the sports grounds and the local golf course. 19 O. H. Woodward, in his largely technical study of operations at Broken Hill, devotes a chapter to the contribution of the Mining Managers Association and of each of the mining companies on the field. 20 Mount Isa Mines Ltd has given ongoing

15 C Grabbs, Gold, black gold and intrigue, Sydney A & R, 1982. For those who took shares, the future prosperity of the Company rewarded them for their ‘sacrifice’.
16 Boyle MA, Chapter Three.
17 Henri Stock, private communication with RFB 1949. Stock OH with Carol Gistitin, 22 July 1989. Blainey, The rush, p. 278, recounts a similar story that during this period, managers often received coded cables which translated to ‘You had better shut down the mine’.
18 Henri Stock ‘you weren’t game to paint your house’ [because of a fear the mine might close again]. Henri Stock, OH with Carol Gistitin, 22 July 1989. Alex Teeney OAM, OH with Betty Cosgrove, 8 October 1992, in 1951 when he started at the mine, ‘the majority of houses were old and a lot of people didn’t seem to want to do their houses up, paint them, maintain them, have nice gardens’.
19 Ross Thomas, retired mechanical foreman formerly employed by the Utah mine, Blackwater, private communication with RFB, 21 October, 2010. It is questionable, given the poor image of the international companies that owned these mines during the Whitlam years, whether the support to townships was in fact intended as a social contribution or an exercise in public relations.
support to the Mount Isa community. 21 Bruce Watson clearly outlined the responsibilities faced by mining companies in the development of a community infrastructure in the more isolated parts of the continent, drawing on his own knowledge of the Mount Isa Mines experience, 22 which both Kennedy 23 and Blainey have detailed 24 and which Blainey says was one reason for that company’s ‘ceaseless demand for capital’. 25

Mount Morgan had first operated when most mining companies had provided no civic amenities, then in the period when companies provided everything necessary to support the workforce; but it closed before ‘fly-in-fly-out’ [FIFO] became fashionable. With a township well-established, but without the basic necessities of a reticulated water supply and with no domestic electric power supply, the Company was initially spared the expenditure faced by its contemporaries of the second era. Company records reveal, to a limited degree, the extent of support given to individuals and the township. 26

The 1950s were dominated by General Manager Glenister Sheil! An impressively large man with extensive involvement in national professional bodies and with a network of business contacts, Sheil promoted the image of the Company as never before. Supported in his social activates by his wife, Sheil encouraged his staff to be involved in his projects. 27 Other General Managers showed concern for the town but Sheil exercised the most influence in developing an interaction with the

the Old Company both before and after World War I. It is unclear whether many of these initiatives were the result of pressure from the Broken Hill Barrier Council.
ty&HI=En&Gl=Au&Cntl=Clnk&Cd=15>.
24 Blainey, Mines in the spinifex, p.158.
25 ibid.
26 Typically in CAPCOL, M14/1367.
27 Boyle MA, fn. 67, p.228.
town and in building up an atmosphere of good will between employees, townspeople and the mine.

Mount Morgan Township is located only 25 miles from the large regional city of Rockhampton and, for most of the period of this study, was connected to it by regular rail services and a somewhat inadequate road system. The post-1932 recovery found a community well served by enough commercial, government, sporting and social establishments to reduce the need for residents to travel to Rockhampton for all but special services or social activities. By 1935, there were six hundred and

Photograph 2.1
Glenister Sheil,
October 1960
[CAPCOL: Negative STAFF 3]

29 During the late 1930s, a number of young graduates including Noel Kirby and Henry Thomas, employed at the mine, spent most of their leisure time in Rockhampton or the seaside village of Emu Park. They enjoyed their weekends away from the Mount
twenty-five wages employees crossing the river to work ‘up the hill’ and taking home an annual pay of over sixty-five thousand pounds.  

Oral histories and other documentation record that former residents returned and in many cases rejoined the families they had been forced to leave behind.

It has been difficult to establish the financial dealings the Company had with the town business community because of a lack of detail about local transactions in the archived files and, although the Chief Engineer’s construction progress files contain engineering order details they do not always contain costs. This lack of specific data makes it impossible to decide the extent of direct backing for local industry and therefore to prove or disprove the contention that “they never done nothin’ for the [local businesses in] town”. In any event, the question must be asked whether, apart from some retail services, the town was equipped to offer industrial support to the mine. There had been several small local suppliers, building contractors and engineering workshops operating in the town; these services performed only limited work for the mine.

There was no set policy of directing this work away from the town - the small town establishments simply did not have the capacity to undertake any but minor tasks.

because ‘the social scene [away] was better’. Noel Kirby, OH with RFB, 3 October 1992, Thomas’ diary of 1939 listing their activities is in RFBCOL. However, Mount Morgan engineering diploma students of the 40s, 50s and 60s had to travel to Rockhampton at night to study. See Chapter Four.

And a further seventy-seven staff, wages and salaries to 30 June 1935, CAPCOL M14/1282.15.


CAPCOL M14/1457.1–18.

Such as the supply of ‘cribs’ [work place meals], groceries for staff and quarters, taxi services and road cartage to and from Rockhampton.

CAPCOL M14/1457 files 1–18 show that some orders were placed on the small Mount Morgan engineering firms for the manufacture of minor engineering components.
The Company had inherited most of the fully equipped workshops from the Old Company. The Annual Report of 1958 records the engineering workshops and building services had undertaken all the work required for construction and operation of the various treatment plants. However, during construction or maintenance peaks, or because of a shortage of suitable tradesmen, the Company was often forced to out-source some of the engineering work. For the most part, this work was let out to the well-established foundries and workshops in Rockhampton. Local businessman Abbie Rowe, elaborating on the involvement of the mine in the commercial enterprise of the town, has said that he did not know the extent of overall expenditure by the mine. He agreed that little engineering work was carried out by Mount Morgan business. Consequently, apart from local businesses providing day-to-day supplies, much of the expenditure would have gone outside Mount Morgan.

While the Company may not have directly supported the town businesses, at least it did not operate a Company sponsored Cooperative Store in competition with the town stores, as had the Old Company from 1919 to 1925. It was the stability and extent of the workforce at the mine that ensured the continued viability of the local commercial centre. With a workforce that was on a guaranteed income and through the Company

35 Listed in detail in MMGMCo, ‘Inventory of Plant and equipment Mount Morgan, DV Colliery, Marmor Limestone Quarry and Blackwater’, 1927, RFBCOL.
36 RFB, ‘Survey of redundant plant and equipment’, Area seven, Workshops, October 1984, CAPCOL M14/1231.9
39 Bruce Hiskens, OH with Lorna McDonald, 15 December 1992. Rockhampton Chamber of Commerce Annual Report, 1944-45 lists five of these firms as members: The names of these companies also appear as providing engineering services to the Company in the ‘construction progress’ files in CAPCOL M14/1457.1-20.
40 Abbie Rowe, OH with Betty Cosgrove, 16 October 1992, [Rowe OH].
41 ibid.
42 ibid.
43 ibid.
44 Kerr, p.166. Hawke, A brief history of Mount Morgan businesses, mentions this store.
45 Rowe, OH.
apprenticeship system it was not unusual to find father, son and grandson in the Company workforce at the same time. In 1934-35, over one hundred and twenty of the employees appear to have been casual workers, earning an average of only £40 during the year, but the majority lived in Mount Morgan and it could be expected that most of the money would have found its way into the local hotels and shops.

There was a local perception that the river provided a social divide between the townsfolk and senior staff who lived ‘on the range’, but the day to day needs of those who were thought to be the ‘upper class’ were supplied by town shops. At least until the 1960s, Mount Morgan residents gave solid support to local business but, as the highway to Rockhampton was sealed and improved more people acquired reliable motor vehicles. Consequently, as Rowe suggests, there was an increase in the amount spent in Rockhampton rather than in the Mount. It is unlikely this financial movement away from the town would have occurred at the more remote, but larger, mining towns of Mount Isa, Broken Hill or Kalgoorlie, each of which is hundreds of miles respectively from the larger cities of Townsville, Adelaide or Perth.

46 ibid.
47 When copper/gold concentrates were transferred by rail for shipment to the Asarco smelter at Tacoma, Washington State, USA for processing, Boyle MA, p.92.
48 Only six were registered as living in Rockhampton or Yeppoon, CAPCOL M14/1282.15.
49 There were nine hotels in the immediate town at that time, Golding, 'Past hotels', *Centenary of the town of Mount Morgan*.
50 Elaine Millers, OH with Betty Cosgrove, 10 December 1992. Ossie Wilson quotes his wife Patricia, who was the daughter of a railway employee and sister of other railway employees ‘the Range people never came into [the family] conversation – they were interested mainly in the railway happenings. Father used to like sitting on the front steps at night to watch the slag pouring but apart from this the mine and its doings had no interest to [the family] – they lived in their own world’. OAW, email to RFB, 4 September 2008.
51 Stuart & Betty Pullar, OH with Rod Elvis, 22 April, 1993, Rowe, OH with Betty Cosgrove, Bruce Hiskens, OH with Lorna McDonald 15 December 1992.
52 Rowe, OH.
53 ibid.
54 In the 1970’s ‘through its employment, support and procurement of goods and services, the [Mount Isa mine] is a major contributor to the Mt Isa economy’. See MIM Ltd, *Operations at Mount Isa*. 
Although the town was ill-equipped to provide engineering and other technical services to the Company, almost from the beginning, the Company established a spread of community services. Input to a wide range of town projects and events continued often at an unofficial and informal level. But the most publicised contributions were the Company’s part in the construction of a water supply for the town, in the provision of a domestic electricity reticulation system, in the re-location of the town Golf Club, in the re-development of the Union Grounds, in a major reconstruction of sections of the School of Arts building, and finally the gift of a new home for the Mount Morgan Historical Museum. But at least two of these projects were undertaken as much in the Company’s interest as in those of the town.

55 CAPCOL, M14 1429.6, memo, 12 January 1956 from Sydney Office ‘approval [of the Board] is to be obtained before [any community] work is undertaken’ All costs incurred will be charged. No deviation from this procedure will be permitted under any circumstances. [Underlining emphasis is theirs]. Except for larger projects, this instruction may have been ignored, at least under Sheil as General Manager. There are numerous records of ‘small’ support for organisations in Mount Morgan and Baralaba, CAPCOL M14/1367.3-10, M14/1485.2-3.
Water for the Town?

Mount Morgan had never enjoyed a reticulated water supply although, from the eventual filling of No.7 dam in 1904 until the liquidators had taken over in 1927, the Old Company had provided water, free of charge, to the Mount Morgan Shire Council. A water supply would be of great social advantage to the town but it is obvious that the Company had a vested interest in being able to access an additional, reliable source of water to guarantee continuity of its operations. If this could be done with someone else being responsible for supplying a large percentage of the capital required then well and good!

Throughout the life of the Mine, despite the building of eight fresh water dams, recurring water shortages had continued to plague the operation. By the mid 1940s, only No 7 Dam and a dam designated 6A contained fresh water; the remaining dams had been polluted by run-off from the Mine and had been heavily silted. At least eighty-five percent of the water used in the concentrating mills was recovered from the tailing dams for reuse, but fresh water made up the balance. Until 1956, when the Mine began to take most of its electric power from the CREB supply

58 This philosophy was not new with Boyle MA, p.206 arguing that ‘[Boyd’s] general philosophy [was] that any expansion should be achieved with the minimum capital outlay or with someone else paying’.
59 Interruptions to production in the days of the Old Company are listed by Patterson and those that occurred in the life of the Company in the various MMLBM and MMLAR.
60 No. 6A dam was created by constructing a rock ‘cut-off’ wall upstream of the polluted No 6 dam so that it could capture fresh water flow from Dairy Creek; it also captured overflow from No 7 Dam.
61 By 1954, No 6 dam had been so badly silted that its initial capacity of eighty million gallons had been reduced to two and a half million gallons, Patterson ‘Notes on Mount Morgan water supplies’, 1954. This silting is discussed in Chapter Six.
grid. The Company Power Station consumed prodigious quantities of fresh water.

Successive Councils had argued the desirability of finding a reliable source of water, perhaps on one occasion influenced by the *Rockhampton Evening News*. In 1941 Adam Boyd had attended a public meeting of interested parties at which it was resolved to approach the government to discuss a scheme for supplying the town with water. The Board then agreed that, subject to suitable terms and conditions, the Company would guarantee an annual payment of £4,000 for supply. The Board minutes are silent on the matter until July 1945 when the Company faced yet another serious water shortage. This was just a year after the appointment of Glenister Sheil, a highly qualified and experienced civil engineer, to the position of Assistant General Manager of the Company.

Given the seriousness of the interruptions to production caused by water shortages it can be argued that, if the Company could share the water, there was an element of self interest in assisting the Council to develop a reliable supply for the town. During the severe water shortage in 1945, the Company tested the aquifers in the Fletcher Creek catchment, about nine miles south of the township, with encouraging results. Bores were put

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63 From 1953 the Company began to take limited power from the CREB grid, but continued to operate its Power Station to supply the balance until April 1956 when it took all its power (except for a small amount generated from its smelter waste heat boilers) from the grid, RFB, ‘Generations of Power’.
64 RFB, ‘memo to the Chief Engineer’, 8 July 1953, ‘[water] losses from the cooling towers’, RFB workbook 1952-1954, RFBCOL.
65 *RMB* including a valedictory address by Alan McAskill retiring General Manager of the Company in 1937. Shire Chairman Mick Enright called a public meeting of interested parties to consider the provision of a water scheme; advertisement in *RMB*, 6 November 1937. There is no record of the results of the meeting.
66 *REN*, 7 September 1937 ‘the Mount Morgan Council would surely do no harm if it set about exploring a possible source of supply’.
68 ibid.
69 Fletcher Creek is a tributary of the Dee River. See Map 6.1 which shows the creek and river system around the mine site.
down and water was railed to the mine to supplement its dwindling supplies. Sheil was appointed consulting engineer to the Council and privately undertook, in addition to his duties at the mine, the design of a suitable scheme sourced from these aquifers. Kerr says that supply from Fletcher Creek was intended for the town and, in emergency, for the mine as well but the Company could draw substantial quantities from the town supply. Importantly, potable water would now replace unpalatable condensate trucked from the Power Station to mine crib rooms and residences. The Company contracted with the Council to provide a minimum of thirty-one million gallons of water a year for an annual fee of £3,000 but the rate-payers may not have been aware that the Company would have first priority even if it meant restricting supply to the town.

The social and engineering strategies implied in this arrangement are questionable. The average consumption of fresh water by the mine was almost 16 million gallons a month so the Fletcher Creek source would have provided relief for less than two months from the Company’s traditional sources. Had the Company elected to use Fletcher Creek water as an emergency supply, surplus water would have remained underground in the aquifer, protected from the evaporation that plagued the surface water stored in the Company dams. However, the subsequent failure of supply was hastened by the excessive mine use, by depletion of the

70 Kerr, p.216.
71 Boyle MA, pp. 234-234 questions Boyd’s opinion of Sheil’s involvement in other than his primary responsibilities as Assistant General Manager.
72 Kerr, p. 216.
73 Welfare Committee meeting 5 February 1936, CAPCOL, M14/1449.1, ‘complaints about the quality of the condensate water’.
74 MMLBM, 6 August 1947, CAPCOL, D15/388; see also MML letter No. 4530, 11 August 1947, to the MMSC accepting the terms of supply.
75 ibid, ‘the Board in making this contribution desires it to be clearly understood that the continuity of mining operations, and therefore employment, is regarded as vital and that in any dry spell the fullest cooperation of the Council in ensuring supply to the mine, the town demand being rationed if necessary to assist in meeting the requirements of the Company during such periods’.
76 RFB, Memo to Chief Engineer, 24 September 1954, ‘increasing water supply from No 7 dam – maximum demand’, RFBCOL.
77 Chief Engineer, weekly report of ‘water stocks and consumption’, ‘water lost through seepage, evaporation and unaccounted losses’, RFBCOL.
aquifers and because the normal, well established, practices recommended for recharging aquifers appear to have been ignored.\textsuperscript{78}

While the principal funding came from a Government loan to the Shire Council, \textsuperscript{79} the Company provided assistance during the construction period. However, it is difficult from extant records to establish the extent of this support. For almost thirty years, the Company carried out mechanical and electrical maintenance of the pumping equipment \textsuperscript{80} as well as providing engineering and geological technical services. But until the Peko era, when Loy Hennessy submitted a summary of the costs incurred during the previous year, there are no accurate records of these services. \textsuperscript{81}

Opened on 24 April 1954, \textsuperscript{82} Fletcher Creek met its commitments to the town and Company until early 1959 but then the scheme often failed and the Company was forced to reduce its intake while it continued to pay the contracted price to Council. There has been criticism of the perceived inadequacy of scheme but it provided potable water for most of the time although there were periods of restrictions. In the first six years, contractual consumption by the Works amounted to over 200 million gallons, equivalent to almost the FSL of the Big Dam. So the Company

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{78} E. Bennison, \textit{Ground water – its development, use and conservation}, Edward E. Johnson, St Paul, first edition, 1947 Chapter XVIII, pp.454-509 details the recommended methods to be used for recharging aquifers similar to the Fletcher Creek field. These methods were never adopted.
\item \textsuperscript{79} The final cost of the scheme was £304,000 with an interest rate of 4½%. By 1954, the contracted charge had risen from £3,000 a year to £3,600 a year with the cost of excess water rising from 1/5½ a thousand gallons to 2/- a thousand gallons. Residents paid 2/6 a thousand gallons for excess water, memo MD337, 2 July 1954, General Manager to Managing Director. By 1977 the costs were equivalent of over 18/- per thousand gallons; this compares with 1/10 per thousand for water treated from the No 7 Dam source.
\item \textsuperscript{80} During the early 1980s, the then Shire Council decided that it no longer wished the Company to provide maintenance of its equipment, private communication from Mrs. Gloria Keyes, widow of electrical foreman Abbie Keyes with RFB 19 January 2011.
\item \textsuperscript{81} FL. Hennessy, Inter-office memo 3473, 22 November 1970 to the Chairman, ‘the Company has expended in excess of $25,000 on work to assist the Shire Council with its water supply scheme’, Appendix 2.1.
\item \textsuperscript{82} Kerr, p.216.
\end{itemize}
\end{footnotesize}
must bear some responsibility for the failure. The original calculation of
town consumption, compared with storage in the aquifer, was based on
the assumptions that, firstly, most men bathed at the Works after finishing
their shifts. Secondly, there were no septic toilets. Finally, there were
no washing machines and gardens relied on water left over from washing
days. All this changed as citizens embraced the advantages of home
bathrooms and water consuming devices that followed the availability of
reticulated water. In promoting the domestic use of water, the Company
must accept part of the blame for the increase in water town consumption
when it offered interest free loans to citizens who wished to install septic
systems and, as an early environmental initiative, encouraged the planting
of trees. And all these factors were compounded by lack of proper
aquifer recharging techniques. Appendix 2.1 gives a comprehensive
history of the Fletcher Creek Scheme and its relationship with the
Company.

Electricity for the Town

It is clear there was an element of self interest in Company support for the
water scheme, but it had no such motives in its support for the installation
of a town electricity supply. Perhaps the Company’s help was a cynical
ploy to convince the town, and the investing public, that Mount Morgan
had achieved a revival and that residents could look forward to many
years of life in the mine. But the Rockhampton Evening News expressed
the alternative opinion that the provision of electric power was a gift to
the town and part of its welfare policy.

83 Where change houses had been supplied with Company dam water.
84 Glenister Sheil, Obit, AusIMM, Proceedings No 260, December 1981. This was
clearly an attempt to redress the denuding of the hills by the Old Company.
85 The subject memo from Hennessy is an inter-office memo, 22 November 1970. The
memo from the Chief Engineer is an annexure to the Technical Meeting, 18th to 20th
October 1977. It is not included in the copies of these technical meetings held in
CAPCOL. A copy of the original paper is in RFBCOL.
86 REN, August 19 1935.
87 Ibid. By now the Welfare scheme was well established.
The first system of electric lighting in Queensland was installed in the Queensland Government Printing Office in April 1883 and, within a decade, Mount Morgan followed, using electricity for lighting and in its treatment plants. However, the Old Company had refused a request by the Mount Morgan Council to provide electric power to the town, stating that its power was for use only on the Works. Two years after operations at the Mine had resumed, the continued success of the mine encouraged Council to investigate an electric power supply to the township. The Queensland Government refused Council’s application for a grant or loan and, realising they could not build their own power station, a deputation waited on Boyd to seek his assistance. Boyd suggested how Council should seek finance saying that perhaps cost would be as high as £10,000 but an application was made to the Queensland Government for a loan and for a subsidy to cover a revised estimated cost of £6,250. Yet again Treasury advised that ‘loans and subsidies are not granted to local authorities for the installing electric light schemes but an application for a loan would receive consideration’. The proposal appears to have been put on hold for a year. In 1935, Boyd and Council reached an agreement that the Company would supply bulk power from its Power Station, provide an interest free loan with repayment coming from revenue. It agreed to undertake construction under the supervision of its electrical foreman, John Kelly.

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88 SA Prentice, ‘First underground electricity mains in Brisbane’, published as insert to accompany the National Heritage Conference.
89 Sykes, pp.73-74
91 The payment of an initial dividend of 12½%, the number of men employed and assurances that the Mine had a foreseeable life of twenty years seem to be all the Councilors needed to give them the confidence to go ahead.
92 RMB 6 March 1934. This was one of the few occasions when townspeople lobbied the company for assistance with infrastructure projects.
93 Report of the deputation to Council in ibid. Councilor Dickson remarked that the only chance Council had of getting £10,000 was to win a prize in the Golden Casket, Boyd’s estimate was probably what is known in engineering as a ‘ball park figure’.
94 The doubting Councilor Dickson was not at the meeting. As an alternative to the loan/subsidy application Council agreed to ask for a grant ‘to cover the actual amount [to be] spent on wages’. RMB, 7 April 1934.
95 RMB June 11 1934.
96 REN, 19 August 1935.
The *Rockhampton Evening News* also reported that ‘the Government has approved the proposed agreement between the Council and Mount Morgan Limited for the supply of electricity to the council’. However, Council and the paper appear to have been unaware the trouble the acceptance of this agreement would later generate.

Having reached this agreement, there were technical difficulties to be overcome before power could be supplied from the Company Power Station. Only direct current [DC] was available from the mine, whereas domestic appliances required an alternating current [AC] supply. The skills of Mount Morgan tradesmen were demonstrated yet again with J. K. Dempsey, an Old Company trained electrician, being directed by Boyd to ‘fix the problem’. Highly skilled in electric motor technology, Dempsey reconstructed a large DC electric motor to convert DC to AC and Council had its power waiting at the Company boundary. Within months, Council agreed to John Kelly’s recommendation to extend the supply to include a point outside the Olympia Theatre. Dempsey’s equipment continued to provide supply to the town until 1937 when the Power Station began to generate AC and a suitable interconnecting transformer was installed.

Over two years after the first rejection of government for help, Council applied to Treasury for a loan to extend the distribution system. Now

97 ibid. The paper paid tribute to the generosity of the Company and in particular to the interest in the town shown by the Directors - but especially by Boyd.
98 JK Dempsey OH with RFB, 22 August 1987; Dempsey gives the technical details of his reworking of the 100HP, 550 V DC Bruce-Peebles electric motor and explains the operating principles he used to make the alterations. He was following principles explained in P Kemp, *Alternating current electrical engineering*, McMillan, London, seventh edition, 1949, Chapter XXVI, ‘rotary convertors’, pp. 417-471.
99 *RMB*, 7 April 1934. Dempsey’s ‘rotary convertor’ was limited to about 75 kW so *RMB*, 5 December 1936 reported that a Councilor had commented ‘there [have been] complaints about insufficiency of the present supply of current’.
100 Coincidentally Kelly was part-owner of the Olympia Theatre.
101 For a discussion on the changes that occurred to the Power Station and the electrical supply, see Boyle MA, pp.141-145.
102 *RMB*, 27 October 1937.
Government bureaucrats suddenly realised Council had raised funds privately and warned that the original agreement, and a second one with the Company, were both illegal! Council was instructed to apply for a loan to cover the residue of the original agreement and the proposed new loan – attracting the normal government rate of interest; the Company loan had been interest free. The Councillors were amazed that government officials should now condemn the initiative of both Company and Council but alarmed that they were ‘jointly and severally liable to pay back such monies to the local authorities’. 103

The reaction was palpable! Ensuring that townsfolk knew of the government attitude, the Rockhampton Evening News wrote:

To secure money [for the extension] the council had to go to the government. It was then that some red tape addict in Brisbane discovered that, under the Act, there was an irregularity in the original electrification scheme being financed in the way it was. The Mount Morgan Company’s interest-free loan began to assume the aspect of almost a criminal act. 104

The records are silent on the outcome, but commonsense seems to have prevailed and the Company continued to supply power to the town until 1953 when connection was made with the new CREB Rockhampton Power Station. 105

103 ibid.
104 REN, 2 November 1937.
105 Until the late 1940s when the CREB was formed, the Company continued to supply power to the Council; after that time and until 1953, the Company sold power to the CREB for re-sale to the town. MMLBM mention correspondence from the newly formed CREB. Most of the correspondence from 1951 onward relating to contracts with the CREB and its successors is missing from CAPCOL.
The Golf Club

The first golf links ‘were laid down on the flat near Dairy Creek between 1931 and 1932’ on abandoned Company land known as the Horse Paddock’. From 1936, its presence on this site was threatened by Boyd’s seven million ton scheme which condemned a significant part of the area to intrusion by waste dumps. When the club requested the Company to grant a loan of £1,200 to build a new club house Sheil’s cryptic response was ‘[I]feel unable to guarantee/hint at tenure but reiterate that if permission to rebuild/build new club house would hold to undertaking to remove club house to new site at company expense’. By 1955, dump intrusion had caused serious problems on the greens. The Company continued to warn the club that future dumping would gradually reduce the area available for certain holes and that in any case, Dairy Creek was subject to flash flooding. On at least one occasion the club house had been totally submerged.

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109 ibid.
The solution was to move away from the menace of the mine dumps. On 9 May 1955 the club acquired the lease of forfeited Miners Homestead Leases 3237 to 3245 on a site adjacent to the Dawson Highway near the Hamilton Creek School - about two miles south of the town; the annual rental on the land was £2/2/-.

The Board agreed to make a grant of £3,000 and an interest free loan of £3,000 repayable over 20 years, towards the relocation of the golf club. The Company assisted in planning the relocation by arranging for staff, Council and CREB officers to provide technical assistance to establish the greens, connect them to Council water and provide electric power to the Club House. The Company architect designed the Club House.

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110 Copy of approval of acquisition of forfeited homestead leases, 5 May 1955, CAPCOL, M14/1367.8: See also typed and hand written notes on deputation, Golf Club committee with Sheil and Patterson, [no date] June 1955, ibid.


112 A Memo from Works Secretary Sandell noted the Company Architect had estimated the cost of the proposed clubhouse would be £6,075/8/6 plus furnishings and the cost of civil works £1,036, CAPCOL, M14/1367.8.
The MMLAR of 1958 noted that ‘the Club, subsidised by the Company, has completed the construction of the new links and a suitable club house on a pleasantly undulating site about two miles out of the town and these are a notable addition to the town’s recreational facilities’.\(^{113}\) With the golf club out of the way, the Company allocated the old Golf Club building to the Boy Scouts, who ‘thus became suitably housed in an adequate area of nicely grassed and floodlight land for training’.\(^{114}\)

The Company, without the appearance of any self-interest, supported this project. On the other hand, it would have been a public relations disaster had it refused to support the golfers and insisted on its legal right to evict them from its freehold land. The Company input was one of the positive contributions to the fabric of the town. Almost sixty years later the Mount Morgan golf club continues to operate a pleasant nine-hole, 4476 metre, par 70 course.

**Newman Park**

From 1891 until 1914, Mount Morgan enjoyed a fine reputation for the high standard of its Rugby.\(^{115}\) The town boasted a superior playing field located on the flat on the freehold between the No. 1 branch railway line and the Dee River; and known as the Union Grounds.

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\(^{113}\) MMLAR 1958.

\(^{114}\) ibid, The Golf Club eventually sold the old club house to the Company for £100, letter 8828, 23 June 1959, CAPCOL M14/1367.8 The scout group continued to meet on this site until 22 February 1979 when it transferred to the new club house in Dee Street, viewed 17 February 2010, <http://capricorn.scouts.qld.com.au/Mt%20Morgan.htm>.

From 1950 Sheil, a Rugby blue at Melbourne University, transformed the grounds into a first class multi-purpose sporting facility. Renamed ‘Newman Park’ in honor of the Chairman, the Company refurbished the old grandstand, provided a Cyclone chain-wire security fence, new fencing surrounding the oval, an entrance gate and ticket box. The Company gardens curator, who lived in a house adjacent to the entrance, supervised the complex. An extensive irrigation system was installed, while high quality floodlighting provided round-the-clock use. Reflecting the high standard of the grounds, the MML Annual Report of

1958 recorded that the facilities were currently used for military training, football and band practices, by marching girls and the local cycling club.\(^{119}\)

The Sheils were dedicated tennis players \(^{120}\) and Sheil constructed six lawn tennis courts adjacent to the Newman Park oval while the Company sponsored the Australian Davis Cup team to play exhibition matches on these courts. \(^{121}\) Although not part of Newman Park, the Company assisted the Mount Morgan and District Tennis Association with financial support to build two gravel courts beside the Welfare Clubhouse.

From September 1976, the Mount Morgan Shire Council took over the area as a tenant of the Company at a nominal rental. \(^{122}\) A year later, Council requested ‘that the area be sold to the Council so that certain modifications and improvements can be made’. \(^{123}\) From here on the bi-annual budget and technical meeting notes record a multiplicity of problems as Council prevaricated about the conditions under which it would accept the ‘gift’ of the property. \(^{124}\) The matter dragged on with the Council alternately accepting and then declining the ‘gift’ as it raised new objections to the standard of the infrastructure, their shortage of funds and their inability to maintain the complex. \(^{125}\) Technical meetings record

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119 MMLAR 1958.
120 When, in 1951, the General Manager’s residence, Ritamada, was rebuilt and renamed Caralalup, Sheil replaced the old concrete court with a lawn tennis court for use by family and invited employees. Fred Cole, OH with Betty Cosgrove, 8 October 1992.
121 Former apprentice fitter Kevin Thompson, private communication with RFB, November 2010. Thompson played against members of the ‘team’.
122 MML, Technical Meetings, Mount Morgan, 22 to 24 April 1979, Section 7, Administration, sub-section 7.1.1, Newman Park. Technical Meeting, Mount Morgan, 20 to 23 October 1976 Section 7, Administration, sub-section 7.1, Sporting facilities, rental ‘$10 a year ‘until such time as the Company ceases to maintain a presence in the town’.
123 Technical Meetings, Mount Morgan, 22 to 24 April 1979, Section 7, Administration, sub-section 7.1.1, Newman Park.
124 MML, Technical Meetings, April 1977 to October 1981 record the Council changes of opinion on the acquisition and its changes to the conditions under which it would accept the transfer.
125 See Technical meetings to October 1981.
agreement to a series of capital and work demands from Council but in the event the Company seems to have given up recording the lack of progress with no mention being made of Newman Park in the technical meeting of April 1982. Council now owns the complex, a substantial gift from the Company.

The School of Arts

As in many towns, a ‘School of Arts’ had been important in the life of Mount Morgan 126 but by 1960 the third building of that name 127 had, under the ownership of a community committee, become run down. With the approach of a planned community reunion ‘the Back to Mount Morgan Week’, scheduled for October 1960, the Company approved an expenditure of £18,000 to refurbish sections of the building 128. Consequently, major alterations were made to include modern catering and dining room facilities, 129 the upgrading of the ‘stage electrics’ and the expenditure of £2,000 for stage curtains. 130

126 As a venue for the early technical training courses, see Chapter Four.
127 Earlier buildings had been destroyed by fire, N Chardon, ‘The Mount Morgan School of Arts’, Centenary of the town of mount Morgan MMLBM, June 17 1959.
128 EA Hegvold, Architect, CAPCOL, M14/1353.9.
129 N Chardon, ‘The Mount Morgan School of Arts’. 
The Mount Morgan Museum

It was inevitable that someone would seek to supplement the written histories of Mount Morgan with local histories and artifacts representing not only the mining history but the social events of the township. In 1965 a group meeting under the auspices of the Mount Morgan Chamber of Commerce decided to establish a museum dedicated to the presentation of these memorabilia. In the first instance, Abbie Rowe, Chairman of the foundation committee, offered the use of a building, part of the family business in Morgan Street, to house some of this material. For some years, John Kelly and his wife Dorothy had operated an electrical and gift shop in premises in East Street and when the Kellys retired to Sydney, they donated it to the embryonic museum committee.

The building, probably dating back to the turn of the 20th century, was in serious need of maintenance but it gave the Committee a place in which to display its artifacts. On 29 May 1967 the museum was officially opened in the ‘Kelly’ building. As with many small museums operated by well meaning amateurs, outstanding displays in this new site deteriorated into a jumble of material with little thought for their themes and presentation. The acquisition of an adjacent building did nothing to enhance the displays, and changes were needed, both where and how the display was presented.

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131 N Chardon, ‘The Mount Morgan historical museum’ in Centenary of the town of Mount Morgan; Abbie Rowe was the long-term president of the Chamber.
132 Ibid.
133 Ibid.
134 Ibid.
135 Ibid. Ms Chardon gives credit to the volunteers who constructed some of the special exhibits in specific areas set up in the building.
136 The Mount Morgan Museum failed to conform to the display guidelines outlined in ‘Small Museums, a collection of papers relative to the establishment, housing and operation of local and regional museums’, Seminar – workshop, 20-21 May 1978, held at the Queensland Museum, the Queensland Museum, Brisbane, RFBCOL.
In the halcyon days of the Old Company, the Rockhampton firm of James Stewart and Company ¹³⁷ had established a large department store on the corner of East and Morgan streets - coincidentally on the south east corner of the Gordon freehold. The store closed in June 1929, and was acquired by various owners and had various uses until bought by the Company in 1950 to house the ‘Balts’ - East European migrants, sponsored by the Company to work as indentured employees. ¹³⁸ By the late 1950s, when the period of indenture had ended, the building was no longer required and the place was given over to community use.

Photograph 2.4

James Stewart & Co. Ltd. Drapery, Clothiers, Tailors Store at Mount Morgan, Ca 1917

[Image sourced from Picture Queensland, State Library of Queensland
This image is free of copyright restrictions]

¹³⁷ James Stewart had been chairman of the Old Company. R Macfarlane, By any criterion: James Stewart & Co : Criterion House Rockhampton : a history of pioneers, Central Queensland and a unique Australian business, Yeppoon, Qld., Robert

¹³⁸ Boyle MA pp. 227-228, “Company sponsorship of twenty-eight ‘new Australians – the Balts’”; see details of alterations made to the original building in CAPCOL, M14/1556.
Over the next twenty-five years, the Company granted the Mount Morgan Camera Club, the government maternal, child welfare clinic, and the Presbyterian Church Sunday School use of the building. 139 The Mount Morgan Amateur Dramatic Group built an intimate, 100-seat, theatre within the building and for a nominal rent of £5 a year 140 presented pantomime, melodramas and more serious dramas until interest waned in about 1977. 141

In 1977, as the Company began selling off its redundant properties, the Peko Board decided to deed the building to a community trust charged with setting up and maintaining the museum collection. 142 Technical Meetings over the next three years linked the progress of the proposal

139 MML,’ Report on housing and welfare 1959-60’, CAPCOL Box M14/1464.10.
141 The only surviving collection of programmes and press reports of the Dramatic Group is in the hands of Mrs. Hazel Johnson of Mount Morgan. Although sighted for this study, the collection is not publically available.
with the final transfer completed in 1981. A condition of the Company gift was that a qualified museum curator was to be appointed. Under the guidance of the appointee, Ms Carol Hawley, the transfer of material and a well displayed series of exhibits enabled the relocated museum to be opened on 21 November 1983. 

**Conclusion**

The chapter has successfully disproved claims that the Company had taken everything from the town and in return had contributed nothing to support the locals either financially or by way of civic amenities. The total wages, salaries and bonuses paid to employees were well in excess of the dividends distributed to its shareholders few of whom, admittedly, were resident in Mount Morgan but the Company also committed significant resources to the provision of major civic infrastructure projects.

The chapter has questioned whether self interest prompted this support or whether it was done with the well-being of the town in mind. To answer these questions, the chapter considered in detail the major projects sponsored by the Company over a period of forty-five years. Remnants of several remain as a reminder of these initiatives. Further, although not detailed in this chapter, a study of a plethora of smaller projects along with financial and ‘in kind’ assistance provided background material for a broad summary of Company policy.

On the one hand, it was clearly a matter of self interest that support was given to the construction and operation of a town water supply – a support that proved to be a mistake as costs and failure of supply confirmed that the exercise was of doubtful advantage. But without Company involvement, the little town would have waited many years before it could

have established the scheme. Likewise, the support of the town golf club was largely of benefit to the Company because it freed the Company from responsibility for the encroachment of mine waste dumps onto the old club greens.

Company help to establish an electric light system was a gift to the town and certainly there was no discernible advantage to the Company in the redevelopment of the Union Grounds into a first class sporting and general-use facility. And the Company had nothing to gain from its decision to renovate, at considerable cost, portion of the struggling community-owned School of Arts building in time for the 1960 ‘Back to Mount Morgan Week’. The final initiative, the gift of the Stewarts building, made a significant contribution to the future finances of a town which now promotes itself as a tourist destination.
Chapter Three
A New Approach to Employees’ Welfare?

Industrial welfarism can be defined as any facility or service provided by management that is not strictly necessary for the everyday operation of plant and machinery.¹

Introduction:

For forty-nine years Mount Morgan Limited supported a successful joint Company/employee association, known to the community as ‘The Welfare’ and regarded by them as being one of the management triumphs of the Company. The organisation was based on Adam Boyd’s 1932 Mount Morgan Limited Works [workers’ consultative] Committee. While still consultative, the range of the original committee’s charter was, by the introduction of ‘welfare’, extended towards the management of a Recreation and Sporting Club and the ancillary bodies that evolved from it. Boyd is credited with setting up the parent committee within weeks of receiving a Government loan that enabled him to start test work at the mine, leading to the resumption of active mining. But there is evidence that this committee was, in fact, a rebirth of a similar body that existed during the latter days of the Old Company. This suggestion indicates that, despite opinions to the contrary, Boyd’s later Company initiatives may have had their origins in his earlier management role.

Mount Morgan people believed the scheme was unique but a literature study reveals this is not the case! This chapter will look at other welfare schemes throughout Australia, particularly in the mining industry, but also in private and public instrumentalities and indeed in commercial enterprises. This examination will attempt to compare these programmes

with the Mount Morgan plan, especially to see whether they were intended as industrial tools and whether they were in any way expected to exercise a measure of social control on the private lives of employees.

Plainly, the purpose of the original Works Committee was to provide a conduit of communication between management and workers, an intention that may not have been widely replicated throughout the mining industry. But the motive behind its relatively rapid expansion to take in the responsibility for the management of ‘the welfare’ needs to be questioned to determine whether it was for purely altruistic reasons or whether, as has been suggested, it was an industrial ploy. There is evidence of the latter, with Board minutes demonstrating that, although there were elements of humanitarian concern in the discussions, the principal intention was to forestall attempts by the workers to obtain, through the courts, working and financial advantages that the Company considered to be unwarranted.

Another question is whether the introduction of the scheme played any significant part in maintaining mutual goodwill and encouraging industrial peace. Chapter Five will explore the influence the Peko takeover had on the overall operations of the Company, but it is also important, in this chapter, to look at the scheme during the post-Peko period to see whether the new owners ultimately gave it the same status as had the former management. Finally, it is necessary to ask if, with the winding down of operations, changes in ownership and the inevitable demise of the plan, the deeding of the sporting and recreational infrastructure to the town was the last major contribution to the Mount Morgan community. While the local community generally was not aware of the fact, the concept of establishing and maintaining a welfare organisation for the benefit of its employees is not unique to Mount Morgan. Although not as comprehensive as some, nevertheless, the Mount Morgan Works Welfare Scheme was similar in many respects to those of other mining companies.
A broad outline of the scheme and its objects.

The basis of the scheme was that the Company would set aside a percentage of the dividends paid to ordinary shareholders and deposit these monies into an account in a Mount Morgan bank. Part of this fund provided a cash bonus to wages employees with the remainder funding recreation facilities, medical support and an insurance scheme. The philosophy behind the establishment of the scheme is important, if only to establish what criteria ensured the input the scheme was truly for the workers. The most positive characteristic lay in the composition of its governing body with the majority of members elected representatives of all sections of the Works. One Staff officer, appointed from each section, counterbalanced that section’s two elected employee’s representatives. The General Manager was ex-officio and the Secretary was a staff clerk.

While the financial advantages of the cash bonus paid under the scheme were important to the employees, it is clear that the establishment of the Recreation and Sporting Club gave them the opportunity to contribute to its detailed management. Indeed, the administrative structure of the club enabled the rank and file to involve themselves in the overall supervision of the mine picnic, the swimming club and the social behavior in the use of the Club House facilities. Research into the ongoing financial records and the growth and eventual decline of the scheme, along with its management style, its industrial impact and its social influence will help determine whether the scheme was one of the Company triumphs.

Researchers have described many mining companies as being paternal in their attitudes to their employees. ² Blainey says ‘paternalism became so common in the mining industry that it multiplied the expense, and

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² Blainey, The rush, p.298 in which he discusses this ‘paternalism’ especially at the Wallaroo and Moonta fields of South Australia in the 1860s.
therefore the risk, of opening new mines’. Furthermore, there is Blainey’s story of Burra’s small welfare state in which the South Australian Mining Association provided amenities which encompassed life from birth to death. Crowson has suggested, ‘paternalism may enhance management’s sense of well-being, but in the long run brings few benefits to mining companies’. Sometimes, as in the case of John Moffat’s provision of cottages at his first venture at Tent Hill and his kindness to his employees, it is for philanthropic reasons. For the most part however, throughout the industry, the provision of such diverse benefits as housing, medical and dental services and recreation facilities were part of what Blainey calls ‘a brand of industrial relations’. As part of his paper ‘Work and welfare at Mt Lyell 1913-1923’ Charlie Fox has written a section called ‘Welfarism and the history of work’. This is probably one of the most comprehensive studies of industrial welfare in Australia. In this section Fox has cited over twenty sources which discuss international and national welfare schemes and their influence on their respective industries. Among the sources cited by Fox the literature shows that, from colonial days, there has been a wide range of welfarism in Australia. In part, these sources range from Kennedy’s study of welfarism at Broken Hill through Eklund’s analysis of welfare at Pt

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3 Blainey, *The rush* p.298.
4 ibid, pp.108-109.
5 P Crowson, ‘Pandora’s Box: economic policy issues for the mining industry’, *Minerals and energy*, Vol. 17 No 1 2002 p.4. Crowson was formerly chief economist of RTZ [now Rio Tinto Limited].
7 Blainey, *The rush*, p. 298, ibid, pp. 294-299, discusses the welfare policies of various companies, but not of Mount Morgan.
8 C Fox, ‘Work and welfare at Mt Lyell 1913-1923’, *Journal of Australasian mining history*, Volume 1, Number 1, September 2003, UWA, pp.51-78.
9 The section ‘Welfarism and the history of work’ may be found in ibid pp. 51-56. As the article title suggests, the principal focus in on Mt Lyell, details of which are discussed in pp.57-75.
Kembla, Cockle Creek and Pt Pirie, to Barton’s ‘Industrial welfarism at Electrolytic Zinc, Hobart’. What is apparent is that, in 1930, just before the time the Company introduced its scheme, there were fewer than 100 Australian companies with welfare programmes. Only two of the hundred had cooperative councils similar to the Mount Morgan Works Committee established by Boyd in 1932.

Although Fox has introduced the concept of pensions and bonuses as the first part of Sanford Jacoby’s analysis of the four aspects of welfarism in American industry, he does not make any reference to the payment of bonuses in his analysis of Australian welfarism. Does this omission pose the question that, in Australian mining, the Mount Morgan scheme was unique in its payment of an employee bonus purely as a means of profit sharing? While Blainey has told of the copper bonus paid at Wallaroo and Moonta from 1905, a payment which appears to have been the part of its welfare scheme that rebounded sometimes on its creators, at least until 1958 the Mount Morgan bonus was not industrially awarded. For almost twenty-five years, this bonus was unlike the copper bonus paid to workers in Cobar in 1906-07 and the lead bonus payments of Broken Hill and

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14 ibid. The two were at Broken Hill Associated Smelters at Pt Pirie and Electrolytic Zinc. Boyd’s establishment of the Works committee is discussed later in this chapter.
16 Blainey, The rush, p. 299.
17 As discussed in the section dealing with the industrial influence of the Welfare.
18 Blainey, The rush, p. 299.
Mount Isa. Each of these had been applied as part of an industrial agreement. Whatever the answer, it will become clear during the discussion of the establishment of the Mount Morgan scheme that the bonus was a powerful incentive for the more militant of the employees to accept the scheme.

Balnave argues that miners, commercial enterprises and government departments had all introduced schemes with features similar to those at Mount Morgan and that the provision of recreation facilities had been a widely implemented and enduring feature of labour management in Australia between 1890 and 1965. Although originally proposed as a recommendation from the Committee, the Mount Morgan scheme did not include such features as free medical or dental care, all of which were in many other programmes. Perhaps, when considering an early Company suggestion that medical care be subsidised, the Committee may have decided that, as the employees already paid 6d a week, through the Company payroll system, to the locally administered Mount Morgan ‘Public’ Hospital, it was not considered necessary to include this

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19 ibid. Blainey says the Broken Hill bonus applied from 1925 and the Mt Isa bonus from 1937. In each case Blainey argues the bonus applied an unfair advantage to the employees over the interests of shareholders. This was not the case with the ‘voluntary’ bonus of Mount Morgan which, for most of the scheme, still gave shareholders a reasonable return for their investment.


21 In letter 1768 of 13 April 1934 from the General Manager to the Managing Director, Boyd outlined the recommendations of the Works Committee ‘regarding the class of welfare most acceptable to the men’. The list included (1) annual picnic, (2) recreation – Baths, bowling green, tennis courts etc, (3) insurance and (4) dental clinic. There was no mention of a medical component although this feature had been included in remarks by Industrial Consultant Fitzgerald at the 7 February 1934 Board meeting, CAPCOL, M14/1281.3. The Minutes of the Board meeting of 20 April 1934 record that the Works Committee recommendation was ‘unanimously approved’. See CAPCOL, M14/1281.3.

22 Boyd to the Secretary, Australian Metals Association of 24 January 1933 MML reference No. 164. This letter is in response to an enquiry of 10 January 1933 from the Association seeking details of any scheme supporting medical and dental benefits to employees. Boyd’s reply details the contributions made by [Company] employees to support the hospital and the benefits enjoyed by employees and their families. It is not clear whether this arrangement was new when compared with previous policy under the Old Company. This uncertainty is the result of a confusing comment in this letter from Boyd in which he says ‘during the life of the old Mount Morgan Gold
facility in the Welfare Scheme. This arrangement was similar to that which was then in operation at the ER&S plant, Pt Kembla where contributions were higher but where benefits appear to be more generous. There is no reference to justify the decision not to adopt the dental clinic suggestion.

Unlike many of the mining operations studied by Blainey, Mount Morgan was one of the few Australian operations located in congenial surroundings, a fact continually highlighted in the Company dealings with unions. The provision of employee housing has been considered in some welfare schemes as an essential social element. However, at least until 1946 when there was an urgent need for the Company to recruit outside labour, the provision of this type of employee infrastructure desirable, but so essential, at more remote fields was not considered necessary.

The Company post-war building programme, involving the construction of a range of accommodation from staff and employee housing, quarters for staff and the introduction of bank guarantees for employees wishing to build new homes, was a capital investment and not a part of the Welfare scheme.

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23 Secretary, Australian Metals Association, 19 January 1933, CAPCOL, D15/1528.4.
24 See for example in the hearing of the Industrial Court of Queensland in September 1933 to consider an application by the Company for a ‘Consolidated award for tradesmen except those covered by Industrial Awards’, CAPCOL M14/1397.6.
25 C Fox, ‘Work and welfare at Mt Lyell’ especially on p.51.
26 Boyle MA, Chapter Eight, ‘Modernisation and Management, 1945–1950’, pp.227–228, discusses Company strategies to attract workers in order to overcome the shortage of labour that followed when war-time restrictions of movement of workers was removed.
27 Blainey quotes the ‘expense of planting a community ... in new fields such as Mount Isa or Mary Kathleen’ in The rush, p. 298. See also Blainey, Mines in the spinifex, p. 158 for a discussion on the costs of provision of these services.
28 MMLBMs throughout the 1940s–1960s detail arrangements to sell land to employees (and townspeople) and to guarantee bank loans for employees wishing to build houses. Conditionally, the Company agreed to purchase the houses at valuation if the employee or ‘outsider’ left town.
Fox has examined the Mt Lyell welfare scheme of the early 20th century to determine whether the programme was for that mining company’s self preservation. 29 Betty Cosgrove has commented how little the Old Company did for the town,30 so the fact that the Board had considered whether the introduction of the Welfare Scheme might enable the Company to steal a march on the unions, when they made later industrial claims, is not unexpected. 31 Fox records that welfare schemes at Broken Hill, based on industrial control, were a spectacular failure, and they ‘founndered on the rocks of political and industrial conflict’.32 The industrial success or failure of the Mount Morgan scheme will be explored later in this chapter.

The Works Committee – its establishment and ties with the Old Company

There had been little industrial peace in Mount Morgan from the middle of the second decade through to the middle of the third, ending with the final confrontation between management and the men in September 1925. As noted earlier, this resulted in the destruction of the underground mine and the end of the Old Company.33 The hardship that followed the loss of all but a handful of jobs, at the start of the Great Depression, produced a complex set of industrial attitudes in those who remained, as they struggled to survive on the limited dole and in any scattered jobs that might offer themselves. 34 On the one hand there was the eager help and willingness to surrender employment conditions in order to support the new Company in its struggle re-establish a presence on the site, a battle that, despite employees’ best efforts, was almost lost. 35 These men were

29 C Fox ‘Work and welfare at Mt Lyell, 1913-1921’.
30 Throughout her thesis, Cosgrove PhD.
31 MMLBM, January 1934, CAPCOL D15/278.1.
33 The first industrial troubles began in 1917, Patterson, ‘A history of the Mount Morgan gold mine 1908-1927’, p130. Boyd had been General Manager since 1915.ibid, p.133.
34 See the discussion of the situation of typical families in Chapter Four.
35 Kerr, p.189.
in the majority for the year following the successful resumption of mining. On the other hand, as it became apparent success was in sight and more men were employed, there were those who blamed the Old Company management for all that had happened and for the position in which they had found themselves. In these men there was a sense of distrust in any Company initiatives.

Photograph 3.1
The beginning of the 1925 strike
[Hempseed photograph]

Perhaps with the memory of this distrust firmly in his mind and in order to involve the men in decision making, within weeks of the commencement of the experimental work in July 1932 Adam Boyd set up the Mount Morgan Limited Works Committee as a consultative group composed of representative of employees from all sections of the Works. Prepared at

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36 The number of men employed increased rapidly as test work started in July 1932. See Boyle MA for details of the reopening of the mine, p. 105.

37 The inaugural meeting of the committee was held on Friday 12 August 1932, CAPCOL, M14/1281.1 This meeting followed a preliminary meeting of selected employee representatives called by Boyd on 5 August 1932 to explain the purpose of the proposed committee and to set the guidelines under which it would operate. There
the beginning of July 1932, the typed copy of the constitution and duties of the Committee 38 notes that the committee would consist of ‘representatives of the management and employees of the Mt. Morgan G. M. Co. Ltd’. The Old Company had ceased to exist five years previously but perhaps a similar committee had existed under its management. 39 If so, Boyd was simply reviving a previous initiative.

Boyd had been General Manager from the beginning of the industrial troubles experienced by the Old Company and had been the one in charge when the mine closed in 1927. Now, as General Manager and a Director of the Company, he was the only link the new Board had with the Old Company. His past experience, especially during the mob rule that dominated the events of September 1925, and his knowledge of the workers’ lingering suspicions clearly influenced his attitude to worker relations. 40 It can be argued that he has been described as a very complex person, whose management attitude was tough, but because he had been personally distressed by the suffering of the townsfolk when the mine closed, he was the pre-eminent influence in the development of the new welfare scheme.

The Works Committee operated in its original form for two years until, in a document dated 30 June 1934 and reflecting the introduction of the ‘welfare’ scheme, its duties were expanded by the redrafting of the

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38 The Works Committee had as its object: ‘The handling of all matters of mutual interest to the Company and employees other than the fixation of wages rates, hours and conditions of work [which a further paragraph insisted were to be ‘determined from time to time by the industrial authorities … or by agreement between the Company and … labour representatives on the field’], CAPCOL M14/1281.3.

39 However, no reference has yet been found in the records of the Old Company held in CAPCOL to confirm the existence of such a committee.

40 Boyle MA p, 118 contends ‘Boyd … of all the Mount Morgan Board members, had reason to fear a return to the anarchy of the militant 1920s’.
constitution. Company records 41 show that, during the life of the scheme no material changes, apart from substantial increases in the level of Company contribution post 1957 42 were made to the original 1934 constitution. This stability is in marked contrast to the developments discussed in Pragnell’s investigation of welfarism at the retailer David Jones. 43

With over forty years experience in the Australian mining industry, Adam Boyd certainly would have known about the Australian mines and smelters that had welfare schemes. However, his visit North America as part of the ‘Royal commission on the mining industry of Queensland’ seems to have advanced the idea of a Mount Morgan scheme. 44 Although he noted the management of the Ray Consolidated Company assiduously avoided using of the word ‘welfare’ when referring to any scheme to help the worker, 45 throughout its life the sporting facilities and club house were always described as ‘The Welfare’. 46

Herbert Gepp’s government-initiated study of Boyd’s plans to resume mining at Mount Morgan, and his continued association with the Board as a consultant during 1933, when operations were achieving their early

41 For example in CAPCOL, M14/1464-1471.
42 These changes were made as the result of industrial action during 1957. See later discussion in this Chapter. At this time, the contribution to ‘welfare’ changed from being variable at 40% of the Company payment to a fixed amount of £3,000. See tables of contributions in Appendix 3.3.
44 Boyle MA has noted Boyd’s input to the report to the ‘Royal commission on the mining industry of Queensland’, Government Printer, 1930, pp. 99-101. Assistant General Manager, James Horsburgh Sr. and the Company Technical Advisor, Tom Owen had also been impressed with several welfare schemes during their visits to America. MMLBM, CAPCOL, D15/386.1.
45 This company operated a mine at Ray, Arizona, ‘Report to the Royal Commission on the Mining Industry of Queensland’, p.101.
46 For example see RMB, 7 September 1934 announcing the opening of the Mount Morgan Works Welfare Committee Club House and photograph of 8 September 1934 using the same name for the Committee. See Photograph 3.2.
success, have been examined elsewhere by Boyle.\textsuperscript{47} Gepp had an important influence on the early history of the Company so that it not unexpected that, while Boyd is credited in legend with setting up the proposed scheme,\textsuperscript{49} Gepp certainly had a hand in the detail of its implementation.\textsuperscript{50}

As early as July 1932, the Board began enquiries into setting up a profit sharing scheme. Coinciding with his appointment as an industrial consultant to the Company,\textsuperscript{51} Major A. W. Hutchin, MHR, the former industrial officer of the Electrolytic Zinc of Australasia [EZ] plant at Risdon in Tasmania\textsuperscript{52} was invited to prepare an outline plan for the Board to consider. Hutchin became involved at the behest of Gepp, his former manager at EZ.\textsuperscript{53} Hutchins preliminary thoughts on the proposed bonus scheme are contained in a handwritten draft prepared during what may

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\textsuperscript{47} Boyle MA, Chapter Three, ‘Men, money and metallurgy’. Gepp had been a ‘technical consultant to the Board’ until early 1934 when he resigned because he was ‘fully occupied by his acceptance of the Chairmanship of the Wheat Commission and other work of National importance’. See ‘file of correspondence with Sir Herbert Gepp, 22 June 1932-14 April 1934’, CAPCOL, M14/1281.13, MMLAR to 30 June 1934, p.9. See also MMLBM 15 September 1933, CAPCOL D15/386.1.
\textsuperscript{49} MMLBM, January 1934.
\textsuperscript{50} Noel Kirby, former mining engineer and Assistant General Manager, MML did not believe this to be true but the written evidence seems to correct this opinion., Kirby’s opinion was cited in Boyle MA, fn 103, p. 116 as Noel Kirby, OH with RFB, 3 October 1992.
\textsuperscript{51} Hutchin’s work in this role is discussed later in this Chapter as part of the analysis of the use of the welfare scheme as an industrial tool.
\textsuperscript{52} In 1932 and 1933, Hutchin was a member of the House of Representatives. See biography of Hutchin. Details of Hutchin’s military career may be found in NLA. There appears to have been a much more relaxed attitude to Members becoming involved in work external to their Parliamentary duties than currently exists. Many of Hutchin’s memos were written on Parliamentary notepad from Parliament House, Canberra. Further, AW Fadden, MHR, was a Director of MML from 1938 to 1941 while still a member of Federal Parliament, resigning just before he became Prime Minister for a short time following the resignation of RG Menzies, Boyle MA, pp. 157-162.
\textsuperscript{53} This opinion is confirmed in a letter from Gepp to the Company of 20 September 1933 in which Gepp says: ‘It gives me considerable satisfaction to note of the good work done by Mr. Hutchin … because Mr. Hutchin was recommended to the Board by Mr. Owen and myself, from our knowledge of Mr. Hutchin’s experience and ability in this direction with me at Electrolytic Zinc and since then as advising that Company and a number of other Companies throughout Australia’, CAPCOL, M14/ 1281.3.
\end{flushright}
have been a Parliamentary visit to Mount Isa.  In this report, he proposed elements that were similar to those in the welfare scheme operating at EZ, a scheme which Roe has confirmed Gepp had established at Risdon when he was the manager of that company. Gepp had been in the United States during 1911-1912 and, like Boyd, he had been impressed with the ideas of welfare capitalism which were booming there.

It is clear that the introduction of the scheme did not have an easy passage! Certainly, over several months, the whole proposition was subject to a period of Board reassessment and indeed some distrust on the part of some employees who doubted the sincerity of the Board in making the proposal.

On 8 December 1933, in response to an AWU claim, the Court rescinded an earlier decision by ruling that weekly hours of work should be reduced from 48 to 44 hours. On the same day Boyd, now back from sick leave, called a special meeting of the Works Committee and obviously putting into effect a threat of 26 October, told the members that, because the industrial court had reduced the working hours, the Company was no longer willing to continue with its proposed bonus scheme. He did, however, say he ‘hoped that later the Directors would consider some form of welfare scheme for the employees’.

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54 Handwritten letter from Hutchin to Boyd written at the Queens’ Hotel, Townsville on 22 July 1932, CAPCOL, M14/1528.4. This letter includes draft thoughts on the structure of a welfare scheme – salient points of his draft are discussed later in this chapter. He followed this note up with an official letter, CAPCOL, M14/1283.11.
55 ‘Correspondence and documents on the establishment of a staff welfare scheme, 3 October 1933 - 8 November 1934’, CAPCOL, M14/1283.11.
57 ibid, p.98.
58 Court ruling No 253 of 1933, clause 3, see CAPCOL M14/1397.6.
59 ibid, Court rulings 374 and 377 of 1933, clause 3.
60 Made at a special meeting of the Works Committee on 26 October 1933, see p.106.
61 Boyd’s use of the words ‘some form of welfare scheme’ reflected the Board decision that ‘the welfare scheme is withdrawn at any rate for the time being’; MMLBM, 14 December 1933, CAPCOL, D15/386.1.
The motives behind the establishment of a welfare scheme are now clearly demonstrated in the verbatim record of the meeting, held on 7 February 1933. The overwhelming intention was that the scheme would be an advantageous tool with which to impress the Industrial Commission. In most of the minutes, it is unclear just where Boyd stood. While he was cautious about the amount of bonus to be paid, he went on to outline the sporting facilities that had existed under the Old Company and believed these needed ‘little attention - a few hundred pounds and the Company would let them have light and water’. 62

Boyle has credited Tom Owen with proposing the final details of the scheme including the apportionment of the company contribution between a bonus and the maintenance of a recreation club. He also credits Owen with recommending the establishment of a joint employee/management committee to administer the funds. 63 But, in making this claim, it is clear that Boyle has misinterpreted part of the minutes of the February meeting and had disregarded a comment made by Managing Director Thompson. Thompson’s response to Owens’s detailed suggestion was ‘the proposition is the same as we had before’. Clearly, Thompson was referring to a broad proposal discussed by the Board prior to the announcement to the Works Committee. At that time, although he had been Acting General Manager for a large part of 1933, Owen was not a member of the Board. 64 There are no minutes extant of these early Board meetings so it is impossible to determine the originator of the scheme. Likewise it is impossible to determine what the original programme contained, although in his letter of 30 October 1933 Hutchin had put forward a hypothetical analysis of the funding of community work when he suggested that of a possible £8,000 distribution, £1,500 would provide

62 MMLBM 7 February 1933, ibid.
63 Boyle MA, fn. 111, p. 117. Boyle is quoting the minutes of the February 1933 meeting.
64 Owen was at the MMLAGM, 23 November 1933, and seconded the adoption of the motion relating to the acceptance of the Chairman’s address.
the basis for welfare. This amount is certainly less than the forty percent ultimately granted. It is therefore probable the 60/40 split suggested by Owen at the February 1933 Board meeting was part of the original idea.

After a rather prolonged argument, it was resolved to proceed with the implementation of the scheme and the Board requested Boyd to draw up a programme. Boyd seems to have taken a low key approach in the discussions, only occasionally expressing concern on the outcome of any claims for increased wages and the awarding of annual holidays. However, there is no doubt it was he, of all the Directors, and as the former General Manager of the Old Company, who had reason to fear a return to the anarchy of militancy from 1917 to the disastrous industrial events of 1925.

When the idea was first mooted there was a hint that the introduction of a welfare scheme would come with conditions. The scheme had yet to be announced publicly by the Board when Chief Engineer Morgan John, acting as General Manager in the place of Boyd who was on sick leave, and on the instructions of the Managing Director, made the first announcement of the possibility of the introduction of such a scheme. This

65 In his letter of 3 October 1933, Hutchin had calculated a possible scenario based on a distribution of £8,000. He argued that a £1,500 allocation to welfare boosted by the subscription of 400 employees paying 50/- a year would give the community projects an income of £2,500 a year, CAPCOL M14/1281.3. In the event, the percentage devoted to ‘welfare’ was greater than Hutchin had hypothesised but the annual contribution by employees was considerably less than the 50/- suggested by him. From 31 July 1934, the ‘Annual Subscription for Membership to the Recreation and Sports Clubs’ was actually 19/6 for adult males and 5/- for juniors (16 to 20 years), while townspeople paid 30/- and 8/6 respectively. See letter 1873 of 4 August 1934 from the General Manager (per C.S. Smith, Secretary of the Welfare Committee) to the Company Secretary, Sydney.

66 Boyd was on sick leave from March 1933 until November 1933. Letter from Chief Accountant CS Smith to the Company Secretary advising Boyd was in hospital in Rockhampton, March 1933, CAPCOL, M14/1251. During his leave, Boyd took the opportunity to visit his son Eric who was working for Malcolm Newman at a tin dredging operation in Malaya. Morgan John and then Tom Owen variously acted as General Manager during this time. MMLBM, 15 September 1933 noted that ‘Mr. John would be in charge of the mine until Mr. Owen could visit the mine’, CAPCOL, D15/386.1.
was at a special meeting of the Works Committee on 26 October 1933. John told the meeting that the Board was considering ‘allocating seven and a half percent of its ordinary dividends as a bonus to its wages employees subject to a ‘business-like agreement’ but that:

It must, however, be understood that this offer, if accepted, will apply only while wages and hours remain as at present.

Should either wages or hours vary this agreement will be subject to revision.68

It is not clear why the results of the Works Committee meeting of 30 October were inconclusive but, considering the later expressions of distrust by some of the employees, it may have been that a certain element among the employees consulted by the Committee members could have influenced the discussions leading up to the second meeting.69 Further, the union members consulted would have been aware that ‘the AWU had filed an application for a 44 hour week in lieu of the 48 hour week provided by the existing industrial agreement’70 and that ‘the combined conference of the building and metal trades had recommended that the Mount Morgan unions consider a ballot of their members on the question

67 Referred to above. At the Board meeting of 19 October 1933, the question of the welfare scheme for employees was considered and ‘it was unanimously resolved that the Managing Director be authorised to communicate with the Acting General Manager advising him that ‘the Board is prepared to entertain welfare scheme involving the contribution of 7½% of amounts distributed to shareholders of the Company from time to time and requesting him to call a the Works Committee together and ask it to formulate ideas as to what scheme would be most suitable to the men for the consideration of the Board’, CAPCOL D15/386.1. It should be noted that, at this time, there were no preference shares in the Company so there was no need to add the later qualification that the bonus was to be based on payments to the ordinary shareholders but not on payment made to preference shareholders.

68 Minutes of a special meeting of the Works Committee, 26 October 1933, CAPCOL, M14/1281.1.

69 Perhaps these were people whom Boyd might have called ‘of the wrong colour’. See earlier note reporting his comment to the Board at the meeting of 7 February 1934 in which he referred to men he ‘could trust’ as being ‘of the right colour’, CAPCOL D15/386.1.

70 MMLBM, 26 October 1933, CAPCOL D15/386.1. The 44 hour week case can be found in Court ruling No 253 of 1933, clause 3, CAPCOL M14/1397.6. The file contains a useful summary of the Industrial Court decisions on work hours from September 1933 to 1943.
of refusing to work more than 44 hours a week’. This knowledge, coupled with John’s implied threat, would have generated unease in the minds of the more militant employees.

While, at the meeting held at Mount Morgan in February 1934, one Director reminded the Board that the life of the mine would not be more than twenty years the fact that the price of gold was rising, promising greater profits, seems to have had the Directors worried that ‘the time [would] come when there will be a demand for increased wages’. As a result, Directors believed ‘the Arbitration Court could be convinced that the Company was rich enough to stand increases in wages, shorter hours and payment for holidays’. Company industrial consultant Fitzgerald summed up the way in which the matter might be resolved when he said:

[I believe] it would be an advantage to concede something to the men rather than to let them go to the Arbitration Commission. Mr. Boyd's insurance scheme would be the best approach unless we can get alternative scheme – it would work out soundly all round. It would be best to give a fund which would give the men certain benefits. Union leaders consider it unwise to give a man money in his pay envelope - he will drink it. Give them better conditions and the whole family will be able to share.

In response to the Managing Director’s complaint that the employees had already breached the original conditions under which the offer of 26 October had been made, Fitzgerald continued:

71 ibid. The mention of the ‘combined conference’ suggests the interference of the Rockhampton and/or Brisbane union leaders rather than those at Mount Morgan. This involvement would have been the very matter Hutchin was trying to prevent in his suggestion in his letter to the Managing Director, 27 September 1933, CAPCOL M14/1283.11.

72 This estimate would have been based on the known reserves which, at that time, were eight million tons. See later discussions about the projected life of the Mine in Chapter Five.

73 CAPCOL D15/386.1.
If you give them part of your profits the Arbitration Commission will say you have done something for the men. However, I do not think that this action will prevent the Commission awarding them holidays. 74

The Board members all agreed with Chairman Campbell that the introduction of the scheme would provide those appointed to represent the Company in the Industrial Court with a great argument to forestall its opponents. 75

Acceptance by the workers and townspeople

Despite the early expressions of distrust, the scheme was almost universally accepted, especially when employees realised that the bonus distributed to the lowest wage earners would be equivalent to almost three weeks income. 76 There was no doubt the introduction of a substantial life insurance policy, subsidised by the Works Committee from funds provided under the Company scheme, played an important part in convincing the workers of the value of the scheme. 77

By September 1934 over three hundred of the four hundred and sixty employees, and a further one hundred townspeople, had joined the recreation club. Nevertheless, as late as 1936 one or two of the more militant still argued that the scheme was not popular. The Works Committee chairman was quick to rebut one such claim when he angrily

74 ibid.
75 ibid.
76 As examples of the value of the bonus, in 1935 HJ Stock, a turner, averaged a wage of £6/16/- a week and received a bonus of £9/3/9 [before tax]; H Lowen, a labourer who averaged £3/16/- a week also received a bonus of £9/3/9. For bonus payments of 20 December 1935, see CAPCOL M14/1281.3 and for wages/salaries to end of June 1935, see CAPCOL, M14/1292.15.
77 CAPCOL M14/1283.11 contains a copy of the booklet of 20 September 1934 detailing the scheme; the insurance policy was underwritten by the Australasian Temperance and General Mutual Life Assurance Society Limited. In the Board minutes of 24 February 1934, p. 5 industrial consultant Fitzgerald acknowledges the origin of the insurance proposal as ‘Mr. Boyd’s insurance scheme’. In ibid, pp.1-5 the Directors argued the detail of the insurance initiative at length.
responded, through a letter to the Editor of the *Morning Bulletin*, to a suggestion by two members of his own committee that ‘80 percent of the employees are not in favour of the scheme’. Extolling the success of the scheme, Committee Chairman Read indicated that of the six hundred and fifty employees, only twenty percent were not subscribers to the sporting and recreation club.\(^78\) On one occasion, State union leaders used an industrial court hearing into the hours of work associated with the construction of the oxide mill to argue that the majority did not embrace the idea.\(^79\) The lack of complaints in the minutes of the Committee continue to confirm that these were indeed isolated concerns voiced by dissidents or for industrial purposes and obviously they did not represent the general opinion of the workers who had benefited most from the plan.\(^80\)

While the scheme was primarily designed for the benefit of Mount Morgan Limited employees, townspeople were encouraged to join, albeit their membership fees gave them access only to the recreation and sporting club and they did not have membership of the Welfare Committee.\(^81\)

### The dual structure of the scheme

The principal funding for the scheme came from seven and a half percent of dividends paid to ordinary shareholders. Held in a new account at the

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78 Chairman James Read, letter to the Editor, *RMB* 2 September 1936. Read was responding to comments made by J Richardson and A Watts at a meeting of the Mount Morgan Hospitals Board. Both were appointed representatives of the Works Committee to that Board. Watts had been one who was critical the scheme at the meeting of the Works Committee on 12 February 1934. See CAPCOL M14/1281.1. Because there were a number of single men living in hotels and boarding houses, it is likely the ‘twenty percent’ were not permanent residents of Mount Morgan and would have had no interest in the sporting clubs offered by the scheme.

79 Boyd to the Board, letter 1701, 15 February 1934, CAPCOL M14/1281.3.

80 Boyd to the Board, letter 1701, 15 February 1934, CAPCOL M14/1281.3.

81 While an adult male employee paid 19/6 a year membership fee, an adult town member paid 30/-, letter 1873, 4 August 1934 to the Company Secretary, CAPCOL M14/1281.3.
Mount Morgan branch of the Commonwealth Bank, these monies were distributed to the two major components of the scheme.

Sixty percent of the annual payment was distributed to wages employees as a cash bonus. Employee details in the Company payroll system ensured the funds were fairly distributed.\textsuperscript{82} The remaining forty percent funded the establishment, operation and maintenance of the recreation and sporting club. The insurance scheme was subsidised from this portion of the distribution. Totally responsible for the management of the facilities, the Committee worked hard to supplement the Company contribution with membership fees and sales of items from the Club House canteen. It was these additional sources of income that sustained the club in the lean years of 1941 and again from 1943 to 1949 when the Company paid no ordinary dividend and there was no distribution to the committee. However, as liquid funds diminished, the Company volunteered to underwrite the committee liability by paying, as progressive loans, its share of the insurance premiums which by 1949 totaled £3061/9/- . This liability was then forgiven by the Company, enabling the committee to meet its insurance payments until February 1950.\textsuperscript{83} By this time, reflecting Newman’s comment that ‘the lean years should be behind us’, the Company was about to resume ordinary dividends and therefore its contribution to the Welfare funds.

As discussed later, the scheme was re-introduced despite a breach of the original industrial conditions outlined by Morgan John to the Works Committee; it continued to operate substantially as originally proposed for thirty-four years. In a most revealing opinion about the industrial intentions of the Company, former union official ‘Taffy’ Badham explained almost half a century later ‘the scheme was used against the

\textsuperscript{82} The method of distribution had already been discussed by the Committee at a meeting of 13 October 1933, CAPCOL, M14/1281.1.

\textsuperscript{83} Announcement by Chairman Newman on 22 September 1949. Minutes of the Committee, 2 September 1949, CAPCOL M14/1449.11.
unions every time they made an application for a variation to the award’.  
At the same time, Badham recalled being in trouble with his union for he had suggested in court that ‘the Welfare Scheme ... could not be carried on without the assistance of the Company which catered for every sporting facility’. 

Adam Boyd argued that, as the basis for a recreation club, the Company should refurbish the existing sporting facilities then in the hands of ‘the citizens of Mount Morgan’. The Board approved his suggestion. The records are not clear how much money was initially paid into the welfare account, or when, but certainly the first substantial payment was made on 10 April 1934 when an amount of £1,290/13/2 was deposited into the Commonwealth Bank account. No doubt the Company had already begun the refurbishment by this time and now Boyd increased the labour input to improving the grounds adjacent to the swimming pool and Bowling Green and the Company resumed ownership of the facilities.

The repairs to the swimming pool, erection of dressing sheds and general

84 ‘Taffy’ Badham, OH with Carol Gistitin, 5 August 1989.
85 ibid.
86 At the February 1934 meeting Boyd said ‘my idea was to form a recreation club, and the Company put these things [swimming pool, tennis courts and bowling green] in order for them’. He added ‘a few hundred pounds would put the whole thing in order’, CAPCOL, M14/1283.11. In the event, the poor condition of the pool which had ‘partly fallen into ruin’ cost over £800 to refurbish. See report of the official opening in RMB 1 October 1934. The bowling green and tennis courts had been given to ‘the citizens of Mount Morgan by the Old Company liquidators’ and were returned on 14 August 1934, CAPCOL,M14/1281.3.
87 Boyd noted that this savings account was additional to ‘the original current account’. This statement indicates funds had been remitted by the Board, presumably to enable Boyd to begin the rehabilitation of the recreation grounds. See letter 1768 of 13 April 1934 in CAPCOL, M14/1281.3. The amount of £1,290/13/2 represented 7½% of the second interim dividend paid on 10 April 1934, MMLAR 5, 26 June 1934.
88 There is anecdotal evidence that at least some of the initial work may have been carried out ‘free of charge’ to the Committee. However the same source indicated that, after the Company contribution was received in April, Boyd may have recharged at least some of the costs to the Committee, private communication by the late Frank Cunningham, designing engineer, with RFB.
89 Boyd reported to the Company Secretary by letter No. 1846 of 4 July 1934 on the work already completed, CAPCOL, M14/1281.3. Boyd reported that arrangements had been made to take over these properties on 14 July 1934.
reconditioning of the recreation and sporting grounds were completed in
time for the official opening on 29 September 1934.  

Photograph 3.2
Official opening of the Welfare Club House
[RMB, 8 August 1936]

The building of a large club house on the grounds adjacent to the Bowling
Green was to provide a range of social amenities and a meeting place for
the committee, the bowlers and the other sub-sections of the recreation
organisation. Boyd had already said at the opening of the refurbished
grounds in September 1934 that:

A scheme such as this means the establishment of a place where we
can all meet in the evenings and get to know one another more
thoroughly; that makes for a better understanding and will lead to
increased harmony.

90 A telegram of congratulations to the committee was received from Chairman
Campbell of 28 September 1934 ‘on the occasion of the opening of the recreation and
sporting clubs at Mt [sic] Morgan tomorrow’, CAPCOL, M14/1281.3.
91 RMB, 1 October 1934.
Officially opened by Alan McAskill, General Manager, on 5 September 1936 the *Morning Bulletin* reported that ‘this club house will be the headquarters of the various recreational bodies which acknowledge the Works Committee as their head’. Now, even after his retirement as General Manager a year earlier, Boyd’s dream was fulfilled!

Photograph 3.3

**A F McAskill, General Manager, 1935-1937**

[CAPCOL: STA 001]

From the first meeting, the committee members acted quickly to set the operating parameters and immediately began planning to revive one of the remnants of the years before the shut-down – the mine picnic. This was one of the initiatives highlighted by Boyd at the February Board meeting and the revival of the old Linda Picnic had his ‘wholehearted

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92 The report detailed the facilities available: ‘the bowling club, tennis, the dance hall, billiard tables and refreshment room will be available to members’, *RMB*, 7 September 1936. A planned library and reading room was never commissioned.

93 Boyd noted that by 13 April 1934 the committee had put suggestions [through him] to the Board as to the ‘class of welfare which would be most acceptable to the men’. See letter 1768 of 13 April 1934, CAPCOL, M14/1281.3. By 26 June the committee had agreed on a constitution for the club, letter 1874 of 4 August 1934 in ibid. By 31 July 1934 the membership fees had been set, letter 1873 of 4 August 1934 from Boyd to the Company Secretary in ibid.

94 Betty Cosgrove has discussed the Linda Picnic of the Old Company employees in her PhD thesis, pp.310-311 but there appears to be some confusion in those pages as to whether the picnic was always held at Emu Park [line one p.310] or at Yeppoon [lines 11-14 p 310 and lines 27-29 p.310].
support’. The first Linda Picnic was held at Emu Park only a few weeks after the meeting of 12 February 1934. While the picnic was one of the focal points of the scheme and it continued to be held for a further forty-two years, employees’ picnics were a common feature of industrial operations of the time. The excitement of the picnic day in 1953 was captured on film by cadet survey draftsman Barry McKnight.

Photograph 3.4
Adam Boyd and Lew Westcott at a Mine Picnic ca 1939
[CAPCOL photograph]

The club minutes record that, for most of its life, the committee maintained detailed control of the amenities and, although the various sub-committees were individually responsible for the welfare of their members, the principal committee was swift to exact discipline for any

95 Boyd had mentioned reinstating ‘the Linda Picnic [held at the seaside village of Emu Park] for which the Old Company ‘had chartered trains but people took hampers’, CAPCOL M14/1283.4.
96 The picnic may not have been held during the war years, probably because of government restrictions on unnecessary train travel. Minutes of the Committee from 4 November 1940 to 2 October 1945, CAPCOL M14/144.11, make no mention of the Picnic.
97 B McKnight & R Cowland, from an 8 mm film by B McKnight, Mount Morgan memories, OzPix, youtube.com, 2011.
breach of its policies. On the other hand, the committee did not confine its support to its main arms – bowls, tennis and swimming - but it assisted a wide range of employee and town interests. In part, these ranged from the formation of, and continued representation on the Picnic Committee and the Mount Morgan Miners Health Committee. It had a social committee that was responsible for overseeing all the events held in the club house and, during the war it even had a War Loans Committee. It elected representatives to the Mount Morgan Hospital Board and appointed members to undertake regular hospital visits, subsidised the salary of a Resident Medical Officer at the Hospital and supported the Sick and Accident Fund. It had members on the local Ambulance Committee and received regular feedback from those representatives. It later supported bursaries and scholarships to the Mount Morgan State High School. Webster outlines a similar commitment by union members employed by the meat works at Lakes Creek near Rockhampton.

During the first eight years of the scheme, the club received £14,000, which enabled it to embark on the capital works described above as well as subsidising the employees’ insurance scheme. In only one of those years it did not receive any contribution. From 1943 to 1949, when the Company did not pay an ordinary dividend, the club received no payment, relying on its membership income and sales to survive. Although the club continued to function socially, through no fault of General

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98 For example in dealings with the problem of non-members using the facilities. See CAPCOL M14/1449.12 meeting of 10 September 1940 in which the Committee asked the Tennis Club to ‘advise problems with non-members’.

99 CAPCOL, M14/1449, 1451and 1479 contain minutes of the Committee meetings.


101 In 1941 for the first time since 1933, the Company did not pay an ordinary dividend. Dividends were paid on preference shares but these did not attract any Welfare charges. MMLAR to 1 July 1941.

102 MMLARs 1943-1949.

103 The minutes of the period record a continuance of the activities extant from the earlier period. CAPCOL M14/1449.11 relates to the holding of a dance on 29 September 1943.
Managers Westcott and John, these years saw little expansion of the facilities, especially during the austerity years of World War II. This was a period of stagnation in the material growth of the facilities. It was a different story during the 1950s under the management of Glenister Sheil!

A resumption of dividends in 1950 saw an injection of £64,500 in maintenance contributions to welfare during the first seven years of Sheil’s leadership.\textsuperscript{104} While a large portion of this amount was expended to fund the subsidised insurance scheme,\textsuperscript{105} the committee now found itself with liquid funds with which to expand the facilities. Given Sheil’s commitment to the provision of amenities,\textsuperscript{106} it is likely he had a significant influence on the programmes that followed. This was especially evident in the refurbishment of the swimming pool complex with the installation of a water filtering plant, the building of grandstands\textsuperscript{107} and in 1957, as a tribute to Adam Boyd, the construction of a wading pool surrounded by children’s playground facilities.\textsuperscript{108} The funds received over this period allowed the committee, in addition to its development work, to build up cash reserves which, by the beginning of 1957, amounted to £10,679.\textsuperscript{109} Changes to the method of allocating funds to welfare in 1957\textsuperscript{110} resulted in a series of operating deficits and, by the time Loy Hennessy assumed control in 1964, these reserves were reduced by two thirds.

\textsuperscript{104} Sheil was General Manager from July 1950 to January 1964.
\textsuperscript{105} In 1957 the premium payments amounted to £2,631 out of the £8,400 maintenance contribution, MMLAR June 1954, p.17.
\textsuperscript{107} ‘Improvements and additions to the Welfare Club [of the year to 26 June 1954] included a complete overhaul of the Swimming Pool’, MMLAR June 1954, p.17
\textsuperscript{108} MMLAR No 28 to 30 June 1937, pp14-15, ‘General Manager’s Report’.
\textsuperscript{109} Memo No 788 of 10 June 1964, from Loy Hennessy to the Board providing a table tracing the history of payments from 1957 to 1964 and recommending an increase from £3,000 a year to £4,000 a year., CAPCOL M14/ 1427.4.
\textsuperscript{110} Discussed in detail below.
Although there were references to the ‘Welfare’ in industrial hearings, the Company was not always successful in winning its case against union applications for increased wages and conditions.  

In addition to responding to formal industrial disputes, the Company appears to have successfully dealt with, what management considered as, ‘minor disputes and deputations’. Hutchins had implied it would be in the Company interest to keep union officials in Rockhampton and Brisbane at a distance from industrial affairs in Mount Morgan and now, in 1956, Newman told the shareholders the more moderate Mount Morgan employees had

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111 CAPCOL, M14/1409 which contains twenty-nine files from file No.1-T43 to file No. 29-T74 under the typical headings ‘transcript of [various ] hearings to alter the award’. These files cover a period from 1949 to 1963.

112 CAPCOL, M14/1396, 1397, 1405 and 1406 ‘minor’ incidents’.

113 As discussed earlier in the chapter, letter from Hutchin to the Managing Director, 27 September 1933.
been unable to block the industrial influence of the State and local Trades and Labour Council.

It had been thirty years since the one thousand angry miners had marched on the mine and twenty three years since the subsequent hardship that followed had ended with the reopening of the mine. For the most part, the majority of workers, particularly among the tradesmen, were of a new generation that had never suffered the privations of the shut-down. It was the support given to the regional and State union officials by these local militants that resulted in ‘the worst industrial unrest that Mount Morgan Limited has ever known’.

It is impossible here to discuss, in full, the details of what became a complicated and near disastrous dispute. It began with the application by a section of the unions on the field for an increase of £3/-. a week to the margins paid and for the awarding of a weekly bonus of £5/-. The Company argued that such increases would result in an increase of fifty percent to the annual cost of labour. With the application rejected by the court, nevertheless Mr. Justice Brown awarded a bonus ‘based only on

114 Chairman’s Address at the AGM 8 November 1956, un-numbered page.
116 A proportion of tradesmen were not local men. The Company had employed ‘tradesmen from outside Mount Morgan and from migrants after the War to overcome the shortage that existed when wartime labour movement had been removed...Boyle MA, pp.227-228.
117 Chairman’s Address at the AGM 8 November 1956, un-numbered page.
118 Trouble had been brewing since January-February 1954 when the Craft unions had begun to prepare a draft award which they were intent on pursuing. See Industrial Officer’s ‘Draft report on the Mount Morgan Dispute to 30 July 1957’, CAPCOL, M14/1401.13. But it was not until 22 August 1955 that the draft award was handed to the Company, ibid. The application had been made by the Tradesmen and Assistants and by the Engine Drivers. It appears members of the Australian Workers Union, which had the greatest number of employees on the field, were not included. But management argued the AWU would ‘now consider … [to] make an application’. Letter No. 9877 of 28 December 1956 from the General Manager to the Company Secretary.
119 The annual labour cost to 30 June 1955 was £1,171,724 while the increases requested were estimated to be £546,533, see submission to the Industrial Court, pp.2-3.
the price of metals contained in one ton of blister copper’. To counter this bonus, the Company applied to cancel all Mount Morgan awards, to revert to the relevant State awards and to cancel all production contracts. The union reaction was to impose a series of rolling industrial actions, which severely restricted the throughput of ore. The future of the Company was threatened to the extent that Managing Director Eric Boyd was forced to appeal, in an open letter to the people of Mount Morgan, for industrial sanity. His appeal met with almost unanimous support and in his second letter, when detailing the improvements in throughput, he said ‘your response to my appeal was splendid’. Eric Boyd, like his father before him, has been recognised in local folk-lore as ‘the savior of Mount Morgan.

The dispute was finally settled in September 1957 with marginal rates reviewed but, importantly in the context of this chapter, the method of determining the welfare bonus was restructured. Whereas the payment had previously been calculated as a fixed percentage of the ordinary dividend, now a sliding scale applied, effectively raising the proportion paid to employees. Appendixes 3.1 and 3.2 show the changes made under this

120 Known as ‘the Brown bonus’.
121 As for example miners, shovel drivers and Open Cut truck drivers were paid a ‘bonus’ based on the amount of material mined and transported, Boyle MA, p.203, fn.55.
122 For example, ‘list of stop-work meetings’, 6-18 February 1957, CAPCOL M14/1401.13.
123 Adam Boyd’s only son.
124 Eric Boyd, ‘First open letter’ 29 July 1957, CAPCOL M14/1401.13. Boyd said ‘I wish to tell you [this] because your future is threatened and you should know the fact... Your future is now in your hands. I hope you will shape it wisely’. This appears to have been the only occasion on which families and residents were involved in considering industrial matters at the Mine.
arrangement. The Welfare committee now received a fixed contribution of £3,000 a year; Appendix 3.3 shows the actual distribution. The effect on the operation of the Club is discussed later in this chapter.

The annual report ‘Company Amenities and Works Committee to 25 June 1961’ explains that the amount of bonus under this new arrangement was no longer based on a lump sum divided amongst all eligible employees but on a fixed amount for each employee. It followed that any reduction in the number of employees reduced the total amount of bonus paid. The resulting change saw the bonus rise, for the financial year to June 1961, to £91,386, or £80/7/- to each employee. It is clear the introduction of the welfare scheme did little to improve industrial harmony for the first twenty two years. Although perhaps reluctantly accepted by the Company, the increases granted post1957 no doubt constituted an essential element in the strategy to restore some semblance of industrial peace.

The change benefited the employees but, for the Club, the change in its income from forty percent of the Company payment to a fixed amount saw the Welfare income drop by almost fifty percent. This reduced income restricted the capacity of the committee to embark on major expansions to the facilities so that there were no more significant expenditures on capital works. Membership fees remained relatively

127 The data in Appendix 3.1 is taken from a table submitted to the Industrial Court on 27 September 1957 in Amendment to Rules, Mount Morgan Limited Works Committee, Part 2, Welfare, Schedule A, CAPCOL, M14/1401.13. The corresponding figures in Appendix 3.2, ‘actual payments 1958-1968’, taken from MMLARs, differ markedly from the agreed payments in Appendix 3.1 The difference may have resulted from further negotiations with Unions in Court but no record of any variation has been found in CAPCOL.

128 CAPCOL, M14/1464.10, p. 14 ‘housing and welfare report’.

129 Not including £3,000 to the Club. Total paid by the Company was £94,386. Staff, who were not eligible for the bonus, but were usually awarded a ‘Christmas Bonus’ equal to at least one weeks salary in lieu; as for example in MMLBM 4 December 1958.

130 The Company claimed the change was made voluntarily. The MMLAR to 29 June 1958, p.8, noted “employees have accepted the Company’s ‘voluntary’ offer of a bonus based on profits distributed to shareholders, in lieu of a bonus based on the price of blister copper”.

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constant, volunteer work and unauthorised maintenance work in the Company workshops helped to maintain the facilities.\footnote{131}

The advent of Peko and the closure of the scheme

Chapter Five will detail the entry of Peko-Wallsend Investments Ltd into the Mount Morgan operation. The effect of the takeover on the Welfare Scheme was immediate! Although modified after the industrial troubles of 1956-57, the scheme and its purpose had remained virtually unaltered. After the first meeting of the Peko Executive Board at Mount Morgan on 17 May 1968, the Unions were advised that the Welfare bonus would be abolished and that the Company would offer a fixed amount per week as an allowance. It was clearly stated that this payment would not apply to penalty rates.\footnote{132} Predicted low grade of ore, extensive capital outlay on new equipment and potentially low dividends resulting in low bonus payments were given to justify the decision. But the real, unstated, reason was that Peko had no profit sharing arrangement so a continuance of the Mount Morgan scheme would have set an unnerving precedent for Peko’s industrial structure. The years of Peko control brought major changes, both to the physical plant and in the level of employment\footnote{133} but Peko continued to fund the Welfare Club with an annual contribution that continued, even as the membership of the club declined and interest in its activities waned. At the end of 1982 the Company was still contributing $12,000 a year to support the activities of the club.\footnote{134}

The minutes of the committee show its continued interest in the administration of the facilities and in encouraging the activities of its sub-

\footnote{131 As a senior staff engineer during this period, Ray Boyle is aware that generally, for the most part, a significant part of the cost of work performed for the Welfare by the Company engineering employees was ‘lost’ to other cost centres within the mine operations. While this procedure was ‘unauthorised’, management was ‘aware’ of its existence.}

\footnote{132 See ‘Visit by Board of Directors - week ending 17 May 1968, minutes of discussions held on Friday 17 May 1968’, item 7, CAPCOL, M14/1248.}

\footnote{133 These will be outlined in Chapter Five.}

\footnote{134 Technical Meeting, 18-19 November 1982, section 8.4 ‘Works Welfare Committee’.
components – the bowling club, the tennis courts and the swimming club. But changing social attitudes continued a pre-existing decline in activities within the club house – dances and euchre card parties were no longer held, the canteen was not staffed on a regular basis and few bothered to play on the magnificent billiard table. In keeping with its original charter just as it had done since 1932, the committee continued to be the conduit from the workers to management for complaints, suggestions and recommendations.

The effect of downsizing by Peko post 1976

In early 1976, the attempt by the Peko Board to close the whole operation was foiled by Mount Morgan management under Ossie Wilson. But the price had been the closure of No 2 Mill and the retrenchment of two hundred employees. The employees who had survived the cutback, along with retired workers and townspeople, now realised that the Mine could not continue indefinitely and cracks began to appear in the Welfare Club structure. Following the retrenchments, a former Committee Chairman, retired Company Welfare/Safety Officer and ex-union official, ‘Taffy’ Badham influenced the closure of the Sick and Accident Fund and convinced the Committee that the Linda Picnic was no longer viable. Now he led a demand by the Welfare Bowling Club to have the bowling green excised from the property and for ownership to be transferred to that club. With a grant from the State Government, and from its own fund-raising, the Bowling Club extended their existing small club house.

Badham had claimed that, because the employees had been paying into the scheme for many years, the Bowling Club should be given to the bowlers. In the event, the Bowls Club did acquire the property by April

135 To be discussed in Chapter Five.
137 The history of this move can be traced in the documents relating to the Technical Meetings, see also ‘Taffy’ Badham, OH with Carol Gistitin, 5 August 1989.
138 With un-recorded assistance from the Company, RFB recollection.
139 ‘Taffy’ Badham, OH with Carol Gistitin, 5 August 1989.
1979, but at a cost of $6,698. As other club activities declined, the Bowls Club had provided the main, all year round, activity within the Sporting Club structure and with its divorce from the Welfare there began a rapid decline in the status of the club.

A group of young members proposed the construction of squash courts in the Boyd Park area but the proposal lapsed. Following the destruction by fire, in February 1976, of the only cinema in the town the committee in a joint venture with the previous theater owner, built a one-hundred seat cinema within the old main hall, but it did not achieve the attendance hoped for and the project was not a success.

By the middle of 1982 mining had finished at both Mount Morgan and Mt Chalmers and with only the Smelter and the new tailing retreatment plant about to open, the number of employees was only a fraction of the maximum attained in the 1950s. The result was that the Club now had only one employee representative of a membership of 168 employees and 25 town’s people, and total membership fees only $1,658. The Board was told that, despite the Company injecting $12,000 a year into the club, it was almost impossible to maintain employee interest, while changing social attitudes had reduced the need for the facilities. With only the swimming pool now being used in season and with infrequent, little, use of the tennis courts, the future was bleak. The new Manager of Operations

140 Technical Meeting, 26-28 April 1979, section 7.1.2 ‘Welfare Bowls Club’, CAPCOL M14/1471.3 records the transfer. The $698 was for survey fees to delineate the Bowling Green from the rest of the Welfare grounds, Technical Meeting, 18-19 November 1982, section 8.4, Works Welfare Committee.
141 Minutes of Squash Club committee meeting, CAPCOL, M14/14 1471.1.
142 Following the fire, public pressure had been applied for a cinema to be opened in the town to provide ‘something for the young people to do’, With previous cinema experience, the technical details of the cinema were designed by RFB, see submission by RFB to the Board, Technical Meeting, 20-22 October 1976, section 5.3. In the event these same townspeople failed to support the new cinema.
144 ibid.
recommended that the Board should consider winding up the affairs of the club.  

Following this Technical Meeting, a special Works Committee meeting was called, chaired by the Chief Engineer in the absence of an elected employee chairman. It was noted that there had not been a committee meeting for over three years with the administration of the club being carried out by the Executive during that time. This meeting elected a chairman from the employees present and accepted nominations from the six remaining sections of the Works.

The handing over of the facilities to the township

The archival history of the Welfare ends with the last Technical Meeting, 18-19 November 1982. Here, it was noted ‘if the [swimming] pool can be leased and the other facilities closed or disposed of, the Company’s liability could be reduced considerably’. There are no further records detailing how the assets were disposed of, nor of any financial arrangements relating to the transfer. Anecdotal evidence suggests some reluctance on the part of Council to accept the gift. Sometime after 1982, ownership the facilities was transferred to the Mount Morgan Shire

145 ibid. The new Manager, Argo Kuru, was a Peko appointee put in place as part of the new joint venture with Anglo-American.

146 Minutes of Welfare meeting November 1982, CAPCOL M14/1471.3. The Chief Engineer was Ray Boyle who had been a Company appointed member of the Committee from 1955 onward, first as an alternate member for successive Chief Engineers and then, from 1970, a member in his own right.

147 The last Welfare meeting had been held on 15 May 1980 when only two employee representatives and five Company members had been present, CAPCOL M14/1471.3.

148 ibid, minutes of the Welfare meeting of 2 February 1983 during which Ray Boyle, as Chairman pro-tem, ‘expressed thanks to the Executives for their handling the affairs of the committee since the last meeting on 15 May 1980’.

149 ibid.

Council, a move that parallels the 1927 deeding to the Council, by the Old Company, of the pool and the bowling green.

Conclusion

There is no doubt that, although there are now few who had benefited from the welfare, the scheme was one of the outstanding triumphs established by the Company. The Company had provided for employees’ welfare, in addition to bonus payments exceeding £550,000, almost £120,000 to fund sporting facilities and a subsidised insurance scheme. Although Peko had discontinued paying the bonus, it continued to contribute $12,000 a year to support the club. It has been demonstrated that the structure of the scheme ensured its administration was firmly in the hands of employees, encouraging them to adopt an active participation in the working of the sporting club. Its demise resulted from the reduction in staffing levels and a change in the social ethos of the time.

Mount Morgan people believed the scheme was unique but a literature study reveals this is not the case! A review of welfare literature across mining, industrial and commercial bodies in Australia has indicated that other, often more comprehensive, schemes were in place. What seems to set Mount Morgan apart is the voluntary profit sharing component, later modified to satisfy industrial pressure. Over award bonus payments within other industries were the result of industrial action.

Although it has been difficult to select the person to credit for proposing the scheme, this is generally attributed to Adam Boyd, who was determined to maintain close contact with his employees. Under his management, the structure of the system was set up and continued in this

151 Since 1990, Government grants to Council have enabled the Boyd Park (swimming pool area) to be extensively developed with additional pool facilities, squash court and child care facilities added.
152 CAPCOL, M14/1292.11 and M14/1293.7.
form until closure. The growth of facilities began with Boyd and increased under McAskill but stagnated under Westcott and John, principally because of wartime restrictions and the lack of ordinary dividends which had been the basis on which funds were allocated. The early years under Sheil saw a period of prosperity for the club as dividends increased and Sheil’s own dedication to community wellbeing brought new and improved facilities. But from 1957, the industrially-driven changes to the way in which the club was financed, coupled with a reducing workforce under Peko, ensured the years under Hennessey would be a time of maintenance. Finally, major retrenchments and the cessation of mining, coupled with changes in social attitudes, left Wilson with the unenviable task of presiding over the rapid decline of the club, the breaking up of its structure and the decision by his successor to recommend disposal of the assets.

It is clear that, in the establishment of the scheme, a motive had been to steal a march on the Unions but the evidence suggests this strategy had little effect on the later industrial scene. It did, however, provide the employees with first-class recreation facilities and the opportunity to involve themselves in the management of the amenities. The infrastructure that remains under the ownership of the local Council provides the final testimony of the worth of the Welfare.
Chapter Four
Managing Mount Morgan’s Most Important Asset: the long-term legacy of education and training.

This is the final Chapter of the trilogy examining the relationship between the town and the Company. Chapter Two has examined the Company contribution to the town infrastructure while Chapter Three considered management attitude to the financial and physical welfare of its employees. This Chapter will identify and discuss the issue of education and training under three broadly chronological headings of the Technical College, the early years of the Company and the final years.

While it was the ore body that constituted Mount Morgan’s most important economic asset, the people of Mount Morgan were its most valuable social asset. Without their physical support, the gold and copper would have remained in the ground. This chapter will explore the rationale and mechanisms of Company policy of support for education and training. The influence of the Old Company and the continuity of senior staff which has been apparent in previous themes in this thesis cannot be ignored.

Mines, and the industries that process their products, are complex organisations which, to operate safely and successfully, must employ technically trained staff and skilled operatives. However, before the time of fast and easy transport, conditions at remote or inhospitable sites often made the recruitment of skilled employees difficult. Technically qualified people had traditionally been educated at Universities, Schools of Mines or Technical Colleges, migrating to locations where avenues for this level of training were scarce; nevertheless, in many cases, there had been men

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1 ‘Education was of great importance to an operation as complex as Mount Morgan’s’, Kerr, p.96.
who, despite having no formal qualifications, had risen to senior positions in management. Then again, while Mount Morgan was not significantly remote or inhospitable, those locals seeking tertiary qualifications generally found they did not have access to institutions of higher education and were forced to rely on external studies to fulfil their ambitions. The Chapter will argue that Mount Morgan policies were structured so that these employees were assisted in their task. To satisfy its need for employees to back up this qualified staff, Mount Morgan was not unique in its training of skilled tradesmen, all of whom were educated in house by means of apprenticeships technically supported by courses set by the State Apprenticeship authorities. On the other hand, treatment plant workers and operators of machinery gained their know-how by hands-on instruction from more experienced employees. The Company’s approach to training paralleled that outlined by Sir Arvi Parbo and embraced by the sometimes unenthusiastic, but later supportive, Essington Lewis at BHP. As part of this study, access was sought from the Queensland Apprenticeship/Training & Regional Support Office for data ‘to compare performance statistics of apprenticeships at Mount Morgan with those for other apprentices around the state for the same period’; but that Office denied access to these records. Consequently, a local study was undertaken.

2 TA Griffiths, superintendent of the BHP open-hearth furnaces, had been a ‘labourer-demolisher’ at the steelworks and did not possess a diploma, Blainey, The steel master, p. 79.
3 Attendance at the Brisbane based University of Queensland [UQ] was financially and logistically out of reach for most.
4 Parbo, Down under, chapter ‘Education in the mineral industry’, pp 190-200, traces the development of Schools of Mines, their transition into more broad ‘technical colleges’ and the emergence of Australian universities.
5 Lewis at BHP had promoted men of ability, not necessarily with any tertiary qualifications to senior positions but, ‘in 1927, he began what was probably the most stringent staff-training course attempted by any Australian company’, Blainey, The steel master, pp.78-80.
6 ‘We have received legal opinion that we would be unable to give you access to these records due to the provisions of Privacy legislation’. John V. Robinson, Manager, Apprenticeship/Traineeship & Regional Support Office, email to RFB, 19 October 2005.
The first apprentice was employed not long after the revival of the Company in 1932. The last had not completed his training when the place closed in 1990. Cadets in a variety of disciplines occupied a similar time span. Death and retirement have removed many former employees, most having left to hold positions nationally and internationally. Consequently, few are left in the district to give testimony to the fact that it was the Company training policy which gave them their careers. There are, therefore, few human reminders of the training policies to demonstrate their success or failure.

Archival records show the commitment of the Company to employee training. The positive reasons for, and the mechanisms of, the Company policy in managing these human resources for fifty-eight years suggest inclusion as a Company triumph. Contradicting this argument, and despite the successful implementation of what might be considered as a policy of paternalism, there are questions about possible materialistic motives behind the training schemes. It would be easy to give credit to the Company for its enterprise. But this study must ask whether the training programme was predicated on the opportunity to employ the low cost labour of school leavers as apprentices and cadets or whether this policy was a public relations exercise aimed at guaranteeing parents would not leave the town to further their children’s careers. Cynical commentators have even questioned whether, in the early selection process, there may have been bias towards particular groups of parents, schools or even religious groups. Furthermore, what, or who, prompted the later appointment of cadets and apprentices who had no familial connection with the town? This was a period when the level of trade training offered

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7 Patterson’s first entry is of Apprentice No 1, J Glover, electrician, completed his apprenticeship on 1 November 1938, CAPCOL. He has omitted the name of Joseph Andrew McMullan who began work as an apprentice fitter on 11 July 1932 (as soon as the mine reopened).

8 Laurie James Johansen, indentured 18 January 1988, made redundant 26 October 1990 after two full years and part of his third; he transferred to Clyde-Babcock Hitachi (Australasia) Pty Ltd Inc. from 29 October 1990, CAPCOL, M14/1326.8.

by industry in Central Queensland was in marked contrast to the nationwide decline in traditional trade apprentices as the Mine neared closure. It is important to discuss the Company approach and to compare it with contemporary training standards, especially in relation to those of other mining companies.10

Throughout the greater part of the period of this research, possibly reflecting the ethos of the time, there were no female cadets or apprentices.11 Although the Company employed and trained female clerical staff, it was not until 1955 that the first female was employed in the Assay Office.12 Even though, from 1949, male University undergraduates were given vacation employment,13 it was a further eighteen years before the first female University geology students were employed for work experience.14

The strong presence of a number of young Sydney University graduates on the Old Company staff15 led to the introduction of the first technical classes in 1900.16 The opening of the impressive Technical College

10 Mount Morgan compared favourably with other companies in the resources industry, which as late as October 2012, were investing ‘more than three times the average amount invested [in training tradespersons] in all Australian industries’, M Gutheridge, ‘Education – a critical root cause of the industries’ skills shortage’, The AusIMM Bulletin, October 2012, p.69.
11 ‘Even during World War II, women were not employed as munitions workers in Rockhampton as they were in other railway workshops’, B. Webster, “‘A good job in the railway’; Rockhampton Railway Workshops 1938 to the 1980s”, AIRAANZ, 2005, p.550. “[during the War] women ‘dilutees’ worked in the ‘newly created’ munitions annex at the Duly and Hansford factory at Marrickville, NSW”: Alan Cox, OH in J. Shields, (Ed) All our labours, oral histories of the working life in twentieth century Sydney, p.115.
12 Ms Eugene Doig was appointed as a laboratory assistant, March 1955, CAPCOL M14/1436.
13 ‘Undergraduate vacation employment, 1949-1972.’ CAPCOL M14/1388.1to 6
14 Hope, p.57; One of these students, on graduation, was appointed to the Company geological staff, also CAPCOL M14/1388.5.
15 Kerr, p.96. One of these was Norman F White, who was the President of the Mount Morgan Technical College Board at the opening of the College, see Photograph 4.1.
16 ‘President’s Address at Official Opening of the College’.
building in 1909 17 provided mine employees with technical education and training until 1964 and, since 1912, the building has hosted the Mount Morgan State High School.18 Schools of Mines had been established close to the major mining centres 19 of Ballarat, Broken Hill, Kalgoorlie,20 Mount Lyell and Zeehan but, in 1897, Mount Morgan had been denied the opportunity to enjoy the advantage of such a School.21 For seventeen years technical training maintained a presence under the Mount Morgan Technical College Board 22 in liaison with the High School Principal but, in 1929, the Queensland Department of Public Instruction absorbed the Board and promptly closed the College.23

17 Walter Hall donated £250, Kay Fraser, A remarkable gift, 100 years of the Walter & Eliza Hall Trust, Custom Publishing, UQP, St Lucia, 2012, p.41. The Old Company donated £250 and land valued at £800, ‘President’s Address at Official Opening of the College’, pp.6, 8.
19 One exception was the South Australian School of Mines and Industry, which established in Adelaide in 1889. It was ‘the only real School of Mines in a capital city’, Parbo, Down under, p.191. See also Blainey, The steel master, p.17.
20 In Coolgardie, 1902 transferred to Kalgoorlie 1903. Parbo, Down under, p. 152.
21 Kerr, p. 96. RW Birrell, ‘The development of mining technology in Australia, 1801-1945’, PhD thesis, Melbourne University, 2005, p. 135, discusses the need for local schools to overcome ‘the difficulties faced by young men travelling to adjacent towns for training while earning a living at the more remote mines’.
22 ‘Patterson was President [until] the Old Company wound up’. Patterson Obit, QMJ, Nov 20 1955, p 829.
While individual science and engineering subjects were offered in 1908 students were encouraged by Old Company management to undertake structured courses. It seems that, despite the lack of a School of Mines, these courses were in place by 1917 when the High School Principal wrote to parents advising that ‘five boys had gained scholarships in

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24 Listed in the ‘President’s address at official opening of the College’, p.12.
25 The Old Company subsidised the students’ attendance by paying their fees and ‘most of the Department heads practically insist their juniors attend the courses’, ibid, p.20.
26 "In essence, the College was a ‘School of Mines’ concept”, former metallurgical cadet the late Arthur Gerard, email to RFB, 10 January 2009. Metallurgist Len Harris shows that his qualifications were obtained at the ‘Mount Morgan School of Mines’, Photograph A 4.5.2.
Mining and Metallurgy at the Mount Morgan Technical College, this mining course being an innovation at that institution’. 27

Patterson details the subjects taken by the sixty-two apprentices who were appointed, 28 apparently without formal government indentures, 29 from 1916 to 1925. The mine closed in 1927 and shed almost all its employees, including some who had not yet completed their training; 30 several were retained to complete their training. 31 With the reopening in 1932, Old Company staff and tradesmen returned, ensuring an overlapping of employees that could be traced as far back as Wesley Hall in the 1880s, thus ensuring continuity of policies. 32 Several returning employees worked as foremen or tradesmen, mentoring generations of Company apprentices. 33

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27 ‘Principal, MMSHS to parents’, RMB 13 November 1917, p.9.
28 CAPCOL, D15/288.8. Patterson does not mention apprentice electrician S Barnett, is listed as ‘5th year apprentice’ indicating he started in 1925, CAPCOL, M14/1282.15.
29 But with an Old Company indenture.
30 Photograph 5.1, “an apprentice’s interpretation of being ‘sacked’ and cast into the ‘Cruel Hard World’”. CQU library call 388.2 13.
31 Turner Henri Stock, carpenter Stan Butler and electrician ‘Oscar’ Barnett completed their apprenticeships with the Company in 1929, CAPCOL, M14/1282.15.
32 Appendix Intro2.
33 ‘List of wages for year ended 26 June 1935’, CAPCOL M14/1282.15.
Photograph 4.2

Mount Morgan closes! The wheel stops
An apprentice’s interpretation of being cast into the 'Cruel Hard World'

[Art original by Colin A. Hoffmann, 1927, CQU library call 388.2 13. It has been difficult to improve the quality of reproduction of this illustration, given the age and quality of the original]
While practical training of its employees was the responsibility of the Company,\(^3^4\) the government, through the Education Department, provided the academic component.\(^3^5\) The College did not reopen until July 1940\(^3^6\) but, during the last eight years of the hiatus,\(^3^7\) the High School provided some course components.\(^3^8\) There is no record of the provision of

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34 This was the classic method of hands on training as generally typified in industries such as the Eveleigh Railway Workshops, Sydney and the Midland Railway Workshops, Perth. ‘Remembering Eveleigh’, ABC Radio National Hindsight, broadcast 10 April 2001, 2.00 pm and ‘The Midland Railway Workshops - a family affair’, ABC Radio National Hindsight, broadcast Sunday 7 January 2007 2:00 pm.

35 Apprentices were required to attend any available classes at night - without pay. From 1948, apprentice fitters and turners enjoyed paid release one day a month to attend practical classes at the Rockhampton Technical College, RFB, OH with Betty Cosgrove. Trevor Stock, OH with Lorna McDonald, 24 November 1992.

36 Announcement by JC Clark, MLA, RMB 30 May 1940, p.6. E Clarke, Further education in Queensland, Department of Education, Queensland and Bureau of Employment, Vocational and Further Education and Training, Queensland, 1992, Appendixes, p.87 is incorrect in recording that the College reopened in 1941.

37 From 1932 after the Mine reopened and took on its first apprentices.

38 There were 4346 student hours enrolled during 1938. ‘The mechanical drawing, trade drawing and trade mathematics …were taught to apprentices, MMSHS, ‘Principal’s
supervision of apprentices completing the correspondence papers, which prepared them for the annual examinations. There are, however, records of four students completing a metallurgy course in the period 1937 to 1940.

Although, as far back as 1919, the Mount Morgan High School had offered classes preparing students for the University of Queensland Senior Public examination, senior classes did not resume until 1957, so the highest qualification available to Mount Morgan students until then was the Queensland University Junior Public Certificate. Unlike the policy of the Old Company, which stipulated that qualification for entry to apprenticeships be by competitive examination, there appears to have been no set system of selection for entry during the first thirty years of the life of the Company except that a Junior Certificate was prerequisite for admission as a fitter and turner or as an electrician. The Company offered positions in less academically demanding trades to those with lower school qualifications. This policy contrasts with that of the Queensland Government Railway Department, a major employer of the
mechanical trades, which selected its apprentices by examination. The Department continued to select railway apprentices in this way as late as 1947. By 1948, there were at least three Mount Morgan apprentices who had completed their senior at Rockhampton schools and, about the same time, survey and metallurgical cadets who had senior certificates were appointed.

After the reopening of the College in 1940, mine foremen and engineers supervised the compulsory night-time attendance of apprentices, giving technical support to the ‘papers’ as required. This involvement of mines operating staff with part-time lecturing was not unusual in mining communities. Still, during this time, some practical subjects were also taken by day attendance at the Rockhampton Technical College.


48 The Department ‘continued to use an unsuitable examination of its own to select apprentices’. Superintendent of Technical Education Leonard Morris.

49 ‘My apprenticeship with the railways in 1947 was determined by an external examination. The highest marks allowed you to become a fitter or electrician. The lower marks for a boilermaker or wagon builder’. W C Lawrie, retired railway engineer, response to question 9, ‘Did you select your trade or did your employer?’ in Central Queensland Training Questionnaire conducted under CQU Human Research Ethics Committee Ethics Project No. H06/06-115 approved 10 July 2006.

50 John Blyth, ex Rockhampton Grammar School [RGS], who did not proceed with his apprenticeship but graduated from UQ as a dentist, Bob Johnson, Rockhampton High School (Cryle& Boyle), and RFB, ex RGS, OH with Betty Cosgrove.

51 H. St Pierre, ex RGS, cadet metallurgist, BGP staff record cards, CAPCOL M14/1436; he completed the diploma in 1948. See Appendix 4.1.


54 Maurice Mawby was a part-time lecturer in geology and metallurgy at the Broken Hill Technical College in 1929. IW Wark & EG Ellis, ‘Maurice Alan Edgar Mawby 1904-1977’. Future Queensland State Mining Engineer Ian Morley lectured in mining at the [Wiluna WA] local college of the WA School of Mines in 1937 while
The Works reopened in July 1932 after three years of almost total financial collapse.\textsuperscript{56} Demonstrating yet again the importance of continuity of management, former MMGMCo General Manager, Adam Boyd, provided personal encouragement for early Company training initiatives,\textsuperscript{57} but of greatest significance was the immediate return of Old Company Chief Engineer Morgan Jones John \textsuperscript{58} and the appointment of Brian Lennon as Mill Superintendent.\textsuperscript{59} Three years, later Benjamin Patterson \textsuperscript{60} and Albert Wyatt, a graduate of the Charters Towers School of Mines,\textsuperscript{61} returned to staff.

A number of the young employees shown in the 1935 wages and salaries listing with the classification ‘boy’,\textsuperscript{62} had completed the Junior Public Certificate in the late 1920s and early 1930s. Adam Boyd had concerns for ‘mill boy’ Frank Cunningham’s future when, each week, he would

\begin{itemize}
  \item \textsuperscript{55} All apprentices who responded to the Cryle & Boyle ‘Post-war training schemes at Mount Morgan Limited: a regional case study in management and employment’, CQU Faculty of Arts, 1995 [hereinafter cited as Cryle & Boyle] reported day release practical training either at the Mount Morgan College or in Rockhampton.
  \item \textsuperscript{56} Boyle, MA, Chapter Two, ‘The Start of the New Company, 1928-1932’.
  \item \textsuperscript{57} See later comment about Boyd’s encouragement of Frank Cunningham to improve his qualifications.
  \item \textsuperscript{58} A graduate of the College, article about Morgan John’s career following his appointment as General Manager \textit{RMB}, 4 April 1944. Former MMSHS principal, Tomkys said some of his old boys have had reason to thank him for the manner in which he taught them. ‘One of [my] old pupils, Mr. Morgan John, is now mining engineer [John was actually Chief Engineer] for the Mount Morgan Company’, \textit{The Courier Mail}, ‘In town and out’, 8 January 1934, p. 10. As Chief Engineer, John had overall responsibility for the practical training of all apprentices.
  \item \textsuperscript{59} Lennon graduated from Melbourne University, Bachelor Mining Engineering. He continued with the Company until 1953 when he retired from the position of Chief Metallurgist. Former cadet and assayer Arthur Gerard says “Lennon, along with senior metallurgist Stuart Pullar was ‘the driving force in the diploma structure’”. Gerard, email to RFB, 17 January 2009.
  \item \textsuperscript{60} BG Patterson, Obit, QMJ, Nov 20 1955 p 829.
  \item \textsuperscript{61} See list of salaries for year ended 26 June 1935, CAPCOL M14/1282.15. One of the first students of the MMSHS in 1912, Wyatt’s tertiary qualifications are shown on BGP staff record cards, CAPCOL M14/1436. Wyatt’s return provided ‘a lecturer with the necessary technical qualifications to offer young employees a course in mining and metallurgy’, MMSHS, ‘Principal’s Annual Report’, \textit{CQHER}, 22 December 1938, p. 58.
  \item \textsuperscript{62} CAPCOL, M14/1282.15.
\end{itemize}
hand Cunningham text books with the direction ‘I have marked the sections I want you to study and answer the questions. I’ll be back next week to see how you have got on’.

However, there appears to have been little encouragement for the other ‘boys’ to progress; but each of these qualified, seemingly without Company assistance, by the end of 1943. This lack of financial support for tertiary education was later apparent, even at Mount Isa Mines when, in 1950, Julius Krutschmitt granted miner Ted Davies leave of absence to enroll in the new mining degree at the University of Queensland – but he initially withheld financial support.

With only the University of Queensland, located in Brisbane, offering tertiary education there were few avenues for those living in regional and country areas to better themselves. The Mount Morgan employees who might have sought these higher qualifications were employed in a range of professions, each of which was vital to the success of the operation. At least the prospective metallurgy and mining students had the courses offered by the local College, while surveying students received correspondence tuition from the Ipswich Technical College. Those who were apprenticed as fitters/turners/electricians or indentured as cadet draftsmen were eligible to enroll in the University of Queensland external course leading to the award of a Diploma in Mechanical and Electrical Engineering. Brian Lloyd includes passing mention of this diploma in

63 Personal communication from Frank Cunningham to RFB ca 1970. Cunningham completed formal study externally through the British Institute of Engineering Technology to become a recognised design engineer, retiring as Deputy Chief Engineer in 1981. Boyd’s support seems to have lacked any financial encouragement.

64 Rowley (1938), Gatton (1940), Banks (1942) and Hall (1943), Appendix 4.1.


67 Mature students who had completed their training in these areas were also eligible provided they held the Junior Public Certificate. W E Cochrane, an electrician who had finished his trade training in 1942, completed the diploma in 1947. BGP, cadet record cards, CAPCOL M14/1436.
his overall analysis of Australian engineering education. Diplomate engineer Richard Beale traces his progression from this Diploma into membership of the Institution of Engineers Australia [IEAust], praising the value of the diploma to his subsequent career. The diploma ceased to be recognised by the IEAust in 1952, although the Institution was still conducting its own examinations as late as 1959.

The four-year part-time course, offered through the Rockhampton Technical College, required nightly year-round travel to Rockhampton. In 1947, the Mount Morgan College offered the first year science subjects to five students but even well into the late 1950s, the engineering subjects of subsequent stages were available only in Rockhampton, 25 miles from home. What made the course even more difficult was the requirement that, even though they were enrolled in the Diploma course, apprentices were required, at the same time, to prepare for and sit for the

69 Richard Beale, private communication with Charles Oliver, 22 April 2005, copy in RFBCOL. The diploma was accepted by IEAust for entry into the Institution examinations leading to corporate membership. Beale provides a table of Institution examination subjects.
70 ibid.
71 The course syllabus was prepared and examined by the University but taught on behalf of the University through the Technical College system, University of Queensland Year Book, 1948, extract in RFBCOL. E Clarke, Further education in Queensland, Chapter 3, ‘Gradual expansion 1919-1943’, p.50, discusses the course and the interaction between the Education Department and the University.
72 Lectures were spread over a 36-week year. Students were required to attend 80% of lectures and to provide evidence that they were employed in an engineering environment. Lloyd, ‘The education of professional engineers in Australia’.
73 ‘Principal’s Report, MMSHS Speech Night’, 9 December 1947, RMB 12 December 1947, p.4. Senior Certificate holders were exempted from these subjects, RFB, OH with Betty Cosgrove, 10 May 1993.
74 Bruce Hiskens, OH with Lorna McDonald, 15 December 1992, discussing his experience of the course from 1951 onward, gives details of the difficulty of travelling to Rockhampton by train and later motor cycle to attend the nightly diploma classes. Hiskens, ‘it was ‘a pretty difficult course because [we were not] taught subjects that would be examined. It wasn’t as though you were at the University and the lecturer was going to set the test’. RFB, OH with Betty Cosgrove, 10 May 1993, details the course and the ‘commuting’ problems.
annual apprenticeship examinations. Prior to 1948, although there had been a number of enrolments, there was little formal Company requirement for enrolment in the diploma course although in that year, one apprentice was employed on condition he enrolled in the diploma course.

An area often neglected in studies such as this is the training of employees who were required, by government regulation, to be qualified as machinery operators. The Company did not provide any support for these employees except to allow them to accumulate, under the supervision of qualified employees, the necessary statutory hours of operating experience. On the other hand, mill and smelter operators simply gained their experience by working with more experienced operators ‘on shift’.

It was to the Company’s advantage to employ as many local people as possible because, unlike the requirement in many other mining communities, the Company did not originally provide accommodation for its employees so that, until the early 1950s, wages employees recruited from outside the town were housed in hotels and boarding houses. And by promoting trade apprenticeships, the Company was successful, both in satisfying its skills requirements, in providing career opportunities for the townsfolk and, through these opportunities, ensured young people stayed in Mount Morgan, at least for the tenure of their apprenticeships. While some remained at Mount Morgan when their apprenticeship was completed, most moved away to gain more experience. Yet by 1962, for

75 ‘[I] had to do grade six arithmetic, [I] had done senior but [I] was not permitted to use logarithms or a slide rule’. RFB, OH with Betty Cosgrove, 10 May 1993, p.2.
76 Letter C8194 to RFB 5 April 1948, Appendix 4.2.
77 Operation of all the large machinery required certificates under either the Government Machinery Act or the Mines Act.
78 Jim Leigh, ‘all [my] experience was learned at the mine’, OH with Betty Cosgrove, 15 September 1992.
79 Chapter Two mentioned the progressive provision of accommodation.
80 Addresses in the 1935 return of wages, CAPCOL, M14/1282.15.
the first time as fewer left, the Company was forced to retrench its completing apprentices.\textsuperscript{81} Certainly later apprentices were required to agree, on appointment, that their employment might be terminated on completion.\textsuperscript{82}

Despite having employed a significant number of apprentices, \textsuperscript{83} management was forced, during World War II, to overcome a shortage of skilled tradesmen by adopting a policy of dilution in which competent trades assistants or riggers were elevated to fill positions normally occupied by fully trained, indentured, tradesmen.\textsuperscript{84} Furthermore, in order to sustain the number and quality of its workforce during the immediate post-war shortage of labour,\textsuperscript{85} it drew on the skills of tradesmen who had been trained in the heavy industries of nearby Rockhampton,\textsuperscript{86} state wide and from overseas.\textsuperscript{87}

Ray notes that ‘during the post-war boom in Australia the Commonwealth Reconstruction and Training Scheme (CRTS) was ‘put into place to quickly retrain returning servicemen’, \textsuperscript{88} and that ‘this scheme

\textsuperscript{81} ‘A change in Company policy which was in 1962 not to retain tradesmen on completion of training’, Alan Edgerton, response to question ‘why did you leave [the Company]?’ in Cryle & Boyle, 29 January 1996.

\textsuperscript{82} Jeffrey Anstey, apprentice electrician 1974-78, private communication with RFB, November 2011.

\textsuperscript{83} Boyle MA, p. 195, at 30 June 1942; list of apprentices CAPCOL, Box D1/289

\textsuperscript{84} Boyle MA, p.196.

\textsuperscript{85} Made worse by the removal of the wartime manpower controls, imposed under the National Security (Manpower) Regulations of 29 January 1942, Boyle MA, p. 213. The high Mt Isa high lead bonus attracted many. Blainey, \textit{The rush}, pp. 299-300 discusses the lead bonus paid at Broken Hill and Mt Isa.

\textsuperscript{86} Until the 1970s, heavy industry in Rockhampton included the Queensland Railways workshops, the Central Queensland Meat Industries Lakes Creek Meat Works, the Capricornia Regional Electricity Board and at least ten general engineering workshops and foundries. See Rockhampton Chamber of Commerce, \textit{Annual Report}, 1944-45.

\textsuperscript{87} Boyle MA, pp. 227-228. Some of these, with no experience of the lean times of the previous decades, appear to have been active in the later industrial dispute discussed in Chapter Five.

\textsuperscript{88} Ray, ‘Apprenticeship in Australia, A concise history’, section 2.4, Developments in the post-Second World War period p.20. This paper is included in the National Centre for Vocational Education Research Ltd. (Ed) N. Smart, ‘Australian
demonstrated that adults could be trained as tradespersons in much shorter periods than the statutory periods applying to school leaver apprentices’. 89 The only record in the Company archives of ex-servicemen, who were trained to be tradesmen, is correspondence relating to Bill Oates who trained as a carpenter under the scheme, 90 although another study has provided details of the training and subsequent successful career of ex-serviceman James Westlake. 91 Others were trained in what might be called semi-skilled trades 92 but some failed to continue in their selected calling 93.

From 1920, the administration of the Queensland Apprentices and Minors Acts was the responsibility of the Central Apprenticeship Committee based in Brisbane 94 but this committee appears to have been short-lived, being replaced about 1924 by ‘an Apprenticeship Executive, with a fulltime chairman and representatives from employers, employees and the Department of Public Instruction’. 95 Clarke points out ‘group apprenticeship committees, each with representatives of employers and employees, and a Government appointed chairman, continued to supervise apprenticeships, Research readings’. p. 20. See also ‘The fifth decade 1940-1949’, viewed 3 August 2012, www.library.swantafe.wa.edu.au/history/1940-1949.htm.


90 The Deputy Commissioner, Repatriation Commission, (re-establishment division), 12 December 1950, reference B.28660, MML inward letter 71951, requested a final report from the Company on Oates’ proficiency as a carpenter so that a Certificate of Qualification could be issued to the trainee, CAPCOL Box M14/1340. 4, ‘post war training of soldiers’.

91 Response by Westlake to Cryle & Boyle, p.1. Westlake rose to the position of Smelter Superintendent and was in Australia-wide demand for his furnace brickwork expertise.

92 RE Evans and A Fitzgerald trained as electrical trades’ assistants, CAPCOL M14/1340.4.

93 K Winter MC trained as an electrical linesman but later became a painter. List of tools supplied to Winter, ibid.

94 Clarke, Technical further education in Queensland a history 1860-1990, p.86. Reference to the name as the ‘Apprenticeship Board’, letter 5848, 7 March 1946 from the Company industrial advocate Hartley , CAPCOL Box M14/1397.17, ‘apprentices and industrial awards 1947’.

95 ibid, p45. Clarke, the Apprenticeship Act 1924 brought substantial changes to the administration.
apprenticeship training. On 26 February 1946, the Chairman of the Apprenticeship Board advised he had made a submission to the Minister recommending the establishment of a committee at Mount Morgan. The is no record of the reason the Board sought ministerial approval to form a committee in Mount Morgan, given there was already a committee in Rockhampton, only an hour’s drive away. Perhaps it was because Mount Morgan Limited employed so many apprentices, possibly second only to the number employed by the Railway Department, perhaps the move originated with Assistant General Manager Sheil. Whatever the reason, on 3 March 1947, a local Apprenticeship Advisory Committee was established in Mount Morgan. Composed of union delegates and representatives of employers, the Committee was charged with overseeing the welfare of the apprentices, as well as disciplining them for any breaches of authority or slackness in their attention to their studies.

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96 ibid. By 1946 apprentices were controlled by the Apprenticeship Board, which had been constituted in accordance with the Apprentices and Minors Acts 1929 to 1934, sections 9 to 14.
97 Hartley, letter 5848, 7 March 1946, CAPCOL M14/1397.17.
98 Complementing the lists of apprentices in CAPCOL D15/288 see CAPCOL M14/1434.14 & 15, CAPCOL M14/1435(all), CAPCOL M14/1436.1to 5.
99 The railways employed ‘100 youths each year for five years’ in Rockhampton alone, Webster.
101 Undated advertisement in RMB called for nominations for representatives to the committee, CAPCOL, M14/1397.17.
103 C Heberlein, OH with Betty Cosgrove, 21 October 1992. “‘The Committee had written to his father and the Company had threatened to cancel his indentures because he ‘did not attend night classes or submit correspondence papers’”. None of the respondents in Cryle & Boyle had appeared before the Committee (or admitted to the fact).
At least from 1934 until 1955, it appears the person likely to have had the most influence in the choice of apprenticeship candidates was B. G. Patterson. Returning to Mount Morgan from his post as resident master at Ipswich Grammar School, among his other duties he was responsible for the selection, training and guidance of the company’s apprentices. From 1943 until his death in October 1955, he was also responsible for the selection and training of cadets. Patterson’s standing in, and his knowledge of, apprenticeship training was acknowledged by his 1944 appointment to the government committee appointed to enquire into matters relating to the employment and training of apprentices and minors.

There is no material in the extant Company files from which to decide whether, as Master of Apprentices, he had absolute autonomy of

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104 As surveyor, ‘Wages and salaries of employees from 1st July 1934 to 30th June 1935’, CAPCOL D15/279.
106 CAPCOL, M14/1436.6, 7and 8.
107 Patterson was one 59 representatives of government, unions and industry to be appointed to the committee. Queensland Parliament, ‘Report of the Committee appointed to enquire into matters relating to the employment and training of apprentices and minors’, Government Printer, Brisbane, A19-1944, CAPCOL, D15/1520.5.
108 There is no official recognition of this title in the Company records.
selection or whether his selections were scrutinised by others. There is a local perception that there was bias in his choices. Jim Leigh reinforces this opinion contending, that, on occasion, senior staff may have influenced Patterson’s appointment of their sons. Discussing his employment after leaving school in his sub-junior year Leigh, without actually claiming he was overlooked for an apprenticeship, suggests that:

Knowing someone at the mine was an aid to getting in at the mine;
John Offord [sic], the son of the mill superintendent was in [his] class\textsuperscript{109}.

The John ‘Offord’, whom Leigh implies received preferential treatment, was John Walter Holford,\textsuperscript{110} whose father William Holford was Mill Superintendent. It is unlikely Leigh would have gained an apprenticeship given he had left school at 14 years of age and had not completed his Junior Public examination.\textsuperscript{111} Certainly, while there appears to be substance in the assertion that Patterson gave some credit to membership of the Boy’s Brigade, of which he was the leader,\textsuperscript{112} this membership may have been only a complementary qualification for selection given the General Manager had noted in the MMLAR 1955 that:

It is gratifying to note that of the 74 boys at present indentured, 62 are sons of men who are working or have worked for the Company and 48 are grandsons of old Mount Morgan employees.\textsuperscript{113}

\textsuperscript{109} Leigh, OH with Betty Cosgrove, 15 September 1992.
\textsuperscript{110} Apprentice 119, register of apprentices, CAPCOL, D15/288.9.
\textsuperscript{111} A case of the son of a deceased soldier who did not qualify for an apprenticeship because of inadequate academic results was discussed on page 137, fn 46
\textsuperscript{112} Nine of twenty-one respondents had been members of either the Boy’s Brigade or the Scouting organisation, Cryle & Boyle.
\textsuperscript{113} MMLAR 1955, p.10. Patterson was still in control at that time. He died on 29 October 1955.
While there were examples of apparent bias towards a particular school, the local perception of bias is basically wrong. But the suggestion of family influence was not unique to Mount Morgan, with John Shields, giving examples of family influence in the success of several boys’ applications for apprenticeships and one Rockhampton tradesman acknowledging his appointment was helped by his father’s friendship with his prospective employer. By 1959, all misgivings about the appointment ethics were dispelled after Sheil left no doubt as to the process to be followed. Formal assessment sheets summarising the history of each applicant, followed by recommendations to the General Manager, ensured the final selections were transparent.

For the first decade, detailed records of Mount Morgan training had concentrated on documenting the appointment of trade apprentices; in the second, cadets were included in the notes. Until his death in 1955, Patterson maintained meticulous detail in these files. For example, he included the applicant’s relationship with the Company, if any, as well as his personal assessment of the candidate’s ability. After his death the records are nondescript and, in the case of apprentices, end in January 1978. However, CAPCOL contains copies of almost all the

114 Stuart Pennycuick, cadet surveyor attended RGS, 1943-1947, ‘Pennycuick family history’ RFBCOL. RFB says ‘I attended RGS 1944-1947 and was offered an apprenticeship because Headmaster Jardine rang Mr. Patterson’. RFB, OH with Betty Cosgrove, 10 May 1993. Both held Senior Certificates which helped to secure their appointments.


116 DJ Soley, response to question 10 in Central Queensland Training Questionnaire, ‘What was the role of your parents/guardian in determining your choice?’

117 Memo 512, 21 January 1959, Sheil to Department Heads, RFBCOL.


119 Patterson’s apprenticeship records that a particular candidate was ‘better than average’, CAPCOL, D15/288.9.

120 This lack of detailed records has made it difficult to assess the retention rates for apprentices and cadets, see Appendix 4.3 for a reasonably reliable assessment of these figures.
apprenticeship indentures. The first apprentice is recorded as being appointed in 1933 only six months after the mine reopened but Patterson does not mention Joseph Andrew McMullen, apprentice fitter and turner who had been indentured in July 1932. Patterson’s record of those gaining their Metallurgical Diploma at Mount Morgan covers the period 1937 to 1955 and those progressing in the course.

Photograph 4.3
Joseph Andrew McMullen,
MML First Apprentice,
[CAPCOL, Negative No. 59-C]

121 Apprentice 1, J Glover, electrician completed his apprenticeship on 1 November 1938, CAPCOL, D15/288.9.
122 ibid, McMullin’s name does not appear on the list of employees in 1935 when he would have been a 4th year apprentice.
The first cadetship by indenture was put in place in 1943, but until then the Company appears to have given little formal support to the training of professional staff. For at least six years before that, however, there had been employees who had completed courses in metallurgy, surveying or diplomas in engineering. This changed as Newman, Cameron and Sheil began to influence management policies. In a move designed to overcome a shortage of junior professional staff, the Board commissioned Patterson to set up what became a very successful scheme to encourage “any promising boys serving their apprenticeships to obtain professional qualifications and experience to fit them for ‘responsible positions at the Mine’”. As with the Old Company, by far the greatest number selected

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123 CAPCOL M14/1436.6.
124 See Patterson’s listing of metallurgy diplomates in Appendix 4.1.
125 From the middle of 1950 when Cameron was appointed Managing Director and Sheil General Manager, MMLAR, 24 June 1950, p.7.
126 MMLBM, 13 May 1948, CAPCOL, D15/388.
for training were employed in the so-called traditional trades but now formal support was extended to include semi-professional and university cadets in metallurgy, mining, surveying and accounting, nearly all with senior certificates and therefore coming from outside Mount Morgan. By the time Sheil retired as General Manager in 1964, twenty-eight cadets from all professions had been indentured.

The Diploma of Metallurgy offered at the Technical College was fully revitalised in 1946. Arthur Gerard believed the course had been structured to suit the technical requirements of Mount Morgan Limited and possibly those of Mount Isa Mines. The Company played a, perhaps unauthorised, role in the re-establishment of the derelict laboratory facilities at the College. Gerard says ‘a shipload of apparatus - chemicals, glassware, distilled water and hot plates - was ‘smuggled out of the Assay Office, either by the candidates or the lecturer while the chief assayer turned a blind eye’. Enrolment, academic staffing, salaries and student examinations were administered by the Mount Morgan High School. Arthur Gerard’s references to the course emphasise the broad nature of the material offered and indeed the physical and educational difficulties of working in the College fire laboratory ‘which came straight out of Hades’. Of greatest interest in the Gerard material is his listing of all the metallurgical cadets who passed through, or failed, the course. The failure rate was significant during the 1960s, possibly because of the poor morale of cadets employed in the assay office. His assessment of this situation and the poor attendance at classes is reinforced in a memo from

127 In the metal, building and electrical trades.
128 Patterson, listing of cadets, CAPCOL M14/1436.
129 Cadets indentured from 1943 to 1981, CAPCOL M14/1437.3. No accounting/commercial cadets completed.
132 ibid, 'personal history'. See also DJ Cryle, Academia Capricornia, a history of the University of Central Queensland, University of Central Queensland, Rockhampton, 1992, Chapter Seven, 1963-1966, p.50.
133 Arthur Gerard, emails to RFB between 17 and 24 January 2009 also give some details of the subsequent careers of these students.
Bryce Hargreaves in which he complains the dropout rate was fifty percent in the first year.\textsuperscript{134}

The restrictions of World War II, followed by the shortages of men and equipment in immediate post-war years had been devastating for the Company.\textsuperscript{135} Proposals contained in Managing Director Cameron’s reports to the Board, outlining the re-equipping of the plant, replacing older equipment and increasing throughput with a resultant lower cost per unit were soon in place; with these changes came the need for more technically trained staff. By 1953, Sheil had appointed a number of university graduates, Schools of Mines and UQ diplomates to address this problem and to fill positions across every department;\textsuperscript{136} several of these graduates lectured in the mining and metallurgy courses at the Technical College.\textsuperscript{137} Many of the appointees left after a relatively short period but, of those who remained, two made significant contributions to the success of the Company over the next thirty years.\textsuperscript{138}

Company apprentices were placed in all sections of the Works to gain experience but only fitting and turning apprentices’ movements are recorded.\textsuperscript{139} Apprentices in other trades were similarly moved but in an unplanned way.\textsuperscript{140} This practice was in line with those in other large

\begin{itemize}
\item \textsuperscript{134}Memo from JBH to Chief Metallurgist, 16 December 1966, CAPCOL M14/1437.1.
\item \textsuperscript{135}Boyle MA, Chapter Seven, ‘The War Years, 1939-1945’ and Chapter Eight, ‘Modernisation and Management, 1945-1950’.
\item \textsuperscript{136}Including a new Chief Engineer and a new Mining Superintendent, MML, Guide to operations, 1952. Patterson lists the names of metallurgical and mining graduates appointed, CAPCOL D15/319.15.
\item \textsuperscript{137}Loy Hennessy, Ossie Wilson and mining engineer Rod Foster lectured in these courses during the mid 1950s, Arthur Gerard, email to RFB, 21 January 2009.
\item \textsuperscript{138}Loy Hennessy and Ossie Wilson, OAW, Time Frame, email to RFB, 22 August 2008.
\item \textsuperscript{139}Transcript of Patterson’s ‘Apprenticeship Roster’ 1953-1960, Appendix 4.4.
\item \textsuperscript{140}Electrician Eric Long and carpenter Les Murphy, response to Cryle & Boyle. There is anecdotal evidence that, especially in one trade, several apprentices were permanently placed in field maintenance workshops and denied the opportunity to gain manufacturing experience in the Workshops.
\end{itemize}
but small private companies had limited avenues for broader experience. From 1957 a ‘well equipped training bay set up in the General Workshop solely for apprentices’, predating a similar training facility at Mount Isa mines and a very large BHP program, provided first year fitters/turners and motor mechanics with supervised experience. Of greatest significance was the transfer of engineering diploma students to the drawing office where, in addition to the preparation of drawings they were allocated engineering tasks which might well have been considered the work of first year graduates.

141 Ken Morrison, apprentices at the BHAS lead smelter, Pt Pirie, response to Boyle questionnaire.
142 DJ Soley and R Steer, response to Boyle questionnaire.
144 ‘So as to be assured of a continuing surplus of well-trained tradesmen as well as technicians and graduates, in 1961 the Chief General Manager BHP, Sir Ian McLennan opened a new £500,000 apprentice training centre at the Newcastle steelworks modeled on the best practice in Holland and Germany’. Mc Lennan said ‘today’s apprentice or trainee is tomorrow’s skilled tradesman, engineer, draftsman, designer, superintendent or manager’, viewed 22 July 2012, Australian Academy of Science.wwwww.science.org.au/fellows/memoirs/mclennan.html This document was originally published in Historical Records of Australian Science, vol.15, no.2, 2004.
146 Bob Johnson, letter of attached to his response to Cryle & Boyle. ‘During my time as a 5th year apprentice working in the drawing office I experienced my first on-the-job training to become a future engineer … on major capital works projects’.
147 ‘[Mechanical Engineer] Jim Horsburgh began moving diploma apprentices from the ‘floor’ of the General Workshops to the satellite drawing office he had set up there. These apprentices were progressively transferred to the main drawing office”. Laurie Toppenberg, email to RFB of 2 August 2012. Photograph 4.5 shows two cadet draftsmen and two diploma apprentices, the latter had already passed through Horsburgh’s office.
John Drew has written that ‘for many years it was necessary to spend up to ten weeks of the year before the final year of some University courses in an approved ‘vacation experience’. Andrews and Meikle have argued that vacation work offers a perfect opportunity for a young student to work under actual operating and living conditions as well as being able to work with experienced engineers in the field. This experience can enable them to confirm, or review, their decision to enter the mining industry.

Following his vacation work at Tennant Creek veterinary student Ken Foots decided to change to mining. Acceptance of students at mine sites was in sharp contrast to the attitude of older managers at the turn of the 20th century towards employing ‘physical weakling’ university men, even

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147 Drew, Mining people, p.349.
149 Student Ken Foots changed his course from veterinary science to mining after his experience on vacation work at Tennant Creek. Drew, Mining people, p.292; Foots went on to have an outstanding career in mining, ibid, pp.292-293.
as vacation students in their mines. From 1950 onward, Mount Morgan was able to provide that experience and, as late as December 1967/January 1968, there were 22 students on vacation practice. There is no archival evidence of a structured programme of student training. Paralleling the Tennant Creek example of employing a veterinary student, the Company employed non-engineering undergraduates often extending support to families of townsfolk.

In 1949, Julius Kruttschnitt, Ian Morley, the State Mining Engineer and Malcolm Newman, persuaded the University of Queensland to establish a Mining Department. Kruttschnitt now belatedly supported Ted Davies in his studies at UQ and Stuart Pennycuick, the first Mount Morgan cadet to be enrolled at the University, believes his scholarship was based on the award to Davies. A scholarship in metallurgical engineering was awarded in 1953, followed later by similar awards in mechanical and electrical engineering. From 1951 to 1967, when Peko assumed control, eleven degree cadets had graduated. Initially all these students were bonded to serve time with the Company equivalent to that for which they

150 “At the beginning of the [20th] Century…University men were not wanted and the General Manager [of one mine had] added for good measure – ‘in any case we don't want physical weaklings on our mine’.”. Malcolm Newman, Wayside Memories of a Mining Engineer, 1955, CAPCOL M14/1293.4.
151 Details in CAPCOL M14/1388.1 to 6
152 ‘Minutes of the Peko executive board’ 19 February and 17 March 1969, CAPCOL M14.1477.7
153 Ken’s father was [Sir] James Foots, General Manager of Mt Isa Mines, Drew, Mining people, p.292.
154 ‘Tony [the son of the Mount Morgan Shire Clerk and a medical student at UQ] will want a vacation job to earn for his next year’, Handwritten note from Sheil to (contractor) Jansen and the AGM, 19 November 1962, RFBCOL. Dr Tony later held senior positions within Queensland Health.
155 Don McKee, ‘The Julius Kruttschnitt Lecture’, Southern Queensland Branch of The AusIMM, 10 August 2011, p.2, supported by ‘Notes from the University of Queensland, Department of Mining and Metallurgical Engineering’, QMJ, 20 February 1958, p.81. There is anecdotal evidence Sheil was part of this initiative.
156 ‘Pennycuick family history’, RFBCOL.
157 MMLARs from 1957 record the progress of these cadets. After 1964, the GMs report in the MMLARs was reduced in detail.
158 CAPCOL M14/1437.3.
had been supported at University’, but this condition was removed because some cadets were unwilling to agree, arguing that Mount Isa Mines did not have this clause. This change applied only to new indentures but an existing bonded student was released from his obligation three years later after he made a series of bitter complaints to management. Glenister Sheil did not support bonding students. The late Dr Meredith Foxton, MBE [Sheil] said her father ‘was proud of the industry for its support of open scholarships for engineering students at the University of Queensland but [believed] that ‘it was better to have open ones [rather than bonded scholarships] and the industry had to bear where the graduates went. It was an inducement for members of the industry to look to the conditions of their people’.

During the Newman/Sheil era, Company training was not restricted to apprentices and cadets and although overseas study tours had been rare when they involved months of sea travel, with the advent of fast air travel during the 1950s, Newman was quick to grasp the opportunity to send senior staff to visit other operations, especially in the United States. This was a double-edged strategy, a training exercise to broaden the staff member’s experience but also giving the Company important information on the latest technical developments in the industry targeting especially the fertiliser industry. No doubt Newman may have given the travellers the same advice Julius Kruttschnitt gave to David Buchanan on his first visit overseas for Mount Isa Mines ‘go and see and learn … when

159 Memo 1795, 10 June 1964, ‘pink copies of memos to Sydney Office’, CAPCOL, M14/1427.4.
160 The change had been recommended in ibid. This resulted from the receipt of Memo No. 1795.
161 MML inward letter M1846, 6 February 1967.
162 Dr. Meredith Foxton, MBE, [Sheil], email to RFB, 16 June 2007.
163 AGM James Horsburgh Senior, visit to America 20 July-27 November 1935. CAPCOL, M14/1292.6; Alan McAskill’s visit to America following his resignation as GM in 1937, Boyle, MA, p.287.
164 Hennessy accompanied Newman ‘in connexion with a proposed fertiliser project’, MMLAR 1960, p.22.
165 Reports of staff visits, CAPCOL, D15/362.2-4.
you come back, if you don't perform we won't be hogtied to you’.

Blainey points out that, during the 1920s, Essington Lewis had instituted a similar programme of tours for staff of the BHP steel works. In 1959 the opportunity to gain overseas experience was extended to former cadets who now held junior management positions and, as the Company embraced the need for formal management studies, staff was trained on site and in external workshops in the areas of management, work simplification and project control. Under Peko, overseas visits became the norm for middle and senior staff but they were generally fact finding tours for major projects such as the Flash Smelter and the Tailing Retreatment project.

By 1953 the programme of training promising boys to fit them for responsible positions at the Mine had been in place for five years. After spending the last years of his apprenticeships in the Company Drawing Office one diplomate fitter was appointed as an assistant engineer. In 1955 two more diplomates were promoted and a mature electrician, already a diplomate, was appointed assistant electrical engineer. Two years later a cadet draftsman, a diplomate, was promoted to assistant engineer.

166 Blainey, *The Steel Master*, p.78.
167 MMLAR, 1960, p.22 visits to the USA by two degree graduates. MMLAR, 1961; visit to USA, Britain and Europe by one diploma graduate, CAPCOL, D15/362.1, 5 and 6.
168 MMLAR, 1961, p.22 visits to the USA by two degree graduates. MMLAR, 1961; visit to USA, Britain and Europe by one diploma graduate, CAPCOL, D15/362.1, 5 and 6.
169 Staff trained both on and off site, 1954-1962, CAPCOL D15/451.7 and D15/504.2 and 3.
171 By Boyle and Hargreaves, five overseas visits in the period October 1979 to July 1980, CAPCOL, M14/1536.1-4 and 17-19.
172 As assistant to the Mill/Open Cut Engineer, Bob Johnson, response to Cryle & Boyle.
173 RFB and James McNeil as assistants to the Chief Mechanical Engineer.
174 This promotion of Bruce Giles Hiskens set the appointee on a professional path that would see him make an outstanding contribution to tertiary education culminating in his appointment as the first Chancellor of the University College of Central Queensland. Bruce Hiskens, OH with Lorna McDonald, 15 December 1992, p.7, mentions his promotion at Mount Morgan but does not outline his considerable input to the establishment of tertiary education in Central Queensland. See Appendix 4.5.
Mount Morgan training provided the platform which enabled young people to leave, gain experience and return to the Company or, in the majority of cases, to establish new careers in other places. There is ample anecdotal evidence of this migration but there are few detailed records to support this data, although the responses to the Cryle & Boyle survey include details of the later careers of some respondents. A list of one hundred and sixty electrical apprentices shows some moved to the sugar industry in Bundaberg and Mackay, to mining in Mount Isa, coal in Central Queensland, to the development of industry in Gladstone, to capital and regional Australian cities and even overseas. In many cases the movement to these centres resulted from the ‘old boy network’ where the presence of one Mount Morgan person attracted others known to him.

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175 The careers of two diplomates whose post-Mount Morgan records are available are detailed in Appendix 4.5.
176 Prepared for an ‘electrical reunion’ 1975, RFBCOL.
177 Boilermaker Jack Berry took up work in Bundaberg because a former workmate was foreman there, private communication with RFB, 31 October 2011.
By 1964 the whole story of technical training and education in Queensland had already changed. The Mount Morgan Technical College closed, the term of apprenticeships was reduced and apprentices attended day release block training in Rockhampton. After almost sixty years, Mount Morgan lost its input to the academic training of its people. The change from study in their own time to day release meant the employer now had to fund seven weeks of wages for the education of each apprentice and, when added to statutory holiday pay, annual leave, sick pay and tool allowances the Company was now committed to the equivalent of almost twelve weeks of expenditure during which the

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178 Clarke Appendices, p.87.
179 ibid, [some trades were required to attend block training at a Brisbane college]. The term of indenture was reduced from five to four years. Clarke, ‘The Cinderella image, 1944-1973, Political and economic changes and social attitudes’, viewed 20 July 2005 <http://education.qld.gov.au/corporate/professional_exchange/docs/technical/technical-chap4.pdf>.
apprentice was not working at the Mine. The Company provided daily return transport for those apprentices studying at the Rockhampton Technical College using its ‘man car’. Nevertheless, although these impositions would have been a burden to small enterprises previously supporting perhaps one or two apprentices, there was no material change in Company policy as Sheil’s successor, Loy Hennessy, continued the policies set in place over a decade before.

In 1963, control of the metallurgical diploma, which had been a feature of Mount Morgan for so many years, was transferred to the Department of External Studies, Brisbane; offered, under the name of Industrial Chemistry, to students from Mount Morgan, Mount Isa, Brisbane, Townsville and Rockhampton. Following the creation of the Institutes of Technology in Queensland, the Queensland Institute of Technology, Capricornia [QITC] was set up as a college of the Queensland Institute of Technology [QIT], Brisbane. Based in the existing Technical College buildings, Rockhampton, the ‘Institute’ offered the metallurgists the Industrial Chemistry course which Cryle says was ‘a legacy of the Technical College [course]’. Gerard says that, from 1963, the metallurgical diploma was offered at the QITC but, as Cryle suggests, it had probably been offered through the Rockhampton Technical College. Henceforth, this was the way metallurgical cadets prepared for professional status and, although Bryce Hargreaves was to complain about the poor dedication and attendance of later cadets, by 1990, a number

180 The man car was a small bus used on seven day shift roster to pick up workers called in for breakdown work, Abbie Rowe in Chapter Two.
181 Gerard, email to RFB 17 January 2009.
183 Cryle, Academia, p. 11. Until it became the University College of Central Queensland on 1 January 1990, the establishment was always known locally as ‘The Institute’.
184 Gerard is wrong; the QITC was not opened until January 1967. Cryle, Academia, pp. 7-10.
185 Hargreaves, memos 16 December 1966 and 13 August 1968, CAPCOL, M14/1437.1. Appendix 4.3 shows the peak of dropouts during this period.
had qualified. While there is no definitive record in the files of the structure of courses undertaken by survey cadets, every cadet indentured completed his course.

The University engineering diploma had been phased out by 1955 and a new Department of Education five-year diploma that replaced it was short-lived, 186 supplanted by the ‘1960 course’ offered externally through the QIT. 187 This seven-year course had the advantage of being accepted by the IEAust for graduate membership 188 but only one Mount Morgan employee ever completed it. 189 This diploma course also collapsed as the QIT developed a variety of new professional courses. 190 Those Central Queensland candidates who were enrolled externally in the seven year course, and were nearing completion, were transferred to QITC, Rockhampton; by 1969 most had graduated. 191 Ultimately, as its resources were increased, the Institute offered certificate courses in drafting and associate diplomas in engineering; 192 there is anecdotal evidence that a number of Mount Morgan tradesmen completed these courses but there is no confirmation in the CAPCOL records.

For the first eight years the acquisition of the Company by Peko made little difference to the training strategies at Mount Morgan, except to the status of Mount Morgan degree cadets who became part of the overall

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186 Several Mount Morgan apprentices enrolled in the course; only two graduated. MML, inward letter 1436, 30 April 1958.
188 For syllabus and enrolment/graduation conditions for this course, see Beale to Charles Oliver, 22 April 2005.
189 RFB completed the course in 1969. Ex-Mount Morgan apprentices and cadets moved to Brisbane and completed the course at QIT, personal communication from former apprentice and draftsman TJ Smith to RFB, 18 June 2002.
191 Neil Dwyer and Daryl Weber were electrical apprentices with the Capricornia Regional Electricity Board; they completed their course at the Institute in 1969. Responses to RFB, ‘Questionnaire, Central Queensland Training Courses’.
192 Especially after it became the Capricornia Institute of Advanced Education [CIAE]. The ‘Institute’ obtained autonomy on 28 June 1971. Cryle, Academia, p.34.
Peko establishment. In a positive benefit, all children of Mount Morgan employees were now eligible for assistance towards tertiary education.\textsuperscript{193} Apprenticeships and cadetships remained at a relatively high level until numbers fell dramatically after the retrenchments of 1976;\textsuperscript{194} after Peko surrendered control to its joint venture partners, only seven apprentices were indentured.\textsuperscript{195}

Given the variability of detailed histories of apprentices and cadets in the post Patterson records, it is difficult to establish figures that might confirm positive completion rates but, from the data that is available, it seems almost ninety-three percent of those indentured completed their apprenticeships.\textsuperscript{196} This compares more than favorably with the current, State, retention rate for apprentices of about forty-eight percent.\textsuperscript{197}

**Conclusion**

This chapter has demonstrated, once again, the importance of the continuity of senior staff to the Mount Morgan operation. By examining the overlapping of staff, from Norman White to Ossie Wilson, it has been demonstrated that Mount Morgan policies were structured to assist employees in their quest for knowledge and skills. While it has been established that the Mount Morgan approach to its training of skilled tradesmen was not unique, the relatively late introduction of formal cadetships was seen to parallel the approach of other employers. On the other hand little information was retrieved about the hands-on instruction of treatment plant workers and operators of machinery. This training cost the Company nothing, but provided it with generations of competent workers.

\textsuperscript{193} Minutes, Peko/Mount Morgan Board, 17 May 1968, item 11.
\textsuperscript{195} Between 1977 and 1980, seven cadets were indentured.
\textsuperscript{196} From 1983 to 1988, seven were indentured.
employees, much sought out in later years by the developing coal mines of Central Queensland.

The high overall retention rate for both apprentices and cadets appears to be the result of good planning by management; the support of those staff who lectured them at the College guaranteed their technical success. The encouragement given by tradesmen and technologists who passed on their skills in the traditional master/pupil mode ensured the high professional capability of those trained would contribute widely to local, national and international industry. The chapter has highlighted the problems encountered in attempts to trace the subsequent movement of these trainees, often relying on anecdotal evidence but with some data coming from surveys, questionnaires and input relating to reunions of employees. Nevertheless, even these meagre sources have provided a picture of the careers of several outstanding graduates of the Company schemes, and it has been possible, in the case of one trade group, to pinpoint the final location of members of that group.

The chapter has not reached a definitive conclusion to the questions about the motives behind the appointment of so many trainees. Research has established that the majority of those trained left the Company soon after completion and, apart from the contribution made to the operation by their increasing level of skills as their training progressed, in the long term the Company gained little return for its investment. There is no doubt that the employment of so many apprentices, most of whom were Mount Morgan lads, had a significant effect on the morale of parents of the town ensuring that, in a one-employer town, their sons were able to develop worthwhile careers. Then again an investigation into the way trainees were selected has put to rest the local opinion that there was bias in the process for, while there were minor exceptions, the overall selection was based on local needs and ultimately on the availability of suitably academically qualified candidates, especially in the appointment of cadets.
By analysing the way in which, for over fifty-eight years, the Company managed this important Mount Morgan asset and by confirming, from limited data, the success of many of those who passed through the training regimen, this Chapter has provided support for the argument that this was one of the Company triumphs.
Chapter Five

The Peko Years
A Loss of Autonomy – for better or worse?

Introduction

By 1967, the Company had survived for thirty-eight years as a stand-alone entity but local legend suggests this independence was jeopardised, by what has been implied was questionable governance, through the mounting of a hostile take-over bid by a relatively unknown contender acting for international mining interests. While Kerr has presented a detailed chronology of the events from the takeover until 1982, this chapter will examine the management decisions made, and the personalities involved, during that period and beyond. By exploring the politics of the successful ‘merger’ with Peko-Wallsend Limited, the subsequent changes in management policy decisions, the influence of other member companies and the ultimate collapse of the Peko Group, the chapter will question whether, overall, the ‘merger’ represented a ‘loss of autonomy – for better or worse?

By the end of the first thirty-five years of operations, Mount Morgan Limited had been financially successful, having earned almost £72 million, disbursed over £6.25 million in dividends, paid almost £600,000 in bonuses to the employees and given over £110,000 in support to the Welfare and sporting facilities. In spite of all this success, the Company had failed in almost every attempt to expand its horizons away from its central resource – the gold/copper orebody - and even here it had failed to capitilise on its allied resource - the vast quantities of sulphur contained in its pyrites. Conversely, it had established a local reputation through social

1 Kerr, pp. 226-231.
2 From July 1932.
3 Appendix Intro 4.
and educational initiatives. Chapters Two to Four have established that it had shown a responsible community concern for the infrastructure of the township, and employee levels over the time had been maintained above one thousand. Its social commitment had been demonstrated with four hundred and forty eight apprentices having been indentured 4 along with over fifty cadets across a range of disciplines.5

Working to its benefit, the Company had enjoyed the advantage of the solid base of continuity of employees with father, son and grandson working at the Mine at the same time.6 So it had been with members of the Board, several of whom, until substantial changes occurred in 1962, had been in their positions for over thirty years while senior staff had a history of permanence and personal commitment to the community. Of course there had been turbulent industrial times7 with periods of operational uncertainty as metals prices oscillated8 and the grade of ore fluctuated.9 - Overall, among the employees and townspeople, there must to have been an atmosphere of trust in the Company and a distrust of ‘outsiders’.10

The financial year 1967-68 began with the employees buoyed by the knowledge that the disruption of the previous three years of severe drought was behind them11 and that the published ore reserves were greater than they had been in 1932 when the Company began operations.

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4 CAPCOL D/288.8.-9.
5 CAPCOL M/1437.3.
6 Rowe, OH.
7 As during the Brown Bonus troubles of 1956-57.
9 ‘The principal factor contributing to the reduced results was the lower grade both of gold and copper mined…’, MMLAGM, 1961.
10 Jim Leigh OH with Betty Cosgrove, 15 September 1992. ‘The Company retained its entire staff during the big drought 1965-66… they cared for the whole staff right through’. Speaking about the final days of the Mount Morgan Gold Tailings project, Leigh reflected concerns that ‘[outsiders] started coming in, they were interested in money and not the mine. They came and picked the eyes out of the place and went’.
11 MMLARs of 1965 and 1966 explained the effect on production by failure of normal catchment rains.
These figures seemed to guarantee an encouraging operating life.\(^\text{12}\) The outlook for the Baralaba coal mine was hopeful with sample shipments to overseas buyers indicating possible markets for this type of coal.\(^\text{13}\) But at the Mine, the push for development of the pyrite market was again faltering. Nevertheless, the Chairman was still talking up its future.\(^\text{14}\) The employment of eighteen apprentices and nine cadets at the beginning of 1967,\(^\text{15}\) along with the payment of a Welfare bonus of £95,984\(^\text{16}\) also gave townspeople the impression of at least short term permanence. Further afield, the Company had a healthy portfolio of investments\(^\text{17}\) and seemed ready to diversify away from Central Queensland\(^\text{18}\) as it enjoyed the benefits of Chairman Cameron’s long-term contract with Sumitomo Shoji Kaisha Limited for the sale of Mount Morgan blister copper.\(^\text{19}\)

Suddenly, at the end of 1967, this comfortable and long-term association appeared threatened by the announcement that outsiders were attempting to gain control of the future of the mine. This was the most traumatic event experienced by employees and residents of Mount Morgan alike since the closure of the mine in 1927.\(^\text{20}\) There were still those who remembered the distress of the years from 1927 to 1932 and who were sensitive to anything that might bring back those times.\(^\text{21}\) It is important, at this stage, to investigate in some detail the effect this unexpected attack

\(^{12}\) Broinowski to the shareholders, 15 September 1967, CAPCOL, M14/1477.6. Appendix 5.1 shows the movement of ore reserves and production data from 1932 to 1968.

\(^{13}\) MMLAGM, 11 November 1966, p.4.

\(^{14}\) ibid, p.3.

\(^{15}\) CAPCOL D/288.9 and M/1437.3.

\(^{16}\) MMLAR to 2 July 1967, p.4.

\(^{17}\) ibid p.12. See also CAPCOL M14/1432.8, ‘Investment review by Darling and Company Limited’, 24 July 1967. The Australian, 13 June 1967 suggested that ‘Mount Morgan’s main plans for meeting the challenges of the late 1960s and 1970s hinge around the buying of large parcels of shares from recent fat profits’ and ‘this policy might be described as preparation for premature senility!’

\(^{18}\) In Mt Bundey.

\(^{19}\) Contract with Sumitomo Shoji Kaisha Limited, 2 November 1964, CAPCOL M14/1317.4.5, 6.

\(^{20}\) Boyle MA, Chapter One,

had on the morale of these folk. John Kerr has told how the sudden death of executive chairman Keith Cameron on 5 August and the absence of his deputy, Len Doggett, overseas 22 led to ‘a board room vacuum’. 23 The announcement of a hostile takeover offer by James Wolfensohn on behalf of Power Mining Limited [Power] came as a complete surprise to the people in Mount Morgan, although, working in the background, Power had already acquired some 70,000 shares even before a formal offer was made on 12 September. 24 Eight days later, Power held between two and three hundred thousand Mount Morgan shares. 25

Two months before his death, Keith Cameron had flagged a strategy of investing in joint ventures with larger miners but he made no mention of mergers of the parent company with any others. 26 There is no evidence in the CAPCOL archives to support a contention by a former senior staff member that Mount Morgan had been the subject of takeover offers prior to 1967. 27 But there is evidence in the papers of WS Robinson that former MML Chairman Eric Morgan, when Chairman, had ‘endeavored to arranges some sort of tie-up with one of the larger mining groups’. After Morgan resigned as Chairman, he had again made the same recommendation to Newman. 28 Furthermore, there is a newspaper statement by John Proud, chairman of the Australian company Peko Wallsend Investments Limited [Peko] that he and Mount Morgan’s John Broinowski had ‘thought along merger lines previously but had never

22 Mr. Doggett had been granted leave of absence for three months from 29 July 1967, MMLBM, 22 June 1967, CAPCOL, M14/1431.4. Doggett later advised the Board that his firm, Spry-Walker, had been engaged to assist Power in its bid but ‘he was not presently retained in any capacity by Power Mining Limited’, MMLBM 5 October 1967, p.2, CAPCOL, M14/1431.4.
23 Kerr, p. 228.
25 ibid. Equivalent to between 6% and 7½% of Mount Morgan ordinary shares.
26 Cameron’s memos to the Board, 9 and 16 June 1967, CAPCOL, D15/463.9. Cameron’s memos and correspondence 1950 to 1967 are in CAPCOL, D15/431-477 and D15/511-513.
28 Memo from L B Robinson to J R Govett, 29 May 1952. Subsequently a letter of 15 July 1952 to WSR (file 15) noted ‘Estimation of development capital required for Mt Morgan. Would be a salvage operation. Mt Morgan not attractive, given the limitations on taking up equity’.
discussed any firm terms. He said the Power bid had provided the impetus for a renewal of that action. As if already poised to act, Proud’s mining group had reacted quickly to the Power bid by making a counter offer on 21 September.

The circumstances under which the original bid was made have always been controversial given that James Wolfensohn, chairman of Power, and John Broinowski, newly elected chairman of Mount Morgan Limited, were the co-managing directors of the merchant bank, Darling and Co. Both Power and Mount Morgan were clients of Darling and Co., which acted as their respective financial advisers. Understandably, a section of

30 RMB 22 September 1967 and MMLAGM, 13 October 1967, p.2. Valued at $20 million but PWLAR 1982 shows ‘amount of parent investment’ in MML as $7,042,000. See later discussion about the financial commitment of Peko.
31 RMB, 19 September 1967. Wolfensohn was the junior to Broinowski who ‘was elevated to the position of deputy chairman’. James D. Wolfensohn, A global life;
the press suggested that the bid placed the ‘co-managing directors of Australia’s leading merchant bank in open contest’, 32 Kerr agrees, saying Broinowski was ‘put into an uncomfortable position’. 33 Forty-five years later Wolfensohn has put the record right, explaining that he had made his offer without the knowledge of Broinowski. 34 Apart from some rather incautious remarks made by Bryce Hargreaves, 35 there are no existing records to provide evidence of the local reaction to this apparent conflict of interests but any local fears would have increased when it was realised the raider was fully controlled by overseas interests. 36 The Power consortium promised it would offer equity to local investors as soon as practicable 37 but employees would have been quick to note that the four Australian directors of Power were commercial, rather than mining people. 38 The Company launched a challenge in the NSW Equity Court, noting that Power had just changed its name from Berridale Estates Pty Ltd, 39 a company only a year old and which had as its major investment base a motel chain. 40

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32 RMB. 19 September 1967.
33 Kerr, p. 228.
34 Wolfensohn, A global life, pp. 105-117. See Appendix 5.2 for an extract from that book.
36 Power Mining Ltd was owned by Power Corporation of Canada (60%) and Anglo-American Corporation of South Africa (40%). RMB 12 September 1967. The history of Anglo’s presence in Australia indicates the company did not have any Australian interests at that time, The Gulliver Anglo-American Dossier, p.17, viewed 10 June 2009, <http://the Gulliver Anglo American dossier.html>. In 1926 however, Anglo had declined to invest in Mt Isa, Blainey, Mines in the Spinifex,pp116-117
37 RMB 12 September 1967.
38 The Peko board consisted of four senior engineers and only two commercial men, offer by Peko, 16 October 1967, CAPCOL M14/1477.6. The Mount Morgan board comprised four engineers and two commercial men, MMLAR to 2 July 1967, cover page.
39 RMB 28 September 1967. MML challenge in the NSW Equity Court against Power claimed there ‘was no company named Power Mining Ltd incorporated or registered in New South Wales’, that ‘the notice of the takeover offer did not comply with the Companies Act and that ‘the terms of the offer were misleading’, MMLBM, 5 October 1967, CAPCOL M14/ 1431.4. The dispute was satisfactorily resolved, RMB 30 September 1967. Power submitted a revised offer, RMB 6 November 1967.
40 Power offer document, CAPCOL, M14/1477.6
Power was careful to say that its ownership would ‘bring the advantages of being part of a large consortium and the expertise of [its] overseas mining houses would bring technical advantages to the mine’. But Mount Morgan people did not fully appreciate that, in addition to its cash and infrastructure assets, the Company had on its books almost thirteen million dollars of tax credits, credits which would prove an attractive reason for a corporate raider to assume ownership of the Company. Once local people became aware of these figures, and of the involvement of Anglo-American Corporation of South Africa, they were very anxious, Anglo’s reputation was, even then, ‘to walk quietly, act stealthily and buy as much as possible into existing Australian-led ventures’. Founded or not, extra doubts were raised by the then Federal Minister for the Interior, Mr. Doug Anthony, who said ‘It is disturbing to have a foreign company trying to cash in on an established enterprise, ‘gut’ the mine and bleed the company’s financial reserves for a ‘quick quid’.

Kerr suggests that the Mount Morgan Board, realising it would be difficult for them to withstand the Power raid, had approached Peko, suggesting a merger. Following the legal action referred to above, which saw the Power bid redrafted, Peko altered its bid to become a take-over rather than

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41 ibid.
42 Statements of the time are confusing. As in ‘[the Company has] tax free reserves of almost $13 million [which will] ensure many years of tax free dividends as cash flows from our enterprise’, Broinowski to shareholders, 15 September 1967, CAPCOL, M14/1477.6. *The Age*, 16 September 1967 repeated this statement. MMLAR, p.12 says ‘reserves and unappropriated profits’ $8,092,958. ‘Mount Morgan reserves [are] $5,573,537’, Proud to Peko shareholders, 13 October 1967. CAPCOL, M14/1477.6.
44 *RMB*, 29 September 1967.
45 Unreferenced statement in Kerr, p.228. A ‘merger’ was being ‘negotiated in late 1967 and a formal offer…transmitted to the ordinary members of Mount Morgan Limited on 23 October 1967’, PWLAR 1967-68, p. 5. ‘In the course of time several mergers occurred … and in many cases the new member of Peko-Wallsend Ltd was a long established operation which saw merit in joining the Peko-Wallsend Ltd organisation’, PWLAR 1978-79, p. 8.
a merger. Kerr notes that mergers were illegal in NSW.\(^{47}\) John Proud pointed out that ‘[Peko] could learn a lot from Mount Morgan Limited, particularly in open cut mining of low grade ore and smelting of copper’ and ‘the merger could contribute organisational skills and morale to Mount Morgan as well as any Australian company could’.\(^{48}\)

While there were operational advantages within the mine and financial advantages to shareholders of Mount Morgan by accepting the Peko offer,\(^{49}\) there was a certain amount of national emotion in the decision.\(^{50}\)

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\(^{47}\) Kerr, p. 228. In MMLAR 1968, within PWLAR of even date, p.26 the ‘takeover’ is still referred to in two places as a ‘merger’.

\(^{48}\) John Proud, The Australian 29 September 1967. John Elliston argues Mount Morgan’s smelting experience was not fully utilised when the Warrego smelter first failed to perform. JBE, email to RFB 28 October 2009.

\(^{49}\) ‘The Peko bid is worth about 36 cents [a share] more [than the Power bid] even taking the Peko preferences at par’. Broinowski, RMB, 18 October 1967.

\(^{50}\) Rex Connor, Minister, Whitlam government “[worked unsuccessfully] to buy back for Australia what is part of Australia's birthright, tried to ensure at least 51 per cent
John Proud had made his position on Australian ownership clear when, in 1958, Peko Mines NL had merged with the long established Newcastle coal mining company Wallsend Holding and Investment Company Limited to form Peko-Wallsend Investments Limited. As chairman of both Peko Mines NL and the Newcastle Wallsend Coal Co. he ‘saw many advantages in keeping the companies [Peko and Wallsend] owned by Australians’, his sentiment when Mount Morgan faced Power’s hostile takeover bid. He has said ‘Peko-Wallsend’s bid for Mount Morgan and later King Island Scheelite were in part motivated by taking a stance against foreign takeovers’. Despite this aversion to foreign takeovers, nevertheless the company appears to have had no compunction in basing its A$15 million post-1972 expansion programme on funds laundered by Schroder’s Ltd, British merchant bankers and again between 1971 and 1974 when it entered into ‘a complicated lease-back arrangement [for the smelter] at Tennant Creek with the Bank of America’. And there was no national loyalty when, in 1982, Peko agreed, of necessity, to an Anglo-American subsidiary assuming a forty-percent interest in the Mount

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51 Drew, Mining people, chapter seven – ‘Post war years: fifth congress’, p. 295. Drew does not explain whether the Wallsend Company was facing an attack from an international predator when the merger with Peko took place.
52 Letter from Sir John to RFB of 4 October 1994, RFBCOL.
54 ibid. The PWLAR 1971-72 p. 3 gives a different figure of A$12 million as a loan in Eurodollars for five years, probably through merchant bankers Darling and Co of which Schroder’s Ltd was the major shareholder. Schroder’s influence in Darlings is mentioned in James D Wolfensohn, A global life, p. 114. Peko Director Broinowski was deputy chairman and chief executive of the Darling Holdings Ltd. group, PWLAR 1971-72, p. 6.
55 ibid. PWLAR 1974-75, p. 5 shows that, on 11 July 1974, Peko reported to the Associated Stock Exchanges ‘the negotiations of a sale and lease back transaction, involving $20,721,065 in respect of its smelter at Tennant Creek. This transaction was intended to ‘provide a long-term (fifteen years) financing of this asset through a substantial portion of its productive life’, this lease was being amortized quarterly ‘[and it would be] extinguished in 1989’, PWLAR 1976-77, p29. In the event, this smelter and its successor failed well short of this anticipated life.
Morgan Gold Tailings Project But by then John Proud was no longer a director.56

**Peko’s Investment in Mount Morgan.**

Almost thirty years after the takeover, John Proud privately questioned the economic success of the bid, so the following basic analysis of the finances will help to answer his concerns.57 Newspaper headlines ‘Peko makes $20m bid for Mt Morgan’58 signalled the beginning of the end of the battle for control of the Company. Peko won a majority holding by 27 November 1967.59 The 1968 Peko Annual Report notes that at least fourteen million dollars was the market value of the Peko ordinary shares allocated to Company shareholders in consideration of the takeover.60 Mount Morgan shareholders also received Peko $1 preference shares, redeemable for cash in 1973 and options to purchase, in 1972, additional preference shares at a premium of $4.50.61 Based on the market value of the ordinary shares, and the cash value of the redeemable preference shares, the total benefit to Company vendors was $19.91 million.62

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57 Former Peko Chairman, Sir John Proud, personal letter to RFB, 4 October 1994, RFBCOL
58 *RMB*, 22 September 1967
59 PWL, ‘Notice to the Stock Exchange’ reproduced in MMLBM 7 December 1967, CAPCOL, M14/1431.4, p.3. This is the last Mount Morgan Limited board meeting as a stand-alone company.
60 PWLAR 1968, p.5. MML shareholders received three fully paid 50c shares for each MML ordinary shares. On this basis, PWL shares allocated had a face value of $1,527,561 and a market value at the date of offer of $14,817,349.
61 Ibid, For every four ordinary shares, MML shareholders were offered five PWL preference shares and one option to take up for cash, one PWL ordinary share at a premium of $4.50. The cost to redeem the 5,091,873 preference shares in 1973 was $5,091,873. This appears to be the only cash consideration in the offer. The redemption, for cash, of the preference shares is probably the reason Mount Morgan Limited was ‘delisted at equity’s request’ on 13 April 1973. Viewed 29 April 2014, <http://www.delistedcom.au/company/mount-morgan-limited>.
62 This approximates the amount reported in the press.
However, Peko’s actual financial liability for the offer appears to have been only $6,619,434, the sum of the face value of the new shares and the cost of redeeming the preference shares. Consequently, to reflect this liability, Peko’s issued capital rose by only $6,619,454 and, each year, Peko Annual Reports showed the amount of parent company investment in Mount Morgan as $7,042,000. During the financial year 1971-1972 Peko transferred $7,116,192 from Mount Morgan general reserves to the parent body accounts, effectively cancelling Peko’s purchase liability. Furthermore, for the years 1968 to 1981, the published contribution by Mount Morgan to the net profit (loss) of the parent company was $16,172,250. It is obvious that this figure represents a substantial profit, dismissing Proud’s concerns.

The immediate effect of the takeover on Mount Morgan

It was not until 3 May 1968 that the final acquisition of ordinary shares was completed and Peko options issued. Mount Morgan was now a wholly owned subsidiary of Peko-Wallsend Investments Limited, which then changed its name to Peko-Wallsend Limited. A Mount Morgan Board was required to remain in place until all preference shares were

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63 The allocation of 3,055,124 fifty cent PWL ordinary shares cost $1,527,561. Redemption of 5,091,873 one dollar preference shares cost $5,091,873. Total actual cost $6,619,434.
64 New ordinary shares $1,527,561 and redemption of the new preference shares in 1972, $5,091,873
65 PWLAR 1971-72, part of note 7, p.17. This appears to be a transfer from the tax credit reserves that were in the MML accounts at the date of takeover?
66 See Appendix 5.7 ‘published profit’. Average published profit was $1,155,161. Amortisation policies, established at the Technical Meetings, 23-25 May 1968, CAPCOL M14/1248.11, ensured costs of the re-equipping the mine were deducted from gross profit. In 1970-71, $85,439 was deducted for redemption and depreciation. In 1971-82 a further $836,964 was deducted.
67 PWLAR, 1967-78, p.5. Kerr, p. 230, referencing the RMB as the unlikely date of 16 January 1968, says that Peko was not able to complete the acquisitions until June 1968. The Australian Stock Exchange records show the date the Company was taken over by Peko-Wallsend Investments Limited as 20 March 1968. Viewed 29 April 204, <http://www.delistedcom.au/company/mount-morgan-limited>.
68 There is anecdotal evidence that the change followed a ‘party driven’ comment by Mount Morgan Chief Engineer ‘Joe’ Henry to John Proud that ‘the name of the organisation makes it sound like a mob of shonky loan sharks’.
redeemed but in reality it was a Peko Board with only Loy Hennessy remaining from the old board. Only former Mount Morgan directors John Broinowski and Len Doggett were invited to take a seat in the parent Peko Board. The Power group had not suffered from its experience when ‘Power Corporation sold off its Mount Morgan holding at a tidy profit’.

Peko was effectively in control from 14 January 1968, but it was not until the final acquisition that the members of the Board visited the mine for its first budget meeting. The delay caused some local unease. Perhaps the new owners might shed jobs, a policy which many years later Socrates Karagiannidis argued was the norm for takeover companies ‘buying productive companies and carving them up for sale in order to maximise profits for themselves and at the expense of other stakeholders, especially the employees of the acquired companies’. Had the staff been privy to the minutes of the Peko executive Board meetings of the time they would have been reassured that the directors saw no problem with the current level of staffing. There should have been some confidence in the future given that several Mount Morgan staff already knew a number of the Peko people. Former Mount Morgan staff geologist Tony Hope says

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69 ‘The 7% cumulative preference stock has been fully redeemed’, final report, PWL/MML board, 27 June 1972, PWLAR 1971-72.
71 ibid, p.2. Board of Directors. Six of the eight directors were Peko people.
72 James D. Wolfensohn, A global life, p.114. Peko bought the 311,000 Mount Morgan shares held by Power. RMB 28 November 1967.
73 PWLAR 1967/68, p.28.
74 Meeting with the General Manager, 4 April 1968, CAPCOL M14.1477.7 also minutes of a meeting held at Mount Morgan on 17 May 1968.
76 Socrates Karagiannidis, ‘Mergers and acquisitions in Australia, reasons and timing,’ Doctor of Business Administration thesis, Centre for Strategic Economic Studies, Faculty of Business and Law, Victoria University, Melbourne, 2010, p. 156. He is specifically referring to private equity companies.
77 CAPCOL, M14.1477.7, Minutes of the Peko executive board, 19 February 1968 to 17 March 1969. There were no comments questioning this level of staffing. Appendix 5.3 shows the movement of labour under MML and Peko, 1961-1990.
78 Claude Wearne, Production Superintendent, had been an undergraduate at Sydney University from 1946-1949 with Peko’s newly appointed Chief Mining Executive Ray White, Drew, Mining People, p. 291. Chief Engineer ‘Joe’ Henry had been electrical engineer at the Peko mines from 1957 to 1965, ‘recollections: Robin Henry,
that Mount Morgan employees had some initial misgivings about their future when it was announced John Proud would make his first visit to Mount Morgan, but Proud soon acted to dispel their concerns. As soon as he arrived at the Directors’ Quarters, he changed into his khaki work clothes and made a tour of the mine, asking to be introduced to employees in each section.  

Despite all this early good will, for the remainder of its life, Company employees experienced the highs and lows that resulted from becoming a relatively minor subsidiary of this ever growing organisation. In practice it went from being the first acquisition, enjoying an upsurge in new infrastructure, through the trauma of threatened closure, which questioned the dedication of Peko to the town, to a late commitment to maintaining operations and finally to fall victim of the collapse of its parent’s empire. But there is no doubt that, as the result of these events, the Company had allied itself with a progressive company and one with an early vision for growth.


Hope, The Hope factor, p. 52. ‘It has been said Sir John Proud’s great asset as Chairman was his firm belief in people’, ibid. While this quality may have been a natural attribute, there is no doubt Proud’s ten-day near-death ordeal following the crash of the Stinson aircraft VH-UHH in the McPherson Ranges thirty years earlier had a profound influence on his later life. The story is told in a film J Schindler & B Blasdall, Miracle of the mountains, 60th Commemoration Edition, DVD, Schindler Communications, Northgate, QLD, 1997. See also Drew, Mining People, pp.158-160. A personal letter from Sir John to RFB of 4 October 1994 recounts the story, RFBCOL. There is further detail in evidence by John Proud to the Coronial Enquiry into the crash, 31 March 1937, pp.70B-75. The enquiry was held between 19 February 1937 and 22 April 1937 (JUS/N1026).Viewed 21 November 2011.
Peko’s cardinal strength lay in its aggressive exploration strategies and, from the beginning, it had employed highly skilled external technical consultants. This policy was in marked contrast to that of Mount Morgan which, although on a few occasions had employed well credentialed consultants and had entered into several joint venture exploration arrangements with larger mining companies, had maintained a relatively small staff of in-house geologists. It was the results of exploration on the Tennant Creek field that provided the cash flow.

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80 The PWLAR photograph as published in the report was incorrectly positioned as a mirror-image, corrected above.
81 Both Ray White, Parbo, *Down under*, and John Elliston, *The AusIMM Bulletin* credit the interpretation of the various anomalies that led to impressive discoveries to a number of highly qualified and experienced scientists whom they name.
82 HJC Conolly interpreted the Sugarloaf ore body that added some 10 million tons of ore to the reserves, MMLAGM 1949, and 1951. Boyle MA, pp. 231-233 discusses a ‘plethora of consultants’ in mining, metallurgy and engineering.
83 Reported in various MMLARs. Hope, pp 53-54 mentions a joint venture to explore the Dawson coal seams.
84 The Mount Morgan geology department consisted only of a senior geologist and an assistant, supported by Survey staff, Hope, p.51.
bonanza from the discovery of the Juno orebody that set Peko on its rapid upward spiral. The source of Peko’s wealth had been one of the Company’s ‘missed opportunities’ given it had been in the Tennant Creek field fourteen years before the advent of Peko Mines NL and had failed to seize its opportunity.

Map 5.1
Activities of Peko at Tennant Creek,
[PWLAR 1969, p.10]

The takeover had little impact on the majority of staff at Mount Morgan, although Loy Hennessy, General Manager and a Director of the Company now found himself supervised by Ray White as Chief Mining Executive instead of reporting directly to the Executive Chairman. The management

85 Exploration often stretched limited finances. JBE, AusIMM Bulletin.
86 Appendix 1.2 ‘Tennant Creek – From Morgan Tennants Ltd to a successful Peko Mines NL’ details this involvement and the development of Peko up to 1968. Appendix 5.4 tabulates the comparison between metals production by Peko from 1954-1968 and equivalent out-turn from MML.
structure at the mine remained exactly as it had been before the takeover except that members of the geological staff were transferred to Peko’s exploration subsidiary, Geopeko, housed at Mount Morgan in the offices of the newly established Eastern Queensland base. This move and the appointment of additional geological staff to the base provided a significant boost to the morale of the townspeople. Later a Peko subsidiary established a research facility on a site adjacent to the south-west corner of the freehold. It operated with questionable success for seven years but did bring additional employment to the township.

Mount Morgan Limited had enjoyed a relatively simple corporate structure based on the parent Company and expanded briefly by the establishment of the short-lived Mount Morgan Developments Limited [MMDL] and then its taxable subsidiary Morgan Mining and Investment Limited [MMIL]. It was a different story, however, when Peko assumed control, as a series of convoluted moves divided and restructured the Company to fit the overall financial configuration of Peko.

Soon after the takeover, management of MMIL was excised from Mount Morgan Limited, the Baralaba coal mine was sold and the newly commissioned Mt Bundey operation was no longer the responsibility of Mount Morgan management. Indeed, MMIL went on to become Peko’s vehicle for a section of its coal mining operations in New South Wales.

Of greater significance was the proposed sale of the Mount Morgan

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87 Hope, p. 52. A new building (Photograph 5.4) was erected on Lower Mine Range across the road from the Old Company’s Gold Room. John Elliston, ‘Report on reorganisation of Geopeko incorporating geological staffs of MMI Ltd and MML’, 5 February 1968, CAPCOL, M14/1505.10.
88 By the appointment of extra geologists, Hope, p.52.
90 Boyle MA, pp 147-149.
91 PWLAR 1970, p.9
92 ibid.
93 Assuming ownership of Gretley Colliery, NSW, PWLAR, 1972-73, p.28.
smelter to Peko-Wallsend Metal Limited, a company formed to operate both the Mount Morgan and, soon to be completed, Warrego smelter. The resulting accounting procedures, involving complicated custom smelting fees, site rent, toll charges and overhead costs would require a forensic audit in order to establish the financial outcome of Mount Morgan’s blister output. Compounding the confusion further, Mount Morgan and the mines at Tennant Creek became a subsidiary of Warman Equipment (International) Ltd during 1975-76 and an inappropriate decision was made to change the ownership of the various mineral leases surrounding the mine freehold. These changes were not apparent to any but senior management who now found themselves increasingly scrutinised by the burgeoning administrative, rather than operating, structure of head office.

From this researcher’s point of view the best decision was the introduction of a formal system of reporting to the twice yearly Budget and Technical Meetings of the Peko executive held in Mount Morgan. These reports provide valuable and detailed insights into the operations from May 1968 to May 1983.

94 An existing company, Mining and Quarrying Machinery Pty Ltd, was restructured to become a public company, Peko-Wallsend Metals Limited, CAPCOL M14/1432.6, and PWLAR 1970, p.9. Also JBE, email to RFB 28 October 2009, discusses this arrangement.

95 The sale was proposed on 20 March 1971 but the decision was changed to leasing the smelter rather than purchasing it. Then on 11 September approval was given to lease the land on which the smelter stood for a period of ten years at a lease fee of $1,000 a period, CAPCOL, M14/1432.4.


97 PWLAR 1975-76, p. 6.

98 OAW, email to RFB, 25 January 2008.

99 April-May and September-October each year at which department heads were required to submit detailed reports of the activities of their departments and to explain budget outcomes. Designated ‘Mount Morgan Limited, Minutes of Technical [or Budget] Meetings held at Mount Morgan’ [hereinafter called ‘Technical Meetings’].

100 CAPCOL M14/1248.11 through to M14/1251 inclusive. This reporting ended with the loss of control of MML to the Mount Morgan Gold Tailings Project joint venture partners.
Once John Proud and the executive had visited the mine it soon became evident that, while the Company had operated relatively smoothly and had continued to turn in reasonable profits, there were serious shortcomings in much of the infrastructure. The meeting considered every aspect of the operation from Open Cut drilling, through new loading, haulage, primary crushing and the Mills and Smelter. The executive established replacement strategies and approved a forward capital budget of more than $3.1 million. At the same time it set up a programme of amortisation of this capital, a policy that was later to provide local management with a powerful and positive financial argument. By May 1969, the Cut was fully modernised and the meeting noted that the members considered only normal replacements would be required in

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101 The film The Reluctant Mountain, produced by Peko to mark the centenary of operations at Mount Morgan gives a summary (somewhat biased) of the commitment of Peko to improvements in operating efficiency. Peko-Wallsend Ltd, The reluctant mountain, 16 mm film transferred to VHS video, Australian Instructional Films, Sydney, 1982.

102 Technical Meeting, 11 May 1968, CAPCOL M14/1428.11.

103 Technical Meetings, 23-25 May 1968, CAPCOL M14/1428.11.

104 By Wilson during the imminent closure, October 1975 – February 1976.
future. If any further proof of Peko’s goodwill was needed, the early decisions made to upgrade critical equipment provided that assurance.

Photograph 5.5
Modernising the ‘Cut’
The new excavator and a 35 ton truck
[PWLAR 1970, p.30]

The commitment of funds at this first meeting displayed different management policies from those of the former Mount Morgan Board. From 1932 until 1966, the Company had invested over £4 million in upgrading its plant, including the purchase of new equipment, although it had maintained a policy of purchasing second hand equipment especially in the mine. Despite this level of upgrading, circumstances had militated against the development of the most modern operating procedures! Firstly, the Company had inherited most of the infrastructure of the Old Company so any improvements had to be fitted in around the

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107 It was quite common in many mines to purchase secondhand machinery. Clark, *Built on gold*, Chapter 12, ‘Moving machinery’, pp. 151-154 discusses such practices in WMC.
old plant. Secondly, the Mount Morgan Open Cut was a difficult operation with its narrow benches and high faces. Although the drilling and blasting equipment had been progressively updated, the challenging physical design had restricted the size of loading, crushing and haulage equipment, hardly the best choice for an operation that was required to handle over four million tons of material a year. And finally, there appeared to have been the policy to repair and rebuild old equipment repeatedly rather than to commit significant capital to the replacement of new for old. The results of the decisions made at this first meeting were outstanding, with every piece of new equipment performing admirably, reducing the cost of mining. On the other hand, the consequences of decisions made at subsequent meetings were mixed.

After revisiting Keith Cameron’s early scheme to create No 3 Mill by consolidating both mills into one, the proposal was correctly overturned at the May 1969 meeting on the grounds of cost and the limited life of the mine. The replacement of both the No.1 and No.2

108 The operation of which had been rejected by Barker in his 1927 report, Boyle MA, Chapter One. Films, 17,483 (1939), 90,827 (ca 1946) and 126,547 (1965) held by the National Film and Sound Archive, Canberra, show the Open Cut operation from 1939 to 1965. Work during the Peko period opened up the operation especially by the use of front end loaders instead of shovels on the lower benches. See these changes in the centenary film The reluctant mountain.

109 Beginning in April 1959, MMLAR to 30 June 1959, p.6.
110 The efficiency of haulage was hampered by the fact that haulage of ore and waste was by private contractors instead of by the Company; this had been a recommendation by Transport Director John Kelly in 1947, Boyle MA p. 225. There is anecdotal evidence that at least one senior official of the Company was a ‘silent partner’ of several of the contractors. Peko’s decision was that the Company should operate the haulage of ore and waste. Contractors were phased out over a period of twelve months as new trucks were delivered. See MML, ‘papers relating to the purchase of new haulage trucks for the Mine’ 1968-69, RFBCOL.

111 Material handled in the financial year to 27 June 1965 was 4,341,044 tons, MMLAR to 27 June 1965, Table of comparative figures, p.15.

112 RFB has a clear recollection of receiving a lecture from Eric Boyd, Managing Director when, as a relatively young diplomat in 1956, he had queried the reason his section was ‘wasting time’ rebuilding, (for a second time) a seventeen year old ex army ‘Blitz Wagon’. He was told ‘we do not pay income tax so any capital I [would] spend [to replace it] is my ‘quid’ and I [would] get nothing back from the Government’. This again emphasises the Board’s attitude to its tax-free status.

113 PWL Interim report, half year ended 31 December 1970, un-numbered page.

114 Cameron to the Board, MD 1954, June 1953 in CAPCOL, D15/568.3.

Mill crushing stations was the next link in the review of the flow of material to the mill but the project was hardly one of Peko’s triumphs. The Board’s unfortunate decision to select Peko’s recently acquired subsidiary Warman Equipment (International) Ltd,\textsuperscript{116} to design and construct a new secondary crushing station,\textsuperscript{117} instead of choosing the builder of the highly successful primary crushing station.\textsuperscript{118} This decision condemned the Company to a long-term operating and maintenance disaster.\textsuperscript{119}

With far more reaching outcomes for the Peko Group, but especially for Mount Morgan, the replacement of the Edwards Roasters and the Reverberatory Furnace with an Outokumpu style flash furnace was a courageous judgment.\textsuperscript{120} Built as a production tool for Mount Morgan, the new furnace was also to be a testing and learning exercise for a smelter planned for Tennant Creek. After initial teething troubles, the

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\textsuperscript{116} Peko took over Warman Holdings Pty. Limited on 16 April 1969, PWLAR 1968-69, p.5.
\textsuperscript{118} Boyle, ‘Survey of redundant plant and equipment, Area 2, Volume 1, ‘Primary crushing station’, October 1984. Copy held in RFBCOL; there is no copy of this report listed in CAPCOL.
\textsuperscript{119} This was the first of several occasions when the parent body allowed another subsidiary to ignore the experience of the Mount Morgan staff when preparing plant designs, see later re the Warrego smelter. The plant was intended to crush an average of 333 tons/hour over eleven shifts per week but the highest throughput recorded between 1971 and 1975 was 209 ton/hour. This poor performance can be directly attributed to Warman which ignored advice from the crusher manufacturer that the crushers selected were not capable of the required throughput, OAW email to RFB 20 August 2008. See ‘complete history of the poor operation and excessive maintenance of the crushing station from July 1971 to October 1975’, Boyle, ‘Survey of redundant plant and equipment, Area 3, Secondary crushing station’, Volume 4, Appendix 4, October 1984, CAPCOL M14/1230.4, also minutes of various Technical Meetings from 1971 onward. See ‘Additional capital of $42,540 required to put crushing plant into a satisfactory operating condition’, Memo from Chief Engineer, 10 November 1971, RFB ‘secondary crusher, file 2’ RFBCOL.
\textsuperscript{120} Technical Meeting, 11May1968 considered only replacing the old Edwards Roasters with a single Fluidised Bed Roaster, CAPCOL M14/1428.11. The Fluid Bed Roaster proposed had been tested at the CSIRO facility at Fisherman’s Bend from the early 1950s under the co-sponsorship of Mt Lyell, Mount Morgan and Peko. CAPCOL, M14/1243. 9-12. Technical Meetings 19-21 October 1968, CAPCOL, M14/1428.12 decided on an exhaustive study of the flash smelting process instead.
\end{flushright}
Mount Morgan flash smelter was a success,\textsuperscript{121} but its larger counterpart at Warrego was an abject failure both technically and operationally.\textsuperscript{122} Based on the false premise that the high bismuth content of the ore could be eliminated during the conversion of copper matte to blister copper in top-blown Kaldo converters, the first smelter closed in January 1975 after it failed to produce saleable blister.\textsuperscript{123} Mount Morgan reprocessed this blister to acceptable standard.\textsuperscript{124}

Despite a recommendation from Mount Morgan that it would be more economically favourable for Warrego concentrate to be trucked to Mount Morgan for smelting,\textsuperscript{125} a redesigned smelter was rebuilt on the same site.\textsuperscript{126} An investigation to build a bismuth plant at Mount Morgan had also been rejected.\textsuperscript{127} Notwithstanding process and equipment changes incorporating technical input from the experienced Mount Morgan staff,\textsuperscript{128} the second smelter also failed after only ten months, closing in October 1981 reportedly because of poor copper prices.\textsuperscript{129} Both the Peko

\begin{footnotesize}
\begin{enumerate}
\item Ossie Wilson discusses how the experienced MML staff overcame these problems in \textit{Trouble with Flash Smelter}, email to RFB of 25 February 2008. By May 1973 the MML smelter output had risen to 35 tons a day, CAPCOL M14/1432.6.
\item Design and operating faults evident in the smelter are detailed in OA Wilson & RF Boyle ‘Report of visit to Warrego smelter’, 5 May, 1976, \textit{Tennant Creek Smelter} file, RFBCOL.
\item PWLAR 1974-75, p.5, JBE email to RFB 28 October 2009.
\item The Warrego blister bars were cut up and fed directly into the MML copper converters diluting the bismuth content to a satisfactory level, OAW email to RFB, 12 February 2013.
\item The proposal was reported at the Warman Operating Committee meeting of 10 January 1977, CAPCOL M14/1432.1, p.7; it had originally been proposed at the MML Technical meeting 20-22 October 1976, CAPCOL M14/1432.14. The recommendation was rejected as impractical but, after the second Warrego smelter failure, concentrates were trucked to MM without any additional capacity being added to the MML plant. See handwritten notes analysing the engineering aspects of the Mount Morgan proposal, RFB file 14.13, 30 December 1976; also handwritten calculations by RWGW, ibid.
\item PWLARs 1978-79 and 1979-80.
\item Between February and August 1979, drawings and specifications for the furnace were ‘vetted’ by Mount Morgan staff, Copies of correspondence in \textit{Tennant Creek Smelter} file, RFBCOL.
\end{enumerate}
\end{footnotesize}
board and its technical staff appear to have ignored Proud’s earlier statement that ‘Peko could learn a lot from Mount Morgan Limited, particularly in …smelting of copper’ when constructing and operating the Tennant Creek smelter; John Elliston would later comment about the difficulties of managing advanced technologies with relatively inexperienced staff, in a remote area!). The twin failures of this smelter, generating losses of over $84 million, appear to be the most serious cause of the collapse of the group.

The Mount Morgan flash smelter operated successfully for twelve years. It smelted not only Mount Morgan and Mt Chalmers concentrate but, following each of the double failures at Warrego, smelted the output of the Tennant Creek mines. The treatment of Tennant Creek material appears to have given Mount Morgan a commercial advantage and was one reason that Peko persevered with mining at Mount Morgan as ore resources approached exhaustion. Therefore, after the first failure, the locals would have seen a more optimistic picture than would otherwise been the case.

At the beginning of 1976, Mount Morgan seemed secure in the knowledge that, although profit for the previous year had been dramatically less than for the year 1973-74, the Smelter had been completely overhauled after

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130 The only person on the Peko staff [outside Mount Morgan] with smelter experience was Stuart Pullar, who was then Group Metallurgist based in Sydney. Pullar had been Smelter Superintendent at Mount Morgan from 1943 to 1956.
131 A confidential email by a former senior executive of Peko to RFB details how Peko management rejected a proposal to have the very pyro-metallurgically experienced Loy Hennessy assume control of the first Warrego smelter, RFBCOL.
132 JBE, email to RFB 28 October 2009. This was not the first time there had been problems with isolated Northern Territory copper smelters. The Daly River and Yam Creek smelters of the early 20th century had limited success. See V. Fletcher, ‘Value adding to Northern Territory copper, 1901-1910, JAMH], September 2006, pp.116-138.
133 Loss from the second smelter failure was over $63 million, PWLAR 1981-82, p. 5. To this must be added the liability for the ‘leaseback’ agreement of the first smelter which was almost $21 million, PWLAR 1974-75, p.5.
134 For 1973-74, profit was $6,894,338 and for 1974-75 was $100,880. PWL Chairman’s address 24 October 1974 explains that the high return in 1974 reflected
three years of successful operation, suggesting at least the same life was before it and ore reserves were three million tons. But on 5 January 1976 this complacency was shattered with the announcement that there were to be major retrenchments and that the mine could close.

While the announcement appeared to be a fresh decision, a critical examination of earlier records indicates that, as far back as 1951, closure had been predicted to be the end of 1976. There is also evidence that Peko had previously advised Sumitomo that Mount Morgan would close in 1975. What the community did not know was that, three months previously, Ossie Wilson, Manager of Operations, who had replaced Loy Hennessy in 1974, had been instructed to prepare to shut down the operation completely, on the grounds that the mine was losing money.

the smelting of larger than normal stocks of concentrate accumulated during initial troubles with the smelter in the previous financial year. A drop in the price of copper, combined with the smaller throughput had also contributed to the smaller profit.

136 With the MML smelter treating Warrego concentrate and with the rebuilt Warrego smelter not due to come on stream until October 1980 (PWLAR 1979, p.14) the MML rebuild may have been done to ensure availability of a treatment plant for Warrego concentrate at MML.
137 Ray White, Chief Mining Executive in RMB, 5 January 1976, p.6.
138 Cameron, 21 August 1951, predicted the life of the mine as 25 years, CAPCOL, D15/473.4. A cash flow analysis submitted to the Board, 27 September 1966, showed no cash input from the mine operations after 30 June 1975 possibly indicating a cessation of operations, CAPCOL M14/1431.4. John Proud had told the press that Mount Morgan reserves were down to six million tons and the life of the mine was now five years, [putting estimated closure at the end of 1976] RMB, 30 October 1971.
139 Telex from Peko marketing manager Baylis to the Federal Department of Natural Resources, 6 January 1976. ‘Sumitomo regarded [our] MM blister contract as terminated at the end of 1976. They pointed out that we had previously predicted closure of the MM mine in 1975’, CAPCOL, M14/1245.3.
140 In what appears to have been a political decision, Hennessy was appointed Director of Corporate Planning, Sydney, a position that appears to have been a sinecure, leading to his dissatisfaction and his leaving to join Queensland Nickel. This raises the question whether Hennessy was moved because Peko was already planning to close the mine.
141 Ray White, report to the PWL Board, 6 August 1975 suggested the possible phasing out of operations at MML, CAPCOL M14/1432.6. There are no details in existing files of the amount of this loss. RMB, 6 January 1976, p.1, says ‘losses in the past six months’ were ‘almost $1.5 million’. OAW says he was advised by Ray While early in the financial year 1975-76 that, in the previous four weeks, there had been a loss of $100,000 when local accounting calculations had indicated a profit of $100,000 for the same period. He argues that the loss figure may have included part of the cost of the smelter overhaul. MML Operating Committee meeting in Sydney 12 January 76,
But the Peko board underestimated Wilson’s determination to keep the mine open! Wilson led his three senior executives to prepare a plan to downsize the operation, reducing expenditure so as to decrease apparent losses and recalculate the ore reserves. Wilson’s principal argument was that amortisation of capital, especially on the Smelter, was not complete and closure of the Mine would result in a shortfall in repayments. It was Wilson’s new mining plan, a proposal to close No 2 Mill and retrenchment of two hundred and ten employees, that was accepted (it appears reluctantly) by the Board. The *Morning Bulletin* recorded government, union and community efforts to help the workers and the township survive the retrenchments. On 13 February 1976, 126 employees were paid off. Later events will prove that Wilson’s determination ensured Mount Morgan survived, albeit on a gradually reducing scale, for a further fifteen years.

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142 The Production Superintendent, the Chief Engineer and the Chief Accountant.

143 The planning was done in complete secrecy from the rest of the staff, given the sensitivity of the problem. ‘I ended up taking all the plans and sections home and doing them on the dining room table until about 3.00 o’clock in the morning and we had to raise grade and cut tonnage in order to survive’, RWGW, OH with Betty Cosgrove, 10 November 1992. It is testimony to his planning that of the 2,000,000 tons of reassessed reserves, by the end of mining 1,955,179 tons had been removed, Appendix 5.7.

144 Technical Meetings, 27-29 May 1969, CAPCOL M14/1249.1, amortisation spread over the estimated life of the mine at 90,000 tons of blister copper. At the end of 1974-75 only 61,000 tons had been produced. By 1982 the blister out-turn had totalled 93,297 tons, Appendix 5.6. From 1982-1984 the smelter produced 17,120 tons of blister from Warrego concentrates, ‘Final report on smelter’, July 1984, RFBCOL.

145 By the MML Operating Committee [in Sydney] 12 January 76, CAPCOL M14/1432.14. On 1 March 1976, Ray White wrote to the MML senior executives ‘It is essential that we retain the services of senior staff as long as may be required to efficiently close down the operations at Mount Morgan’. The letter continued, offering financial incentives for the staff to remain in place, RFBCOL.

146 *RMB*, 5 January to January 28 1976.

147 *RMB* 14 February 1976.

CAPCOL M14/1432.14, contains a report by OAW that for the previous six periods to 21 December 1975 local calculations showed combined cash surplus $977,620. ‘It appeared to me that they just wanted to shut us down’, OAW, email to RFB 5 January 2013.
Mount Morgan was Peko’s first major acquisition but it has been difficult to construct a reliable financial analysis of Peko’s debt, assets and shareholders equity for the years 1967 to 1973. However, as reported in the Annual Report for 1967-68, group investment after the Mount Morgan takeover was approximately fifteen million dollars in twelve operating divisions. Expansion over the next six years seems to have become ‘diversification unchecked’ with the investment in thirty-five subsidiary companies having risen to almost twenty-nine million dollars and a growth of debt to nineteen million dollars. By 1982, there were

148 For the first time the PWLAR 1982 presented a table ‘Ten year financial summary, pp. 22-23 which gives comparative figures 1973-1982. Figures quoted in the text were calculated from this table.

149 Not all the subsidiaries were directly acquired with a number having been minor subsidiaries of major companies absorbed by Peko.
sixty-eight active subsidiaries with fixed assets of over seven hundred million dollars and shareholders’ equity of almost three hundred and sixty million dollars. However, debt had ballooned to almost two hundred and ten million dollars, a ratio of debt to assets of fifty-eight point five percent. This was an increase of over thirty-six percent since 1973. The increase in borrowings to fund expansions, such as the Warrego smelters and acquisitions, occurred at a time of extraordinarily high domestic and international interest rates.

Map 5.2
The Peko ‘Empire’ 1981

[Peko Metal Mining Operations booklet, p.5
Included with PWLAR 1980-81]

150 PWLAR, 1982, ‘Ten year financial summary’, pp22-23. Debt/asset ratio had been relatively stable until 1978 when it rose to 41.85% but rose rapidly from 32.5% in 1980 to 58.52 in 1982. See also JBE, email to RFB, 11 August 2009

151 The map does not include the nine subsidiaries operating overseas as listed in PWLAR, 1982, p.24. See also table of PWLAR, 1982, p.
Just as the initial success of Mount Morgan Limited can be credited to the work of a few determined characters,\textsuperscript{152} the early growth of Peko seems to have relied on the technical tenacity of mining engineer John Proud\textsuperscript{153} and the financial acumen of economist George Lean.\textsuperscript{154} As Chairman from 1960 to 1978, John Proud presided over the most successful period of the company history, but his retirement saw the beginning of a period of poor decisions that ultimately spelt the end of the group. George Lean had been associated with Peko from its beginnings, rising from company secretary to board member in 1961, CEO and then to Chairman. Although he had long been associated with the technical problems of mining, Lean was not a technical man and the decisions made under his time as Chairman appear to reflect this deficiency.\textsuperscript{155} John Elliston has been quick to point

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\textsuperscript{152} Adam Boyd and Eric Campbell, Boyle MA.
\textsuperscript{153} Proud’s biographical note in Appendix One.
\textsuperscript{154} ‘In memoriam, George Beattie Lean, 14/1/1913- 23/7/2004’, International House, University of Sydney, alumni newsletter, November 2004, volume 36, number 2, p. 17. See Lean’s biographical note in Appendix One.
\textsuperscript{155} Some of the poor decisions seem to have been made by senior executives without the approval of either the Chairman or the Board. Concerns relating to some of these decisions, especially the purchase of Unilever House as Peko’s head office expressed in a private communication, PWL director Len Doggett to RFB during a chance
out that, in the closing days of Peko, ‘financiers and successful leaders of other businesses [then] became dominant on the parent company board’ and ‘the board …was unable to recognise the need for appropriately skilled and experienced staff to manage advanced technologies in remote areas’. Perhaps reflecting the Elliston thesis, the importance of mine products to the profitability of the group declined from representing almost ninety-seven percent of the gross income in 1969 to twenty-nine percent in 1980 as the diversification into more industrial fields increased. Indeed, it was the spectacular technical and financial failures within the metal mining division, coupled with sensitivity to fluctuations in metal prices, which spelled the end for Peko-Wallsend Limited.

Photograph 5.8
Unilever House, Peko’s Head Office,
[National Archives of Australia: J2669, 419]


157 PWLAR 1 July 1969, p.16.
158 PWLAR 30 June 1980, p.22.
159 PWLARs from 1969 to 1980 list the acquisitions and disposals of subsidiaries.
Photograph 5.9
The Mount Morgan Smelter post 1981
[Peko Metal Mining Operations booklet, p.5
Included with PWLAR 1980-81]

Photograph 5.10
Tennant Creek Flash Smelter and Bismuth Reduction Plant 1973
[PWLAR 1972-73, p.27]
In July 1981, after ninety-nine years of operation, mining of the Mount Morgan orebody ended but, economically, its future had been in doubt for several years before. By August 1978, the Mount Morgan orebody appeared to be nearing exhaustion and the rapidly decreasing ore reserves remained within the increasingly challenging lower horizons of the Open Cut. Financially it would have been to Peko’s advantage to stop mining and to close the whole operation down, but there were strong arguments for continuing mining until safety concerns should dictate otherwise. The Peko board may have been anxious to avoid a repeat of the adverse publicity that had resulted from the threat of closure and the retrenchments of 1976 and would have looked for reasons to maintain operations. But there were more practical than social reasons for continuity. It was essential to maintain as many of the skilled workforce as possible given that, in addition to smelting Mount Morgan concentrates, part of the smelter burden was given over to treating concentrate from the Warrego mine. Meanwhile, laboratory test work had revised upwards the economics of gold recovery from the thirty odd million tons of tailings stored in various dams around the lease. This was not a new initiative but any expansion of early test work carried out

160 In ‘A study of mining at Mount Chalmers and treatment at Mount Morgan’, August 1978, section 4.3.2, CAPCOL M/1477.9, mining at Mount Morgan was planned to decrease gradually from period 3, 1979-80 and end in period 3, 1980-81. Appendix 5.7 traces the movement of Mount Morgan ore reserves and production 1968-1981.

161 The only ore remaining was now in the bottom of the Open Cut and the working areas were constrained by the conical shape of the workings and working space was progressively reduced. Waste was short-dumped within the Cut, but the haulage distance to the primary crushing station had increased, raising the cost of haulage.

162 The final closure was requested by the CrawlIR® drill operators who claimed the working area was unsafe, Technical Meeting, October 1981, section 1.1. The last day of operation was recorded on video by JA James, VHS in RFBCOL.

163 Details of the ore reserves were in the public domain so the public, unions and the media would have seized on any closure and consequent retrenchments as being socially unacceptable.

164 While the redesigned Warrego smelter was being rebuilt concentrates were transported from Warrego by road and mixed with Mount Morgan concentrates for smelting.

165 PWLAR 1979-80, p. 11 mentions the planned retreatment plant ‘to start in March 1982’. The first mention of cyanidation of the stored tailings by MML was on 3 January 1956 in memo MD 424, Eric Boyd to the Board, CAPCOL M14/1428.4. The fixed price of gold of £15/10/- [$31] an ounce had destroyed the economics of the project. By 1978, the price of gold had begun to rise [PWLAR 1978, p.8 indicates gold was selling for $A158.16] and the Zadra process was proving to be highly successful especially at the famous Homestake mine in South Dakota USA.
on the cyanidation of tailings during 1922 appears to have been abandoned.\textsuperscript{166}

But the most encouraging reason to continue operations came from the work of Peko’s exploration subsidiary, Geopeko Ltd which had, either alone or in joint venture, mounted a strong exploration programme both within the mine and in the region.\textsuperscript{167} Its attempts to discover further economic ore reserves had but little success, except in its examination of the often-mined Mt Chalmers field.\textsuperscript{168} In 1979, the Company purchased the property and an intensive drilling campaign indicated rich ore.\textsuperscript{169} Mining began in 1980 with ore railed to Mount Morgan to supplement the dwindling Open Cut material.\textsuperscript{170}

\textsuperscript{166} Personal letter No 521 of 6 March 1922 from Adam Boyd to the Chairman MMGMCo related that ‘for the past two months’ the Chief Chemist had been ‘engaged in experimental work in connection with the cyanidation of our tailings’. It is unclear if these were pyritic tailings or some of the original oxidised material treated by chlorination.

\textsuperscript{167} CAPCOL, Part 3: MS M1/1070-1077 contains an extensive listing of Geopeko reports.

\textsuperscript{168} Mining at Mt Chalmers had been a ‘boom and bust’ story for over a century. MML operated the mine for a short period during World War II on behalf of the Australian Government, Boyle MA, pp.196-197. See also RWGW, ‘History of Mt Chalmers mine’, CAPCOL M/1477.9, and RFB, ‘Mount Chalmers heritage and cultural investigation’, March 1995. RFB, ‘The Mount Morgan Collection’ (video recording 20 minutes) shows the remnants of early workings at Mt Chalmers before MML mining commenced, CQU library, call 622.292999435 1.

\textsuperscript{169} Indicated reserves were 1.2 million tons. The mining programme was based on a resource estimate of 2.2 million tons because ‘Our geologist found a bit more ore down there that hadn’t been mined before which we thought was wonderful but it didn’t turn out to be as much as we thought’, RWGW, OH with Betty Cosgrove, 10 November 1992.

\textsuperscript{170} PWLAR 1980, p. 11.
The Mt Chalmers project had only limited success, closing on 24 March 1982. It had served its purpose by maintaining a moderately large workforce to operate and service both No 1 Mill and the Smelter, with technical staff retained to prepare for the completion of the new tailings retreatment plant. The closure of Mt Chalmers brought to an end all milling of ore. The Warrego smelter had suffered its second and more financially disastrous failure so the Mount Morgan Smelter smelted only Peko’s copper concentrates, trucked overland, until 8 July 1984. The

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171 The price of copper had fallen again, PWLAR 1982 graph, p.6, reproduced as Appendix 5.5.
172 Hargreaves, OH with Betty Cosgrove, 9 November 1992
173 The flash smelter produced 95,689 tons of blister copper containing 95,000 tons of copper and approximately 504,957 ozs of gold from the Mount Morgan orebody alone, MML ‘Final Monthly Report’, July 1984, RFBCOL.
total workforce was now only two hundred and seventy-nine with selected staff and wages employees retained in preparation for the commissioning of the new plant.

In 1981, reeling from the massive loss occasioned by the failure of the Warrego smelter, Peko shed a forty percent interest in the Mount Morgan Tailing Retreatment project to Anglo-American Australia. Using the carbon-in-pulp cyanide process\textsuperscript{174} in conjunction with the Zadra elution process,\textsuperscript{175} it was then the largest plant of its type in the world. Commissioned in October 1982, the new plant opened under an entirely different management structure. It was at this point that the continuity of senior staff, which had persisted from the time of Wesley Hall, ended\textsuperscript{176} and a new generation of management, influenced by the dominance of the Anglo partners, put new policies in place.\textsuperscript{177} As the Peko Group disintegrated and was absorbed by North Broken Hill, the name Mount Morgan Limited continued to be used while ownership changed several times until the final closure in November 1990.\textsuperscript{178} Because of these significant changes in ownership and the end of the long-term connection of staff with the Company, this study of Mount Morgan Limited

\textsuperscript{174} Carbon-in-pulp [CIP], a later expansion of the plant included the use of carbon-in-leach [CIL], Glossary Appendix Two.
\textsuperscript{175} Glossary, Appendix Two.
\textsuperscript{176} Within five months, the Manager of Operations and the Smelter Superintendent retired while the Production Superintendent and the Chief Engineer left to follow other careers. Replaced by Peko and Anglo appointees, these officers had, between them, over 118 years of service with the Company. George Beattie, OH with Lorna McDonald, 20 November 1992 describes, critically, the ‘purge’ of staff foremen and wages employees that followed the appointment of the new Peko-allied Manager of Operations. Dave Derham, OH 13 April 1992 also details the changes in management from 1982 until 1990 when the plant closed.
\textsuperscript{177} Ossie Wilson details how, in the last days before his retirement, the Anglo staff representative at the mine bypassed his management, making clandestine telephone calls to the Anglo management with daily reports on the operation. OAW email to RFB, 8 March, 2008.
effectively ends with the current chapter. However, because questionable policy decisions occurred following the entry of Anglo and since the end of the whole operation,\textsuperscript{179} Chapter Six will discuss the environmental disaster that is attributed to the mine through to the beginning of 2013.

During its sole ownership of Mount Morgan Peko, for the most part, had acted responsibly for, without its sometimes unsteady commitment to the Mine, closure would have occurred years before it did. The reduction in the number of employees was gradual and the effect on the town was minimised.\textsuperscript{180} But, as the Peko group continued to grow, Mount Morgan, like so many organisations in a takeover situation, was of decreasing importance and was almost placed in an information wilderness by a remote head office.\textsuperscript{181} The failure of Peko management to adequately control an ever growing enterprise led to the group being broken up, condemning Mount Morgan to a cascade of multiple owners. They contributed to the environmental disaster that is now Mount Morgan.

There is no doubt the massive re-equipment programme, initiated by Peko soon after the takeover and improving the operating efficiency of the Company,\textsuperscript{182} may never have happened under the previous Mount Morgan management, given its tax free status.\textsuperscript{183}

There is a paucity of detailed financial information which would have enabled a reliable assessment to be made of the return Peko received for its investment in Mount Morgan. John Proud’s claim that Peko made

\begin{itemize}
  \item \textsuperscript{179} Including the policies and activities of the Queensland Department of Minerals and Energy from 1993 onward.
  \item \textsuperscript{180} Younger employees were able to find work in the coal fields, freeing up houses which brought in new residents – part of Shire Chairman Arthur Timms’ strategy of ‘promoting Mt Morgan’s ideal position as a residential area’ \textit{RMB}, 19 February 1976.
  \item \textsuperscript{181} Socrates Karagiannidis, ‘Mergers and acquisitions in Australia, reasons and timing,’ p.58 ‘the core, or control points of [a company] economy may grow at the expense of the peripherally located subordinate points’.
  \item \textsuperscript{182} Except in the secondary crushing station.
  \item \textsuperscript{183} Peko had a number of taxable subsidiaries which could benefit from these reserves, MML did not. See Eric Boyd’s comments about spending on new equipment, fn. 104, p.188.
\end{itemize}
little money from its acquisition of Mount Morgan and King Island Scheelite was difficult to substantiate. However, as argued earlier, it appears that Peko received profits in excess of sixteen million dollars in addition to its use of the tax credit reserves it acquired at takeover. These figures highlight John Elliston’s opinion (which seems to be more accurate) that ‘thanks to [the Mount Morgan] experienced and competent staff, Peko-Wallsend’s ownership of Mount Morgan Limited and its smelting operation over the last 12 years of its mining life was highly profitable and one of the company’s real success stories’.

Ultimately, it can be argued that, without Wilson’s determination, which had encouraged Peko’s maintenance of an operating presence on the site, the treatment of Warrego concentrate would not have happened and tailing retreatment project may have been abandoned, at least in the short term.

184 John Proud, private letter to RFB, 4 October 1994.
185 Appendix 5.6.
186 JBE, email to RFB, 28 October 2009.
Chapter Six
A disregard for the environment – an historic problem?

Photograph 6.1
Aerial view of the Mine, 2000
[Mount Morgan Mine Rehabilitation Workshop, Background Information]
Of all the themes considered in this study, the one that attracts the most public attention is ‘why did the mine leave behind the serious environmental disaster that has damaged the nearby Dee River?’. For eighty or so years, where did concern for the environment fit in the minds of everyone involved in the mining industry and in Mount Morgan in particular? This Chapter will compare the physical, operating and attitudinal position of Mount Morgan with those of the community but especially with the general mining industry.

The history of the environmental problems created by the mine is based on the actions of generations of people - beginning in 1882 with Ned Morgan, the first Manager of the Mount Morgan Gold Mining Syndicate.¹ A succession of Directors, General Managers and employees contributed, in some way, to this environmental legacy and it was Dave Derham, the last Manager of Operations who, at the end of 1990, oversaw the closing stages of gold production.² Each had some input, whether deliberately or by omission, into the factors that created the problem. Many of the players attempted to address the problems but, at the same time, some had a complete lack of concern for the actions of the mine operators.

¹ Kerr, p.20.
² Dave Derham, Manager of Operations from March 1989 until the end of November 1990 when the plant closed. He was an Anglo-American employee attached to the retreatment project at Mount Morgan from August 1982. OH with Carol Gistitin, 13 April 1992.
Because of the mobility of technical and management staff \(^3\) together with the interchange of information between companies,\(^4\) there may be some commonality in environmental management styles across the industry. However, often it was the attitude of the members of their respective boards of directors that may have overridden the advantages of this commonality. An analysis of the background to the causes of pollution by mining and its products will place the policies of Mount Morgan in their proper perspective in the overall environmental attitudes of the late 19\(^{\text{th}}\) century and of the first seven decades of the 20\(^{\text{th}}\) century. Consideration of the changes in management in the early 1980s, the abandonment of measures to minimise the effect of surface pollution together with planning for the future safe containment of tailings and waters in the abandoned Open Cut, will lead to concern for policies and actions following government control of the site. An examination of questionable decisions, made by various public servants, resulting in poor environmental consequences completes the study.

An old adage is that ‘gold is where you find it’ or, as the Cornish miners would say, ‘where it be, there it be’\(^5\) so the *Year Book Australia* 2003 is correct in suggesting that

... there is little choice in where mining occurs as it depends on the location of the minerals and [as a result], there is often competition relating to land use between mining and for example, urbanisation, agriculture and conservation.\(^6\)

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4 For example in the technical visit by AL Dean, Chief Metallurgist, Mt Lyell on behalf of, Robert Sticht, to the Old Company to advise on their smelting problems, Patterson, A *history of the Mount Morgan Gold Mine*, p.115., Kerr, p. 130.


6 *Year Book Australia* 2003, ‘Mining feature article - mining and the environment, p.5, viewed 26 March 2008,
Irrespective of the location of a mine and the period of operation, there are the interests of a number of stakeholders to consider. The shareholders must be able to expect a reasonable and continuing return for their investment, the staff and employees need to be able to work in a safe environment and with job security. Surrounding residents should be able to live in comfortable, clean and well serviced surroundings without any conflict about land use, while the nation must be assured there are responsible policies in place to address the environment. Commencing in the latter part of the 20th century, as a greater public awareness of the dealings of public and commercial policies developed, none of these expectations was able to stand alone – the failure to address any one would affect the long-term public image and viability of the operation. Until the emergence, in the 1960’s, of a growing awareness of worldwide environmental problems and of the new environmental history discipline, there was a tendency for managers to concentrate on solving technical problems of the operations in order to generate profits.

Sir Arvi Parbo confesses that he, for one, did little to address any negative views held by the public and concentrated on the job at hand. The result was that companies generally satisfied the expectations of shareholders, maintained satisfactory relations with employees, paid lip service to the residents needs but tended to ignore the critics of their approach to

8 ‘Many of our companies are no better accepted by the world community than was the case five, ten, fifteen or even twenty years ago’, RJ McNeilly, Executive Director and President BHP Minerals, ‘A mining company for the 21st century’, Keynote Address to The AusIMM Annual Conference, 10 April 2000.
11 ibid.
environmental matters. Gradually, however, it dawned on executives of the industry that they had to change their attitude if they were to change the negative image of mining. Referring particularly to mining in Britain, Hilson has concluded that ‘while mining has generated many economic advantages to communities, perhaps no single industry has precipitated more disputes over land use than mining’ and ‘the land demands placed by mines often cause severe community disruption’. Nowhere in Australia has this been more evident than in the concerns expressed about mining of the Ranger uranium project and in the ultimate fate of the Coronation Hill gold mine, both in the Northern Territory.

Sir Arvi Parbo contends that ‘there was a great deal of merit in the concern for the environment [which emerged] in the early 1970s’ and, acknowledging that ‘while there were some poor examples from the past’, he argued that it was ‘a gross exaggeration to portray the minerals industry as incompatible with environmental care’. The rapid growth of the coal mines of Central Queensland, largely with foreign ownership, the size of many mining companies and their apparent disregard for the environment presented a poor public image to what Down and Stocks describe as ‘the middle and upper classes’ who ‘dominated membership of [emerging] environmental pressure groups’. Geoffrey Bolton disagrees

12 P Hancock, Green and gold, sustaining mineral wealth, Australians and their environment, Centre for Resource and Environmental Studies, ANU, Canberra, 1993, p.178.
15 Parbo, ‘On mining and minerals’.
16 ibid.
17 ibid.
18 ibid.
with this assessment of membership arguing that the establishment of the Australian Conservation Foundation [ACF] in 1965 ‘established the credibility of the environmental movement as a cause whose members were not all trendy radicals and subversives’.

In his examination of the material gathered from research, conferences and workshops by the Centre for Resource and Environmental Studies, Australian National University, Peter Hancock analyses the role of each of the Australian environmental action groups but sees the ACF as the ‘national umbrella [environmental] organisation’. Hancock’s somewhat controversial work provides a valuable resource for the study of environmental attitudes towards mining in Australia but is a difficult source to research.

Despite the perceived impression that mining intrudes extensively into large areas of land, the State of Queensland Environmental Agency records show that, in Queensland at the time of the study, ‘mining [took] up seventy-three thousand hectares of land’. On the other hand, eighty nine percent of the total land area of one hundred and seventy three million hectares was given over to grazing and cropping. An increase in coal mining activities has, nevertheless, raised serious concerns that rich agriculture land is now being subsumed by mining. Even though, for example, strip mining for coal in the Bowen Basin of Queensland and for magnesite in the Kunwarara area of Central Queensland require the

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my hopes at Coronation Hill’, AusIMM Bulletin, September 1991, ‘public opinion in the influential electorates of Melbourne and Sydney placed the environment and sensitivity to Aboriginal sacred sites ahead of the proposed [Coronation Hill] mine’.  
22 P. Hancock, Green and gold, p.141.  
23 While providing a detailed table of contents and a useful bibliography, Hancock does not present an index nor does he acknowledge the sources of the quotations taken from interviews and other unidentified sources.  
25 Australian Coal Owners Association, ‘Reducing the impacts of coal mining’ p.2,  
temporary surrender of relatively large areas of pastoral land to mining, current legislation ensures the progressive return of that land to its former, if not better, condition as mining proceeds. 27 Indeed, records show that mining companies often spend as much as two hundred times the value of pastoral land in rehabilitation. 28 Still, there is compelling evidence to support the concerns of farming communities, situated on high quality land, that mining activities do cause irreversible environmental damage to their water resources and their principal asset. 29

It is a different story, however, in the effect on the surrounding countryside by open cut metalliferous mining. The operation of an open cut metalliferous mine generates large tonnages of environmentally suspect overburden and the treatment plant discharges chemically charged mill tailings. Often these need to be dumped around the mine site or even, as was the case of Mt Lyell, deposited into Haulage Creek thence through the Queen and King Rivers into Macquarie Harbor. 30 This disposal policy has the potential to cause substantial environmental damage by leaching of contaminants into surrounding areas, as happened at Mount Morgan and Mt Lyell 31 or as at Captain’s Flat, New South Wales, by the catastrophic failure of a tailing dam. 32 When mining is complete, the open


29 As in the well-documented damage done to the underground water sources by the extraction of coal gas.


31 P Hancock, Green and gold, p.63.

cut itself remains as a large hole in the ground that normally cannot be
backfilled. The result is that the excavated void is a permanent alteration
to the original landform and necessitates a change of land use. This is
exactly the problem that has occurred at the Mount Morgan operation and
in each of the metalliferous mines that, in this thesis, form the basis for
comparison with Mount Morgan.

Down and Stocks have devoted separate chapters to each of the potential
categories of problems caused by mining. They contend that, depending
on the type and extent of the operation, there may be a visual impact, air
pollution, water pollution, noise pollution and ground vibration. The
operators of the Super Pit at Kalgoorlie have recognised and addressed
these problems. Peter Hancock carries this analysis further by
introducing additional factors such as the effect on native species, loss of
isolation, and the effect on Aboriginal or other lifestyles. However, he
does offset these points with a listing of the possibly favourable impacts
of mining on the area. While, especially in the published material on
Mount Morgan, there is a tendency to consider only the effects of water

33 P Hancock, Green and gold, pp. 61-63.
34 ibid. p. 61. An example of this ‘change of land use’ may be found in the use of the
abandoned open cut of the Woodlawn copper, lead and zinc mine situated near the
township of Tarago in the Golburn area. Since 2004, the open cut has been used to
store putrescible rubbish, which has been transported by rail from Sydney. At full
capacity, the open cut will store 400,000 tons of waste a year and has sufficient
capacity at this rate to take 75 years to fill. The methane gas generated by the
decomposition of this waste will be harvested and, in conjunction with an adjacent
wind farm will be used to generate electricity. See Daniel Lewis, Regional Reporter,
‘A complete space of waste’, SMH, 2 August 2004. The article has a photograph of
the open cut before rubbish was tipped. See also environmental impact study,
Woodlawn wind farm.
35 Down & Stocks, ‘Environmental impact of mining’, chapters three to seven
36 ibid, under the following chapter headings: for visual impact, chapter three; for air
pollution, chapter four; for water pollution, chapter five, for noise pollution, chapter
six and for ground vibration, chapter seven.
38 P Hancock, Green and gold, pp.59-60.
pollution, each of the subject mines may have encountered some, if not all, of the problems listed.39

An area often neglected in discussions about the environmental consequences of mining is the issue of the health and safety of workers and residents of the local community. Silicosis destroyed the lungs of miners until belated major reforms in mining procedures minimised the problem40 and dust arising from surrounding country, denuded of trees, caused early problems 41 while the lead particles in smelter fumes and in mine dusts continue to affect the development of the young.42 The Old Company escaped only the latter, although smelter fumes continued to annoy residents until the Company stopped smelting in 1984. The chapter will later develop the circumstances surrounding these environmental problems at selected Australian mines. Abandoned mine sites present dangers to visitors and to trespassers who might access old open mining shafts, open cut workings and derelict buildings but the present Mount Morgan owners, the Queensland government, have put in place security measures to minimise these risks.43

39 The Queensland Government, Department of Natural Resources and Mining, ‘Rehabilitation plan for the Mount Morgan minesite’, November 2003


41 See later discussion about the work of Albert Morris to overcome dust problems around Broken Hill.


43 The property is enclosed by security fencing so that it is not possible to access the Open Cut except with permission. However, unlawful access could be gained by trekking across the mountains behind the mine. Each of the derelict buildings on site is enclosed by security fencing. There are no old shafts within the Mount Morgan mine property. However, there may be old prospector’s workings in the hills.
Along with the realisation, by the mining companies, that consideration for the environment should be an essential platform in their management style, historians and technical writers recognised that this issue had to be addressed. It appears that, previously, it was a question of what was not written rather than what was written about the environment. There had been isolated instances of authors recognising the importance of the environment, for example, in the work of Georgius Agricola who had understood four centuries earlier that mining was damaging the environment. However, most environmental literature was written only in the last thirty years. Certainly as late as 1962 there was not one environmental paper published by mining professionals in the Proceedings of the AusIMM.

Professor Geoffrey Blainey, the doyen of Australian mining historians, has written histories of all the major mining fields. While he highlighted, for example, the problems of the degradation of the Queenstown landscape by the Mt Lyell smelter, in 1967, however, he made no detailed assessment of the environmental effects of mining operations. In 1988, writing in *The great science*, he did comment on the attitudinal trends of society between admiration of technology, rationalism and economic development on the one hand, and on the other, admiration of nature and indigenous peoples, together with negative attitudes towards economic development. Further, he recorded the rapid emergence of

46 Mt Lyell, Broken Hill and Coolgardie/Kalgoorlie but only a sectional history of Mount Morgan.
48 Cited in Hancock, *Green and gold*, p.97.
naturalism, arguing that it ‘had emerged from the American counter-culture revolution … of the Vietnam War’. 49

In a revision of _The rush_, Blainey reassessed his consideration of environmental matters by the addition of a chapter entitled ‘A kind of earthquake’ in which he comprehensively analysed the effect of the environmental movement on the industry. 50 Additionally, he has contributed to various reviews and articles under the theme ‘the environment’ but these were all, with two exceptions, post 1991. 51 And in making his revision to _The rush_, Blainey lagged behind the approach of Professor Geoffrey Bolton, who describes Blainey as ‘my old sparring partner’. 52 Bolton published his _Spoils and spoilers_, which included significant chapters on the environment and the rise of the environment movement in Australia, in 1981. 53

By the time Lieutenant Sunderland established the first mining operation in Australia in 1797, 54 there had been periods during which, as Kovarik in his ‘Environmental History Timeline’ has detailed, worldwide ‘green crusaders’ had ‘tried to stop pollution, promote public health and preserve wilderness’. 55 Although these green crusaders had clearly detailed almost all the effects of these actions on pollution and public health, many pleaded ignorance and largely ignored their warnings until the second half

49 ibid.
50 Blainey, preface to the 4th edition of _The rush_, 1993, p.v, ‘new chapters have been written on changes in mining between the early 1970’s and the early 1990’s. They include … the powerful role of the environmental crusade’, Chapter 32 under the group heading of ‘Age of giants’.
53 G Bolton, _Spoils and spoilers_.
54 This was for coal in the area now known as Newcastle. Parbo, _Down Under_, p. 10.
of the 20th century.56 Any claim that, down the ages, no one realised the dangers from some elements of humankind’s actions across a wide range of activities is not valid.57 Investigating the reasons for this attitude, Adell has argued ‘one must [also] seek to understand the social forces leading individuals and communities to make unsustainable choices’. 58 She contends that the apparent disregard of accurate and well-documented evidence against making these choices can be explained in the following terms:

It is impossible to study either the development of scientific knowledge pertaining to environmental issues or the diagnosis of environmental problems without taking into account the fact that social processes shape the ways in which people understand the natural world, accept new scientific knowledge, and adapt to new technologies. 59

Environmental pollution by mining is an historic problem - this can be readily demonstrated by detailing the numerous examples of earlier, worldwide, mining pollution. 60 While this chapter is about mining environmental problems, it would be inappropriate, at this stage, not to acknowledge that influences, other than mining, have historically caused severe environmental problems in one or more of the areas identified by

56 Parbo and Kovarik.
57 Down & Stocks, Environmental impact of mining, p.7.
59 ibid.
Down and Stocks. In addition, this study has elected not to consider in detail the disturbing examples of current and demonstrably deliberate environmental vandalism in developing countries. While alluvial mining of the Victorian gold rushes of the mid-nineteenth century created environmental damage to the surrounding valleys requiring extensive restoration work, the chapter will be limited to investigating the environmental credentials of late 19th century and 20th century Australian mines. Specifically, it will compare the operations of three Australian mining fields – Mt Lyell, Kalgoorlie and Broken Hill - with those at Mount Morgan.

There was no question of the location of any of these mines causing serious disruption to the pastoral or agricultural activities of their respective areas. However, human activities caused serious damage to the surrounding, often inhospitable, countryside. Mt Lyell was located above a valley of forest and although located only a relatively short distance from the seaport of Strahan, the mountainous country eventually required the construction of an Abt rack railway to negotiate the steep hills. The insatiable demand for firewood as fuel destroyed over 40 square miles of the forest until the favourable economics of the use of

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61 Visual pollution by the city spread into former pristine areas; air pollution from internal combustion engine exhausts; water pollution from ineffective city drainage and sewage plants or water pollution from naturally occurring pyrite in soils, fertiliser runoff from agricultural operations; noise pollution from traffic, sporting events and the operation of aircraft over settled areas.


65 Blainey, ibid, esp. pp.69-71, ibid, p.312, map showing the ‘western towns and railways, 1900-1910. ‘Most rack railways, including that at Mount Morgan, were built according to a system patented in 1882 by Roman Abt and first used in 1885’, JW Knowles, The Mount Morgan rack railway, JW Knowles, Brisbane, 1982, Appendix ‘Rack railways, p.50.
hydro-electric power ended the clearing practice. 66 The acid produced by the high rainfall and sulphurous fumes from the copper smelters coupled with the erosion of the top soil prevented forest re-growth.67

Broken Hill is in what was often called desert 68 and Blainey describes the grazing capacity of the area, even in good years, as ‘acres to the sheep rather than sheep to the acre’.69 Moreover, the site was over 250 miles away from the nearest seaport.70 Half a century after mining began, overgrazing, rabbit plagues and timber harvesting had condemned Broken Hill to debilitating dust storms, creating sand hills that threatened to bury fences and low buildings. 71 In 1936, in what was certainly an early environmental initiative, Zinc Corporation mill superintendent M A Mawby, supported by manager A J Keast, encouraged local assayer and amateur botanist, Albert Morris to begin a programme of planting desert tolerant trees and grasses. The programme was highly successful, changing the lifestyle of residents and becoming a model with which to solve similar problems.72

66 Paul Davies Pty Ltd, ‘Lake Margaret power scheme conservation management plan’, appendix 1, historical background, December 2005, p.2. Edward D Peters Jnr, ‘Report on the Mount Lyell Mining & Railway Company Limited’, 15 May 1893, p.20, recommends the use of firewood a fuel, arguing that despite the consumption of wood being six times that of coal for the same power output, the saving would be £18,000 a year. He also discusses the advantages of considering using water power, p.2. Copy is in RFBCOL. The hydro-electric station at Lake Margaret was the largest in the nation when completed in 1914.

67 See Blainey, The peaks of Lyell, p. 179. Blainey notes residents’ futile complaints to Stitch about their suffering from the fumes. The sulphurous fumes continued for twenty-five years.

68 Blainey, The rise of Broken Hill, p. 12.

69 ibid.

70 ibid.

71 See ‘Broken Hill fights sand drift, 18 months achievement, possibilities for Carnarvon’, Northern Times (Carnarvon WA) 27 January 1939, p. 8.

72 ibid. The article, written by Albert Morris, gives extensive details of the types of vegetation planted and the results of the experiment up to the date of the article. The newspaper suggests this programme would be adaptable to similarly affected areas. See also Rob Renew, ‘The regeneration reserve at Broken Hill: rediscovering a landmark in Australia's environmental history’, Australian Historical Journal, June 2009, No 100. See also ‘Albert Morris’, ADB, Vol. 10, MUP, 1986. The ADB entry suggests that support for Morris’ plan came, initially from managing director W S Robinson.
Certainly, the Coolgardie/Kalgoorlie goldfield was in desert country with salt lakes nearby and where a week’s drinking water cost a miner ‘a quarter of an ounce of gold’.\textsuperscript{73} It was because of this shortage of fresh water that mines used ‘hypersaline groundwater for mineral processing and hydraulic tailings reclamation’.\textsuperscript{74} Like Broken Hill, it was hundreds of miles inland\textsuperscript{75} and like Broken Hill, the demand for fuel saw the surrounding country cleared of its already sparse timber cover.\textsuperscript{76}

The development of Mount Morgan treatment plants began with the ten-head stamp battery of 1883 through construction of the Lower, Upper and West Works then to the Mundic Works at the turn of the twentieth century. The construction of these plants required timber for buildings and shingle roofing. In operation, local timber provided charcoal for the treatment process and fuel for the steam-driven power plants. Firewood, harvested from the surrounding hills, provided the energy for these plants until gradually replaced by coal, following the construction of the Abt rack railway up the Razorback Range in 1898. As occurred at its contemporary mines, the consumption of 4,000 tons a month of firewood and about three quarters of a million super feet of hardwood for mine supports and construction timbers denuded the hills up to sixteen miles away.\textsuperscript{77}

\textsuperscript{73} Blainey, \textit{The golden mile}, p.5. Blainey, \textit{The rush}, pp.188–189 discusses the mining fields of the Eastern Gold fields of Western Australia other than Kalgoorlie from ‘Norseman in the south to Peak Hill in the north and Laverton in the east’. These towns are now, as Blainey argues, ‘shadows’ but are located in the same inhospitable landscape as Kalgoorlie.

\textsuperscript{74} GJ Barrett, ‘Revegetation of salt-affected land after mining: germination and establishment of halophytes’, PhD thesis, CUT, 2000 discusses the rehabilitation of this land.

\textsuperscript{75} Blainey, \textit{The golden mile}, p.3, ‘it was probably the first important goldfield in Australia to lie more than 300 miles inland’.


\textsuperscript{77} Sykes, pp72 and 74.
As happened at Mt Lyell, fumes from the treatment plant and smelter stacks completed the devastation.78

Of the four mines, only the outcrop of Mount Morgan ore lay partly on pastoral land which Boyd describes as ‘usually well watered and grassed’.79 However, in contrast to this description, Rees Jones described the area, selection 247, as ‘land of very little value and only second class pastoral which could not maintain more than 20 head of cattle’80 a statement that Patterson disputes.81 Contrary to the land regulations of the time, both sides of the river were included in the lease grant made to John Gordon, highlighting the possibility that there would not be any extensive development of surrounding land.82 Eventually, as Boyd has noted, drought that probably dried up Dairy Creek and the ‘deep never-failing waterhole’ on the property83 spelled the end of settler Gordon’s dreams.84 Indeed, recurring droughts have continued to affect the flows in the Dee River for miles below Mount Morgan, creating a series of pools which, in 1853, the Archer Brothers called the ‘Stunks’.85

78 The Company attempted to repair some of this damage. As mentioned in Chapter Two, Glenister Sheil established a monetary grant, paid to townspeople who planted trees around the town. During the late 1970s, Ossie Wilson, in conjunction with the Curator of the Rockhampton City Botanical Gardens, established a nursery to provide trees which were planted on the rehabilitated dumps.


80 RR Jones, Gold mining of Central Queensland and the Mount Morgan mine, RMB, Rockhampton, 1913, p.8.

81 ‘The flats along this creek afforded pasture for nearly 200 head of their hardy little Scots cattle in all but the driest seasons’, Patterson, ‘The story of the discovery of Mount Morgan’, p11.

82 ibid, p. 7, Gordon took up three blocks of land totaling 825 acres; the largest block of 640 acres was selection 247, ibid. p.8. Kerr, p. 87 illustrates these areas.

83 ‘In 1927 it had been dry only once in 56 years’, Patterson, ‘The story of the discovery of Mount Morgan’, p.8.

84 Boyd, ‘A History of Mount Morgan’, p.250, [it was] ‘a drought of unusual severity that caused [John Gordon] to be driven from his pleasant home’.

85 McDonald, pp.17-18 describes how the Archer brothers had passed up the valley on their way to discover the Fitzroy River and to settle at Gracemere. McDonald notes, on p.18, ‘they followed the stream they named the Stunks, a Scottish name meaning pools, but which was later renamed the Dee’.
Each of the four mines considered had begun operations by mining an outcrop, had migrated underground and at one time or another had operated an open cut. Each had seen the establishment of a town within walking distance of the mines; each has caused environmental damage to the surrounding countryside. By the time Mount Morgan closed in 1990 there had been people working on each field continuously from the time of their discovery - despite strikes, accidents, periods of commercial poverty and government interference temporarily interrupting the operations. While Mount Morgan appears to be irreversibly dead, Mt Lyell, Broken Hill and Kalgoorlie continue to mine.

There were differences between the four mines, however! The riches of Mount Morgan came from one discrete ore body located in a single mine,86 those of the other three came from a number of separate mines operating from contiguous but separate ore bodies. The McDonaugh/Karls on gold find at Mt Lyell, rich as it was on the surface outcrop, turned out to hide a mountain of copper pyrites.87 Broken Hill was a vast deposit of lead and silver, Kalgoorlie was literally a golden mile while, twenty years after the discovery, the reportedly 2,000 ounce of gold per ton find at Mount Morgan had been recognised as a large low-grade deposit of gold and copper.88 Mount Morgan was located in congenial surroundings close to the established port township of Rockhampton; the others are located in remote, relatively inaccessible and climatically hostile areas. Most importantly from an environmental point of view, Mount Morgan and Mt Lyell are located above rivers which were easily polluted - the other two are in desert country. Of the four, only Mt Lyell is in a high rainfall area with over ninety-four inches of rain a

86 The ownership of the mine changed hands a number of times during its life, but there was only ever one company operating at a time.
87 Blainey, The peaks of Lyell, p.58.
88 Compiled from MMLARs.
year, a natural circumstance that eventually had a severe impact on the environmental problems caused by that mine.

The proximity of older mining towns to operating mines ‘is an historical anomaly created at a time when individuals walked to work’. This proximity can, in itself, be the cause of environmental and social concern with one or more problems of noise, dust, polluted water and/or fumes from the operation impinging on the town. Therefore, in order to isolate townspeople from the possibility of negative operating effects, many mining companies now establish townships remote from the mine site or, for reasons of economy, opt to provide only basic accommodation on site for ‘fly-in-fly-out’ workers. At Kalgoorlie, the threat of encroachment of expanding mine workings on the town is real. But despite these concerns, the largely positive comments made in 2007 by residents of the Kalgoorlie area seem to confirm the argument by Down and Stocks that ‘mine operators generally report fewer complaints from communities or sections of the public which are economically dependent

89 Almost 2.4 metres. This high rainfall encouraged the construction of the Lake Margaret hydro-electric power station.
92 Ibid, pp. 20–21.
93 ‘In the Bowen basin, where most new townships have been built some distance from the mine sites to avoid any noise impacts’, J. Rolfe, ‘Mining and Biodiversity: Rehabilitating Coal Mine Sites’, p.9.
96 Ibid, p.16.
on the mine*. 97 The Mount Morgan communities fitted this setting and the early settlements surrounded the mine. 98 In addition, there had been the development of little villages, right back to the top of the Razorback Range; 99 of these, all but one was relatively remote from the influence of the mine.

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98 Western settlements: Mt Victoria, West Mount Morgan, Clan Rickard and Perlic Gully, all of which disappeared in a relatively short time.
99 Moongan, Kirkhall, Baree and Walterhall. The latter is slightly affected by the encroachment of waste dumps.
Photograph 6.2
Fumes from the Mundic Stack blowing over the West Mount Morgan settlement

[Seale Collection, No 13]

Photograph 6.3
Aerial view of Mount Morgan Mine and Town from South East
February 1955
[CAPCOL: TOW-53-13]

100 Cosgrove, PhD discusses the problem with these fumes, See also Patterson ‘A history of the Mount Morgan gold mine, 1908-1927’.
Map 6.1
The Dee River downstream of Mount Morgan
[Figure 1.1, Dee River in ‘DME Mount Morgan Mine Rehabilitation Workshop, Background information’]
No one can deny that the Mount Morgan mine has left behind an environmental disaster, which a Mount Morgan Shire Council representative has argued is demonstrated by ‘the physical effects to the Dee River [which are] transparent and the result of past mining practices’. As will be seen from Map 6.1 the Dee River passes below the mine site; it feeds the Don River, the Dawson River and finally the Fitzroy River which discharges into the Pacific Ocean at Keppel Bay after passing through the city of Rockhampton.

Sykes describes the location of the mountain in the following terms

The Mount Morgan is a subsidiary spurs of the main coastal range, having a trend or bearing of W.N.W by E.S.E., with a longitudinal and diametric base of one and a half and half a mile respectively. On its eastern side it rises almost precipitously from the level of the Dee River, a tributary of the Dawson and Fitzroy, and it attains an altitude of 1225 feet above sea level, or 520 feet above that of the Dee. It connects with the higher country on the north-west.

Sykes does not mention that the mountain was surrounded on three sides by a network of gullies that connect with the Dee River. The mine could not be in situated in a worst position in relation to the river; the potential for pollutants to escape from the mine is massive.

101 In 2008, the Mount Morgan Shire Council was absorbed into the Rockhampton Regional Council.
Map 6.2
The original mountain and surrounding streams, ca 1882
[Adapted from Water Studies Pty Ltd Drawing 2.1 and MML General Surface plan 11.35, RFB 23 October 2012]
Map 6.3

The surrounding streams and dumps, 2012
The river has been, and continues to be, seriously polluted by acid mine drainage from the mine.\textsuperscript{104} Most of the published material indicates that the chemical disturbance extends for a distance of some 20 km downstream of the mine site, \textsuperscript{105} with tests of the adjacent flood plain soils presenting elevated levels of copper, cadmium and zinc.\textsuperscript{106} However, there are claims that metal-rich acid-affected flows have been recorded as far as 60 km down-stream, \textsuperscript{107} while it is implied that, at the 50 km point, there were high concentrations of metallic elements. There are also unconfirmed suggestions that, during the life of the mine, there were acid flows into the Dawson River.\textsuperscript{108} While the principal basis for concern is the acidity of waters, nevertheless the presence of the metallic elements is a cause for disquiet.

Map 6.3 shows that waste dumps and tailings dams now bury a number of the original streams surrounding the mountain - and Upper Mundic Creek discharges directly into the Cut. All these flow intermittently\textsuperscript{109} downstream through the lower river floodplains.\textsuperscript{110} These intermittent flows have caused, what David Jones has described as, the pooling of the

\textsuperscript{104} See an overview of the problems of AMD caused by open cut mining and in underground mines throughout British Columbia and Australia, Hancock, \textit{Green and gold}, pp.62-63. He excludes the ‘arid areas devoid of potential for surface water or groundwater pollution [as in Broken Hill and Kalgoorlie]’


\textsuperscript{107} ibid.


\textsuperscript{109} Flows in the river are intermittent and vary through the low to medium to high flow, events described by D Jones, ‘Impacts of Mount Morgan on water and sediment quality in the Dee River’, EWL Sciences Pty Ltd., Darwin in \textit{Mount Morgan Mine rehabilitation planning workshop}, 8-9 May 2000.

The irregular flushing that occurs during episodic, often catastrophic, floods has resulted in the serious environmental legacy that gives credence to Rowe’s assertions.

Chapter One has already described the presence of pyritic ore, arguing the production and sale of a pyrite concentrate had been the Company’s prime diversification strategy; but the failure of this endeavor guaranteed almost all material remaining on site contains pyrite! While this is not a technical dissertation at this point it is necessary to introduce, in simple technical terms, the metallurgical properties of materials that have generated the pollutants which have escaped from the mine and processing sites. Pyrite is unstable in the presence of air and water, breaking down to produce acidic leachates or acid mine drainage [AMD].

In the Mount Morgan narrative, there are four primary sources of AMD - the waste dumps, the tailings stored in dams, tailings released into the river and pyritic slurry dumped into water storage dams.

Hills gullies and ridges surround the mine on all sides and, from the beginning, these natural features seriously reduced the volume of dump space available for the disposal of waste. But it has been the 93.4 million tons of waste and the 38.9 million tons of tailings placed by the Company in dumps and dams that have had the most serious impact on

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113 For chemical reactions, see Glossary, Appendix Two.
115 Pyritic materials were dumped from No 2 Mill until milling ceased in 1976. The contaminants and the dams were removed between May and November 2004, see p.223; the contents no longer constitute an environmental threat.
the environment. A second source of pollution is the tailings and water now stored in the over-full, abandoned, Open Cut. This is a source of increasing concern as contaminated water, generated by the three remaining primary sources, is returned to a pond with doubtful storage integrity.

Waste rock was removed to uncover the ore body and, because it was not economical to recover the small quantities of gold and copper it contained, the failure of the pyrite initiative resulted in the dumps including substantial amounts of this toxic mineral. The pyritic rocks have oxidised, the percolation of rain water through the dumps has leached the oxidised material and carried the products of oxidation away as acid mine drainage through the web of buried gullies into the river – a state that continues to the present day.

For the first five years of the life of the Company, waste was dumped in the voids of Upper Mundic Creek, well behind the then existing Cut, and also in the catchment of Linda Gully. However the economical use of this space was limited, consequently new and more easily accessible storage space was needed. When Adam Boyd put forward his seven million ton scheme in 1937, incorporating the construction of the new Oxide Mill, he conceded that, because of the need to find dumping space

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118 Hereinafter ‘the Cut’ the generally accepted Mount Morgan terminology.
119 Inflow from direct rainfall and surface runoff increases to quantity of water stored.
120 Total almost 100 million tons. For a detailed discussion about open-cut mining and the need to remove waste rock [overburden] to uncover ore, Boyle, MA Chapter One, ‘The end of the Old Company – the Barker report’, pp.41-44.
121 C Jones, ‘Water chemistry overview based on EGI (Stuart Miller) work’.
122 Well within the final perimeter of the Cut.
123 LA Westcott & BG Patterson, ‘Mining Methods at Mount Morgan Limited’, p.281
124 Boyle MA, p.136.
for the economical stowage of waste and residues, it was necessary to establish waste dumps in an area overlooking Dairy Creek and the river. He made this recommendation in the full knowledge that pollution of the river dams would occur from wet weather drainage through the mineralised dumps.

This initiative set the pattern for further dumps on the river side of the mine as the mining programme extended well beyond Boyd’s seven million tons. Additional dump tonnages encroached further into the Horse Paddock, overshadowing the western areas of the suburb of Walterhall, depositing leachates into Dairy Creek. But the effects of Boyd’s initial proposal fade into comparative insignificance when judged against the presence of the No 2 Mill tailing dam with its attendant pyrite drying/storage area. These caused chemical damage to the waters of Dairy Creek, and the upper Dee River, as waters flowed over and through accumulated residues dumped into No 6 Dam. However, not all the contents of No 6 Dam removed in the remediation programme of 2006 were polluted residues. In 1922, Adam Boyd had told Major H W Hall that 'No 6 dam had silted up so badly that its capacity had been reduced by almost fifty percent of its original design.'

125 The submission is contained in CAPCOL, D15/447. Waste from the Cut and residues from the proposed Oxide Plant. Although others had input to environmental control, until the work of Hennessy and Wilson in the post 1970s, of all the General Managers the archives contain only Boyd’s plan as a definite attitudinal stand towards the environment.

126 Boyle MA, p135, fn. 59.

127 Photograph 1.3 shows the No 2 Mill Tailing Dam and Pyrite ‘paddock’.

128 Discussed later in this Chapter.

129 Major Hall was son original Syndicate member T S Hall, Major Hall lived in London. See MMGMCo letter of 13 January 1922 from Adam Boyd to Major HW Hall MC, CQU, F8/789. Presumably the ‘silt’ was natural material washed down from Dairy Creek and not contaminated material.
The 1939 conversion of the Oxide Mill to treat low-grade pyritic ore, the scavenging of No 1 Mill throughput and the return of tailings back to that mill through unreliable wood-stave pipes resulted in the dumping of pyritic slurry which ultimately reached the dam. For over thirty-seven years, unplanned, uncontrolled, scuttling of the contents of the plant following pumping equipment breakdowns and recurrent loss of electric power compounded the problem. The Dee River Dams Remediation Project Report records the effect these materials had on the upstream of No 6A dam and on the downstream No. 4 and No.5 dams. Fortunately, for the environmental health of the river, 460,000 cubic metres of acid-producing tailings were removed and returned to the Cut; the dam walls were breached, allowing free flow of fresh water during periods of rain.

Later, to the south of the Cut, the construction of both the so-called ‘Airfield Dump’ over the top of the Light of Day Gully and the combined waste dump/tailings dam over Shepherd’s Gully guaranteed pollutants would flow into the river downstream of the mine.

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130 Wood-stave pipes, Photograph 6.4.
131 ‘Throughout 1954, [with] numerous power outages, the pipelines between Mills had to be drained into Linda Gully to prevent blockage, and No 2 Mill spillage went down the gully to No 6 dam’. OAW, email to RFB, 21 February 2008.
132 ‘Joint submission by the Departments of Natural Resources and Mines, the Environmental Protection Agency and Main Roads –RoadTek for consideration for the Sustainability Award’, Engineers Australia, Queensland Division, Engineering Excellence Awards, 2006.
133 ibid. The possibility of breaching these dams had been canvassed by Dick White, MML ‘The rehabilitation of the Mount Morgan mine leases’, 30 October 1982, p.6.
134 Map 6.3.
Photograph 6.4
Old wooden pipelines [left] for tailings pumped to and from No. 2 Mill. No 1 Mill is in the background. April 1960
[CAPCOL Negative 96-8]

Photograph 6.5
Spillage from No 2 Mill in No. 6 Dam
[Photograph 11, Dee River Dams Remediation Project Report]

135 These sediments were in places up to six metres deep.
The pyrite content of the tailings left over after the removal of gold and copper and stored in dams, was much more significant than that in the waste dumps. From 1982 to 1990, the Tailings Retreatment plant retreated twenty-seven million tons of tailings to recover gold but there are still over seven million tons of these tailings in dams adjacent to tributary gullies which feed into the river. The chemical reactions are similar to those in the waste dumps, but the presence of residual water in the tailings compounds the problem, providing not only one of the reagents but also the transporting medium for the pollutant products. The problem is further exacerbated by the classic chemical reactions in the pyritic waste rock dumps that were built, as dams, to contain the tailings. As with the discrete waste rock dumps described previously, the acid flow from the tailings is through the buried system of creeks, a scenario demonstrated in Figure 6.1.

137 Taube, Rehabilitation Planning Workshop.
138 When pumped, as slurry, from the treatment plant to storage dams, the tailings slurry contained 50% water by weight. As the tailings settled, part of this water separated from the slurry, was recovered and returned to the treatment plant for further use in the recovery process. However, the rest of the water remained in the stored tailings. MML, ‘A Study of retreatment of Tailings at Mount Morgan’, folder I, November 1979, section 9.2.1 ‘Water [required for the process of treating the tailings] other than water reclaimed from the Open Cut tailings dam, (ii) (b)’. ‘The average water available in the reclaimed tailings before repulping [i.e. before being dredged from the dam and pumped back for re-treatment] is 15%’.
139 In the early 1970s, water from this source was finding its way into Cut at about the 5 bench level. A drainage tunnel was driven from the Cut below Sandstone Gully dam for a distance of approximately 300 feet in order to capture this flow and direct it to a new sump and pumping station constructed at the 570 ft level. The measured flow from this source was approximately 2,500 gallons/h. MML ‘Technical meeting, 6-9 May 1975’, section 1.7.4 (new pumping station) and 1.9 (details of drainage drive and flow rates).
While the above sources introduce continuing, but reasonably controllable, polluting flows into the river it is the contents of the Cut, deposited since 1981 when mining of the Mount Morgan ore body finished, that have the potential to present a catastrophic failure event to the downstream infrastructure.

For the greater part of its operating life, while largely ignoring solid and water discharges into the river, especially those coming from No 2 Mill, the Company had made sporadic, and for the most part cosmetic, attempts to capture and return acid water discharges to the plant. But it would be wrong to condemn later management for inaction. Beginning in 1973, under Peko, and reflecting the new awareness of the need for environmental responsibility that arose in the 1960s, the Company began a programme of contouring, sealing, covering with top soil and revegetating the 235 ha of pyrite-rich waste dumps and tailings dams to prevent rainwater from leaching minerals and discharging them into the

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141 The [Queensland] Regulations under the Clean Waters Act had become effective from 1 September 1973, Technical Meeting 1-4 October 1973, section 1.9 (a). This item also mentions the installation of downstream pumping stations to ‘prevent water [being] discharged from the lease … except during rain’.
river. While Ray White and Loy Hennessy are credited with this initiative, it is likely John Proud was behind the scheme, given his solid commitment to environmental research. Reports in each of the Technical Meetings from October 1973 through to November 1982 record that tests of discharges from the toe of those dumps already covered showed some improvement in water quality. By November 1982, about fifty percent of the dumps had been covered and revegetated at a cost of almost $1.5 million. It was estimated it would cost a further $1.57 million to complete the work.

Photograph 6.6
Vegetating and profiling old dumps
George Lean (l) and Ossie Wilson inspecting
[PWLAR 1976-77, p.12]

143 By RFB in ‘The legacies of Mount Morgan’.
144 Drew, Mining people, ‘[among other projects] he helped establish the first branch of Earthwatch outside the USA’, p. 295. See Proud’s Biography.
145 Technical Meetings, 1973-1982, CAPCOL.
146 Boyle & Gistitin, p.122.
147 Technical Meeting, October 1981, section 7.1.2. A further $1.1 million would be required to rehabilitate the tailings dam sites.
By the early 1960s, the Cut had intersected the upper reaches of Mundic Creek placing it in the direct flow path of waters from the West Mount Morgan and Wattle Gully catchments. On 6 December 1966, the unthinkable happened when over six and a half inches of rain fell in a little over an hour in the West Mount Morgan catchment resulting in some forty million gallons of water accumulating in the lower levels of the mine, disrupting mining for several months.\textsuperscript{148} Then, seven years later, after the Open Cut flooded from this same source,\textsuperscript{149} plans were prepared to divert water away from the Cut.\textsuperscript{150}

\textsuperscript{148} MMLAGM, 13 October 1967.
\textsuperscript{149} A more serious flood occurred between December 1973 and March 1974 with over ninety-three million gallons coming from this same source, Technical Meeting, 30
April – 3 May 1974, items 1.72 and 1.73. Item 1.7.2 provided an analysis of severity of flooding of the mine from 1918 to 1973, noting that falls of more than six inches in twenty-four hours occurred once every three years during this time. Appendix 6.1 reproduces these figures and details the sources of inflow during the 1973-74 incidents.

150 Technical Meeting, 30 April – 3 May 1974, items 1.72-1.84 proposed drainage tunnels and sealing of No 8 dam. Sealing of the dam was completed, Technical Meeting, May 1975, but no immediate work as done on the mining of tunnels.
When the tailings retreatment project was being investigated, it was determined that the treated tailings would be returned to the now abandoned Cut. Calculations showed that the void generated by the removal of over one hundred and thirty million tons of material from the original Morgan’s Mount could comfortably contain the full thirty-one million tons of return tailings without the level rising above the 470 foot level. This was some sixteen feet below the Linda Drive, the only outlet from the Cut to the river but nearly ninety feet above the surface of No 4 dam.\(^{151}\) Only twenty-seven million tons of tailings were treated and returned to the Cut, occupying a volume well below the safe containment level of the void.\(^{152}\) Water has accumulated above these tailings and has reached a level where it has overflowed the boundaries of the Cut into the adjacent Sandstone Gully dam area. The current water level is perilously close to overflowing on the eastern horizon of the Cut.\(^{153}\)

The original calculations were predicated on the assumption that all sources of rain water, other than that falling directly on the surface of the Cut, would be diverted away from the Cut. As part of this plan, rain falling to the west of the Cut was to be diverted, as fresh water, though a tunnel from Wattle Gully to No 8 Dam and thence via a channel to Linda Creek and the river.\(^{154}\). Although work commenced on the channel, only the tunnel was completed.\(^{155}\) Five hundred thousand cubic metres of material that would have been excavated from the channel would have provided cover for the remaining 114.38 ha (283 acres) of dumps remaining to be rehabilitated.\(^{156}\) With no connection between the Cut and the Sandstone Gully tailing dam and with grading of all surrounds away

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\(^{151}\) MML, ‘A study of the retreatment of tailings at Mount Morgan’, Folder 3, Appendix BB unpublished report, November 1979, estimate prepared 17 June 1977. Remembering levels were measured DOWN from the mountain top datum, No 4 Dam Assay Pump level was RL 557, RFB ‘useful data’ note book

\(^{152}\) Taube, Rehabilitation Planning Workshop.

\(^{153}\) As happened following the Australia Day 2013 downpour, see fn. 164, p.235.

\(^{154}\) Boyle & Gistitin, pp.122-123.

\(^{155}\) See comment below explaining why this work was stopped.

\(^{156}\) Boyle & Gistitin, pp.122-123.
from the Cut, it was calculated evaporation would ensure the level of water would remain below the Linda overflow.\textsuperscript{157}

The advantages of this strategy were cancelled when the Joint Venture partners abandoned all work on the channel and on the dump rehabilitation.\textsuperscript{158} For almost twenty years, the reasons have not been clear but recent confidential information provided by a former Government employee has presented a feasible explanation. As a gold producer the operation was tax free but, in 1988, the Federal Government gave notice that from 1991, this tax exemption would be removed.\textsuperscript{159} Some time before the announcement, and probably acting on recommendations contained in earlier government documents, it is suggested the Operations Manager was instructed to stop all expenditure that did not generate tax free income.\textsuperscript{160} With about fifty percent of the rehabilitation incomplete, the Peko plans to protect the environment were consequently discarded. Amazingly, this decision was not challenged by the Queensland Government which failed to exercise its considerable powers to force compliance with conditions covering the mining leases.\textsuperscript{161} After the frequent changes in ownership that occurred between 1982 and 1990 it

\begin{itemize}
\item \textsuperscript{157} ibid. Provision was to be made in the short term to allow some water to enter the Cut during the life of the retreatment plant in order to maintain sufficient water for operating proposes, RWGW, ‘The rehabilitation of the Mount Morgan mine leases’, p.4.
\item \textsuperscript{158} Boyle & Gistitin, p.123.
\item \textsuperscript{160} Technical Meeting 12-14 May 1981, 7.1 noted requirements of the Water Quality Council. ‘The Government requirements covering Mining Lease No 106, Mount Morgan are specific as to the continuation of rehabilitation’, RWGW, MML ‘The rehabilitation of the Mount Morgan mine leases’, Annexure “A”.
\end{itemize}
was left to the last owners, Carter Holt Harvey, to seal the various overflow dams and construct new ones as well as sealing several old workings that penetrated close to the overfilled Cut. But nothing was done to complete the original Peko plans.

The principal source of tailings had been the Sandstone Gully Dam, the upper level of which was separated from the Cut by a clayey section of overburden dumped there years before but when this barrier was accidentally destroyed during final dredging of the dam, the two areas were connected. The original reclamation plan for this dam was to have sides and floor of dam cleaned with high pressure hoses and sucked up by a dredge then to cover the floor with some of excavated rock and breach the wall to Mundic Creek. This would have allowed un-impounded and unpolluted rain waters from the Sandstone Gully catchment to flow away down Mundic Creek. This work was never done so that the old dam is now filled with contaminated water and this has flowed into the Cut.

The scenario that the two might ever be interconnected was never canvassed as part of the original plan, while the Joint Venture operators did nothing to restore a separating wall which would have isolated the two catchments. The effect of the cancellation of the diversion works to the west and of the treatment of the Sandstone area has been a dramatic increase in the catchment surface area feeding the Cut and a consequent increase of water inflow. The Sandstone Gully tailings were contained in

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163 OAW describes the wall, email to RFB, 20 October 2012. The dredge accidentally breached the wall ‘causing a tidal wave as water flowed between the Cut and the Dam, it badly damaged the dredge’, former mechanical supervisor DK Watts, private communication with RFB, 9 March 2013.
164 OAW, email to RFB, 20 October 2012.
165 Photograph 6.7.
166 It seems the Department has never considered this would be a difficult but viable option.
167 By approx 340 acres in Wattle Gully and No 8 Dam, 287 acres around Sandstone Gully. Calculated from Water Studies Pty Ltd ‘water balance report’, MM203, table 2.1. The surface area of the Cut is approximately 85 acres. This increase means that the catchment area for rainfall which now enters the Cut is 712 acres, over eight times the area on which the Peko plan was based. See map 6.4 which indicates ‘area draining to Cut’.
the original Gully, which fed into Mundic Creek, by a series of run-of-mine rock walls¹⁶⁸. The last was constructed as a road to give access to the Shepherd’s Gully area to the south of the mine. This is the only wall that now prevents water held in the Cut/Sandstone Gully containment from escaping down Mundic Creek. Although sealed to some extent by fine tailings, the material used to construct the wall was never intended to, nor does it, prevent water flowing from the storage.¹⁶⁹

¹⁶⁸ Glossary, Appendix Two.
¹⁶⁹ ‘In the ‘Dee River Dams Remediation Project Mount Morgan Mine Site’, section 3, it was stated that ‘portions of the [Open cut] consisted of rock dumps of unknown foundation geometry’. It is the random sizing of the material used in these walls that is of major concern as well as the consideration that this is a proper dam without adequate ‘foundation geometry’.
Map 6.4

Minesite Catchments [Area Layout Map, Item 5, Minesite catchments, ‘DME Mount Morgan Mine Rehabilitation Workshop, Background information’.]
The hypothesis that the level of water would be contained by evaporation has now been completely discredited. Despite consultant’s studies to the contrary dismissing the probability, it was always likely that an event paralleling the recorded storm events recorded in the 1974 Technical Meeting would re-occur. It would seem, however, that the Department may have been aware of the situation. When announcing the construction of a $2 million water treatment plant to allow neutralised water to be discharged into the river, a ministerial statement concluded that, after major local rainfall, the Cut would overflow. It acknowledged that the

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170 An extraordinary event, (approached in 1918, 1928 and 1973, Appendix 6.1) did occur from ex-tropical cyclone Oswald over the Australia Day weekend, 2013 ‘approximately 700 mm of rain [has fallen] over the Mount Morgan Mine sites since 23 January 2013. This was close to the site’s annual rainfall. As a result, the water level in the mine open cut pit quickly rose from 1580 mm below the spillway and overflowed at approximately 6.30 am on Saturday 25 January 2013’ . Announcement by Department of Natural Resources and Mines, in Mount Morgan Argus, Vol. 8, issue 3, 31 January -14 February 2013.
effect on the Dee River and the downstream river systems would be devastating.\textsuperscript{171}

Since assuming control of the site in 1993, the Queensland Government has invested substantial funds into its rehabilitation. It has upgraded and maintained existing pickup pump systems to intercept acid seepage preventing it from entering the river, cleaned up the almost completely filled river dams and constructed the large water neutralising plant. It has commissioned reports from a plethora of consultants in a range of disciplines, from water flow studies through heritage research to the support of the local tourist industry.\textsuperscript{172} Yet it has not seemed able, or willing, to revisit the original Peko driven plans, perhaps confused by one consultant’s thirteen management options.\textsuperscript{173} Surprisingly the consultant’s list of references appears to have ignored any of the extensive records of Company studies into the problem of Open Cut flooding.\textsuperscript{174} The Peko plan had argued that, to minimise the outflow from the dumps, some form of sealing was required and the water level in the Cut controlled by first minimising the inflow of water.\textsuperscript{175} Perhaps aspects of the Peko plan were wrong but, until prompted by the massive rainfall inflow of Australia Day 2013,\textsuperscript{176} the acceptance by the Government of the consultant’s


\textsuperscript{172} The Queensland Department of Minerals and Energy has over 200 reports about the mine in its files.

\textsuperscript{173} Water Studies Pty Ltd, ‘Mount Morgan mine, water balance study, final report’, Project MM203, May 2001, p.77; Articles 10.04-05 and Table 10.1 recommend only to ‘treat and release’ water from the Cut; proposals to divert water away from the Cut would be ‘of limited effectiveness’. But in section 12.03, p.84 the consultants agree that, ‘without appropriate management measures, the open cut, on average, will spill large volumes of poor quality water to the Dee River every second year’. Extract from the report is in Appendix 6.2.

\textsuperscript{174} ibid, section 13, ‘References’, pp.86-87, with the exception of external industry studies 1984-1988, restricts the list to local studies conducted between 1990 and 1998. The MML rainfall records 1916-2000 are acknowledged on p.12.

\textsuperscript{175} ibid, pp79-80.

\textsuperscript{176} Given the disturbed nature of the western surrounds it is unlikely all inflow would be prevented. However, in a statement in ABC TV News, 21 February 2013, Ms Liza France, Qld Assistant Minister of Mines said ‘we are now diverting clean water away from the top of the pit’, viewed 22 February 2013, http://www.abc.net.au/news/2013-
recommendations meant it was unlikely the Peko hypothesis would ever be tested to prove or disprove its practicability.

**Conclusion**

An examination of the environmental history of the worldwide mining industry, but more especially that of the Australian mines which were contemporaries of Mount Morgan, has validated the argument that, for the first ninety years of its life, the policies of the Mount Morgan had indicated ‘a disregard for the environment– [but it was ] an historic problem’. During those years, management had continued to deny any wrong doing but then so too had governments and the rest of the industry.

While that there have been so many contributing factors in the location and operation of the various treatment plants, together with the attitude of staff and employees, this chapter has been able only to skirt around the edges of the environmental problem. What it has confirmed is that, from the beginning, the operation, built above a river and surrounded by a network of feeder tributaries, was presented with an almost impossible situation if it were to confine the pollutants within the Company’s boundaries.

It was not only the mining industry that realised in the second half of the 20th century that everyone had a responsibility to care for the environment and with this in mind Mount Morgan management embarked on a programme which, had it been completed, would have minimised, if not prevented, the current situation. It has been demonstrated that, for financial reasons, a change of ownership in the early 1980s resulted in the

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177 Options 5a-6b (treat and release water to the river), ‘Water Studies’, p. 79.
abandonment of this programme. Consequently, it is unlikely problems in the downstream Dee River will ever be overcome.

It has been left to government to care for the site but even here, while adopting a professional approach to the problem, critical elements of the Company strategy and local knowledge seem to be ignored or misunderstood. This study has argued there must be serious concerns about the future of the contents of the Cut, poised are they are above the Dee River and indeed sections of the town of Mount Morgan, and that there is still ‘a disregard for the environment’ in strategies currently adopted to address the problems.
Conclusion

The thesis argument that ‘during its operating life, the Mount Morgan mine fitted the pattern of governance established by national and international mining’ has been addressed by examining a range of themes. While applicable to the operation of the new company, these themes have been shown to apply equally to the broader mining community. The overall intention of the thesis was to augment the existing historiography of Mount Morgan and this it has done, presenting an original document that has introduced a fresh historical evaluation of the Company’s performance. It has drawn on an extensive, local, archival resource; as such it offers a sound foundation for further, even more detailed, research into specific themes. This has been achieved by looking afresh at a wide range of primary sources and interviewing former employees and staff,

By adopting a thematic approach, rather than by embracing a strictly chronological and linear narrative, the study has enabled a critical examination of the policies and decisions of management, external agencies and individuals, over an eighty-one year period. This approach, by providing a combination of positive, negative, and sometimes inconclusive answers, has successfully categorised the ‘triumphs and disappointments of Mount Morgan Limited’. At the same time it has confirmed, by direct comparisons, the relationship of the Company with the mining industry, and the social aspirations of the broader community.

The several themes were selected in response to questions of praise or criticism raised both on the record and by public perception. This approach could be viewed as a weakness of the study, consigning it to a broad rather than to a deep assessment of the operation. This has not been the case because it allowed for a comparative thematic analysis, grounded in primary material, than would have resulted from a more general study. The thematic approach and the argument for its originality to the history, and the extensive literature review undertaken suggests that, except for
technical papers devoted to particular metallurgical processes and mining procedures, no previous history of the Company has followed such a concentrated thematic approach. Similarly, most national and international mining histories, while discussing several of the relevant themes, appear to have followed a chronological path.

Although the study has investigated the administrative areas of business, social, educational and environmental activity it has been impossible, given the nature of mining, to ignore technical aspects included in the themes. Where appropriate, these topics have been addressed with minimal interruption to the argument. Similarly, although the thesis is about Mount Morgan Limited, which had risen from the ruins of its more famous and prosperous predecessor the Mount Morgan Gold Mining Company Limited, the importance of the established township, the records and infrastructure it had inherited, required consideration of their influence on the outcomes of the selected themes. But it is the involvement of people whose input and actions, both on and off the field, which helped to determine the fate of the Company. The thesis examined their participation, placing them as having made a positive or negative contribution to the triumphs and disappointments of the Company.

In order to address specific concerns about the operation, material has been analysed in six chapters. Specifically the thesis considered the many attempts to diversify the operation, the relationship of the mine with the town; the social importance of the establishment of its welfare scheme and its training of apprentices, cadets and staff. A study of the commercial and social effects of the merger with Peko Wallsend Limited, and the causes of the ultimate demise of the operation, led to a chapter assigning responsibility for the environmental disaster that is the Dee River and placing them in proper perspective.
Company records held in the Capricornia Collection, Central Queensland University, while often difficult to interpret, have provided the bulk of research material. The information gathered from this source has been supplemented by reference to this researcher’s private papers and to the extensive collection of technical and operational records held by Mr. Ossie Wilson, former Mount Morgan Manager of Operations. The ever-increasing level of material available electronically on the internet has helped to overcome the difficulty imposed by physical travel restrictions to off-campus sites. Professional contacts throughout the industry have provided information supplementary to that in conventional published resources.

A perceived weakness rests in the scant Peko-Wallsend Limited records available for research. By comparison, there are extensive Mount Morgan Limited records. This dearth of information and a lack of contra-argument have made the presentation of a balanced view about people and events in the Company history difficult - at times leaving the thesis open to suggestions of bias.

The thesis was structured to answer questions about the policies and administrative style of Company management both at Board and local level. It was not a sociological study of life in Mount Morgan, nor was it a detailed analysis of the attitude of the unions towards Company policies and initiatives. The conclusions deduced from the study are as follows:

**Chapter One**

Chapter One asked whether a series of missed opportunities during the life of the Company were unfortunate developments or good fortune. For example, why were earlier attempts to explore and develop remote mining fields, especially in the Tennant Creek area abandoned? Did unsatisfactory marketing contracts for its gold/copper output ensure that, until 1965, there was a perennial cash flow problem and how did the tax-
free status of the Company affect decisions to move to taxable income? Were all the problems compounded by poor judgment of management or was the Company fortunate that it did not succeed, given there may have been external commercial and bureaucratic factors over which the Company had no control.

An earlier study has blamed Boyd’s lack of spending mentality for the collapse of the exploration initiative, but it was the failure to attract capital to fund the venture and the imperative to allot existing capital to upgrade the Mount Morgan operation that led to the abandonment of national and international exploration. The capital shortage, compounded by the lack of reliable road access to an isolated field, was especially true in the decision to leave the Tennant Creek prospects. War-time improvements to transport infrastructure greatly assisted the development of this field, which would later provide the impetus for the Peko take-over of the Company. Clearly, the delays in receiving payment from its refiner put the Company in a permanent overdraft situation and the perception that substantial dividends were required restricted the availability of capital for expansion. The view that the Board was unwilling to jeopardise its tax-free status by embarking on taxable projects was discounted by considering government tax rulings and the establishment of a taxable subsidiary company. The chapter has examined the attitudes and initiatives of Board members and has concluded that, while the Company may not have been well served by some of its Board members, Directors Newman and Cameron worked hard to diversify the operation, particularly to exploit the pyrite resource. In placing the Company efforts in relation to the Australian government’s failed drive to develop sources of indigenous sulphur, the chapter has concluded the Company was fortunate its pyrite efforts were unsuccessful. It has been more difficult to establish why other projects such as a chemical industry based on local salt, the development of its colliery and the exploitation of other local resources did not proceed. The failed entry into the competitive field of
ready-mix concrete and the mining of a minuscule iron ore body, proved to be misjudged initiatives.

Chapter Two

This chapter put forward arguments to redress the lack of current, local, awareness of the Company relationship with the town. The thesis did not attempt to conduct a sociological analysis of life in the town rather it selected the more significant infrastructure projects which the Company supported almost from the beginning. It queried whether, in some cases, there may have been implied operational advantages to the mine, whether the majority of townsfolk benefited from others or whether it was sectional community groups that benefited most. The thesis examined the influence of senior staff in originating and developing these projects. It asked whether the Company assessed the public relations value of each project, hoping to recover some of the good-will lost in the final days of the Old Company or whether there was a genuine concern for the life and structure of the town. Finally, the chapter questioned the motives behind the donation of significant infrastructure to the town as the mining operation ceased and new owners began to assume control.

By comparing Mount Morgan Limited’s community development with that of other national mining operations, the study concluded that the Company was fortunate it had inherited a well established township adjacent to its operation; it was spared the expense incurred by others who began on a ‘green fields’ site. Nevertheless, the Company made a significant contribution to local infrastructure but, certainly, it did less for the social life of the town than other mining companies have done. By assessing the influence of Managers, from Boyd to Wilson, the study determined that it was Boyd who originated the electric light scheme but it was Sheil who, through his support of community projects, promoted the image of the Company as never before. Extending the argument to succeeding chapters of the trilogy, Sheil was fortunate the period of his
management coincided with a time of prosperity, while the others suffered periods of financial downturn, war-time restrictions and, in the case of Hennessy and Wilson, partial loss of authority and the eventual winding down of the operation.

The Chapter concluded that, while the Company had sponsored and supported a town water supply, itself an important social amenity, there was a high level of self-interest in its actions. Without this scheme, the town would have waited a long time to get a reliable water supply, but despite continuing engineering and financial support for the water bores and pumping equipment, the Company’s excess usage of water doomed the scheme to early failure. There were suggestions that support given to Council, by providing the first domestic electricity supply, was simply a cynical ploy to convince the town and the investing public that Mount had indeed staged a comeback and had many years of activity before it. However, it argued this initiative was a gift which, although questioned by some red tape addict in Brisbane, was of no serious benefit to the Company. Both the provision of water and electricity were of definite benefit to the population at large.

On the other hand, the relocation of the Golf Club was made of necessity, freeing the Company from the responsibility for the encroachment of the greens by its ever expanding and environmentally questionable waste dumps. At the same time, this initiative benefited only a section of the community. The remainder of the projects studied – the Newman Park sports grounds, the refurbishment of the School of Arts and the donation of the Stewart’s building to the Mount Morgan Museum - were done with perhaps an element of public relations in mind but with no clear commercial advantages. Each presented a social improvement to community life. Finally, by answering the questions about the motives behind the disposal of non-industrial assets, it is clear that the gifting of properties, such as the Newman Park complex, came at a cost as Council
imposed ever increasing conditions on its acceptance of this and, as the next chapter suggests, other gifts of social infrastructure.

Chapter Three

Soon after mining began in 1932, the concept of a works consultative committee became fact and in next to no time this initiative expanded to become a Works Welfare scheme. The chapter sought to confirm who was responsible for originating the scheme and it questioned if the policy was raised for purely altruistic reasons to engage the trust of the community or if, as has been suggested, it was a cynical industrial ploy. For generations, Mount Morgan folk have believed this Works Welfare scheme was unique, so to prove or disprove this opinion, this chapter compared the Mount Morgan scheme with other national schemes, particularly within the mining community. Especially, it examined one of the cornerstones of the Welfare, the profit sharing bonus payments made to employees. It considered whether this concept of voluntary profit sharing was replicated throughout the mining industry and whether, as the nature of industrial activity changed from local to state-wide involvement, the Company enjoyed any advantage from this profit sharing. In the light of these changing activities, the chapter asked if the alteration to the method of distribution of bonus funds provided a powerful means of solving the worst industrial unrest that Mount Morgan Limited had ever known.

Company subsidising of sporting amenities and insurance benefits were an important part of the scheme and this chapter compared this policy with that of other national mining, commercial and industrial organisations. It examined the financial downturn of support for the sporting club following the industrial dispute referred to above. The effect of the entry of Peko and the social result of the eventual reduction in employment level provided answers to the demise of the scheme. Finally, as queried in the previous chapter, it considered the motives behind the final donation of the infrastructure to the town.
Although Adam Boyd is generally acknowledged as the father of the scheme, the study has not established conclusively that he deserves exclusive credit. The concept of the Mount Morgan scheme was not unique! Although varying in their overall pattern, Australian welfare schemes in the commercial and mining industries had been in place since the early 19th century – and Adam Boyd was aware of these. Welfare programmes investigated included that of retailer David Jones, Burra’s small welfare state through to those of Electrolytic Zinc, the Sulphide Corporation and Mt Lyell. A study of the work of Charlie Fox and Erik Eklund in particular brought to light extensive detail of these programmes, enabling a comparison to be made with the Mount Morgan scheme.

Two aspects of the Mount Morgan scheme suggest it differed in approach from the rest! Firstly, the Welfare was founded on the early consultative works committee and it continued as such for its entire life. By contrast, for example, the Electrolytic Zinc scheme appeared to be authoritarian and ‘served … as an instrument of social control, putting pressure on employees to conform their life-style to the norms of respectability’.

However, minutes of Board meetings, held when the scheme was being considered, reveal that there was a stated intention to steal a march on the unions, hoping to convince the Industrial Commission of the generosity of the Company when it considered union claims for changed conditions. Secondly, the suggestion and implementation of profit sharing as an employee cash bonus was a company initiative, contrasting with other bonus payments, as in the Broken Hill and Mount Isa lead bonuses, which were industrially awarded. The distribution of almost £550,000 in bonus payments over a thirty-four year period, equivalent to ten percent of the dividends paid to ordinary shareholders, represented a significant voluntary initiative.

The chapter analysed the operation of the Welfare Sports and Recreation Club and the sub-committees it formed in detail, demonstrating that the active participation by employees in its management and operation, with
minimal influence from Company representatives, ensured its success. It explained how, with Company contributions of over £118,000, it was able to provide an insurance cover for employees and to embark on major capital works. As with the previous chapter, it considered the influence of senior staff in providing support for the club, suggesting this support was sometimes clandestinely offered.

Despite discontinuing the cash bonus payments for industrial rather than commercial reasons, Peko continued to support the sports and recreation club with substantial annual payments but argued that, as employee numbers reduced, it was ‘difficult to maintain employee interest in the Committee’ and that ‘changing social conditions … resulted in a reduced necessity for the facilities’. The minutes of the Technical Meetings have demonstrated that the initial decision to close did not come from the Company, but rather resulted from initiatives of former committee members and long-term supporters of the Club. The disposal of assets to the community, notwithstanding Council reticence, parallels the actions of the Old Company in liquidation.

Finally, the chapter has proven that, irrespective of the original motives for its establishment, the Works Welfare scheme provided generations of employees with sizeable cash bonuses, acted as a conduit for complaints to management and for almost fifty years was a vital social influence in the community.

**Chapter Four**

Chapter Four emphasised the mining industry’s need to have in place trained employees at all levels and the Mount Morgan Company introduced programmes to satisfy their skills requirements. The study is satisfied that the Mount Morgan strategies were achieved by indenturing over six hundred apprentices and almost ninety cadets. This is not a technical study but reference to technical publications has confirmed the
mining industry is complex, requiring a range of technical skills in order to operate safely, profitably and sustainably.

The study examined Company programmes of support for trade, diplomate, undergraduate and graduate training and compared these with contemporary training standards especially in relation to that of other mining companies. It placed the overall retention rate of Mount Morgan trainees in comparison with current performance. By dividing the study into the broad areas of the Technical College, the early years of the Company and the final years, the study traced the development of local, statewide and national training polices, examining the changing standards and availability of educational opportunities.

The motives behind the development of these programmes, although they satisfied the need for trained labour, have been questioned suggesting they presented opportunities for the Company to employ the low cost labour of school leavers as apprentices and cadets. Answers were sought to suggestions that these policies were public relations exercises aimed at guaranteeing parents would not leave the town to further their children’s careers. There is no evidence to help decide the motives behind the selection of apprentices, especially given that most tradesmen left the Company and the town soon after completion. However, there is evidence that the programme of training cadets was based on a need to select candidates who would take up responsible positions at the Mine. Apprenticeship records, and answers to a University research study of the early appointments, discounted claims that there was undue bias; most selections were made on the basis of merit. Archival records demonstrate that, from the late 1950s, selection was made in a strictly documented statistical procedure. The chapter contends that the appointment of outsiders who held University Senior Certificates was made because, initially, Mount Morgan High School had no senior class. A literature review confirmed the historical extent of education and training within the
mining industry, pointing out the problems obtaining for those employed in remote or inhospitable locations and outlining the training options available to them. By comparing these options with those available at Mount Morgan, the chapter established that, while the town did not have a School of Mines, young people were well served by the early establishment of the Mount Morgan Technical College. Emphasising the hypothesis that the continuity of employees was important, several Old Company staff involved at the College during this early period reappeared to make vital contributions to training of Mount Morgan Limited apprentices and cadets.

The Company followed pre-set programmes of rotation around sections of the Works, reinforced in the master and apprentice mode by tradesmen who themselves had been trained under the Old Company. Ninety-three percent of the six hundred and three apprentices indentured completed their training. This is a favourable result when compared with current apprenticeship training outcomes. Similarly, cadets received rotational placement in appropriate sections of the mine and almost eighty percent indentured completed their training.

The study concluded that formal cadet training was a comparatively late initiative. A number of metallurgical, survey and engineering employees appear to have completed courses without company support, a policy followed by other mining companies of the period. But beginning in the late 1940s and continuing to the end, the chapter has suggested conditional Company support for diplomate and undergraduate cadets followed the pattern set by such firms as Mount Isa Mines.

Chapter Five

This chapter concerns the sudden and unexpected merger, in 1967-68, with Peko-Wallsend Investments Ltd, a rapidly growing Australian mining company. The study examined the circumstances surrounding the
takeover, and questioned whether the Company would have survived under the policies of the previous management. It examined the social and financial effect the merger had on the operation and, conversely, it questioned if Peko made much money out of its investment. By tracing the physical upgrading of operating plant, it asked if the technical expertise of the Mount Morgan staff was overlooked in the preparation of plant designs.

The chapter considered whether convoluted accounting procedures led Peko to misinterpret the viability of the mine operations or whether the timing of closure had been set in place a decade before. A study of the strategies of local management to prevent closure determined if operations continued in spite of, rather than because of, Peko.

Finally, the circumstances of the Peko financial collapse led to questions about the wisdom of constructing and operating large smelters using ‘advanced technologies with relatively inexperienced staff, in a remote area’. The chapter asked if, by not applying the broad Mount Morgan copper smelting experience to these technical problems, Peko failed and caused Mount Morgan to be sold to a multiplicity of owners.

The massive re-equipping programme initiated by Peko soon after the takeover improved the operating efficiency of the mining and processing operations but because a Peko subsidiary ignored the cumulative experience of Mount Morgan staff, one of the projects developed a legacy of engineering and operating problems. The chapter later contends that a similar disregard of Mount Morgan smelting expertise contributed to the failure of the Warrego smelter.
Chapter One examined the failure of the Company to diversify, but pointed out that its financial success, its investment portfolio and its substantial tax free reserves made it an attractive target for a predatory takeover bid. Chapter Five has demonstrated the predatory bid by the foreign-owned Power was unsound but was undecided about the motives behind the contra-bid by Peko. Nevertheless, it supported the argument that, in making the offer, John Proud had taken a stance against foreign takeovers. Mount Morgan legends contend there had been an element of insider trading in the Power bid, but this was incorrect.

Despite local fears about Peko’s employment intentions, there was only a gradual reduction in staffing following equipment and process changes. It was difficult to establish, with any degree of confidence, Peko’s financial gain from the acquisition. Using what little material is available, the thesis argued that Peko received substantial dividends from Mount Morgan, at the same time recouping its purchase price from the Company’s tax-free credits. These results support John Elliston’s argument that Mount Morgan was one of Peko’s real success stories and dismiss John Proud’s assertion that Peko made little money out of its Mount Morgan investment.

The chapter traced the meteoric rise of Peko-Wallsend Limited, its rapid growth, in what it described as ‘diversification unchecked’, and its equally rapid decline. While noting the effect of the fluctuations in metal prices, it accepted the opinion of a former Peko director that changes in the structure of the Peko board led it to underestimate the technical requirements of such a complex organisation. Furthermore, it argued Peko disadvantaged itself by deciding to rebuild a failed smelter at Warrego and this was the principal reason for its relatively sudden decline. It detailed how, ignoring the Company’s forty years of smelter experience and John Proud’s 1967 comment that Peko could learn a lot from Mount Morgan
Limited, particularly in … smelting of copper’, the second smelter was a spectacular and costly technical failure.

As the Peko group expanded, the relatively simple administrative structure of Mount Morgan was overtaken by complicated accounting procedures, the examination of which was outside the capacity of this study to unravel. Consideration of the fees, charges and counter-charges applied to the various internal divisions of the Company raised questions about its actual financial position and Ossie Wilson’s records indicate the reasons behind the 1976 threat of closure were questionable. However, this same exercise suggests the move may simply have been an excuse to fulfill well established prophesies of when the mine would close. Principally because of Wilson’s determination, the mine did not close and the study has established a number of scenarios for the reasons the operation continued until ore was exhausted and Peko was forced to sell part of its interest in the Mount Morgan tailing retreatment project. The study has analysed the changes in management, arguing that these changes brought to an end the continuity of staff that had persisted for almost ninety years. The final chapter of this study contends that these changes seriously affected previous environmental programmes.

**Chapter Six**

The thesis acknowledged the environmental disaster caused by the mine, but asked whether, environmentally, the Mount Morgan mine fitted the pattern of governance established by national and international mining companies’. The effect of climatic conditions, surrounding topography and proximity of settlements to Australian mines with similar chronological history to that of Mount Morgan enabled a comparison to be made with historical environmental degradation at other Australian mines. The study placed the actions of successive management in perspective in relation to contemporary environmental attitudes, not only of mining people but of the community in general.
Arguing that later Peko management should not be criticised for the current problems, the chapter investigated the Mount Morgan rehabilitation programmes begun in the early 1970s to determine if they resulted from changes in community standards or if they were personal initiatives driven by the environmentally sensitive John Proud, Peko Chairman. Whatever the reason, the programme showed significant improvement in the quality of water discharged from the mine site; it was fifty percent complete when new owners assumed control and abandoned the work. A confidential communication has established that the decision may have been made in order to maximise tax-free returns, preempting changes to gold tax concessions, ignoring government environmental regulations with impunity.

The chapter demonstrated that disregard for the environment had been a worldwide, ongoing problem dating back centuries; mining was only a part. It pointed out that mining executives ‘did little to address any negative [environmental] views held by the public and ‘got on with the job at hand’. At the same time, it recorded that technical and social historians failed to publish criticism of the events, at least until the emergence of public environmental awareness in the 1970s.

By comparing the location of contemporary Australian mines with that of Mount Morgan, the thesis argued that climatic conditions, topography and proximity to settlements had significant input to the effect of pollution from mine discharges. In this sense, Mount Morgan, surrounded by creeks feeding the river, was located in surroundings that made it impossible to contain contaminants within the operating boundaries. But the deliberate decision by Adam Boyd to create pyritic dumps and to build a new treatment plant above the river compounded the problem, destroyed downstream fresh water dams and condemned the river to serious pollution. Succeeding management made spasmodic attempts to contain further pollution but the problem continued until the Peko era.
The chapter investigated why subsequent owners discontinued the Peko programme and why government regulators took no action to force its continuation. Queensland Government agencies have managed the site since 1993 and the study was extended beyond the operating life of the mine to encompass events of the current period. The chapter considered the reasons these agencies, despite allocating substantial funds, have been unable to improve the environmental problems. It has asked if this is because they have ignored local knowledge, it also asks why the agencies seem unable to revisit the proposals put in place by Peko.

The chapter, and the thesis, concludes with the assertion that there is still ‘a disregard for the environment’ in strategies currently attempting to control water levels in the Cut.

**In Conclusion**

The thesis set out to examine the Company’s operations in relation to the wider mining industry to augment the existing historiography of Mount Morgan. The strength, and success, of my examination lies in my extensive use of hitherto unused primary source material, in the comparison of the Company with contemporary mines and in the presentation of a fresh historical evaluation. Detailed research has provided proof that there were definite disappointments in the areas of diversification, loss of autonomy and the environment while there were positive triumphs in its dealings with its employees and the townsfolk. But at the same time the thesis exhibited its strength in the arguments which presented alternative opinions, often questioning the accuracy of former judgments.

By diverging from the traditional chronological approach to the study of mining company history, the thesis has been able to probe further into the detail of the perceived disappointments and triumphs of the operation than had been possible in earlier studies. It has discounted many of the Mount
Morgan myths about irresponsible policies of expansion, about a lack of support for the town, about industrial aspects of its Welfare and its alleged bias in its training initiative. It has put to rest suggestions of questionable governance and insider-trading; it has analysed the relationship with new owners. But of important and contemporary significance is the detailed examination of the history and problems that face the mine site as the environmental disaster of the Dee River continues unresolved.

My thesis has established that ‘during its operating life the Mount Morgan mine fitted the pattern of governance established by national and international mining companies’. It has confirmed that, despite its position being overtaken by larger and richer companies, the Mine has a very significant place in Australia’s mining history.
BIBLIOGRAPHY

Primary Sources

Capricornia CQ Collection, Central Queensland University
[CAPCOL]

The Capricornia CQ Collection contains archival material gathered from Central Queensland, an area extending from Rockhampton north to Mackay, south to Bundaberg, west to the Northern Territory border, and east to the off-shore islands. But the bulk of the Collection is in the Mount Morgan section which consists of approximately one hundred metres of ‘archive boxed’ files, mining and survey plans, engineering drawings, photographs, slides and motion pictures. Beginning with the original August 5 1882 letter from Fred Morgan to T S Hall, offering a half share in the proposed mine, the Collection extends to contemporary reports and articles dealing with the rehabilitation and conservation of the site. However, the preponderance of archival material relates to the operation of the Company from 1929 onward. It is noted that a number of files that may have been ‘commercially sensitive’ were not handed over to the University. Several of these are contained in Ray Boyle’s private papers.

The Collection was the principal source of primary material used in this thesis. Several of the sections listed below have provided information, but as pointed out in the Introduction, this is a difficult resource to research, principally because of the apparent duplication of files, material placed in inappropriate groupings and incorrectly described. The bibliography highlights these deficiencies. It is unlikely there will be any change in the presentation of the catalogue, given the allocation of a librarian to maintain the Collection for only one day a week, in addition to providing support to clients.
Discovered later in the research process was a handwritten index of files, prepared by the library and consisting of fifty-nine cards; these entries related to individual senior staff (as for example, Newman, Cameron and Sheil). This material enabled a cross-check to be made with the principal box entries listed below. The creation of a searchable pdf file would enhance the usefulness of these cards.

The following notes will provide the reader with an overall idea of the material contained in the Collection, at the same time detailing the individual files consulted during my research process.

Mount Morgan Photograph Collection:

Mount Morgan Engineering Drawing Collection:
This section contains almost all the original engineering and blueprint copies of engineering work at MMGMCo and MML from ca 1888 to 1984. The resource is very badly indexed and stored, but there is a comprehensive card index, listing alphabetically, individual, items in these drawings. This index is supported by a complete numerical/section listing of all drawings. Inexplicably, this listing was not incorporated in the main web site which is at: <http://library-resources.cqu.edu.au/cqcollection/mount-morgan-mine/drawings/>. No engineering drawings were reproduced in the thesis.
Mount Morgan Survey Drawing Collection:
A visual inspection of these holdings has confirmed their extent.
However, there is no web site listed for this collection and there appears to be no relative detailed catalogue.

Drawings reproduced in the thesis are from copies held in RFBCOL

Sundry Manuscripts:
List of manuscripts [including some Mount Morgan material] held in the Capricornia CQ Collection.

Files used in this thesis:
In this bibliography, it is impossible to list every file individually in the Mount Morgan section in the CAPCOL boxes; therefore the following is but an overall description of the boxes referenced in the main text. However, the text footnotes contain exact file numbers in their respective boxes.

The index of material held in this section of CAPCOL may be found at: <http://library-resources.cqu.edu.au/cqcollection/manuscripts/mount-morgan-mine/pt1.pdf>. However, only the following files were consulted in the thesis
D15/278.1-2, MML Board minutes, 1935-1950
D15/279: MMGMCo wages and salaries, foreman’s time sheets, 1928;
MML ditto 1929-1932.
D15/280: MML Staff wages and salaries, 1932-1934.
D15/283, MML Industrial correspondence and awards
D15/288 .8, MMGMCo, apprentices serving at beginning of 1925

D15/ 310-313 MML newspaper cuttings, 1935-1978 [M14/311 includes MMGMCo cuttings 1917 – this is an example of inappropriate grouping]

D15/319 Consisting of twenty-seven files, this box is complex, ranging from 1887-1974, but containing especially in files 14-25 monographs ‘for the information of shareholders’, Guides to Operations and AusIMM conference material.

D15/362: Reports by staff on overseas visits, 1950-1960. Includes report by RFB on visit to Frederick-Uhde, Germany October 1960, in connexion with calcium carbide manufacture.

D15/386- 390: MML agenda and minutes of Board meetings, 1933-1975.

D15/418: contains correspondence re pyrite sales

D15/431-477: Keith Cameron’s memos and correspondence 1950-1967, also in D15/511-513.

D15/433: Morgan Mining and Industrial Ltd [MMIL] subsidiary Associated Aggregate Industries Ltd,[AAIL] Cootamundra, 1965-1967.AAIL material is also in D15/447, 450, 451, 456, 459, 461, 463, 467, 473 and 482,

D15/450-451: Correspondence re management training with W D Scott & co, 1957-58; also included in D15/504 and M14/1476.7.

D15/458: Lists Mount Isa, Mt Lyell, Mount Morgan, and Peko Mines delegates to copper Tariff Board enquiry, October 1966

D15/474-477: MMIL Correspondence and notes about twenty-two mining and industrial projects being consider as diversification strategies.

D15/483-486: Correspondence and notes re sulphuric acid and sulphur.

D15/484-485: MMGMCo, re development of Marmor, Many Peaks, coal, ironstone and manganese, 1902-1918.

D15/511: Copper and pyrite Tariff Board matters, 1957-1964, also in boxes 305, 541 and in M14/1291, 1951-1963.


**Part 2: MS J10/914-915**

Mount Morgan Gold Mining Company Limited records, 1882-1886. The index of material held in this section of CAPCOL may be found at: http://library-resources.cqu.edu.au/collection/manuscripts/mount-morgan-mine/pt2.pdf.

Researched for background but no files were included in this thesis.

**Part 3: MS M1/1070-1077**


Contents: Reports and correspondence, Mount Morgan Gold Mining Company Limited 1893-1914, Mount Morgan Limited 1949-1967, Geo Peko Ltd.1968-1983., Limited, 1967-1990. The index of material held in this section of CAPCOL may be found at:

Researched for background but because these files relate to technical discussions on geological work by MML and Geo Peko, no files are included in this thesis.

**Part 4: MS M14/1230-1299, 1314-1599**

Mount Morgan Limited 1929-1984

The index of material held in this section of CAPCOL may be found at: <http://library-resources.cqu.edu.au/collection/manuscripts/mount-morgan-mine/pt4.pdf>. However, only the following files were consulted in this thesis.

M14/1243: Correspondence re test of fluidised bed roaster at Fisherman’s Bend, 1953-1958. Also contains correspondence re proposed construction of a cement plant at Mount Morgan.

M14/1244: Correspondence and reports on proposed fertiliser plants based on MML pyrite.

M14/1245: Information on Elders Resources, limestone deposits in Central Queensland and MMIL contract for sale of Mt Bundey iron ore to Japan. These Mt Bundey contract details also appear in M14/1521.1 and 2.

M14/1246-1248: Correspondence and notes relating to the Tailings Retreatment Plant, 1979-1982.


M14/1281: Correspondence – Industrial, Minutes of the Works Committee meetings 1932 - 1935; Industrial Correspondence regarding the Employees Welfare Scheme at Mt Morgan, 1933 - 1936 ; Gepp, Sir Herbert, File of correspondence with Sir Herbert Gepp. 1932 - 1934

M14/1282: MML Wages and Salaries to 30 June 1935

M14/1283-1284: MML Annual General Meetings, 1936-1943.

M14/1284.12 contains a report on cyanidation of granular tailings.

M14/1291: Evidence presented to the Tariff Board Enquiry on Copper’, March 1954

M14/1292.9: Correspondence and notes, re MML and Mount Morgan Shire Council electric light scheme. M14.1231: RFB, Survey of redundant plant and equipment, Area seven, Workshops, October 1984

M14/1293: General Manager’s files, A-L, 1946-1948

M14/1315: Correspondence re establishment by PWL of Chlorine Technology Ltd research operation at MM.
M14/1316: Correspondence re Cameron’s long-term contract with Sumitomo Shoji Kaisha Limited for the sale of MM blister copper.

M14/1317: Copy of Cameron’s long-term contract with Sumitomo Shoji Kaisha Limited for the sale of MM blister copper.

M14/1318: Correspondence on redeployment of MML geology staff to Geo Peko, 1968-1970.


M14/1325: Re sulphur content in MM pyrite.

M14/1340: Commonwealth Rehabilitation Dept. 1930 - 1960

M14/1353: Correspondence with EA Hegvold, Company architect re housing and especially School of Arts alterations 1960.

M14/1366; Contains file 7, ‘MML Works Committee 1973- 1980’ amongst 13 other files of sundry letters with no connexion with the Works Committee.

M14/1367: Records of ‘small’ support for organisations in Mount Morgan and Baralaba, also in M14/1485. Also negotiations about the future of MM Golf Club

M14/1388: University of Queensland files


M14/1401 ‘Report on History of Mount Morgan Dispute’ to 10 July 1957, re: Copper Bonus and Margins; Correspondence re the Copper Bonus and Margins, 1957; Correspondence re the Copper Bonus and Margins, 1957; Correspondence inwards re variation of the Mount Morgan Ltd Award, 1957

M14/1414: Industrial files 1954-1990
M14/1427- M14/1428: Pink carbons of letters to and from Sydney Office, 1950-1965


M14/1431: Memo, ‘Report on Gold realisation’, Secretary to the Board, 9 October 1958


M14/1435-1437: MML apprenticeships and cadetships, 1938-1981, Employees references.

M14/1439-1446: Relates to Works Committee correspondence and the Works Welfare insurance scheme. M14/1449 also includes Works Committee minutes and other matters, 1934-1958.

M14/1448: Includes material on calcium carbide, inorganic fluorides and caustic soda

M14/1449: Includes Works Committee minutes, budgets and bonus sheets.

M14/1452: Summary of labour force 1975-1991, Also contains ‘A proposal for the relocation of the Mount Morgan Historical Museum in Stewarts Building Morgan Street, Mount Morgan’, 1977-78. [This is another example of inappropriate groupings].

M14/1453-1457: Material relating to Tariff Board enquiries re sulphuric acid, pyrite bounty and copper bounty. Also contains MML ‘engineering construction progress’ files and some records of orders paced with MM firms. [This series again demonstrates the poor indexing of files – embedded in M14/1453. 2 and .3 are ‘logs of visitors accommodated/entertained by senior staff 1958-1982’].


M14/1470-1471: Works Committee minutes of meetings, 1934-1974. Also in M14/1479 for 1932-1979 – some of these appear to be duplicates of the former.


M14/1485-1490: Material relating to Baralaba, Mt Bundey and AAIL. M14/1521 includes the Mt Bundey iron ore contract, 1965 and material relating to the proposed sulphuric acid plant at Gladstone, 1966-1969.

M14/1494-1501: Material relating to Mt Chalmers including the short-lived 1944 operation by MML.


M14/1506-1509: Material relating to pyrite sales and examination of feasibility of establishing a fertiliser plant using MM pyrite.

M14/1519-1520: Correspondence with Sydney office re Tariff Board and blister copper. M14/1520.5 contains information on the construction of a pyrite handling facility, Gladstone, 1971-84.

M14/1521-1523: Contains reports and correspondence re proposed fertiliser plants.

M14/1528: Gladstone pyrite 1968-70 and primary crusher 1970-77

M14/1535: Includes technical visit reports in connexion with the Mount Morgan Flash Smelter and construction of new primary and secondary crushing stations.

M14/1536: Includes notes on amendments proposed by MML to be incorporated in the Warrego smelter, 1973. Also contains volumes 1-3 of MML ‘A study of retreatment of tailings at Mount Morgan’

M14/1537: Includes volumes 4-6 of MML ‘A study of retreatment of tailings at Mount Morgan’; and material on test work and revisions to the above treatment plant.


M14/1558: MMIL accounts, 1966-72, MML accounts 1971-78

M14/1563-1566: Files contain various histories and reports written by BG Patterson.

**CQU Library General Collection**

Mount Morgan Limited Annual Reports 1930-1969 CQU call S338.2 20

Peko-Wallsend Limited Annual Reports 1967-1982 CQU call S338.2 20

**MAPS:**

With the exception of Maps 1.1, page 39, and 2.1, p.73, reproduced from copies held in RFBCOL, the remaining maps are scanned copies of pages from reports contained in government papers and Company files. Reference to the source of each forms part of the map. Additional notes added by RFB constitute minor alterations to the maps. The originals of these maps were on A3 paper, reduced to A4 size for inclusion in the thesis. Although every attempt was made to improve the quality of each, responsibility for, and any substandard, quality rests with the original.

**Oral Histories:**

The lack of cataloguing of Oral Histories in the CAPCOL is another example of the shortcomings of the system. Not all the oral histories have catalogue records and the only reference is that they are ‘contained in the Mount Morgan Oral History Project’ - Email from CQU library, 21 January 2013. The following are part of that project:

ET Badham, with Carol Gistitin, 5 August 1989
GL Beattie, with Lorna McDonald, 20 November 1992
RF Boyle, with Betty Cosgrove, 10 May 1993
WL Butcher, with Carol Gistitin, 22 July 1989
WL Butcher, with Betty Cosgrove, 16 October 1992
FH Cole, with Betty Cosgrove, 8 October 1992.
JK Dempsey, with Ray Boyle, 22 August 1987
D Derham with Carol Gistitin, 13 April 1992.
JB Hargreaves, with Betty Cosgrove, 9 November 1992
C Heberlein, with Betty Cosgrove, 21 October 1992
BG Hiskens with Lorna McDonald, 15 December 1992
NS Kirby, with Ray Boyle, 3 October 1992
J Leigh, with Betty Cosgrove, 15 September 1992
E Millers, with Betty Cosgrove, 10 December 1992
SS Pullar, and Betty Pullar, with Rod Elvich, 22 April, 1993
AD Rowe, with Betty Cosgrove, 16 October 1992
C Shannon, with Betty Cosgrove, 10 September 1992,
TJ Stock, with Lorna McDonald, 24 November 1992
HJ Stock, with Carol Gistitin, 22 July 1989
HJ Stock, with Lorna McDonald, 24 November 1992.
A Teeney, with Betty Cosgrove, 8 October 1992.
RWG White, with Betty Cosgrove, 10 November 1992

Photographs
Australian Archives
Selected CAPCOL photographs as at
<http://www.cqu.edu.au/library/library-resources/library-
collections/cq-collection/sources-by-town/mount-morgan-mine-
photograph-collection>.

Corvin Photographs
Hempseed/Lennox photographs, courtesy Mrs A Hare.

Mrs Judith Hiskens

MML and Peko publications

RFB photographs

RMB photographs

Seale photographs, courtesy AR Hope

**Government Reports and Publications**

**Queensland:**

Austral Archaeology Pty Ltd, ‘Mount Morgan Conservation Plan’,
Department of Natural Resources and Mines, report No MM895, 2002.


‘Mount Morgan Mine rehabilitation planning workshop’, Department of Mines and Energy, Central Region, 8-9 May 2000, Proceedings. Contains the following papers:

LJ Duivenvoorden, ‘Overview of studies on the Dee River downstream of the Mount Morgan gold and copper mine’.

D Jones, ‘Impacts of Mount Morgan on water and sediment quality in the Dee River’, EWL Sciences Pty Ltd., Darwin

J Yeldham, ‘Wowan-Dululu Landcare perspective/downstream water use’,

A Taube, ‘Perilya Mines NL report’.

QMJ, Patterson Obit, Nov 20 1955

QMJ, ‘Notes from the University of Queensland, Department of Mining and Metallurgical Engineering’, 20 February 1958

QMJ, Vol.95, No. 1108, March 1994

Queensland Department of Mines and Energy web site viewed 12 November 2009,


Queensland Parliament, ‘Report of the Committee appointed to enquire into matters relating to the employment and training of apprentices and minors’, Government Printer, Brisbane, A19-1944,

Queensland Government, Department of Minerals and Energy, Rehabilitation plan for the Mount Morgan Minesite, November 2003, Section 10.1, ‘Significance of Dee River’,

‘Rehabilitation plan for the Mount Morgan Mine site Central Queensland’, Queensland Government, Department of Natural Resources and Mines, November 2003,


C Unger, T Laurencont. L Keliher, C McCombe & G Bartley, ‘Rehabilitation plan for the Mount Morgan Mine site Central Queensland’, Departments of Natural resources and Mines.


Commonwealth


[Commonwealth] Department of Commerce and Agriculture, Bureau of Agricultural economics, Shortage of materials essential too rural production, July 1950.


‘Commonwealth Acts repealed’, viewed 28 January 2012,

‘The economy, taxation and financial policy’, viewed 15 August 2012,

Official Year Book of Australia, No. 60 1974.


R F Boyle Private Collection [RFBCOL]

Emails:

From the late Dr. Meredith, MBE [Sheil], 16 June 2007.
From the late A Gerard, 10 January 2009 - 22 June 2012.
From Tony Hope, 28 December 2011.
From the late Ron Kitchen, October 05, 2009
From the late Stan Lean OAM, 12 October 2005.

**Technical Files:**

RF Boyle, ‘Report on and recommendations from a visit to Western Australia to inspect large crushing plants’, 1968.
MML, ‘Calculations for a proposed bismuth plant at Mount Morgan processing material from Tennant Creek and increasing capacity of Smelter to 20,000 t.p.y to accommodate Tennant creek concentrate’, June 1977.
MML Memos from General Manager, March 1959 to March 1963.
MML, Flash Smelter files (8 files), 1969-1973, contains material relative to liaison with the early operation of the Warrego smelter.
MML, Tennant Creek Smelter, contains papers relating to MML investigation of the failure of the first Warrego smelter and input to the design of the second smelter.
MML, Papers relating to the purchase of new haulage trucks for the Mine, (1968-69) and purchase of a new 5 cubic metre excavator.

**Other files:**
Mount Morgan Limited, Chairman’s Address to Ordinary General Meetings, 1930-1967.

Films:

Letters:
Sir John Proud, to RFB, 4 October 1994.
MML, conditional letter of appointment as an apprentice, 5 April 1948.
Ray White, letter seeking to retain services of senior staff, 1 March 1976.

Memos:
RF Boyle ‘memo to the Chief Engineer’, 8 July 1953.
RF Boyle, Memo to Technical Meeting re Fletcher Creek water supply, 19 October 1977.
Glenister Sheil, memo 512 of 21 January 1959 to Department Heads.
General Manager to Chief Engineer, 1957-1963.
FL Hennessy, Inter-office memo 3473 of 22 November 1970 to the Chairman.

Personal communications:
Mrs. Gloria Keyes, widow of electrical foreman Abbie Keyes, with Ray Boyle, 19 January 2011.
Frank Cunningham, with Ray Boyle during the latter’s time as a draftsman in the Company drawing office, 1951-1954.
Robert Hindley, Works Manager ICI Yarwun Site, June 1990.
PWL director Len Doggett to Ray Boyle during a chance meeting at Sydney Airport, June 1980.
Ted Reynolds, at the AusIMM Centenary Conference, 4 April 1993.
Charles Oliver enclosing private communication from Richard Beale, 22 April 2005.
Photographs:
Mount Morgan Technical College.
The Museum - Stewarts Building.
Plaque, CQU Library, honouring B G Hiskens.

Unpublished Reports
MML, A study of retreatment of tailings at Mount Morgan, November 1979, folder1, section 1.1 Summary and recommendations, subheading 1.1, summary.
The Mount Morgan Gold Mining Company Limited (in liquidation), Inventory of plant and equipment - Mount Morgan, DV colliery, Marmor limestone quarry and Blackwater, [1927].
Patterson, A history of The Mount Morgan gold mine 1908-1927
Patterson, [draft of] ‘A Secret history of Mount Morgan’, 1940.
Patterson ‘Notes on Mount Morgan water supplies’, MML unpublished paper, 8 April 1954.
Three-D Projects, Mount Morgan Mine rehabilitation project draft tour guide manual.

Workbooks:
RFB workbook, 3 July 1952- 23 July 1954.
RFB ‘useful data’ note book.

Secondary Sources

RF Boyle Consultancies


RF Boyle, ‘The Heritage Significance (no-aboriginal) of the No. 7 Dam [the "Big Dam"] at Mount Morgan’, for the Mount Morgan Shire Council.


RF Boyle, Conference Papers and Addresses

RF Boyle, ‘Maintenance procedures in the Open Cut of Mount Morgan Limited’, Engineers Australia, Rockhampton Group, June 1959.


RF Boyle, The Mining Heritage of Central Queensland, Prepared for Sir Arvi Parbo when he was President of the AusIMM, 1990.


**RF Boyle, Publications**

RF Boyle, ‘Mount Morgan's mining heritage: a model for the future?’ In Denis Cryle et al (Ed), *Futures of Central Queensland*, CQU, 1996,


Other Secondary Sources

Conferences, Lectures and Seminars:


B Webster, “‘A good job in the railway’; Rockhampton Railway Workshops 1938 to the 1980s”, AIRAANZ, 2005.


Theses:


**Books:**

Books listed below [#] were included because, as detailed in the text, they were cited in other books/articles. These books were not researched separately from the said books/articles.


K Fraser, *A remarkable gift, 100 years of the Walter & Eliza Hall Trust*, Custom Publishing, UQP, St Lucia, 2012.


L McDonald, *Rockhampton: a history of city and district*, UQP, St Lucia, 1981.


J Shields (Ed), *All our labours, oral histories of the working life in twentieth century Sydney*, NSWUP, Kensington, 1992


Films:

JA James, VHS recording includes the last day of operation of the MML Open Cut., 1981.


Title No: 17483, *Mount Morgan*, 16mm film, c 1939.

Title No: 90827, *Mount Morgan gold mine*, newsreel series, c 1946.


The following films were transferred from 8mm film taken by MML cadet survey draftsman Barry McKnight in the 1950s. They are an important
record of the mine operation and of social events such as the mine picnic, Labor Day parades and sports events at Newman Park. Particularly, the parades show the mine equipment being used for floats. The films may be downloaded from youtube.com under the headings:


**Journals:**


The Australian Mining History Association [AMHA], JAMH, UWA, ISSN – 1448-4471 includes:


C. Fox, ‘Work and welfare at Mt Lyell, 1913-1923’, JAMH, Vol. 1 No 1, September 2003


V. Fletcher, ’Value adding to Northern Territory copper, 1901-1910’, JAMH, September 2006,


**AusIMM Publications**

The predecessor of the Australasian Institute of Mining and Metallurgy was the Australasian Institute of Mining Engineers [AIME]. Papers in the *Transactions* of the AIME Vol. XV, Parts I and II, 1910.
The AusIMM, Index to papers in the Institute *Proceedings*, June 1944 to December 1968.


The AusIMM *Bulletin – Journal of the Australasian Institute of Mining and Metallurgy*, ISSN 1034-6775 includes:


The AusIMM *Proceedings*, new series No. 115, September 1939 – includes:


Monograph No. 3 - *Broken Hill mines – 1968*, No. 16 -*Hidden gold – the Central Norseman story*.

**AusIMM Conferences and Addresses**


RF Boyle, RWG White & OA Wilson, ‘Mount Morgan – Marvellous Mountain’,
E Reynolds, ‘Lake George Mines’
G Ralph, ‘The origins of Western Mining and some of the men who shaped it’,

D McKee, FAusIMM, The Julius Kruttschnitt Lecture, Southern Queensland Branch of The AusIMM on 10 August 2011


Monographs:
LJ Arrington & GB Hansen, ‘The richest hole on earth: a history of the
Bingham copper mine’, *Utah State University Monograph Series,*


Includes:
I Taylor and W Nash, ‘The Mount Morgan Golf Club’
N Chardon, ‘The Mount Morgan historical museum’
FL Golding, ‘The Mount Morgan rugby union football, 1891-1914’
FL Golding, ‘Past hotels’
FL Golding, ‘The Big Dam – No 7’
FL Golding, ‘The Mount Morgan High School’,

FJH Cunningham, ‘Horses – faithful workers in Mount Morgan mine’.
J Drew, *Mining people- a century,* The AusIMM, publication series 1/93,
Parkville, 1993


J Hawke, *A brief history of Mount Morgan businesses,* Jean Hawke,
Mount Morgan, 2006.

H Kearney, ‘Dee copper mine history’, undated, unpublished

AR Hope, *The Hope factor, Mineral discoveries Australia Papua New Guinea & the Philippines,* AR Hope, Riverwood,

BE Lloyd, ‘The education of professional engineers in Australia’, The
Association of Professional Engineers, Australia [APEA],
Melbourne, third edition, 1958,

JM Newman, ‘Wayside Memories of a Mining Engineer’, 1955,

FW Sykes, *The Mount Morgan gold mine, Queensland, an authentic treatise on the mine, works and treatment, up to date, 1st October 1892, together with a concise history of the mine and district and schedules, tables and summaries*, John Sands Printer, Sydney, 1893


HH Wilson, *Gateways to gold*, Rigby, Sydney, 1969


DJ Cryle, *Academia Capricornia, a history of the University of Central Queensland*, University of Central Queensland, Rockhampton, 1992.

**Newspapers**

The Company filed relative newspaper clippings in ‘scrap books’. These are in various areas of CAPCOL. The following is a selection of important articles.

*[Rockhampton] Morning Bulletin*


*Rockhampton Evening News*

August 19 1935, 2 November 1937.

*Central Queensland Herald*

22 December 1938
The Australian
22 September 1967, 29 September 1967

The Age,
16 September 1967

The Courier Mail, ‘In town and out’,
8 January 1934,

Clippings held in other locations:

Sydney Morning Herald [SMH], 2 August 2004 October 6 2007, Viewed
steele/2007/10/05/1191091362589.html>.

SMH, 5 December 2009, viewed 30 January 2012.
who-led-mt-isa-miners-strike-20091204-
kb1b.html#ixzz1ktsSzBbk>.


SMH, 7 August 1923, 17 August 1923, 25 August 1923, 23 October 1923,
2 May 1928, 16 September 1938.

The Canberra Times, 8 February 1963.

The Courier Mail, 18 July 2012

Radio Programmes:

‘Remembering Eveleigh’, ABC Radio National Hindsight, broadcast 10
April 2001, 2.00 pm.

‘The Midland Railway Workshops - a family affair’, ABC Radio National
Hindsight, broadcast Sunday 7 January 2007 2:00pm.
Research Projects:
DJ Cryle & RF Boyle, ‘Post-war training schemes at Mount Morgan Limited: a regional case study in management and employment’, CQU Faculty of Arts, 1995

RF Boyle, ‘Central Queensland Training Questionnaire’ conducted under CQU Human Research Ethics Committee Ethics Project No. H06/06-115 approved 10 July 2006.

Web Sites:


Definition of homestead leases, viewed 17 February 2100,

Hacettepe University, Department of Mining Engineering, Ankara, Turkey, viewed 29 December 2012,

K Heiler, R Pickersgill & C Briggs, ‘Working time arrangements in the Australian mining industry’, p.19, viewed 1 October 2006,


‘Kalgoorlie average annual rainfall’, Australian Government, Department of Meteorology’, viewed 9 April 2008,

‘Local Kalgoorlie-Boulder Stakeholders’, p. 15, viewed 2 April 2008,


W Kovarik, ‘Environmental history timeline’, originally published in M Neuzil & W Kovarik, Mass Media and Environmental Conflict, Sage, 1996, viewed 1 February 2007,


Mount Isa, proudly celebrating 85 years of commodity and community,

Mount Morgan Shire Council, ‘Report on November 2000 Fishkill event...


Unidentified author, Australian Academy of Science, Nova science in the news, ‘Feeding the future – sustainable agriculture’, viewed 19
September 2007,
<http://www.science.org.au/nova/071/071key.htm>,


C Walrond. 'Gold and gold mining', Te Ara - the Encyclopedia of New Zealand, updated 21-Sep-2007, viewed 1 April 2008,


‘Works of Geoffrey Blainey’, Monash University Library, pp. 5, 17 and 20 of Part 1, viewed 10 March 2006,

Year Book Australia 2003, ‘Mining feature article - mining and the environment, p.5, viewed 26 March 2008,
APPENDIXES
Appendix One

Biographies

The text of this thesis has included the names of persons who have contributed in some way to the ‘Disappointments and Triumphs of Mount Morgan Limited’. These persons include Directors, Senior Staff and external consultants who were associated with the Company from its beginnings in 1929 until the retirement of the last staff member in 1985.

The following brief biographies are intended to provide a background to the qualifications of each and to explain how they fit in to the development of the Mount Morgan story. The biographies of nine of these men have already appeared in Boyle, MA, Appendix B, pp. 259-267; these biographies are repeated here in an updated form. They may be identified by the symbol ## after the particular name. Refer also to Appendix Intro 2 which highlights the continuity of MML senior staff and to Appendix Intro 3, which lists the names and periods of service of both Directors and General Managers. Appendix 4.5, ‘Mount Morgan trained people’, presents a biography of two Mount Morgan cadets who, in their subsequent careers, made significant contributions to the fields of metallurgy and tertiary education.
BOYD, Adam Alexander (1866-1948) ##

Adam Boyd was born in Scotland and migrated to Melbourne in 1889. After nine years with Newcastle Wallsend Coal Co. Limited, Boyd joined the Broken Hill Propriety Company Limited in Broken Hill in the position of Mining Manager. It was also at Broken Hill that Boyd established his contacts with Tom Owen and Herbert Gepp. Boyd came to the Mount in 1913 as General Superintendent with the reputation of being "one of the great mining engineers of Australia". He was appointed General Manager 1915, following the dismissal of Benjamin Magnus. He remained in this position until the Old Company placed itself in voluntary liquidation in 1927 when he was appointed Manager for the Liquidators. In 1929, he helped found Mount Morgan Limited and was General Manager from 1930-1935. He was a Director from 1929 until his death in 1948 and Chairman/Managing Director from 1938-1941. Until the death of Eric Boyd, in 1958, the Boyd family held approximately 5 % of the shares in the Company.

[Boyd, Adam Alexander (1866 - 1948) Biographical Entry - Australian Dictionary of Biography Online].

(Captain) BOYD, Eric Ewart Gladstone (1893-1958)

The only son of Adam Boyd, Eric Boyd was wounded at Gallipoli, losing an arm. After the war he graduated BE (mining) from Sydney University and spent most of his professional life in Malaya working at tin mines owned by Malcolm Newman. In 1942, while in Singapore, he rejoined the army and was imprisoned in Changi for the duration of the war. On his return to Australia in 1946, he joined the Mount Morgan Board and was appointed Managing Director in 1956. His successful efforts to solve the Brown Bonus industrial disputes are discussed in the text. He died from injuries sustained in a fall at the Director’s Quarters, Mount Morgan on 9 May 1958.

[Eric Boyd military records and MML Board Minutes]
BROINOWSKI, John Henry CMG, FCA

John Broinowski was the co-managing director of Darling and Co., the merchant bank which acted as financial advisors to Mount Morgan Limited. He was appointed to the Mount Morgan Board in 1965 and on the death of Cameron in 1967 became Chairman. As Chairman he was in charge when the take-over offers were made by Power and Peko-Wallsend Investments Ltd. Following the finalisation of the merger with Peko, he joined the Peko Board and remained a director of that company until the friendly takeover by North Broken Hill Limited in 1988. He was a director of Sims Consolidated Ltd [Sims Metals], 1969-1988 and Chairman 1970 – 1983. Sims Metals was a subsidiary of Peko from 1979 to 1988. He was also a director of a number of public companies.

[James D. Wolfensohn, *A global life; Simms Group, '90 years of recycling'*, 2007].

CAMERON, Keith Addison. (1902-1967) ##

A graduate in mining engineering from Melbourne University, 1928, Cameron gained experience both in Australia and overseas, before joining the Collins House Group in 1933 to work at operations in Bendigo and at Kalgoorlie. Clark notes that in 1942, following the wartime reduction of activities in the Eastern Goldfields of Western Australia, Cameron went to the North mine at Broken Hill as General Manager. Following almost four years as Chairman of the Joint Coal Board, Cameron became Managing Director of Mount Morgan Limited in 1950. He resigned in 1955 but remained as a Director. He was appointed Managing Director of Commonwealth Mining Investments (Australia) Ltd in 1955, but resigned in 1961 when his company was taken over by London-based Consolidated Gold Fields of South Africa Ltd. On the resignation of Malcolm Newman Cameron was appointed Chairman of Mount Morgan in 1962. He died suddenly in August 1967.

ELLISTON, John, AM

John Elliston graduated in chemistry and geology from the University of Tasmania in 1950 and joined Peko Mines in 1956. He led the teams of geologists whose work led to the expansion of the ore reserves at Tennant Creek. He headed the team of geologists responsible for the discovery of the Juno gold deposit, which provided Peko with its cash bonanza. It was the richness of this ore body that set Peko on the path of rapid expansion beginning with Mount Morgan in 1967. Appointed to the Board, Elliston was Group Executive in charge of the operation of the Peko Subsidiary, Geopeko. After leaving Peko he established his consultancy, Elliston Research Associates Pty Ltd.

[J Drew, Mining people, p.294]

GEPP, Herbert William. Kt., (1877-1954) ##

Gepp’s early career was in the explosives industry, followed by a period at Broken Hill, where he became a master practitioner of flotation. After some years in America, Gepp returned to Australia in 1915 to head up the new Electrolytic Zinc works at Risdon, Tasmania, where his contributions to the science of zinc refining received world wide acclaim. It was at Risdon that his welfare scheme set a twentieth century pattern for the use of welfare programs as an aid to industrial relations. It was also at Risdon that he ‘embellished his image as a man capable of leading the nation’, and he was a logical selection for the position of Chairman of the Development and Migration Commission formed in 1925. His role in the reopening of MML is discussed in Boyle MA while his input to the Works Welfare Scheme is mentioned in Chapter Three of this thesis. His later years were spent as consultant to the Commonwealth government and in private practice.

[BE Kennedy ADB]
HARGREAVES, James Bryce (1930-1997).

Bryce had family connections with Mount Morgan from the late 19th century but grew up in Emu Park. He graduated BSc from UQ and, after a short period working in astrophysics at an observatory set up by the Carnegie Institute in WA, he joined Mount Morgan Limited in 1954. He described his original appointment as ‘a very vague position’. He obtained the Diploma of Metallurgy and a Bachelor of Commerce Degree. He studied for, but did not complete, a Law Degree and he taught mathematics to night-time diploma classes at the Mount Morgan Technical College. He ‘moved up in the hierarchy’ through years in the Research Department, and in 1969 was appointed Superintendent of Mills. It was here that he privately conducted research into the cyanidation of tailings – his work resulted in the establishment of the Tailing Retreatment Project (1982-1990). His retirement in 1985 broke the continuity of staff referred to in the text.

[RFB and Hargreaves, OH with Betty Cosgrove, 9 November 1992]
HENNESSY, Francis Loyola (Loy) (1928-1999)

Loy Hennessy graduated B Met E and M Eng Sc, MU; his M Eng Sc was based on a study of copper smelter slag. He joined MML as a Metallurgical Assistant in 1950 (he was a contemporary of Ossie Wilson). His promotions were rapid. Appointed Smelter Superintendent in 1955, he introduced changes that resulted in record smelting campaigns lasting five and then eleven years before furnace rebuilding became necessary. He traveled overseas extensively both with Newman and alone in connexion with the exploitation of pyrites. He was a member of the Board Advanced Education in Queensland, chairing the Board during the years of significant changes in tertiary education in the State. At Mount Morgan, appointed AGM (Production) in 1960, Manager of Operations in 1964, and General Manager in 1966; he was elected to the Board in 1967. Transferred to Peko Head Office in 1974 as Director of Corporate Planning he became dissatisfied with the position, resigning to join Queensland Nickel, Townsville in 1975 as Managing Director; he retired in 1992.

[RFB, OAW email to RFB ‘Time frame revised’, 21 February 2008, John Reid, Obit of FLH, October 1999.]


Hutchin served with distinction in the military, 1910-1920; after time at the Staff College, London he returned to Australia and joined the Electrolytic Zinc of Australasia [EZ] plant at Risdon, Tasmania as industrial officer under Herbert Gepp. In 1931, he was elected to the Australian House of Representatives as the United Australia Party member for the Tasmanian seat of Denison; he was defeated in 1934 and left politics, becoming a businessman and industrial consultant. His part in the establishment of the Works Welfare Scheme is discussed in the text.

JOHN, Morgan Jones. ##

A founding member of Engineers, Australia, John trained as an engineer with the Old Company and at the age of 23 he was appointed Chief Engineer of the Electrolytic Refining and Smelting Company works at Port Kembla. He returned to the Old Company in 1912 as Chief Engineer, leaving that position in 1925 to join Hadfield’s Steelworks, Sydney as assistant to the Managing Director. From 1927, he was in private practice until his return to Mount Morgan as Chief Engineer in 1932. Appointed Assistant General Manager in 1943, he was General Manager from 1944 to 1950 during the difficult post-war period of shortages of staff and supplies. After retirement, he continued as a consultant based in Sydney until his death in 1960.

[Morning Bulletin, Tuesday 4 April 1944, page 5 Also ‘The John’s family life at Mount Morgan’, Mount Morgan Argus].

KELLY, John James (1908-1968)

John Kelly was one of the last apprentices indentured as an electrician by the Old Company. A protégée of Adam Boyd, he rose quickly to Foreman and then Electrical Engineer. He had external business interests including cinemas, heavy transport and electrical retail. During the war, he was Director of Transport, a position he held until the appointment of Sheil as General Manager when he reverted to the position of Electrical Engineer. Kelly’s role in the decision to use contractors for haulage of mined material is discussed in Boyle MA. With the appointment of Eric Boyd as Managing Director in 1956, he was promoted to Assistant then Chief Engineer and, in 1960 he was appointed Assistant General Manager (Works) jointly with Loy Hennessy. Independently wealthy, he retired to Sydney in 1964 to pursue business interests.

[RFB, MMLAR, 1962].
LEAN George Beattie, AM, (1913-2004)

After graduating in Economics from Sydney University in 1934, Lean trained as a chartered accountant and his practice brought him into association with many entrepreneurial ventures. He joined a group of Northern Territory cattlemen and prospectors who, in 1948, sank a shaft near Tennant Creek and discovered massive seams of copper and gold. Over a span of 34 years, together with Sir John Proud, he built Peko-Wallsend Limited from this exploratory shaft to become the tenth largest company listed on the Australian Stock Exchange. George Lean was appointed Executive Director 1960, CEO 1974 and succeeded Sir John Proud as Chairman 1978. He retired as Chairman in 1982 but remained on the Board.

[International House, University of Sydney, Alumni Newsletter, November 2004, Vol 36, No.2,]

MᶜASKILL, Allan Fergus. ##

Allan MᶜAskill was Chief Engineer of Broken Hill Junction North Mine from 1912 to 1925 and after four years as Superintendent of that mine, he moved to Mount Isa Mines Limited in 1930 to become its Chief Mechanical Engineer. On Boyd's retirement in 1935, MᶜAskill was appointed General Manager of Mount Morgan Limited and was responsible for the Company's major plant expansion program from 1935 to 1937; this included the building of the Oxide Mill and the complete upgrading of the Company Power Station. During his period as Manager, the first major expansion of the Works Welfare sporting facilities occurred. MᶜAskill resigned from Mount Morgan in 1937.

[AusIMM records, MMLAR 1935-1937]
MORGAN, Eric Jack, (1898 -1962) ##

Eric Morgan was one of the 'despised share-brokers' on the Mount Morgan Board. He served in the 6th Battalion, AIF from 1916 to 1918 and lost an arm during that war. An accountant, he was a Member of the Melbourne Stock Exchange from 1927 and a member of the Stock Exchange Committee from 1942. Elected to the Board of Mount Morgan Limited in 1933, he became Chairman in 1942 following the resignation of Adam Boyd from the joint positions of Chairman and Managing Director. Morgan was increasingly absent from Australia after the war, his place being taken by Newman who succeeded him as Chairman in 1949. He resigned in 1953 but was then appointed to the London Board which was closed in 1961.

NEWMAN, James Malcolm, CBE, (1880-1973) ##

Malcolm Newman graduated BE from Sydney University in 1904. After working at Broken Hill he was General Manager of Peak Hill Gold Mining Co. Ltd., WA from 1907 to 1908. During 1908, he was consulting mining engineer to the Old Company. From 1910 to 1912, as an employee of the Old Company he reviewed the operations of the Open Cut and carried out exploratory work in New Guinea.

From 1915 to 1935, he was Director [and part-owner] of a number of Malayan tin companies, the sale of which in 1930 made him a wealthy man. He purchased and developed grazing properties in Queensland and the Northern Territory and involved himself with Australian tin mining ventures, particularly in North Queensland. Elected to the Board of Mount Morgan Limited in 1938, he was appointed Chairman in 1949. He presided over a period of prosperity that saw the Company output expand, another orebody confirmed and the return of healthy dividends but his efforts to develop the pyrite asset were unsuccessful He resigned as
Chairman in 1962 but was defeated in his attempt to remain a Director because of his age.


**OWEN, Tom Mackellar, ##**

There is little biographical information available on Tom Owen. He graduated BE (Mining) from Sydney University in 1904, obtained his underground mining experience at Majors Creek and at the Broken Hill Proprietary Mine at Broken Hill before gaining milling and assay experience there. In 1914, Owen patented a process for selective flotation. Owen's involvement with Mount Morgan Limited is well documented in the Annual Reports, while Ted Reynolds has told how Owen continued to be associated with Captain's Flat until it closed in 1962, the year Owen voluntarily resigned from the Mount Morgan Board.


**PATTERSON Benjamin Gilmore (1881-1955)**

Graduating 1904 from Sydney University BE, Mining and Metallurgy (with honours) Patterson joined the Old Company in the same year as mining engineer and statistician. He remained there until 1927 when the Old Company placed itself in voluntary liquidation. He was Resident Master at Ipswich Grammar until 1934 when he returned to Mount Morgan. During his time at Ipswich, he gave much of his spare time in assisting Adam Boyd to calculate the tonnages of ore left in the old mine and on which its revival was based. He was one of its original founders of the Mount Morgan Technical College and was President of the College Board until he left the town. On his return, he helped successive Principals with advice on technical matters. Among his other duties with the
Company, Patterson dealt with the selection, training and guidance of the company’s apprentices and cadets. He became the Company representative when the Mount Morgan Apprenticeship Advisory committee was set up in 1946. Acknowledged as an authority on the history of the Mine from its beginnings to his death, his works are acknowledged in the Bibliography.


PROUD, John Seymour, KBE (1907-1997)

John Seymour Proud was a distinguished mining engineer, Company Director and benefactor. After working in the family business for a short time, he graduated BE (Mining and Metallurgy) from Sydney University. After several years in research and practical engineering he entered management. During his career, Proud was a Director of CSIRO, Manager of Peko Mines and later Chairman of Peko-Wallsend Limited. He was Founder and Chairman of Trustees of the Lizard Island Reef Research Foundation. Proud was also a very generous man with a passion for the Arts and environment. He was a major force behind the establishment of Earthwatch Australia and established the Sir John Proud Fund for the purchase of Rare Books.

A Fellow of the Australasian Institute of Mining and Metallurgy, the Institute of Mining and Metallurgy, the Institute of Marketing Management and of the Institution of Engineers Australia, he was also a Life Member of the Royal Society of New South Wales. Proud was knighted in 1978, had the mineral ‘Proudite’ named in his honour and received two honorary doctorate degrees. The details of his near-death experience in the Stinson plane crash of 1937 are given in the text.

[Biographical cuttings, John Seymour Proud, company director, BIOG; NLA, <catalogue.nla.gov.au/Record/2000888>.]
SHEIL, William Glenister, CMG. (1902-1981) ##

Glenister Sheil graduated Bachelor of Mining Engineering, (1922), Bachelor of Science, (1923) and Bachelor of Civil Engineering, (1926) from Melbourne University. Sheil was Resident Engineer for the construction of the Somerset Dam near Brisbane from 1935. His talents as an organiser, humanitarian, leader and sportsman were applied to develop a little township for the construction workers with community, sporting and recreation facilities. These initiatives, and his passion for parks, gardens and tree lined streets, were repeated during his time as General Manager of Mount Morgan Limited.

Chief Civil Engineer to the Hydro-Electric Commission of Tasmania from 1941, Sheil was appointed as Assistant General Manager of Mount Morgan in 1944 and General Manager in 1950. Here he achieved his most outstanding success, with Mount Morgan Limited increasing its output and its profitability under his direction. Passionate about education and training, he was largely responsible for initiating Company graduate and diplomate training programmes. Appointed to the Board in 1958, he retired from the position of General Manager in 1964 to become Technical Director located in Sydney. He remained on the Board until the Peko merger in 1967.

WESTCOTT, Lewis Arthur, (1882-1953) ##

Lew Westcott, an Associate of the Ballarat School of Mines, joined the Old Company in 1905 as a miner and, in 1906, he opened up the Marmor lime quarries. He transferred to the steam shovels in the Mount Morgan Open Cut after six months and, in 1907, he opened the Many Peaks mine. From 1913 to 1918, apparently escaping the purge that saw all those staff associated with Many Peaks sacked, he was underground manager at the Mount. He joined his brother on a pastoral property in Western Queensland until 1921 when he worked in various senior positions for the Hoskins Iron and Steel Company until 1927. From 1928 to 1931, Westcott had another break from mining, having purchased a grazing property in the Bathurst district of New South Wales, but returned to mining with the Collins House Group in 1931. He returned to Mount Morgan in 1937 as General Manager, holding that position until 1944, for five years of which the mine endured the shortages of the war.

[RMB, 4 April 1944, page 5 , Obit, RMB, 5 June 1953, p.6, and Clark, Built on gold, pp. 6, 15, 34, 53].

WHITE, Raymond Edward (1924- )

After war service in the RAAF, Ray While gradated BE (mining) from Sydney University and in 1954 joined Peko Mines at Tennant Creek as Underground Manager and then General Manager. When Peko began its expansion in 1968, he was appointed Director/Group Executive, Metalliferous Mining with direct responsibility for the operation of King Island Scheelite and Mount Morgan. In this position, he was responsible for the construction of the smelters at Tennant Creek. He was Chairman of Energy Resources, Australia in its formative years. He retired from Peko in 1982, following the failure of the Warrego Smelter, to pursue interests in the general aviation field.

[Drew, Mining people, pp.290-291]
WHITE, Norman Frederick

White, a triple blue at Sydney University, came to Mount Morgan in 1893 as head of the Engineering Department. He was one of a team of 'bright young University of Sydney graduates brought to the Mount at that time. White was involved with the establishment of technical education in MM, from 1900 using the local School of Arts and in 1909 was President of the Mount Morgan Technical College Board. Along with 12 fellow staff, he formed a syndicate to mine, at Many Peaks in the Boyne Valley, a profitable low grade copper ore used as flux in the MM smelter. This venture proved lucrative but, following the death of Walter Hall and the appointment of a new General Manager, all the members of the syndicate were sacked. White used his profits from Many Peaks to buy a sheep property near Longreach. He was one of the first directors of QANTAS (1921-1930).

[Kerr, pp.130-132, Hudson Fysh (QANTAS Rising, p.271)].

WHITE, Richard William Grenville (1939- )

Dick White, born in Sydney and raised in Broken Hill from age seven, graduated BE Mining from Adelaide University. After working at the South Mine, Broken Hill, he was appointed Mining Engineer at Mount Morgan in 1966, Assistant Mine Manager March in 1967, Mine Manager in October 1967 and Mining Superintendent in 1970. He was appointed as Production Superintendent in 1974 and was responsible for all facets of mining and treatment but especially the development of the Mt Chalmers operation. An additional responsibility was the planning and implementation of measures to control pollution from waste dumps and tailings dams. He left Mount Morgan in 1982 to join the Queensland Department of Mines as an Inspector of Mines, based in Mount Isa and then Rockhampton. He retired in 2004.

[RFB and RWGW letters of appointment to MML 1966-1982].
WILSON, Oswin Andrew (1927- )

Although born in Brisbane, Ossie Wilson was a third generation Mount Morgan employee, graduating BSc (App) from UQ. Appointed as a Metallurgical Assistant in 1950 in the Research Department, he then worked as a shift metallurgist in the Mills. He was progressively promoted through the positions of Superintendent No 2 mill, Superintendent of Technical Services and Development (1960), Superintendent of Mills (1961), Chief Metallurgist (1964) and finally Manager of Operations (1974). From 1969-1972, in addition to his other duties, he was project manager for the construction of the new Flash Smelter. During his period as Manager, he oversaw the reopening of Mt Chalmers, the progression of the pollution control programmes and the development and construction of the Tailings Retreatment Project. His involvement in the politics of the 1975-1976 retrenchments and in the problems with the Tennant Creek smelter as discussed in the text. He retired in 1982.

[RFB and OAW email to RFB ‘Time frame revised’, 21 February 2008].
Appendix Two
Glossary

Mining is a technical industry so that within the text of this thesis there are words of a technical nature. This glossary will provide definitions of those terms to assist the non-technical reader to understand their meanings.

References:

Except where noted, definitions in this glossary are taken from the website of Hacettepe University, Department of Mining Engineering, (Hacettepe University is a major state university in Ankara, Turkey), viewed 29 December 2012, <http://www.maden.hacettepe.edu.tr/dmmrt/>. The material in this website is based on Dictionary of Mining, Mineral, and Related Terms, compiled and edited by the Staff of the U.S. Bureau of Mines, Second Edition, U.S. Department of the Interior, 1996.

Other definitions have been taken from:

≠ Basicity: The Concise Oxford Dictionary,


**Acetylene**: A colorless, highly flammable or explosive gas with a characteristic sweet odor. It is used in welding torches and in the manufacture of organic chemicals such as vinyl chloride.

**Acid Mine Drainage [AMD]**, also known as Acid Rock Drainage [ARD]: Drainage with a pH (q.v.) of 2.0 to 4.5 from mines and mine wastes. It results from the oxidation of sulphides exposed during mining, which produces sulphuric acid and sulphate salts. The acid dissolves minerals in the rocks, further degrading the quality of the drainage water.

**Acid Mine Water**: Mine water that contains free sulphuric acid, mainly due to the weathering of iron pyrites. A pit water, which corrodes iron pipes and pumps, usually contains a high proportion of solids per gallon, principally the sulphates of iron, chiefly ferrous and alumina.

Where sulphide minerals break down under chemical influence of oxygen and water, the mine drainage becomes acidic and can corrode ironwork. If it reaches a river system, biological damage may also result.

**Activated Carbon**: Carbon, mostly of vegetable origin, [often from cocoanut fibre] and of high adsorptive capacity. In the CIP/CIL process (q.v.), gold dissolved from pulp is adsorbed (q.v.) onto the activated carbon. The gold is then desorbed (q.v.) from the carbon as part of the elution (q.v.) process especially in the Zadra (q.v.) process.

**Adsorption**: Adherence of gas molecules, or of ions or molecules in solution, to the surface of solids with which they are in contact.

**Ammonium Sulphate [sulfate]**: chemical compound, \((\text{NH}_4)_2\text{SO}_4\), a colorless-to-gray, crystalline substance that occurs in nature as the mineral mascagnite. It is prepared commercially by passing ammonia into sulphuric acid and is used as a fertilizer.

**Assay**: The determination of the quantity of a desired metal per unit weight of the material containing it. In the case of gold referred to as ounces, dwt or grains per long ton (2,240 lbs) or per short ton (2,000 lbs) (24 grains = 1 dwt, 20 dwt =1 0z, 31.1 grammes = 1 oz. Base metal grades are expressed as percent. ##
**Assayer:** Person who analyses ores and alloys, esp. bullion, to determine the value and properties of their precious metals.

**Basicity:** Number of equivalents of base reacting with one molecule of a particular acid. ≠

**Bismuth:** A white, crystalline, brittle, highly diamagnetic metallic element used in alloys to form sharp castings, for objects sensitive to high temperatures and in various low-melting alloys for fire-safety devices. Difficulties with the separation of bismuth from the matte produced at Warrego smelter was an important factor in the failure of the first smelter.

**Blast Furnace:** A furnace in which solid fuel is burned with an air blast to smelt ore in a continuous operation.

**Blister [Copper]:** An intermediate product in copper production, produced by blowing copper matte in a converter (q.v.). Blister Copper is usually about 99% pure copper and is further refined by electrolytic means (q.v.) to 100% pure copper.

**Bounty:** An amount of money or other reward offered by an organization in return for the provision of certain services [as paid to mining companies to encourage them to produce otherwise uneconomical pyrites].

**Brimstone:** an old name for sulphur [sulfur]

**Bullion:** Mixture of gold and silver prior to final refining. [As at Mount Morgan 1982-1990, may also contain copper].

**[Calcium] Carbide:** A greyish-black crystalline compound, [CaC₂], produced commercially by heating quicklime and carbon together in an electric furnace; used to generate acetylene gas, as a dehydrating agent, and in the manufacture of calcium cyanide, graphite and hydrogen.

**Cyanamid:** White; crystalline; NH₂ CN, formed variously by the action of cyanogen chloride on ammonia.

**Carbon-in-Pulp [CIP]:** The recovery process in which gold is first leached from gold ore pulp by cyanide and then adsorbed onto activated carbon granules (q.v.) in separate vessels. The loaded carbon is then
separated from the pulp for subsequent gold removal by elution (q.v.)
especially in the Zadra process (q.v.).

**Carbon-in-Leach [CIL]:** Similar to CIP but the activated carbon is added
during the leach process instead of in subsequent vessels.

**Cement:** A manufactured gray powder which when mixed with water
makes a plastic mass that will set or harden. It is combined with aggregate
to make concrete. Nearly all of today's production is Portland cement.

**Chalcopyrite:** A compound of copper, iron and sulphur (CuFeS₂).

**Chlorine (Symbol Cl.):** A common nonmetallic halogen element, found
in the combined state only, chiefly with sodium as common salt (NaCl). It
is a greenish-yellow, irritating, toxic gas with a disagreeable odor; a
respiratory irritant.

**Chlorination:** chemical process to extract fine gold by dissolving it in a
chlorine solution in water. Chlorination was the process used by the
MMGMCo to treat its gold-rich oxidised ore.

**Concentration:** A process of ore-treatment whereby the valuable
minerals contained in an ore are collected in a product of lesser weight
than the original and consequently enriched in the desired minerals, the
worthless matter being separated and removed. The 'concentrate' is
usually then subjected to further treatment for the recovery of the metal
content of its valuable minerals.

**Concentrate:** The valuable product of ore-dressing.

**Converter:** A furnace in which air is blown through a bath of molten
metal or matte, oxidizing the impurities and maintaining the temperature
through the heat produced by the oxidation reaction.

**CrawlIR® Drill:** A percussion rock drill mounted on crawler tracks and
powered by a mobile, diesel driven air-compressor. The ‘IR’ designation
indicates it was manufactured by the Ingersoll-Rand company. MML
began using these drills from April 1959.

**Crusher:** A machine for crushing rock or other materials. Among the
various types of crushers are the **ball-mill, gyratory-crusher, Hadsel mill,**
hammer mill, jaw crusher, rod mill, rolls, stamp mill, and tube mill.

[Italics indicate equipment used at Mount Morgan]

**Cyanide:** Common usage for potassium or sodium cyanide, a chemical used to dissolve gold from crushed ore.

**Cyaniding or Cyanidisation:** the process of recovering gold by dissolving in cyanide.

**Desorption:** The reverse process of adsorption whereby adsorbed matter is removed from the adsorbent. The term is also used as the reverse process of absorption.

**Dump:** A pile or heap of ore, coal, or waste at a mine.

**Edwards Roaster:** Furnace with series of horizontal stepped hearths each equipped with stirring rabbles (q.v). Used to sweet-roast or desulphurise pyritic concentrates, notably gold-bearing sulphides. Moist-to-wet feed progresses step by downward step, meeting hot gases produced toward discharge end from burning pyrite.

**Electrolysis:** A method of breaking down a compound in its natural form or in solution by passing an electric current through it, the ions present moving to one electrode or the other where they may be released as new substances.

**Electrolytic Refining:** Suspension of suitably shaped metal ingots as anodes in an electrolytic bath, alternated with sheets of the same metal in a refined state or inert metal, which act as starters or cathodes. Impurities remaining on the anodes are detached as anode slime or are dissolved in the electrolyte from which they must be systematically removed (stripped).

**Elution:** Removing (adsorbed material) from an adsorbent by means of a solvent. #

**Excavator:** The term embraces a large number of power-operated digging and loading machines. Variants are the grab, skimmer, trencher, rotary digger, bucket wheel, and grader, dragline; power shovel; walking dragline. [Italics indicate equipment used at Mount Morgan].
**Filtration:** Is the process of separating suspended solid matter from a liquid, by causing the latter to pass through the pores of some substance, called a filter. The liquid which has passed through the filter is called the filtrate.

**Flotation:** A concentration process carried out in flotation machines the essential feature of which is that the desired mineral, by suitable chemical treatment, is caused to attach itself to an air bubble, with which it rises and is so removed from the pulp in a continuous froth. The ‘rejected’ material sinks and passes to further ‘cells’ or to waste.

**Flotation Machines:** Flotation is performed in a series of rectangular or cylindrical mechanically agitated cells.

**Flash Smelting:** A smelting process in which dried metal sulphide concentrates are blown with oxygen or oxygen-rich air in a hot hearth-type furnace. The particles react rapidly with the oxygen to generate a large amount of heat, and partially (controlled) oxidisation of the concentrates produces a molten matte phase containing the metal values which are further processed. A molten slag is also produced.

**Fluid-Bed Reactor [Roaster]:** A single or multi-stage reactor, generally used for gas-solid contacting, in which the solid component is a reactant or a catalyst and is in a continuous fluidised state. The gas is injected into the reactor to provide rapid and uniform mixing for reactants to facilitate heat transfer and completion of the reaction.

**Frasch Process:** The method of mining deep-lying sulphur invented by the German-born American chemist Herman Frasch. The process involves superheating water to about 170 °C (340 °F) and forcing it into the deposit in order to melt the sulphur (melting point of about 115 °C, or 240 °F), which is lifted to the surface by means of compressed air. The mixture of sulphur and water is then discharged into bins, where the 99 percent pure sulphur is allowed to solidify.

**Gangue:** The valueless minerals in an ore; that part of an ore that is not economically desirable but cannot be avoided in mining. It is separated from the ore minerals during concentration.
Grade: The classification of an ore according to the desired or worthless material in it or according to value.

Head Grade: Grade of ore treated

Hydrogen Sulphide ($H_2S$): occurs naturally during the putrefaction of animal and vegetable matters containing sulphur.

Ilmenite: Is a weakly magnetic titanium-iron oxide mineral which is iron-black or steel-gray. Most ilmenite is mined for titanium dioxide (q.v) production. Finely ground titanium dioxide is a bright white powder widely used as a base pigment in paint, paper and plastics.

Indicated Resources (Reserves): Resources from which the quantity and grade and/or quality [of ore] are computed from information similar to that used for measured resources, but the sites for inspection, sampling, and measurement are farther apart or are otherwise less adequately spaced. The degree of assurance, although lower than that for measured resources, is high enough to assume continuity between points of observation.

Ironstone: Any rock containing a substantial proportion of an iron compound, or any iron ore from which the metal may be smelted commercially; specifically an iron-rich sedimentary rock, either deposited directly as ferruginous sediment or resulting from chemical replacement. An ironstone outcrop may cover a gold, silver, copper or tin lode. Gold is almost invariably associated with iron, either as oxide, as "gossan;" or ferruginous calcite, "limonite;" or granular silica, conglomerated by iron, the "ironstone" which forms the capping or outcrop of many of our reefs, and which is often rich in gold. An old Cornish saying is "The iron hat covers the golden head." "Cousin Jack," put it "Iron rides a good horse." This was the case at both Mount Morgan and Tennant Creek.

Leach: To remove a soluble component from an ore by percolation of water, a solvent or an acid.

Leachant: The products of leaching.
Lease: An area of ground, granted by the governor after written application, which entitles the owner to mine the ground for the minerals named in the lease approval.

Magnesite: Magnesite (magnesium carbonate MgCO₃) is marketed in three main forms: crude magnesite, primarily for use in chemicals and agriculture; dead-burned magnesia, a durable refractory used in the cement, glass, steel and metallurgical industries.

Matt or Matte: An unrefined metallic product of smelting of ores especially copper; material with a dull surface, not metallic.

Measured Resources (Reserves): Resources from which the quantity is computed from dimensions revealed in outcrops, trenches, workings, or drill holes; grade and/or quality are computed from the results of detailed sampling. The sites for inspection, sampling, and measurement are spaced so closely and the geologic character is so well defined that size, shape, depth, and mineral content of the resource are well established.

Metalliferous: containing a high concentration of metallic elements

Metallurgists: Metallurgists are concerned with the physical and chemical behaviour of metals and alloys. Chemical metallurgists are involved in the extraction of metals from ores.

Methane: CH₄; carburetted hydrogen or marsh gas or combustible gases; formed by the decomposition of organic matter.

Miners Homestead Leases: The [Queensland] Mining Act of 1898 repealed a number of [previous] acts including those relating to Gold Fields Homestead Leases and Mineral Homestead Leases. Part VIII of this act laid out provisions for miners’ homestead leases to be taken up within gold fields or mineral fields (i.e. minerals other than gold). Areas were limited to one acre within the boundaries of a proclaimed township; five acres within two miles of town boundaries; forty acres beyond two miles and within five miles of a town boundary; and eighty acres outside of the five mile radius. The aggregate area applied for by any one person within the limits of the same gold or mineral field was not to exceed eighty acres.
Molybdenum (Mo): is a silvery-white, hard, transition metal. Is used mostly in steels and super-alloys to enhance strength, toughness, thermal and corrosion resistance, and to reduce brittleness. There was no molybdenum production in Australia in 2011.

Monoclinic System: All point groups characterized by lattices with two crystallographic axes at right angles and one axis inclined.

Open Cut: Excavation from the surface to allow the removal of the ore from an orebody.

Orebody: A generally continuous mass of minerals which is distinct from surrounding country rock.

Ore Reserve: The term is usually restricted to ore of which the grade and tonnage have been established with reasonable assurance by drilling and other means.

Overburden [waste]: Un-mineralised earth above a buried orebody.

Oxidise: To convert the sulphides of an element into its oxide or carbonate by percolation of an orebody by water containing dissolved oxygen or carbon dioxide.

Oxidised Ore: Material occurring in a mineralised formation which, due to the action of air and water, has been changed wholly or in part to oxides of the mineral.

Oxidation of pyrite: The formula for this reaction looks quite complex.

\[ 4\text{FeS}_2 + 10\text{H}_2\text{O} + 15\text{O}_2 = 2\text{Fe}_2\text{O}_3\text{.H}_2\text{O} + 8\text{H}_2\text{SO}_4 \]

Pyrite + water + oxygen = hydrated iron oxide + Sulphuric acid.

Both the iron and the sulphur in pyrite (FeS\(_2\)) are oxidised. Water is involved in both products. The iron and some of the water produce rust-coloured hydrated iron oxide and the sulphur ends produce sulphuric acid.

Sulphuric Acid (q.v.) is a strong acid which generates high concentrations of hydrogen ions when dissolved in water.

pH: The negative logarithm (base 10) of the hydrogen-ion activity. It denotes the degree of acidity or of basicity (q.v.) of a solution. At 25
degrees C, 7 is the neutral value. Acidity increases with decreasing values below 7, and basicity increases with increasing values above 7.

**Phosphate Rock:** Rock with a high concentration of phosphates in nodular or compact masses. The phosphates may be derived from a variety of sources, including marine invertebrates that secrete shells of calcium phosphate and the bones and excrement of vertebrates. Typical phosphorite beds contain about 30% phosphorus pentoxide (P$_2$O$_5$) and constitute the primary source of raw materials for phosphate fertilizers.

**Pyrite:** Iron sulphide (FeS$_2$), an iron oxide often associated with base metals. In Mount Morgan, a large part of the ore body contained copper iron pyrites (CuFeS$_2$). The only commercial use for pyrite is as a source of sulphur, although the Mount Morgan pyrite contains a significant amount of gold which can be recovered only after roasting the pyrite.

**Pyritic Smelting:** a process of smelting pyritic ores without previous roasting and with little or no fuel by utilizing the heat resulting from the combustion of their high sulphur content.

**Pyrrhotite:** A monoclinic (q.v) and hexagonal mineral, (FeS), invariably deficient in iron; variably ferromagnetic.

**Rabble:** A mechanical rake for skimming the bath in a melting or refining furnace or for stirring the ore in a roasting furnace by hand or mechanically.

**Refractory Brick:** A brick made from refractory material, such as fire clay, used to withstand high temperatures. Refractory bricks are made in various sizes and shapes.

**Reverberatory Furnace:** A furnace, with a shallow hearth, having a roof that deflects the flame and radiates heat toward the hearth or the surface of the charge. Firing may be with coal, pulverized coal, oil, or gas. Two of the most important types are the open-hearth steel furnaces and the large reverberatories employed in copper smelting.

**Run of Mine:** The raw mined material as it is delivered by the mine cars, skips, or conveyors and prior to treatment of any sort
**Scuttling:** Draining of a slurry pipeline to prevent solids setting out in the case of pump failure.

**Slag:** The vitreous mass left as a residue by the smelting of metallic ore

**Smelter(s):** Devices in which ones are heated to melt the contained metals which are then tapped off.

**Sour Gas:** Slang for either natural gas or a gasoline contaminated with odor-causing sulphur compounds. In natural gas the contaminant is usually hydrogen sulphide, which can be removed by passing the gas mixture through carbonate solutions containing special metal or organic activators.

**Spillage:** Ore, pulp, circulating liquor inadvertently discharged from flow line and requiring appropriate means of recovery or removal.

**Strike:** Work stoppage by miners in an industrial dispute

**Sulphur [sulfur] dioxide (SO2):** is formed when sulphur (S) is burned in air: \( S + O_2 = SO_2 \).

**Sulphuric Acid (H\(_2\)SO\(_4\)):** Is a clear, colorless, odorless, viscous liquid that is very corrosive. As the largest-volume industrial chemical produced in the world, consumption of Sulphuric acid is often used to monitor a country’s degree of industrialization. Agricultural fertilizers represent the largest single application for sulphuric acid (65%). Other uses include production of dyes, alcohols, plastics, rubber, ether, glue, film, explosives, drugs, paints, food containers, wood preservatives, soaps and detergents, pharmaceutical products, petroleum products, pulp and paper. The common lead-acid storage battery is one of the few consumer products that actually contain sulphuric acid.

**Superphosphate:** is a chemical substance containing phosphorus which is essential for life and growth in both plants and animals. In the manufacturing process, in order to achieve maximum release of nutrients into the soil for absorption by plants, naturally occurring but insoluble tricalcium phosphate rock is treated with sulphuric acid to manufacture superphosphate. Approximately two parts of finely ground phosphate rock
and one part of sulphuric acid of about 70% strength are required to produce the requisite chemical reactions.

**Syndicate:** A small number of persons who join together to sponsor the development of a mine and then float it on the stock exchange. The group forms an unincorporated partnership.

**Tailings:** The remaining material carried away after some or the entire material in the ore has been removed. It is normally stored in a dam or dump on the mine lease.

**Tailings Dam:** A dam to which slurry is transported, the solids settling while the liquid may be withdrawn and reticulated to the treatment plant for further use.

**Tariff:** A tax or duty to be paid on a particular class of imports or exports.

**Titanium Dioxide:** Also known as titanium (q.v.) oxide or Titania is the naturally occurring oxide of titanium, chemical formula TiO$_2$.

**Woodstave Piping:** Piping formed from wood boards [staves] fitted and strapped together by encircling steel bands.

**Zadra Process:** Atmospheric pressure Zadra stripping was the first commercially successful process developed for stripping gold from activated carbon. The process was developed by J. B. Zadra, and others, at the U.S. Bureau of Mines (USBM) in the early 1950’s. The results of their research were first applied at Golden Cycle Gold Corporation’s Carlton Mill at Victor, Colorado in 1951. 

§§
Appendix Intro 1

Important events in the history of the Mount Morgan Mine

[Adapted from Boyle MA p.6 and Three-D Projects ‘Mount Morgan Mine Rehabilitation Project Draft Tour Guide Manual’, section 2.2]
### Appendix Intro 2

**MML Continuity of senior staff**

[MMGMCo Staff Records, MML Staff Records, Kerr]

<table>
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<th>PERIOD</th>
<th>NAME</th>
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<td>1986-1991</td>
<td>Richard N White</td>
</tr>
<tr>
<td>2010-2011</td>
<td>Richard N White Patterson Newman Westcott John Boyd Bryth</td>
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<td>2012-2013</td>
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<tr>
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<tr>
<td>2086-2087</td>
<td>Richard N White Patterson Newman Westcott John Boyd Bryth</td>
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</tbody>
</table>

The periods shown are indicative only because of spreadsheet space constraints. Actual dates are:


John 1912-1912, Richard 1912-1912

The above is included in the thesis text.
## Appendix Intro 3

### Directors and Managers 1929-1972

[MMGMCo records, MMLAR 1932-1968, PWLAR 1969]

<table>
<thead>
<tr>
<th>DIRECTORS</th>
<th>PERIOD</th>
<th>GENERAL MANAGER</th>
<th>PERIOD</th>
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<tbody>
<tr>
<td>J L Kestell (Chairman)</td>
<td>1929-1931</td>
<td>A J Taylor (Officer in charge of the Mine)</td>
<td>1932-1933</td>
</tr>
<tr>
<td>R T Thompson (Managing Director)</td>
<td>1929-1934</td>
<td>A J Taylor (Officer in charge of the Mine)</td>
<td>1932-1933</td>
</tr>
<tr>
<td>E A Wynn (Chairman 1933-1939)</td>
<td>1929-1939</td>
<td>W C McIssol</td>
<td>1935-1937</td>
</tr>
<tr>
<td>A A Boyd (Chairman and MD 1939-1944)</td>
<td>1929-1940</td>
<td>L A Westcott</td>
<td>1937-1944</td>
</tr>
<tr>
<td>W F J Wolfe</td>
<td>1934-1948</td>
<td>F L Hennessey (AGM, Production)</td>
<td>1960-1965</td>
</tr>
<tr>
<td>E Byrom Moore</td>
<td>1934-1942</td>
<td>F L Hennessey (Manager of Operations)</td>
<td>1966-1966</td>
</tr>
<tr>
<td>W J Fallon</td>
<td>1938-1941</td>
<td>F L Hennessey (General Manager)</td>
<td>1966-1974</td>
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<tr>
<td>T M Owen (was intermittently a member from 1933-1941)</td>
<td>1941-1962</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P E G Boyd (MD 1956-1958)</td>
<td>1946-1958</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W G Shell</td>
<td>1958-1967</td>
<td></td>
<td></td>
</tr>
<tr>
<td>J M McShane</td>
<td>1960-1967</td>
<td>Definitions and relevant career details</td>
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</tr>
<tr>
<td>K W Craig</td>
<td>1963-1964</td>
<td>A Ghil - Assistant General Manager</td>
<td></td>
</tr>
<tr>
<td>J H Brunowinkel (Chairman 1966-1967)</td>
<td>1963-1967</td>
<td>CE = Chief Engineer</td>
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<tr>
<td>L W Dought</td>
<td>1965-1967</td>
<td>CMet = Chief Metallurgist</td>
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<tr>
<td>F J Diamond</td>
<td>1965-1967</td>
<td>Both Hennessey and Wilson had started ca 1955</td>
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<tr>
<td>F L Hennesey</td>
<td>1967-1967</td>
<td>and had risen from Metallurgical Assistant.</td>
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<tr>
<td>W R Thompson (Secretary)</td>
<td>1928-1956</td>
<td>A A Boyd was General Superintendent MMGC 03</td>
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<td></td>
<td></td>
<td>1982-1982, General Manager MMGC 03</td>
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*Post 1968 when MML preference shares redeemed*

Manager in liquidation, MMGC 1927-1929

| J E Proud (Chairman)        | 1968-1972        | See Biographies.                             |              |
| R E White                   | 1968-1972        |                                             |              |
| J L Hennesey                | 1968-1972        |                                             |              |
| J N Elliott                 | 1968-1972        |                                             |              |
| G B Loan                    | 1968-1972        |                                             |              |

*After 1972, MML Board was dissolved.*

*the Company was controlled by the Piko parent Board of which only* L A Diggott and J H Brunowinkel of the *original MML Board remained.*
<table>
<thead>
<tr>
<th>Year</th>
<th>Gross Income</th>
<th>Net Profit</th>
<th>Paid Up Capital</th>
<th>Ordinary Dividends</th>
<th>Preference Shares</th>
<th>Preference Dividends</th>
<th>Welfare</th>
<th>Plant Additions</th>
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<td>£300,000</td>
<td>£21,000</td>
<td>£165,154</td>
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Note: Currency 1966 onward converted from $ to Imperial. Total income 1968 not available. Welfare includes bonus and 'club' contribution.

RFB 22 June 2009
Appendix 1

A Time-Line!

Tennant Creek – from Morgan Tennants Limited to a successful Peko

After three years of struggle to survive, Mount Morgan Limited began production from its Open Cut in 1932 and in October 1933 it paid the first interim dividend of ten percent. By the end of 1934, it was ready to set up a subsidiary, Mount Morgan Developments Limited [MMDL] to mount an extensive exploration campaign across Australia and in the Pacific region.

While acquiring an interest in Sulphide Gold (Junction Reefs) Ltd in NSW, the subsidiary extended its range to exploration of the Tennant Creek area by the formation of Morgan Tennants Limited. Aligning itself with The Electrical Prospecting Company of Sweden and acting under the umbrella of the Federal Government’s Aerial, Geological and Geophysical Survey of Northern Australia the company sent a team of geophysical staff to the Tennant Creek area. After spending almost £10,000 in the area, the search was abandoned and MMDL was placed in liquidation, not because of any fault of Boyd’s but because of a failure to attract capital. Furthermore, as noted in the text, the Tennant Creek area was remote and isolated until the wartime construction of the bitumen highway changed the economics of mining the field.

The story of Peko Mines NL ranges from a cautious beginning in 1949 to a successful company, boosted in 1967 by the discovery of extremely rich gold ore at Explorer VIII which became the operating mine - Juno. It was this discovery that put Peko on the upward path of growth and acquisitions.
This time-line has been prepared to summarise, from contemporary press articles and technical papers, the connection of Mount Morgan with Tennant Creek and the rise of Peko

Mount Morgan Limited begins operation

[RMB, 1 October 1932]

At present there are approximately 100 men working in the Mount Morgan mine, but in the course of the next six or eight weeks this number will be increased to 250. This statement was made by Mr. R. T. Thompson, managing director of Mount Morgan Ltd., who left for the South yesterday.

"The pilot plant tests have been most satisfactory," Mr. Thompson said, "and the big plant for production will be put into operation within two weeks."
Payment of the first Interim Dividend

[MLAGM 1933]

FINANCE.

You were all advised through the press on 27th October last that your Directors had declared a first interim dividend of 2/- per share for the half-year ending 31st December, 1933, payable on 18th December. This, no doubt, was good news to you, but, undoubtedly, it was more pleasing to you to learn that, if Gold remained in the vicinity of £7/10/- per fine ounce and Copper at £37 per ton (both Australian currency) and the existing industrial conditions were maintained, your Board considered from now onward they would be able to pay regular quarterly dividends of 2/- per share after providing reserve to meet future development and increased output, and a welfare scheme for the employees at the mine to which I have previously referred.

Formation of Mount Morgan Developments Limited 1934

[MLAGM 23 November 1934]
Expansion to explore the Tennant Creek field – formation of Morgan Tennants Ltd

[SMH, 11 December 1936]

MOUNT MORGAN DEVELOPMENTS.

NEW COMPANY AT TENNANT CREEK.

At the annual meeting of Mt. Morgan Developments, Ltd., yesterday, the chairman (Mr. Eric Campbell) said that the company had applied for certain areas on the Tennant Creek goldfield, in Central Australia, and proposed to concentrate during the year on this area, probably working in close co-operation with Mt. Morgan, Ltd. The company’s field superintendent was proceeding to Tennant Creek to commence prospecting and developing. A separate company, to be called Morgan Tennants, Ltd., to acquire and develop areas at Tennant Creek, had been formed, and would have a nominal capital of £75,000.

"It is proposed that the new company shall acquire options over 16 separate properties, and will proceed forthwith with their examination and development," he continued. "These 16 properties are exclusive of the areas applied for by Mt. Morgan Developments. The actual work at Tennant Creek will be carried on by Mt. Morgan Developments, Ltd., for Morgan Tennants, Ltd. A limited number of shares in Morgan Tennants, Ltd., have been reserved for subscription by shareholders in Mt. Morgan Developments, Ltd."

The only New South Wales property, said Mr. Campbell, which, to date, had justified the investment of capital, was owned by Sulphide Gold (Junction Reefs), Ltd. The plant was constructed and now operating.
Mount Morgan and The Electrical Prospecting Company of Sweden, leading to Tennant Creek exploration

[MMLAGM, 21 November 1935]

G.—Due to the courtesy and consideration of the Committee of Ministers appointed to direct and control the Aerial, Geological and Geophysical Survey of Northern Australia, we are at the present time concluding arrangements for an early geophysical survey of the areas surrounding Mount Morgan in the hope of locating further ore bodies that will prove worthy of development.

The survey will be under the direction of Mr. S. Horvath, the representative in Australia of The Electrical Prospecting Company of Sweden, and he will be assisted by members of the Geophysical Staff of the Commonwealth Government.

The value of geophysical science in the location of ore bodies is now well established, and it is hoped to make a comprehensive survey of concession areas without much expense. It has been arranged with the Minister for Mines in Queensland for the necessary concession areas to be granted.

The Geophysical Staff leaving for Tennant Creek

[The Central Queensland Herald, 10 December 1936]
MOUNT MORGAN DEVELOPMENTS.

Mount Morgan Developments, Ltd., expended £19,430 on development, prospecting, and investigation of properties during the year ended June 30, making a total expenditure under this head of £30,281. Operations at Tennant Creek absorbed £9633, in Fiji £5888, in New South Wales £3110, in Queensland £1514, and in Victoria £40. Administrative expenses were £2844. Sundry income offset this sum by £1273. The balance of £1371, shown as the year's loss, increases the debit balance to £13,243. Creditors appear at £13,706, debitors at £84, and cash at £630.

The company holds preference shares in Sulphide Gold (Junction Reef), Ltd., of a face value of £11,506, and is owed £1539 by that company.
The achievements of MMDL to the end of 1938

[The West Australian, 23 December 1938]

MT. MORGAN DEVELOPMENTS.

Loss of £920 for the Year.

The directors of Mount Morgan Developments, Limited, in their report for the 12 months ended June 30, state that the profit and loss account discloses a loss of £920 for the year. The fee for management, secretarial and technical advice, £723, is the amount charged to Sulphide Gold (Junction Reefs), Limited, for services for the 13 months to June 30, 1938, in accordance with agreement with that company. This amount has not been received by the company. The total expenditure for the year charged to development, prospecting and investigation of properties amounted to £2,018. This includes £1,484 spent in connection with Tennant Creek in the Northern Territory, and £311 spent in liquidating the company’s affairs in Fiji. The balance of expenditure under this heading represents cost of sundry investigations carried out in Australia, £241, and an amount written off machinery and plant, £192.

The report states that the company has been assiduous but unsuccessful in its efforts to locate and develop a profitable mine. Since the inception of the company 361 properties had received thorough field examination and consideration. Four hundred other properties had been investigated. No field work was carried out on the latter group, as the evidence did not warrant the expenditure. Of the properties which have been under consideration those with future possibilities are Sulphide Gold (Junction Reefs), Limited, situated in Mandurama, New South Wales, and the Tennant Creek Field in Central Australia. Sulphide Gold (Junction Reefs), Limited’s property is an extensive large tonnage low grade auriferous deposit and in the opinion of the directors justifies further development by that company. Although the two areas mentioned are favourably viewed by the company’s experts, the board considers that unless, in the near future, capital can be attracted to either or both of these two projects they must recommend that the company go into liquidation.

In 1936 and 1938, the company had options over leases owned by the Swan Bitter company at Jonesville, near Wiluna.
The reasons for the end of the activities of MMDL
Mount Morgan abandons the Tennant Creek field
[SMH, 10 December 1938]
The Peko Mines NL: Story from the beginning.

[Edited from Parbo, *Down Under*, pp.132 – 133]

**Peko Mines**

The history of Peko Mines N.L. is a fascinating story, from its discovery by prospectors, through unsuccessful operation as a small gold mine, to its graduation into copper below the oxidised zone, the discovery and development of six other mines, a courageous attempt to smelt copper, and the successful unravelling of the metallurgy of bismuth in the Tennant Creek environment.

In 1933 Joe Kaczninski, a Polish prospector, together with Bill Bohning, operating out of the tent town around the Telegraph Station, pegged the Peko leases. The story is that Peko was the name of Kaczninski’s dog, which had been named after Pekoe tea.

In 1936 the Aerial, Geological and Geophysical Survey of Northern Australia disclosed a major magnetic anomaly on the Peko lease. Shallow drilling indicated low grade gold. In the 16 years from 1935 to 1951, over 6,000 tons of ore, which averaged about 14 pennyweights to the ton, were extracted.

Peko (Tennant Creek) Gold Mines N.L. was registered in Sydney in 1949, and began operations in a modest way in 1950. During 1950-51 a small but rich dome of oxidised copper was encountered on the 200 feet level in the search for gold, this material being sent to Port Kembla as ore (there were substantial lumps of native copper) for smelting. Also, at this time, the Bureau of Mineral Resources intersected primary chalcopyrite at about 370 vertical feet with a diamond drill hole.

During 1952 and the early part of 1953, the company worked on, in a cautious way, trying to assess the importance of the copper deposit. A high grade secondary enrichment zone was opened up on the 300 feet level, and it soon became apparent that a copper orebody of some importance had been found. The mill started up in 1954, treating 50,000 tons per year of 7 to 8 per cent copper ore.

The Peko mine changed the nature of mining in the Tennant Creek field. It used modern mining equipment and methods, deep for the area (about 380 metres), and was forward-looking and aggressive in its exploration of the mine and the field. The mine produced continuously between 1954 and 1975, yielding about 115,000 tonnes of copper and 315,000 ounces of gold in concentrates, most of it exported to Japan.
The Juno discovery that launched Peko on its upward spiral of growth

The final connection!

Peko-Wallsend, Investments Limited’s first acquisition

[RMB, 28 November 1967]
Appendix 2.1

History of the Fletcher Creek Water Scheme
And its relationship with the Company

[RFBCOL]

INTER-OFFICE MEMORANDUM—FROM MOUNT MORGAN

Memo No. 3473

Date 22nd November, 1970.

File No. 

SUBJECT: MOUNT MORGAN SHIRE COUNCIL - FLETCHER CREEK WATER SUPPLY

FOR THE CHAIRMAN

The Mount Morgan Shire Council has requested and received assistance from the Company in the operation of its Fletcher Creek water supply system almost continuously since its start in 1956. The town water supply draws water from an underground aquifer at Fletcher Creek about nine miles to the south of Mount Morgan.

The Company has an agreement with the Mount Morgan Shire Council whereby it pays to the Council an amount of $10,124 a year in advance for an amount of 45 million gallon of water whether received or not.

The Company arranges to take water from the Council under that agreement in such a way that when there is a flood flow of water at Fletcher Creek and water is escaping from the area, then the Company draws as much water as possible.

When the level in the aquifer at Fletcher Creek is low the Company limits, as much as possible, the amount of water that it draws so as to make the maximum amount available for the town.

During the current water shortage and in all previous water shortages the Company has taken about 5,000 gallon a day from the Council. All of this water is used for drinking, bath house and domestic type purposes. None of this water is used for process purposes in the first instance.

In addition to the payments made for water the Company has expended in excess of $25,000 on work to assist the Shire Council with its water supply scheme.

Approximately $10,000 has been spent in the last year.

Following a request by the Mount Morgan Shire Council in June 1970 when the amount of water being pumped into the town was about 60,000 gallon a day (at a rate of about 13 gallon per person per day), the Company carried out the following work for and without cost to the Mount Morgan Shire Council.

1. An examination was made of the pumping system at Fletcher Creek.

2. A seismic survey was carried out and around Fletcher Creek.

From the results of 1 and 2, a well was dug and a bore drilled.
MEMORANDUM FROM MOUNT MORGAN

Date: 22nd November, 1970.

MOUNT MORGAN SHIRE COUNCIL - FLITCHER CREEK WATER SUPPLY

The overall result of this work was that by August 1970 the amount of water being pumped from Fletcher Creek had been increased to about 120,000 gallon a day.

The flow slowly decreased and following a further request from the Mount Morgan Shire Council in October, a new drilling programme based on the earlier seismic work was commenced. Drilling is still in progress.

Arrangements have also been made for further seismic work to be carried out at Fletcher Creek. This is to start on 25th November 1970.

The current rate of pumping from Fletcher Creek is about 150,000 gallon a day.

In addition the Company has assisted the Council in the following ways:

1. It has supplied four of the six pumps through which water is pumped from the aquifer at Fletcher Creek.

2. It has supplied approximately 1,000ft of 3in. diameter pipe to the Council for use in delivering water at Fletcher Creek.

3. It has supplied four electric motors, five sets of switchgear and seven automatic level control systems.

4. It has installed and services most of the Council's mechanical and electrical equipment at Fletcher Creek.

F.L. HENNESSY
GENERAL MANAGER.
Portion of Memo from Chief Engineer to Technical Meeting,
19 October 1977

[HISTORY OF THE COMPANY COMMITMENT TO THE MOUNT MORGAN SHIRE COUNCIL FOR PURCHASE OF WATER FROM THE FLETCHER CREEK SCHEME]

1. The first move appears to be a letter from the Company to the Mount Morgan Shire Council on 11 August 1947 offering an annual contribution of £3,000 for the supply of 31,000,000 gallons/y at a rate not to exceed 3,000,000 gallons/week with excess water charged at 1s 9d/1,000 gallons.

The letter emphasised the importance of the supply of water for the operation and suggested rationing of town consumption should be practised in dry times to allow the Mine maximum use of Fletcher Creek water.

2. The Mount Morgan Shire Council advised the Company soon after the completion of the scheme (letter of 2nd July 1954) that because of increases in capital and operating costs the Company would be expected to pay £3,600/y for the supply of 31,000,000 gallons/y under the same conditions as originally proposed with excess charges at 2s/1,000 gallons. The excess to ordinary town consumers was 2s 6d/1,000 gallons.

3. This scale of charges stood until 1962 when the Council advised (letter of 22nd June 1962) that the annual charge would be increased to £5,062/y but the quantity of water which could be used for this figure would be increased to 45,000,000 gallons/y and the excess charge dropped to 1s 3d/1,000 gallons.

4. In a letter of 10th September 1974 the Council advised that the annual charge for water would be $20,240, with no mention of excess charges.
Appendix 3.1

Changes in method of calculating Welfare bonus 1957

[CAPCOL M14/1401.2 Table 2 Schedule A]

<table>
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<th>Amount of Dividend on Ordinary Stock Units</th>
<th>Percentage paid as employee 'Old' scheme.</th>
<th>Amount paid as employee 'Old' scheme.</th>
<th>Amount paid as employee Revised scheme</th>
<th>Percentage paid as employee Revised scheme</th>
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<td>£28,875</td>
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<td>£420,000</td>
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Prepared from table 2 Schedule A, Application to Industrial Court 27 September 1957, in CAPCOL M14/1401.13. There is no record of subsequent changes but actual payments from 1957 onward bear no relationship to this agreement. See Appendix 3.

RFB 14 March 2013.

Appendix 3.2

Variations between agreed and actual Welfare bonus payments

[MMLAR 1958-1967, PWLAR 1968]

<table>
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<tr>
<th>Year</th>
<th>Dividend</th>
<th>Bonus Actually Paid</th>
<th>Percentage Actually Paid</th>
<th>Nearest dividend revised Scheme</th>
<th>Approx Bonus to be paid revised Scheme</th>
<th>Difference</th>
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<td>£11,500</td>
<td>16.43%</td>
<td>£70,000</td>
<td>£5,000</td>
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<td>24.69%</td>
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<td>13.35%</td>
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<td>£42,500</td>
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<td>£24,480</td>
<td>9.62%</td>
<td>£254,593</td>
<td>£42,500</td>
<td>£18,020</td>
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<td>13.92%</td>
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<td>1967</td>
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<td>£203,675</td>
<td>£53,660</td>
<td>26.35%</td>
<td>£210,000</td>
<td>£30,000</td>
<td>£23,660</td>
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Actual dividends and bonus payments are from MMLAR 1958-1967 and MMLAR in PWLAR 1968.

RFB 14 March 2013.
### Appendix 3.3

MML analysis of Welfare contribution vs. dividends 1932-1968

[Collated from MMLAR 1932-1968]

<table>
<thead>
<tr>
<th>YEAR</th>
<th>ORDINARY DIVIDEND</th>
<th>‘WELFARE’ CONTRIBUTION</th>
<th>% of DIVIDEND</th>
<th>BONUS</th>
<th>WELFARE CLUB</th>
<th>WELFARE CLUB %</th>
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<td>£0</td>
<td>£0</td>
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<td>1933</td>
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<td>£0</td>
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<td>£8,400</td>
<td>40%</td>
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<tr>
<td>1953</td>
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<td>£21,000</td>
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<tr>
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<td>£11,500</td>
<td>16.43%</td>
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<td>£3,000</td>
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<td>£23,000</td>
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<td>£3,000</td>
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<td>£9,222</td>
<td>9.06%</td>
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</tr>
<tr>
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<td>£254,593</td>
<td>£34,262</td>
<td>13.46%</td>
<td>£30,262</td>
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<tr>
<td>1966</td>
<td>£305,513</td>
<td>£42,516</td>
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<td>£36,516</td>
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<td>1967</td>
<td>£458,269</td>
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<td>1968</td>
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<td>TOTAL</td>
<td>£5,539,197</td>
<td>£675,220</td>
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<td>£554,950</td>
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</table>
Here is a complete list of those who have gained their Metallurgical Diploma at Mount Morgan in recent years:

**Appendix 4.1**

**Patterson's record of Metallurgy Diplomates 1937-1955**

<table>
<thead>
<tr>
<th>Name</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
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<td>J. Nelson</td>
<td>1937</td>
<td>1940</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>B. Allen</td>
<td>1938</td>
<td>1941</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>J. C. Bowley</td>
<td>1938</td>
<td>1942</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Young</td>
<td>1942</td>
<td></td>
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</table>

The following have made progress as shown:

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<tr>
<th>Name</th>
<th>Subjects passed</th>
<th>Entrance</th>
<th>Physion</th>
<th>Chem I</th>
<th>Assay I</th>
<th>Assay II</th>
<th>Assay III</th>
<th>Met I</th>
<th>Met II</th>
<th>Met III</th>
<th>Met IV</th>
<th>Met V</th>
<th>Met VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. Sheehan</td>
<td>All subjects</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
</tr>
<tr>
<td>M. McEwan</td>
<td>(Junior '43)</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
</tr>
<tr>
<td>K. McEgan</td>
<td>Geog.</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
</tr>
<tr>
<td>J. Glover</td>
<td>(Pass)</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
</tr>
<tr>
<td>O. F. Kaiser</td>
<td>(Junior '49)</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
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<td>PASS</td>
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<tr>
<td>E. Thomas</td>
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<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
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</tr>
<tr>
<td>T. Wise</td>
<td>(Junior '53)</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
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<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
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</tr>
<tr>
<td>J. Gerard</td>
<td>(Junior '53)</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
</tr>
</tbody>
</table>

Mount Morgan, C.
29th June.
357
Appendix 4.2

Conditional letter of appointment as an apprentice

Mount Morgan Limited

P.O. Box 51
TELEPHONE NUMBER 54
CODES USED:
IMPERIAL COMBINATION
MCNELL & CO.

Mr. Ray Boyle,
256 Denison Street,
ROCKHAMPTON, Q.

LETTER NO. C-6104

Dear Sir,

We have been discussing your case here and have concluded that the best suggestion we can make to you is this -

Apply to Mount Morgan Limited for a Fitting and Turning Apprenticeship by filling in and sending us the enclosed form. Send with it a certificate from Mr. Jardine as required - see note on the head of the form. (Do not send the form to the Labour Agent either in Rockhampton or Mount Morgan - send form and certificate to us and we will send it with a covering letter to the local Apprenticeship Committee).

If the approval of the local Committee is obtained to indenture you, we could then start you in the Power House. We should require you to take the work for the Diploma in Mechanical Engineering, which can be taken only by a boy who is indentured to a trade such as Fitting and Turning.

You would be a bit late starting, but your Senior work gives you exemption from a good deal of the First Year work and you should be able to catch up all right.

If for any reason at all you were later on to find that you could not or did not wish to go on in a Steam Power Plant, you would still be able to go on and complete your indenture and your diploma work. For these two qualifications would be good for any kind of a Power Plant, anywhere.

It seems to us that this adequately protects you against any upset in your plans to qualify as a Power Station Engineer.

Yours Faithfully,

GENERAL MANAGER.
## MML, Calculation of Retention Rates for Apprentices and Cadets

<table>
<thead>
<tr>
<th>DECADE</th>
<th>APPRENTICES INDENTURED</th>
<th>DROP OUTS</th>
<th>PERCENTAGE RETAINED</th>
<th>CADETS INDENTURED</th>
<th>DROPOUTS</th>
<th>PERCENTAGE RETAINED</th>
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<td>1930-1939</td>
<td>43</td>
<td>2</td>
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<tr>
<td>1940-1949</td>
<td>117</td>
<td>13</td>
<td>88.89%</td>
<td>11</td>
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<tr>
<td>1950-1959</td>
<td>165</td>
<td>10</td>
<td>93.94%</td>
<td>6</td>
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<tr>
<td>1960-1969</td>
<td>154</td>
<td>14</td>
<td>90.91%</td>
<td>45</td>
<td>18</td>
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<td>1970-1979</td>
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<td>96.19%</td>
<td>13</td>
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<tr>
<td>1980-1989</td>
<td>19</td>
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<td>94.74%</td>
<td>2</td>
<td>1</td>
<td>50.00%</td>
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<td><strong>TOTAL</strong></td>
<td><strong>603</strong></td>
<td><strong>44</strong></td>
<td><strong>92.70%</strong></td>
<td><strong>87</strong></td>
<td><strong>19</strong></td>
<td><strong>78.16%</strong></td>
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Notes: 'dropouts for apprentices includes several killed in road accidents during apprenticeship, mutual cancellations, did not finish probationary period but do not include those who transferred to other sections or industries. The high dropout rate for cadets was principally of clerical cadets and a peak in dropout of metallurgical cadets, discussed in the text. The retention rate for survey cadets was 100%. The figure 'cadets indentured 1930-1939' and part of '1940-1949' refers to employees who completed courses in metallurgy, surveying or drafting but who were not formally indentured.

All figures have been calculated from CAPCOL files MML apprenticeship register and M14/1436-1437

RFB 13 March 2013
## APPRENTICESHIP ROSTER

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<th>12.55</th>
<th>8.57</th>
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<td>Shovels</td>
<td>??</td>
<td>Builder</td>
<td>DSS</td>
<td>2 Mill</td>
<td>1 Mill</td>
<td>Smelter</td>
<td>P. House</td>
<td>Shops</td>
<td></td>
<td></td>
<td>4.1.59</td>
</tr>
<tr>
<td>A. Barnett</td>
<td>Shops</td>
<td>Shops</td>
<td>Smelter</td>
<td>Bulldozer</td>
<td>1 Mill</td>
<td>Shovels</td>
<td>Shovels</td>
<td>P &amp; C</td>
<td>DSS</td>
<td>2 Mill</td>
<td>P. House</td>
<td></td>
<td></td>
<td>11.1.59</td>
<td></td>
</tr>
<tr>
<td>D. Price</td>
<td>Shops</td>
<td>Shops</td>
<td>DSS</td>
<td>Shops</td>
<td>?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.1.59</td>
</tr>
<tr>
<td>N. J. Chopping</td>
<td>Shops</td>
<td>Shops</td>
<td>DSS</td>
<td>1 Mill</td>
<td>Bulldozer</td>
<td>Shovels</td>
<td>P &amp; C</td>
<td>CR</td>
<td>2 Mill</td>
<td>P. House</td>
<td>Shops</td>
<td></td>
<td></td>
<td>14.2.60</td>
<td></td>
</tr>
<tr>
<td>C. Hodges</td>
<td>Shops</td>
<td>Shops</td>
<td>Shovels</td>
<td>2 Mill</td>
<td>1 Mill</td>
<td>P. House</td>
<td>Bulldozer</td>
<td>Shovels</td>
<td>Smelter</td>
<td>DSS</td>
<td>Shops</td>
<td></td>
<td></td>
<td>14.2.60</td>
<td></td>
</tr>
<tr>
<td>P. Wanicamp</td>
<td>Shops</td>
<td>Shops</td>
<td>CR</td>
<td>Smelter</td>
<td>DSS</td>
<td>Shovels</td>
<td>P. House</td>
<td>P &amp; C</td>
<td>1 Mill</td>
<td>Shovels</td>
<td>Shops</td>
<td></td>
<td></td>
<td>14.2.60</td>
<td></td>
</tr>
<tr>
<td>N. Edwards</td>
<td>Shops</td>
<td>Shops</td>
<td>2 Mill</td>
<td>P &amp; C</td>
<td>CR</td>
<td>DSS</td>
<td>1 Mill</td>
<td>P. House</td>
<td>Bulldozer</td>
<td>Smelter</td>
<td>P. House</td>
<td>Shops</td>
<td>7.2.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Malone</td>
<td>Shops</td>
<td>Shops</td>
<td>CR</td>
<td>P &amp; C</td>
<td>Bulldozer</td>
<td>2 Mill</td>
<td>Shovels</td>
<td>1 Mill</td>
<td>DSS</td>
<td>P. House</td>
<td></td>
<td></td>
<td>23.5.60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. This spreadsheet is taken from the original penciled document prepared by B. G. Patterson, Master of Apprentices
2. The original is pasted inside the back cover of the Apprenticeship Register filed in CAPCOL File D15/288.9
3. There is no key to Patterson's shorthand entries eg DSS, P & C and CR
   RFB's interpretation is DSS = Drill Sharpening Shop; P & C = Pumps and Crushers, CR is not known
4. Under Camp for J. A. Wyatt and T. J. Smith - these two apprentices attended compulsory National Service camp in RAAF.
5. C. Hodges did not complete his apprenticeship - he will killed in a speedway accident in June 1956
Appendix 4.5
Mount Morgan trained people.

[Website ‘Zoom Information’, BGH OH, Cryle, Academia Capricornia. and Mrs. Judith Hiskens]

Chapter Four has discussed, in detail, the Company policy of training employees at all levels. It has argued that many left the Company to pursue other careers, but it has also commented on the lack of available data to determine their progress in these new careers. Anecdotal evidence suggests that many achieved outstanding success, but these claims may be proven only by a further detailed study. However, detailed records of two such trainees exist. Their stories are repeated here as examples of the contributions Mount Morgan trainees made to international mining, to mining related industries and indeed to the development of tertiary education in Central Queensland.

Each had begun his careers aged in his mid-teens, had been educated to University Junior Public Certificate standard and each followed the work and study path, gaining experience as he qualified. Their early progress is typical of the majority of young men who trained at Mount Morgan.
Leonard Harris was born in Mount Morgan in 1928 and completed his secondary schooling at the Mount Morgan State High School in 1942. He began work at the Mine in 1943 but it is unclear in what position. His name does not appear in the records as having been indentured as a cadet although Patterson’s record \(^1\) shows he completed the Diploma of Metallurgy in 1949. It is possible that, as with those who completed this diploma before him, he studied independently and was not supported to any great extent in his studies.

\(^1\) Appendix 4.1.
After graduating he worked for some years in Mount Morgan, Mount Isa, Radium Hill and in Ghana before moving to South America where he spent eighteen years with Cerro de Pasco Corporation as Metallurgist and Director of Metallurgy. After two years managing Texada Mines in Australia, he joined the Newmont Mining Corporation where, over a twenty-one year career, he held senior positions, including Vice President and General Manager of Newmont Latin America, President Research and Development and Vice President Metallurgical Operations. Now living in Denver Co, he continues as a director of and consultant to numerous mining companies. Until his retirement, Len Harris made regular visits to Australia which usually included Mount Morgan.

Harris has received numerous awards, including the Western Mining Hall of Fame Medal of Merit, the Peruvian Society of Engineers, Engineer of the Year Award and the Peruvian College of Journalism Award. He is a Legion of Honor Member of the Society of Mining Engineers and Gold Medal, Krumb Lecturer, President's Citation, Distinguished Member and Arthur C. Daman Lifetime Achievement awards.  

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3 ibid.
Photograph A4.5.2

Map of Leonard Harris career

[‘Zoom Information’]
Bruce Giles Hiskens (1934-1995)

Photograph A4.5.3
Bruce Giles Hiskens receiving his DUniv (UCQ)
[From Mrs. Judith Hiskens]

Bruce Hiskens was born in Rockhampton with family connections to Mount Morgan. He completed his secondary education at the Rockhampton Grammar School in 1950 and was indentured to Mount Morgan Limited as a cadet engineering draftsman in February 1951. In an
extensive oral history interview he outlines the history of his early days as a cadet and the difficulties he, and others, encountered in completing the UQ Engineering Diploma by attendance at the Rockhampton Technical College. He gives a detailed description of work in the drawing office and of the experience he gained while studying. When he graduated, like his contemporary diploma students, he was appointed, in 1957, an assistant engineer, firstly in charge of workshop services and then as engineer in No 2 Mill. After thirteen years at Mount Morgan, Bruce joined the Fields meat works in Rockhampton as Chief Engineer during its construction phase. In 1966 he joined the owner’s representative group in construction at Queensland Alumina, [QAL] Gladstone. Appointed Chief Design Engineer for QAL at the end of that year, he spent the rest of his professional career with QAL, holding senior positions including maintenance manager, production manager and divisional engineer. At his retirement he was the longest serving direct employee of the company.

While he enjoyed a highly successful career as an engineer, Hiskens’ most notable achievement was in his contribution to the development of higher education in Central Queensland. Beginning in 1969, in his association with the [then named] Queensland Institute of Technology, Capricornia, Hiskens remained a member of the Institute Council until his retirement in 1990. During that time he served as Deputy Chairman (1971-75), Chairman (1975-1989) and Chancellor of the newly created University College of Central Queensland (1989-90). As head of the Institute he oversaw its growth from a subsidiary of the Queensland Institute of Technology to an autonomous Institute and finally recognition as the University College of Central Queensland, the predecessor of the present CQU, Rockhampton.5

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5 The story of the development of the ‘Institute’ is told in DJ Cryle, Academia Capricornia.
When asked what had motivated him to devote his efforts to the development of the Institute, efforts that included many late night round trips from Gladstone to attend meetings, he replied ‘I did not want anyone else to go through what we went through’. This was a reference to the difficulties experienced by local students of the forties, fifties and early sixties, unable to enjoy the privilege of a University education.

The University library bears his name and in 1990 he was awarded the degree *Doctor of the University* in recognition of his contribution to the University. The plaque, pictured below, set in the foyer of the library, summarizes his work for higher education in Central Queensland.

Photograph 4.5.4

Plaque, CQU Library, honouring B G Hiskens

[RFB, 12 December 2012]

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6 BGH, communication with RFB, 1992.
Appendix 5.1
MML Production and Dividends 1932-1967
[MMLAR 1932-1967, PWLAR 1968]

Erratum: The ‘published reserve’ figure for 1966 should read 9,984,000 tons, not 998,400 tons.
Appendix 5.2
Wolfensohn’s story of the Power bid for Mount Morgan

[Wolfensohn, A global life]

Chapter Five has examined the circumstances of the Company loss of autonomy and now, over forty-six years after the takeover battle for Mount Morgan Limited, James Wolfensohn has told his side of the story. His autobiography A global life; my journey among rich and poor, from Sydney to Wall Street to the World Bank 7 puts to rest the Mount Morgan stories concerning the politics of the takeover. 8 Wolfensohn contends that ‘without my help and without my knowledge’ 9 Power Corporation in Canada decided to bid for Mount Morgan 10 and that ‘this put me in a tough spot because my fellow Managing Director at Darlings. He says John Broinowski, Chairman of Mount Morgan had no inkling of Power’s our intentions’. 11 Wolfensohn notes he was worried about the ethics of his participation in the bid. He states he had cleared his involvement with John Darling 12 and with Gordon Richardson, chairman of Schroder Wragg in London. 13 Nevertheless, Broinowski ‘went into rage ’accusing Wolfensohn of ‘using insider information’ 14 The ensuing events resulted in his dealings with Broinowski progressing from chilly to icy. 15

7. James D. Wolfensohn, A global life; my journey among rich and poor, from Sydney to Wall Street to the World Bank in pages 105-117 describes the development of Darling and Co. as a merchant bank and outlines the circumstances of the ‘Mount Morgan ‘takeover’ and the problems it caused.
8 Without any knowledge of the detailed circumstances, the rumours still remain among former workers that the Mount Morgan Board had somehow ‘sold them out’, JBH OH.
9 ibid, p.111. It seems curious that Wolfensohn, as chairman, was not aware of the intention of the consortium given that, at the date of the takeover bid, the consortium had already acquired 70,000 Mount Morgan shares ‘over a four-month period which ended last month [August]. See RMB, 12 September 1967. The initial purchase may have been a normal business acquisition. Between the announcement of the bid and 20 September, Power appears to have acquired a further 200-300,000 Mount Morgan shares, ibid, 20 September 1967.
10 ibid.
12 ibid.
12 Chairman of Darling and Co., ibid, p.105
13 Schroder Wragg ’held a one-third interest in Darlings’, ibid, p.111.
14 ibid.
15 ibid, p.114
Realising his future at Darling’s was untenable, he initiated steps to transfer from Darling’s to Schroder Wragg in London;¹⁶

Wolfensohn was elected President of the World Bank on 1 July 1995 after he was nominated by U S President Bill Clinton. In 2005, upon stepping down as President of the World Bank, he founded Wolfensohn & Company, a privately held firm that invests, and provides strategic consulting advice to governments and large corporations doing business, in emerging market economies. Since 2006, Wolfensohn has also been the chairman of the International Advisory Board of Citicorp.

¹⁶ Wolfensohn details his strategy in ibid, pp. 112-117. He says that during the ‘battle’ he had felt the insecurity ‘attendant on fighting a formidable man who was twenty years older, a member of all the right clubs and a pillar of the establishment, ibid, p 112. Wolfensohn claims that ‘towards the end of 1967’ he called Richardson of Schroder’s to say he had ‘decided to leave Darling and Company’, ibid, p. 114. His detail of the circumstances of his transfer is questionable given the report in RMB of 19 September 1967 which says he was ‘due to transfer to London in December’. 
## Appendix 5.3
MML labour force 1961-1990

[CAPCOL M14/1556.1]

<table>
<thead>
<tr>
<th>END OF YEAR</th>
<th>EMPLOYEES</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961</td>
<td>1062</td>
<td></td>
</tr>
<tr>
<td>1962</td>
<td>1006</td>
<td></td>
</tr>
<tr>
<td>1963</td>
<td>1011</td>
<td></td>
</tr>
<tr>
<td>1964</td>
<td>984</td>
<td>Cameron's Mount Morgan Limited</td>
</tr>
<tr>
<td>1965</td>
<td>977</td>
<td></td>
</tr>
<tr>
<td>1966</td>
<td>980</td>
<td></td>
</tr>
<tr>
<td>1967</td>
<td>1019</td>
<td></td>
</tr>
<tr>
<td>1968</td>
<td>991</td>
<td>Peko acquires Mount Morgan</td>
</tr>
<tr>
<td>1969</td>
<td>921</td>
<td>Introduction of Company owned mine trucks</td>
</tr>
<tr>
<td>1970</td>
<td>900</td>
<td>Rationalisation of Primary Crushing and Open Cut loading equipment</td>
</tr>
<tr>
<td>1971</td>
<td>851</td>
<td>New secondary crushing station commissioned, No2 Mill crushing station closes.</td>
</tr>
<tr>
<td>1972</td>
<td>800</td>
<td>Flash Smelter commissioned</td>
</tr>
<tr>
<td>1973</td>
<td>795</td>
<td></td>
</tr>
<tr>
<td>1974</td>
<td>793</td>
<td></td>
</tr>
<tr>
<td>1975</td>
<td>770</td>
<td></td>
</tr>
<tr>
<td>1976</td>
<td>463</td>
<td>No 2 Mill closes, first major retrenchments</td>
</tr>
<tr>
<td>1977</td>
<td>452</td>
<td></td>
</tr>
<tr>
<td>1978</td>
<td>385</td>
<td></td>
</tr>
<tr>
<td>1979</td>
<td>385</td>
<td></td>
</tr>
<tr>
<td>1980</td>
<td>381</td>
<td></td>
</tr>
<tr>
<td>1981</td>
<td>379</td>
<td>Mining ends at Mount Morgan</td>
</tr>
<tr>
<td>1982</td>
<td>260</td>
<td>Mt Chalmers mining ends. Anglo assumes 40% control, Tailings Plant commissioned</td>
</tr>
<tr>
<td>1983</td>
<td>279</td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td>266</td>
<td>Smelter closes</td>
</tr>
<tr>
<td>1985</td>
<td>137</td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>1987</td>
<td>152</td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td>164</td>
<td>Eliders and Poseidon now in control</td>
</tr>
<tr>
<td>1989</td>
<td>155</td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>98</td>
<td>Final closure and disposal auction</td>
</tr>
</tbody>
</table>

**AVERAGE** 598 AVERAGE 1968 - 1983 under Peko control = 611.
### Comparison of Peko Production vs. MML 1954-1968

<table>
<thead>
<tr>
<th>Year</th>
<th>Tons milled</th>
<th>Ore Grade: gold dwts/ton; Copper %</th>
<th>Metals Recovered</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Peko</td>
<td>MML</td>
<td>Peko</td>
</tr>
<tr>
<td>1954-55</td>
<td>23,692</td>
<td>920,500</td>
<td>4.28</td>
</tr>
<tr>
<td>1955-56</td>
<td>51,000</td>
<td>829,800</td>
<td>4.38</td>
</tr>
<tr>
<td>1956-57</td>
<td>72,359</td>
<td>738,300</td>
<td>3.78</td>
</tr>
<tr>
<td>1957-58</td>
<td>109,418</td>
<td>875,350</td>
<td>3.06</td>
</tr>
<tr>
<td>1958-59</td>
<td>117,469</td>
<td>782,050</td>
<td>2.36</td>
</tr>
<tr>
<td>1959-60</td>
<td>138,917</td>
<td>883,800</td>
<td>2.74</td>
</tr>
<tr>
<td>1960-61</td>
<td>153,287</td>
<td>1,016,700</td>
<td>3.00</td>
</tr>
<tr>
<td>1961-62</td>
<td>158,731</td>
<td>1,154,400</td>
<td>2.57</td>
</tr>
<tr>
<td>1962-63</td>
<td>159,197</td>
<td>1,181,000</td>
<td>2.59</td>
</tr>
<tr>
<td>1963-64</td>
<td>163,016</td>
<td>1,271,150</td>
<td>2.38</td>
</tr>
<tr>
<td>1964-65</td>
<td>163,570</td>
<td>1,221,900</td>
<td>2.20</td>
</tr>
<tr>
<td>1965-66</td>
<td>168,092</td>
<td>930,030</td>
<td>2.42</td>
</tr>
<tr>
<td>1966-67</td>
<td>184,280</td>
<td>1,338,460</td>
<td>2.28</td>
</tr>
<tr>
<td>1967-68</td>
<td>294,419</td>
<td>1,406,250</td>
<td>Note</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1,957,447</strong></td>
<td><strong>14,549,690</strong></td>
<td>2.93</td>
</tr>
</tbody>
</table>


MML figures from MMLAR 1955-1968. PWL figures 1968 include Juno with gold grade 87.34 dwts (4.37 ozs) per ton.

Ore grades TOTAL columns 4-7 are the average except for Peko gold 1967-68, see note above.

RFB 12 Feb 2013.
Appendix 5.5
Metal prices 1977-1982
[PWLR 1982, p.6]
### Appendix 5.6

**MML gold and copper output 1968-1981**

[PWLAR 1968-1982]

<table>
<thead>
<tr>
<th>YEAR</th>
<th>COPPER TONS</th>
<th>GOLD Ozs</th>
<th>SILVER Ozs</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968</td>
<td>6,394</td>
<td>69,105</td>
<td>27,600</td>
<td>Peko assumes control</td>
</tr>
<tr>
<td>1969</td>
<td>8,098</td>
<td>62,535</td>
<td>39,435</td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>6,775</td>
<td>52,110</td>
<td>36,795</td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td>5,814</td>
<td>38,530</td>
<td>20,715</td>
<td></td>
</tr>
<tr>
<td>1972</td>
<td>8,488</td>
<td>53,432</td>
<td>42,882</td>
<td>Flash Smelter starts March 1972</td>
</tr>
<tr>
<td>1973</td>
<td>9,587</td>
<td>69,777</td>
<td>48,736</td>
<td></td>
</tr>
<tr>
<td>1974</td>
<td>9,587</td>
<td>69,777</td>
<td>48,736</td>
<td></td>
</tr>
<tr>
<td>1975</td>
<td>8,241</td>
<td>32,597</td>
<td>39,594</td>
<td></td>
</tr>
<tr>
<td>1976</td>
<td>7,646</td>
<td>44,274</td>
<td>58,319</td>
<td>First Smelter rebuild April - July 1975</td>
</tr>
<tr>
<td>1977</td>
<td>5,586</td>
<td>43,053</td>
<td>36,470</td>
<td></td>
</tr>
<tr>
<td>1978</td>
<td>3,484</td>
<td>30,845</td>
<td>22,913</td>
<td></td>
</tr>
<tr>
<td>1979</td>
<td>1,916</td>
<td>43,053</td>
<td>n/a</td>
<td>Silver not recorded in reports 1979-1981</td>
</tr>
<tr>
<td>1980</td>
<td>2,074</td>
<td>30,845</td>
<td>n/a</td>
<td>Second Smelter rebuild June - July 1980</td>
</tr>
<tr>
<td>1981</td>
<td>4,338</td>
<td>22,587</td>
<td>0</td>
<td>Includes Mt Chalmers</td>
</tr>
<tr>
<td>1982</td>
<td>5,899</td>
<td>23,326</td>
<td>72,416</td>
<td>Mt Chalmers &amp; Warrego only</td>
</tr>
</tbody>
</table>

**TOTAL** 93,927 685,846 494,611

RFB: 25 APRIL 2012
# Appendix 5.7

## MML Operating details under Peko 1968-1981

### Mount Morgan Ore Reserves, Tonnages Treated, Grade, Profit 1968-1981

<table>
<thead>
<tr>
<th>Year</th>
<th>Published Reserves (tons)</th>
<th>Ore Treated (tons)</th>
<th>Grade</th>
<th>Gold (dwt/ton)</th>
<th>Copper (%)</th>
<th>Production Gold (ounces)</th>
<th>Copper (tons)</th>
<th>Published Profit ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968</td>
<td>8,600,000</td>
<td>1,406,250</td>
<td></td>
<td>1.53</td>
<td>0.54</td>
<td>69,105</td>
<td>6,394</td>
<td>$1,734,328</td>
</tr>
<tr>
<td>1969</td>
<td>8,500,000</td>
<td>1,467,400</td>
<td></td>
<td>1.39</td>
<td>0.67</td>
<td>62,335</td>
<td>8,098</td>
<td>$1,861,914</td>
</tr>
<tr>
<td>1970</td>
<td>7,000,000</td>
<td>1,436,072</td>
<td></td>
<td>1.40</td>
<td>0.80</td>
<td>59,830</td>
<td>7,287</td>
<td>$4,011,355</td>
</tr>
<tr>
<td>1971</td>
<td>6,000,000</td>
<td>1,474,906</td>
<td></td>
<td>1.40</td>
<td>0.80</td>
<td>52,110</td>
<td>6,775</td>
<td>$1,096,074</td>
</tr>
<tr>
<td>1972</td>
<td>5,000,000</td>
<td>1,279,481</td>
<td></td>
<td>1.40</td>
<td>0.80</td>
<td>38,530</td>
<td>5,814</td>
<td>$406,187</td>
</tr>
<tr>
<td>1973</td>
<td>4,200,000</td>
<td>1,337,320</td>
<td></td>
<td>2.00</td>
<td>0.70</td>
<td>53,432</td>
<td>8,488</td>
<td>-$410,560</td>
</tr>
<tr>
<td>1974</td>
<td>3,500,000</td>
<td>1,275,640</td>
<td></td>
<td>1.70</td>
<td>0.75</td>
<td>69,777</td>
<td>9,587</td>
<td>$6,894,338</td>
</tr>
<tr>
<td>1975</td>
<td>2,000,000</td>
<td>1,139,485</td>
<td></td>
<td>1.40</td>
<td>0.82</td>
<td>32,597</td>
<td>8,241</td>
<td>$100,880</td>
</tr>
<tr>
<td>1976</td>
<td>300,000</td>
<td>1,005,180</td>
<td></td>
<td>1.94</td>
<td>0.73</td>
<td>44,274</td>
<td>7,646</td>
<td>-$585,964</td>
</tr>
<tr>
<td>1977</td>
<td>200,000</td>
<td>687,750</td>
<td></td>
<td>2.72</td>
<td>0.86</td>
<td>43,053</td>
<td>5,586</td>
<td>$386,295</td>
</tr>
<tr>
<td>1978</td>
<td>200,000</td>
<td>431,735</td>
<td></td>
<td>3.46</td>
<td>1.03</td>
<td>30,845</td>
<td>3,484</td>
<td>$334,403</td>
</tr>
<tr>
<td>1979</td>
<td>300,000</td>
<td>262,978</td>
<td></td>
<td>2.04</td>
<td>0.87</td>
<td>25,704</td>
<td>4,884</td>
<td>$201,000</td>
</tr>
<tr>
<td>1980</td>
<td>300,000</td>
<td>371,378</td>
<td></td>
<td>1.50</td>
<td>0.60</td>
<td>N/A</td>
<td>N/A</td>
<td>$129,000</td>
</tr>
<tr>
<td>1981</td>
<td>Zero</td>
<td>201,331</td>
<td></td>
<td>1.33</td>
<td>0.63</td>
<td>31,460</td>
<td>6,964</td>
<td>$13,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>13,776,906</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>613,052</strong></td>
<td><strong>89,248</strong></td>
<td><strong>$16,172,250</strong></td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>1.80</strong></td>
<td><strong>0.76</strong></td>
<td><strong>47,158</strong></td>
</tr>
</tbody>
</table>

Notes: These figures are taken from the PWLARs 1968-1982. They represent a 'best judgement' given discrepancies across the reports even between figures quoted in texts and in tables. Profits from 1968-1971 are from MMLARs as part of PWLARs of the time. Their accuracy is questionable. 

RFB 7 May 2012
### Appendix 6.1

**Rainfall and Inflows to the Open Cut**

[Technical Meeting April-May 1974]

<table>
<thead>
<tr>
<th>Date</th>
<th>Duration</th>
<th>Total Falls</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 1918</td>
<td>3</td>
<td>511</td>
</tr>
<tr>
<td>April 1929</td>
<td>3</td>
<td>651</td>
</tr>
<tr>
<td>February 1929</td>
<td>3</td>
<td>414</td>
</tr>
<tr>
<td>July 1933</td>
<td>3</td>
<td>309</td>
</tr>
<tr>
<td>February 1942</td>
<td>3</td>
<td>429</td>
</tr>
<tr>
<td>December 1933</td>
<td>3</td>
<td>509</td>
</tr>
</tbody>
</table>

*From Mount Morgan Argus, Vol. 8, Issue 3, 31 January - 14 February 2013*

<table>
<thead>
<tr>
<th>Date</th>
<th>Duration</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2013</td>
<td>3</td>
<td>&gt;700</td>
</tr>
</tbody>
</table>

**Origins of water entering the Open Cut December 1973-March 1974.**

<table>
<thead>
<tr>
<th>Source</th>
<th>Inflow</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rain falling directly into the Open Cut</td>
<td>240,000</td>
<td>26.49%</td>
<td></td>
</tr>
<tr>
<td>80% run-off 18/19/20 December 1973</td>
<td>240,000</td>
<td>26.49%</td>
<td></td>
</tr>
<tr>
<td>Rain falling directly into the Open Cut</td>
<td>200,000</td>
<td>22.08%</td>
<td></td>
</tr>
<tr>
<td>75% run-off January 1974</td>
<td>200,000</td>
<td>22.08%</td>
<td></td>
</tr>
<tr>
<td>Rain falling directly into the Open Cut</td>
<td>40,000</td>
<td>4.42%</td>
<td></td>
</tr>
<tr>
<td>50% run-off February and March 1974</td>
<td>40,000</td>
<td>4.42%</td>
<td></td>
</tr>
<tr>
<td>Total Direct inflow</td>
<td>480,000</td>
<td>52.98%</td>
<td></td>
</tr>
<tr>
<td>From No 8 Dam overflow</td>
<td>290,000</td>
<td>32.01%</td>
<td></td>
</tr>
<tr>
<td>From Upper Mundic creek</td>
<td>136,000</td>
<td>15.01%</td>
<td></td>
</tr>
<tr>
<td>Total indirect inflow</td>
<td>426,000</td>
<td>47.02%</td>
<td></td>
</tr>
<tr>
<td>TOTAL inflow to Open Cut</td>
<td>906,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RFB 23 February 2013
Appendix 6.2


10

ASSESSMENT OF MANAGEMENT OPTIONS

10.1 OPTIONS INVESTIGATED

10.01 Based on the results of both the water balance and contaminant source studies, the most serious environmental issue for the Mt Morgan mine site is the potential discharge of large quantities of poor quality water from the open cut. For this reason, the selection of management options has been focussed on strategies which minimise the quantity of spills from the open cut.

10.02 Realistic options for site management are based on four activities:

- Rehabilitation of disturbed areas to reduce the quantity of surface runoff,
- Diversion of catchment areas away from the open cut,
- Modification of the pump-back system, and
- Disposal of standing water in the open cut by treatment and release to the Dee River.

10.03 After consideration of a range of options, the following were selected for investigation:

Option 1a: Maximum reasonable diversion of catchment draining to Sandstone Gully and the open cut. Review of available topographic data indicated that an area of some 66 ha could potentially be diverted away from the open cut. The diverted catchment area is shown in Figure 10.1. All other parameters as for existing conditions.

Option 1b: As for Option 1a, but with the No. 8 Dam catchment diverted via a tunnel outlet to an adjacent waterway. This option would virtually eliminate seepage inflows to the open cut from No. 8 Dam.

Option 2: Rehabilitation of all disturbed areas within the catchment of the open cut and Sandstone Gully.

Option 3: Rehabilitation of half of all disturbed areas within the catchment of the open cut and Sandstone Gully.

Option 4a: Filling of the existing open water area in Sandstone Gully and rehabilitation of this filled area and the entire Sandstone Gully catchment.

Option 4b: As for Option 4a with the Sandstone Gully catchment diverted away from the open cut.

Option 5a: Treat and release of standing water in the open cut at a continuous rate of 5 l/s.

Option 5b: Treat and release of standing water in the open cut at a continuous rate of 10 l/s.

Option 5c: Treat and release of standing water in the open cut at a continuous rate of 20 l/s.

Option 6a: As for Option 3 with treat and release at 5 l/s.

Option 6b: As for Option 3 with treat and release at 10 l/s.

Option 7: Eliminate pump-back from No. 2 Mill sumps and Shepherds sumps.

Option 8: Eliminate all pump-back to the open cut.
10.04 Table 10.1 shows the impact of the various management options on the probability and volume of spill from the open cut. Of the options considered, only two (Option 5c and Option 8) have the potential to virtually eliminate spills from the open cut. Option 5c (treat and release @ 20 l/s) would be preferable because the water discharged from the open cut would be of improved quality. However, this option would involve substantial capital and operating costs associated with the establishment and operation of suitable treatment facilities. Option 7 eliminates pump-back water that has not derived from the open cut. Option 8 would cost nothing and would actually save the cost of operating the pump-back system. However, this option would release an extra 640 ML to the river each year, which is currently pumped back to the open cut. In effect, this option would continuously release untreated water from the open cut at a slow rate, rather than a series of short duration, large volume releases associated with spills from the open cut.

Table 10.1 Impact of Proposed Management Options on Spills from the Open Cut

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Annual Probability of Spill (%)</th>
<th>Total Spill Volume for 100 Yr Simulation (ML)</th>
<th>Avg. Spill Volume per Spill Year (ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>Existing Conditions</td>
<td>50</td>
<td>37,750</td>
<td>755</td>
</tr>
<tr>
<td>1a</td>
<td>Maximum Diversion of Open Cut Catchment</td>
<td>48</td>
<td>32,296</td>
<td>673</td>
</tr>
<tr>
<td>1b</td>
<td>As for Option 1a with No. 8 Dam Tunnel</td>
<td>49</td>
<td>26,416</td>
<td>539</td>
</tr>
<tr>
<td>2</td>
<td>Rehabilitation of Open Cut &amp; Sandstone Gully Catchments</td>
<td>18</td>
<td>12,082</td>
<td>671</td>
</tr>
<tr>
<td>3</td>
<td>Rehabilitation of 50% of Open Cut &amp; Sandstone Gully Catchments</td>
<td>38</td>
<td>24,525</td>
<td>645</td>
</tr>
<tr>
<td>4a</td>
<td>Fill &amp; Rehabilitate Sandstone Gully &amp; Catchment</td>
<td>50</td>
<td>33,621</td>
<td>672</td>
</tr>
<tr>
<td>4b</td>
<td>Fill &amp; Rehabilitate Sandstone Gully &amp; Catchment and Divert from Open Cut</td>
<td>34</td>
<td>14,162</td>
<td>417</td>
</tr>
<tr>
<td>5a</td>
<td>Treat and Release @ 5 l/s</td>
<td>35</td>
<td>23,607</td>
<td>674</td>
</tr>
<tr>
<td>5b</td>
<td>Treat and Release @ 10 l/s</td>
<td>15</td>
<td>10,730</td>
<td>715</td>
</tr>
<tr>
<td>5c</td>
<td>Treat and Release @ 20 l/s</td>
<td>&lt;1</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>6a</td>
<td>As for Option 3 with Treat &amp; Release @ 5 l/s</td>
<td>15</td>
<td>11,370</td>
<td>756</td>
</tr>
<tr>
<td>6b</td>
<td>As for Option 3 with Treat &amp; Release @ 10 l/s</td>
<td>3</td>
<td>2,142</td>
<td>714</td>
</tr>
<tr>
<td>7</td>
<td>Eliminate Pump-Back from No. 2 Mill &amp; Shepherds</td>
<td>37</td>
<td>21,260</td>
<td>575</td>
</tr>
<tr>
<td>8</td>
<td>Eliminate all Pump-Back</td>
<td>&lt;1</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

10.05 The effectiveness of the various options in reducing the probability of spill from the open cut may be summarised as follows:

- Treat and release of water from the open cut (Option 5) is a very effective option. Treat and release at lower rates may also be used to improve the effectiveness of other options (Option 6).

- Rehabilitation of the open cut and Sandstone Gully catchments is the next most effective option (Options 2 and 3). Note that the effectiveness of this option is sensitive to the calibration of the rainfall - runoff model which is based on limited data and hence subject to some uncertainty.

- Elimination of the pump-back system will virtually eliminate spills from the open cut (Option 8). However, this would contribute a significant additional pollutant load to the river and is unlikely to be an acceptable option at present.
• Diversion of the western portion of the open cut and Sandstone Gully is of limited effectiveness (Option 1a). This is due primarily to the fact that much of this diverted catchment is undisturbed and produces significantly less runoff than disturbed areas.

• Filling Sandstone Gully and rehabilitating the Sandstone Gully catchment (Option 4a) has limited effect. However, diverting this area from the Open Cut (Option 4b) is much more effective.

• Diverting the No. 8 Dam catchment via a tunnel outlet is of a limited effectiveness (Option 1b).

10.06 Note that this study has not investigated costs of the various options. These costs are difficult to quantify for some of the rehabilitation options and will be dependent upon the availability of cover material and other factors. Of particular interest would be the cost of treatment and release of water from the open cut. It is recommended that order-of-magnitude costs be developed for the preferred options prior to further detailed investigations of the most cost-effective options.