

A Brief Illustrated History of Western Mining Corporation.

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SUMMARY:

WS Robinson formed Gold Mines of Australia (GMA) in 1930, Western Mining Corporation (WMC) in 1933 and Gold Exploration and Finance Company of Australia in 1934. WMC began operations in Western Australia in 1933 when it carried out an aerial survey of the Eastern Goldfields supported by a team of geologists from Harvard University.

After the Second World War operations were expanded. New Coolgardie Gold Mines was established in 1947. Great Western Consolidated was formed in 1948 to reopen the Bullfinch mine under the direction of Sir Laurence Brodie-Hall. Sir Arvi Parbo began his career here.

On 28 January 1966, diamond drilling intersected nickel sulphides at Kambalda and this resulted in the rapid development of nickel mining at Kambalda, the establishment of a refinery at Kwinana and a smelter at Kalgoorlie. To further consolidate its position WMC acquired Poseidon's Windarra Nickel Project in 1972.

Sir Arvi Parbo became Chairman and Managing Director in 1978. He led the company through its greatest expansion phase. WMC began exploring for coal and petroleum. It resumed exploration for copper in South Australia and on 30 July, 1975 copper was intersected at Olympic Dam. Development commenced in 1982. The mine, a treatment plant and associated services began operating in 1988 and were expanded in the following years.

Sir Arvi Parbo retired in 1999 and was succeeded by Ian Burgess. Nickel operations continued to consolidate, the Kalgoorlie nickel smelter was largely rebuilt and the Kwinana nickel refinery was enlarged. WMC acquired the Yakabindie nickel deposit. Olympic Dam Operations continued its growth to over 200,000 tonnes of copper per annum while examining the feasibility of further expansions to 500,000 tonnes per annum

In October 2001 Alcoa made an approach to take over WMC at \$10.20 per share. The WMC Board rejected the offer and subsequently demerged into WMC Limited and Alumina Ltd. In November 2004 Xstrata Capital Holdings made a take over bid for WMC of \$6.35 which was later increased to \$7.20 per share. This was rejected. In March 2005 BHP Billiton made an offer of \$7.85 cash per share which was endorsed by the WMC Board and by June 2005 WMC was no more.

1. HISTORY

Western Mining Corporation had its beginnings during the Great Depression when WS Robinson the Australian born, London based Managing Director of Broken Hill Associated Smelters, accurately forecast that the price of gold would rise. He was able to interest several large London-based mining companies into forming three syndicates to develop gold mines in Australia.

He formed Gold Mines of Australia in 1930 and Western Mining Corporation on 2 March, 1933. Gold Exploration and Finance Company of Australia, however, provided most of the finance from its South African shareholders. They were known as GMA, WMC and GEFCO and were based in Collins House, Melbourne.

WMC itself began operations in Western Australia in 1933 (Figure 12). This Figure shows from left to right

WS Robinson, Sir Colin Fraser (Chairman), H Lambert (Editor of the 'West Australian'), M Jackson (Legal Adviser), Richard Hamilton (of the Great Boulder), HE Vail (from Lake View and Star) and the youthful (Sir) Lindesay Clark the Technical Managing Director.

WMC's initial effort was to carry out an extensive aerial survey of the Eastern Goldfields using two de Havilland Dragon aircraft called the 'Golden West' and the 'Gay Prospector' (Figure 13). A convoy of specially equipped Ford vehicles set out from Perth in December 1933 giving rise to the suggestion that Henry Ford had financed the venture. The large white refrigerated van was used to store photographic plates, chemicals and possibly other liquids! (Figure 14)

WMC's first profitable venture was this ten head battery at Cox's Find, north of Laverton. It provided essential

cash flow for the struggling Company (Figure 17). This steam powered diamond drill, near Cue was an advanced development in its day. This exploration led to the formation of Triton Gold Mines in 1935 (Figure 18). It was equipped with surplus plant from the ill-fated Bendigo project and remained in operation until 1948.

Gold Mines of Kalgoorlie was formed in 1934 to re-open mines on the Golden Mile (Figure 19). They were quickly redeveloped using modern equipment and a new treatment plant was built on the Oroya lease with a modern diesel power plant (Figure 20).

WMC acquired the Phoenix mine at Norseman and formed Central Norseman Gold Corporation in 1935 and discovered the Crown Reef. Central Norseman responded well to scientific exploration techniques and is currently the longest continuously operating gold mine in Australia (Figure 21).

In WA after the Second World War, New Coolgardie Gold Mines was established in 1947 to redevelop several mines near Coolgardie (Figure 25). It was absorbed by GMK in 1955. Great Western Consolidated was formed in 1948 to re-establish gold mines near Southern Cross, using much of the equipment previously at Triton (Figure 26). Operations began at Bullfinch in 1952 under the direction of (Sir) Laurence Brodie-Hall. Arvi Parbo began his career here. Great Western was a technical triumph, but a financial disaster.

Control of the Company was transferred from London to Australia in 1949 when WMC took over its parent GEFCA and, as Sir Lindesay wrote in his memoirs *Built on Gold*, 'For the first time the Australian Board became masters of their own destiny'. In 1952 (Sir) Lindesay Clark became Chairman as well as Managing Director and it was under his guidance that the Company diversified from gold into base metals (Figures 27 and 28).

In 1958 WMC Chief Geologist, Don Campbell, began re-examining the bauxite deposits in the Darling Ranges south and east of Perth, and with input from many others soon established that they could be mined and treated economically (Figure 30). In June 1961 Alcoa of Australia was formed to develop the large bauxite reserves in the Darling Ranges and an alumina refinery at Kwinana and an aluminium smelter at Geelong (Figure 31).

In WA, Three Springs Talc was formed in 1960 and it later expanded to become Australia's largest talc producer (Figure 34). Gold Mines of Kalgoorlie expanded by reopening the Mount Charlotte deposit in 1964 using diesel powered equipment underground for the first time in Western Australia (Figure 37).

After exploring for iron ore in the Pilbara, WMC chose to develop a deposit further south at Koolanooka Hills, inland from Geraldton (Figure 38). The first bulk shipment of iron ore from Australia left Geraldton on 16 March, 1966.

Guy Travis was involved in regional exploration in the vicinity of Kambalda during the mid 1960s (Figure 40) where, following a lead from two local prospectors John Morgan and George Cowcill, WMC began diamond drilling in December 1965; and on 28 January, 1966, Jack Lunnon intersected 8.3% nickel and Australia's nickel boom had begun (Figure 41).

The demand for nickel was high providing an incentive for the rapid development of the Silver Lake Shaft at Kambalda (Figure 43). A concentrator was built with a capacity of 130,000 tonnes per annum and began operating by June 1967 – just 17 months after the first discovery (Figure 44). The first shipment of nickel-concentrates left Esperance for Canada on the 'Botany Bay' in September 1967 (Figure 45). As other mines were developed the concentrator was enlarged to 1.5 million tonnes per annum by 1972 (Figure 48).

Meanwhile a decision had been made to build a nickel refinery at Kwinana, south of Perth as the quickest way to market nickel metal. It was opened by Premier Sir David Brand on 15 September 1970 (Figure 49).

Bill Morgan retired in 1971 and (Sir) Arvi Parbo became Managing Director. Estonian born Parbo had a remarkable career in industry becoming Chairman of WMC, Alcoa and later BHP (Figure 51).

On 5 December, 1972 the Kalgoorlie Nickel Smelter was commissioned by (Sir) Laurence Brodie-Hall (Figure 53). It has been enlarged and rebuilt several times. KNS has been the centre of numerous innovative developments in pyrometallurgy, particularly while under the management of Ned Williams (Figure 54).

To further consolidate its position in the nickel business, WMC acquired a 50% interest in the Poseidon's Windarra Nickel Project in 1972 and moved to full ownership in 1983 (Figure 55).

Uranium was found at Yeelirrie in 1972 and a research plant was built in Kalgoorlie in 1980 to determine the processing technology (Figure 57). The deposit remains undeveloped.

Sir Lindesay Clark retired in 1978 after 45 years on the Board and (Sir) Arvi Parbo became Chairman and Managing Director (Figure 58). He led the company through its greatest expansion phase.

WMC's modest entry into coal and petroleum began in 1973 with a small interest in a well at Durham Downs in

Queensland, followed by others in the Cooper Basin (Figure 59). Various other areas were explored including the Canning Basin in the early 80s.

In the mid-seventies further efforts were made to discover copper in South Australia using new technologies. The site chosen was on Roxby Downs Station in the north of the State (Figure 60). It was here, on 30 July, 1975 that copper was intersected at a depth of 350 metres in an extraordinary discovery of a non out-cropping orebody (Figure 61). Drilling continued a pace.

The Whenan exploration shaft was sunk and underground development began in 1982, but not without protest. A pilot plant was built in 1984 to establish the process technology of the complex copper-gold-uranium ore (Figure 62). The headframe and winder were originally on the Edwards Shaft at Kalgoorlie in 1909. It went to Carr Boyd Rocks nickel mine, then to Victor Shaft at Kambalda until 1980 when it was relocated to Olympic Dam.

In the mid 70s the price of gold decreased and gold mining was a struggle. In a desperate effort to survive, Kalgoorlie Lake View which had been formed in 1973 merged with Homestake in 1975 to form Kalgoorlie Mining Associates (Figure 63).

Late in 1976 there was a sudden increase in gold price which saved Kalgoorlie and led to a gold revival. At Mt Charlotte the Cassidy Shaft was sunk and further underground developments took place (Figure 64). WMC acquired Hill 50 Gold Mine at Mount Magnet, resumed operations and opened several new mines (Figure 65).

Over the next few years WMC opened several new gold mines in WA using low-cost open-cut mining and improved CIP treatment facilities (Figure 66). South of Kambalda the Victory and Defiance gold mines were developed as open-cuts and later as underground mines, and a CIP gold plant was built at Kambalda in the early 80s (Figure 67). Other open-cut gold mines were developed at Lancefield in 1979 and Agnew in 1985 (Figure 68).

At Stawell, where GMA had been exploring since 1934, a decline was begun in 1981 and a plant was built in 1984 (Figure 70). Three small open-cuts were developed and while it was the largest producer in Victoria it was considered too small for WMC and it was sold in 1992.

WMC took over BH South in 1980, mainly to increase its interest in Alcoa. WMC also inherited a large phosphate deposit in Queensland which it reopened briefly (Figure 72). For years WMC studied alternative ways of utilising this major phosphate resource.

WMC's first overseas operation was in Fiji in 1983 in a joint venture with Emperor Gold Mines. The rather derelict, inefficient plant and labour intensive mine at Vatukoula was improved over the next few years (Figure 74), but WMC withdrew in 1991.

In May 1986 Keith Parry, Director of Operations, died suddenly and in July, Hugh Morgan became Managing Director (Figure 75). Like his father he had a vision for WMC and during his tenure the Company grew substantially. He introduced the concept of WMC being composed of several large world-class business units.

WMC sold its interest in several gold mines including KLV and GMK at a handsome profit and moved to 100% ownership of Hill 50. In the Northern Territory the 60% owned Goodall Gold Project came into production in 1988 (Figure 76). Operations at St Ives Gold Mines south of Kambalda expanded with the Revenge open-cut giving way to underground developments and the commissioning of a new treatment plant in 1987 (Figure 77).

WMC's interest in Alcoa of Australia had grown to 48%. The Wagerup Refinery was expanded and the Portland Aluminium Smelter was commissioned in 1987 (Figure 80).

WMC acquired the dormant Agnew Nickel Mine in 1989 and immediately developed the Rocky's Reward open-cut and rebuilt the plant (Figure 81).

At the Perseverance an open-cut was developed while the underground operations were rehabilitated and expanded (Figure 82).

The Mt Keith deposit was acquired from ACM in 1991, development commenced in 1993 and production began in 1995, raising WMC's annual output of nickel in concentrate to nearly 100,000 tonnes per annum (Figure 83). This together with the upgrading of operations at Kambalda, Agnew, Kwinana and Kalgoorlie placed WMC as a substantial world nickel producer (Figure 84).

In South Australia, a decline was developed to gain access to the huge ore reserve at Olympic Dam and construction of a complex metallurgical plant, smelter and refinery commenced in 1986 (Figure 85). Roxby Downs was built with all modern facilities. Olympic Dam was officially opened in November 1988 by the Premier of South Australia, John Bannon (Figure 86).

In far away North West of Western Australia, the Nifty Copper Operation began producing at a rate of 8,000 tonnes per annum in 1994 (Figure 87).

In an endeavour to broaden the Company's geographical and economic base investments were made in the Americas. In Brazil, WMC has been involved in

several exploration joint ventures which led to gold operations at Jenipapo and Mara Rosa (Figure 88).

The first serious venture into gold mining in USA was at Camp Bird in 1987 where conditions at the mill are rather different from those in Australia (Figure 89). Other activities in North America included a copper-gold mine in Quebec, and gold mines at Nova Scotia, Nevada and California (Figure 90). WMC Group hit a record gold production of 1,351,000 ounces in 1990/91. However, the ventures into Northern America were badly timed and proved to be a financial disaster.

WMC's interest in petroleum intensified following the acquisition of Mesa Australia in 1983 and purchase of the Vicksburg rig (Figure 91). This led to production from Airlie Project in 1987 and later led to gas to the Goldfields. WMC also had oil exploration interests in Malaysia and New Zealand.

In the USA Greenhill Petroleum Corp began production in 1989 after several years of exploration and acquisition, the main areas of interest being in Louisiana and West Texas (Figure 92).

One of WMC's most significant investments was the acquisition of a 40% interest in **Alcoa** World Alumina and Chemicals in January 1995. AWAC is the world's largest producer and exporter of alumina (Figure 93).

The Mount Keith Operations were officially opened by the WA Premier, Richard Court, in May 1995 and began supplying concentrates to the enlarged Kalgoorlie Smelter (Figure 94). Expansion of the Group's nickel operations was completed in 1995 and production reached an all time high of 117,700 tonnes in 2003.

In 1996 WMC, with its 50% partner Pluss-Stauffer, acquired Finnminerals and proceeded to rationalise its operations in a difficult market. Four years later WMC sold its talc interest including the newly commissioned mill at Three Springs (Figure 95).

To raise cash for its \$1.9 billion expansion of Olympic Dam Operations to 200,000 tonnes per annum of copper, WMC decided to sell all its interests in gold mining operations in Australia (Hill 50, SIGM, AGO and CNGC) and North America, the Nifty Copper Operation, Talc Operations and all petroleum operations in Australia and USA during the latter half of the 1990s (Figure 96).

The Projects Department, however, continued to assess various potential mineral developments overseas in an endeavour to make WMC a more 'international' corporation. Among them was the Wesmeg Gold Project, in northern Canada where extensive drilling had found good gold values (Figure 97).

At Tampakan in the Philippines where WMC had been exploring since 1991, extensive copper mineralisation was discovered in the island of Mindanao and after spending about \$50 million it was decided that the political, social and environmental issues were too complex to proceed and WMC withdrew in 2001 (Figure 98).

Exploration for copper in the Atacama Desert in Chile was undertaken for a number of years without a significant discovery (Figure 99). Other overseas exploration activities such as gold in Uzbekistan and nickel in Cuba were examined during the latter half of the 1990s and all were abandoned in due course and the vision of WMC becoming an international miner faded.

Meanwhile many years of study and review finally established the practicability of developing the large phosphate deposit in Queensland (Figure 100). The availability of natural gas and sulphuric acid made it feasible to recommence development of the phosphate deposits near The Monument to produce a range of high analysis fertilisers for shipment through Townsville.

Sir Arvi Parbo retired at the AGM in 1999 and was succeeded by Ian Burgess (Figure 101). Nickel operations continued to consolidate. WMC withdrew from mining in the Kambalda region and sold many of its leases to smaller companies with purchase agreements for the ore produced.

The Kalgoorlie Nickel Smelter was largely rebuilt and the Kwinana Nickel Refinery was enlarged to 67,000 tonnes per annum (Figure 102). Exploration Division discovered promising nickel-copper mineralisation in the West Musgrave Ranges and more recently WMC acquired the Yakabindie nickel deposit to assure itself of resources for the future.

WMC acquired an option over the vast Corridor Sands mineral sands deposit in Mozambique and over the next few years studied the viability and practicability of its development (Figure 103).

Olympic Dam Operations continued its growth to over 200,000 tonnes of copper per annum while examining the feasibility of further expansions to 500,000 tonnes per annum (Figure 104). Further drilling had established that the Olympic Dam orebody was one of the world's major deposits.

In October 2001 Alcoa made an approach to take over WMC at \$10.20 per share. The WMC Board rejected the offer and to protect the shareholders' interests decided to demerge the Company by separating the AWAC interests from all its other activities. The legal processes took over a year and the demerger was approved by shareholders and took effect from December 2002. Surprisingly there was no immediate bid for Alumina Ltd (Figure 105).

Hugh Morgan retired at the end of 2002 after sixteen years as Managing Director. He was succeeded by Melbourne born chemical engineer, Andrew Michelmore (Figure 106). He focussed his attention on restructuring and consolidating the business units. Tommie Bergmann became Chairman in May 2003.

In November 2004 Xstrata Capital Holdings made a take over bid for WMC Resources of \$6.35 which was rejected by the WMC Board. In February 2005 Xstrata's offer was increased to \$7.20 per share (Figure 107). This was also rejected. In March 2005 BHP Billiton made an offer of \$7.85 per share which was endorsed by the WMC Board and by June 2005 WMC was no more.

2. CONCLUSIONS

WMC went a long way in its 72 years (Figure 108). It has produced more gold than any other company in Australia, over 25 million ounces (Figure 109).

It proved the viability of the bauxite deposits which resulted in Alcoa becoming the world's largest alumina producer (Figure 110).

It discovered and developed the Kambalda and other nickel deposits to become a major world supplier, over 2 million tonnes (Figure 111).

It made a remarkable discovery of the vast multi-mineral resource at Olympic Dam in an area overlain by 350 metres of sediments (Figure 112).

3. ACKNOWLEDGMENTS

Adapted from a presentation prepared by Gilbert M Ralph in 2005 at the time of the takeover of WMC.

Grateful acknowledgement is made to BHP Billiton for permission to reproduce the images in this paper.