

The North Mine

North Broken Hill originated with Block 17, which was located at the northern end of the original seven Line of Lode leases. The lease was pegged out in December 1883 by Julius Nickel and James Anderson as the Cosmopolitan Mine and two shafts were sunk on the lease. The mine was sold to a Melbourne syndicate for £15,000 and renamed as the Broken Hill North Silver Mining Company (North Mine).

In 1888, rich carbonate ore was located at the 200ft level. The ore was smelted at Dry Creek in South Australia and at the concentrating mill at the Junction Mine by the Barrier Ranges Concentrating Company. The Barrier Ranges Concentrating Company failed in 1889 and the Mine was forced to erect its own mill which began concentrating in 1890. By this time, mining operations had exhausted the easily treated ores and sulphide ores were being encountered. The North Mine proved unable to successfully treat the sulphide ores and operations ceased in November 1894. In 1895, the mine was purchased by Mr Halliburton Sheppard for £1,750 and a new company called Broken Hill North Silver Mining N.L. was formed.

Another mine – the Victoria Cross Mine, located on Mining Lease 43 to the north-east of the North Mine – was worked intermittently until c1902 when operations ceased. Mr W L Baillieu purchased a controlling interest in the Victoria Cross Mine which eventually was sold to the North Mine in 1904 for £10,000 in shares with Baillieu becoming a Director of the North Mine.

Floatation

W L Baillieu had, with Auguste de Bavay, established the De Bavay Treatment Company in order to treat ore using de Bavay's floatation process. The job of making de Bavay's process work was entrusted to Herbert Gepp, a young engineer. Gepp spent a considerable amount of time and £65,000 to turn the idea into a usable process.

By 1909, the plant was working successfully and a company was floated as Amalgamated Zinc (de Bavay) Ltd. A new mill was constructed at the North Mine in the vicinity of the Victoria Cross Mine's shaft. This plant used the de Bavay process until 1917 when the North Mine erected its own plant using the Minerals Separation process. With the North Mine moving to treat its own ore, Amalgamated Zinc lacked a source of ore and eventually ceased operations on 5 April.

Consolidation

Early in 1923, the British Broken Hill Propriety Limited Mine (Mining Leases 15 & 16) went into liquidation and was reformed, in March 1923, as British Australian Broken Hill (Ltd). This reorganisation was not successful and operations ceased in October 1923 when the mine was sold to the North Mine for a mixture of shares and cash. The North Mine made the purchase on the understanding that there were considerable ore resources on the site. The British Mine had two developed shafts (Thompsons and Blackwoods) which worked different sections of the Lode; and the Marsh shaft, which was on the northern edge of the lease. The Mine had its own concentrating plant developed from the original plant erected in 1894 which, by 1923, was very similar to that in use at the North Mine. In 1927 it was decided to treat all the crude ore at the North plant, which was modified to be all floatation process. The British Mine operated until June 1930 when it was closed due to low ore prices.

In October 1929, the North Mine purchased the Junction Mine from the Sulphide Corporation. In May 1931, the Junction North Mine was purchased for £2,750. Both mines had been struggling to make a profit for some time. The Junction North had been made insolvent due

to lack of provision for Workers' Compensation and owing £47,382. These mines were closed until the decision was made to reopen the British Mine in August 1936. By these acquisitions, the North Mine had secured an important section of the Line of Lode which, although it had been mined for some time, had the potential to be further developed to exploit new ore bodies with lower grade ore being extracted from older areas.

At the start of the 1930s, the North Mine was geographically dispersed along the Line of Lode. Only two areas were worked; these being the British Section (focused on the old British BHP mine) and the North Section. The British Section consisted of two shafts – Thompson's and Blackwood's – with other shafts within this section not being further developed. In the early 1930s, maintenance only was being undertaken in the British Section due to low metal prices. It was intended to bring the shafts into production, however, once prices rose.

The North Section consisted of No. 1 Shaft (and its associated facilities and mill) and No. 2 Shaft which was being sunk, initially to form a new service shaft. In the north section, it was intended to follow the Line of Lode to the north. This required that No. 2 Shaft be developed for skip haulage of ore out of the mine.

In 1930, No. 1 Mill was extensively refitted to install an all flotation process which was developed at the North Mine. This was the first use of this process in a concentrating mill. The advantage of the all flotation process was the ability to recover both lead and zinc materials by flotation. The main change was the construction of a new grinding section which ground the ore much more finely, resulting in a better product for flotation.

Revitalisation

No. 2 Shaft was commenced in 1928 (near the original Victoria Cross Shaft) and substantially complete by 1934. The structural steel headframe was completed in 1932 and the current cage winder installed in 1936. A crushing station was constructed at the headframe at No. 2 Shaft and underground arrangements were made for all ore to be removed from the mine via No. 2 Shaft from 1933. A large and well-equipped surface change house was completed in 1934.

In 1936, planning began for a new mill to the north-east of No. 2 Shaft. The design of this new all flotation mill was based on 30 years' experience but used gravity (the slope of the hill) to facilitate the flow of material through the mill.

No. 2 Mill was located to the north-east of No. 2 Shaft, on the crest of a ridge (probably the northern end of the Broken Hill ridge). Construction commenced in 1936 with the completed mill being opened on 11 April 1939. The mill took feeds from the North Mine and the British Section (which was trucked in) and, later, a feed from Block 14 (which was acquired in by the North Mine in 1941). The ore flowed downhill to the granular lead concentrate bins or the filter section where concentrate was loaded onto railway wagons (initially narrow gauge). Residues and sands were taken back up the hill through a residue classifier and stored in residue dumps (previously the site of residue dumps from Amalgamated Zinc).

The renovation of the North Mine, which transferred the focus of the mine to No. 2 Shaft, was developed as the major production area of the mine. However, it is notable that these works lacked the trappings of the industrial 'welfareism' demonstrated by similar works at Freeman's Shaft. This may reflect the attitude of the management of the North Mine to the workers, which seems to have been more inflexible than that of the Zinc Corporation

Post World War Two

In the post World War Two era, it was understood that the ore body extended further to the north and that a new shaft would be required at some point. Sinking of what would become No. 3 Shaft commenced in 1948. Full scale sinking, with the aim of reaching the first operational level of 3,070ft, commenced in 1951. In the mid-1950s, the No. 3 Shaft area was developed as the main working area and most of the functions which were located around the No. 1 Shaft area were transferred to purpose-built, modern buildings at No. 3 Shaft area. The North Mine used the architects Stephenson and Turner as consultants for architectural work and design. The project was completed in 1956.

The works involved the construction of the No. 3 Shaft and Brace, No. 3 Upcast Ventilation Shaft, a breaker station and associated conveyor and mullock bin, surface workshops for fabricating steel and timbers and associated roadways and tramways. There was a sub-surface brace which incorporated the changehouse, offices for underground staff, a lamp room, ambulance room, fire station and a waiting room for men going underground. A modern company office building was later erected in 1965. In 1957, an issue of *The Proceedings*, Australasian Institute of Mining and Metallurgy Inc was devoted to technical papers discussing the works at No. 3 shaft.

In 1958, the No. 2 Mill was modified again to an all flotation process. All the jigs and tables were removed and some modifications were made to the grinding process. In 1962 the British Section (including the Junction Mines and Block 14) were closed and sold to South Broken Hill Limited.

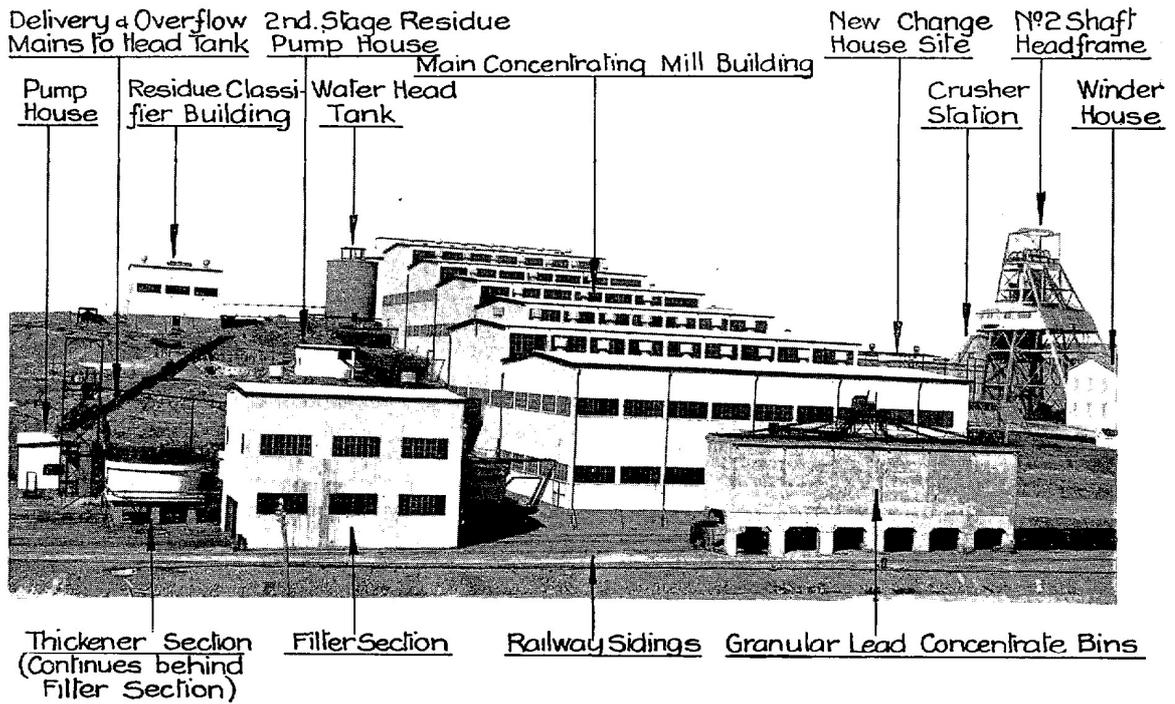
Mining at North Broken Hill remained focused on developing the lodes to the north. In 1981, it was thought that the ore reserves at the North Mine were running out. At No. 1 Mill, most of the buildings and facilities closed in 1975 were to be demolished in 1979 as the area was to be part of an open cut mine developed in late 1980's. The Fitzpatrick area, located further to the north, was a newly discovered ore body which kept the mine operating until the mid 1990s.

Like the mines of the Southern Leases, the North Mine used its existing operations to fund exploration works and the development of other mineral resources.

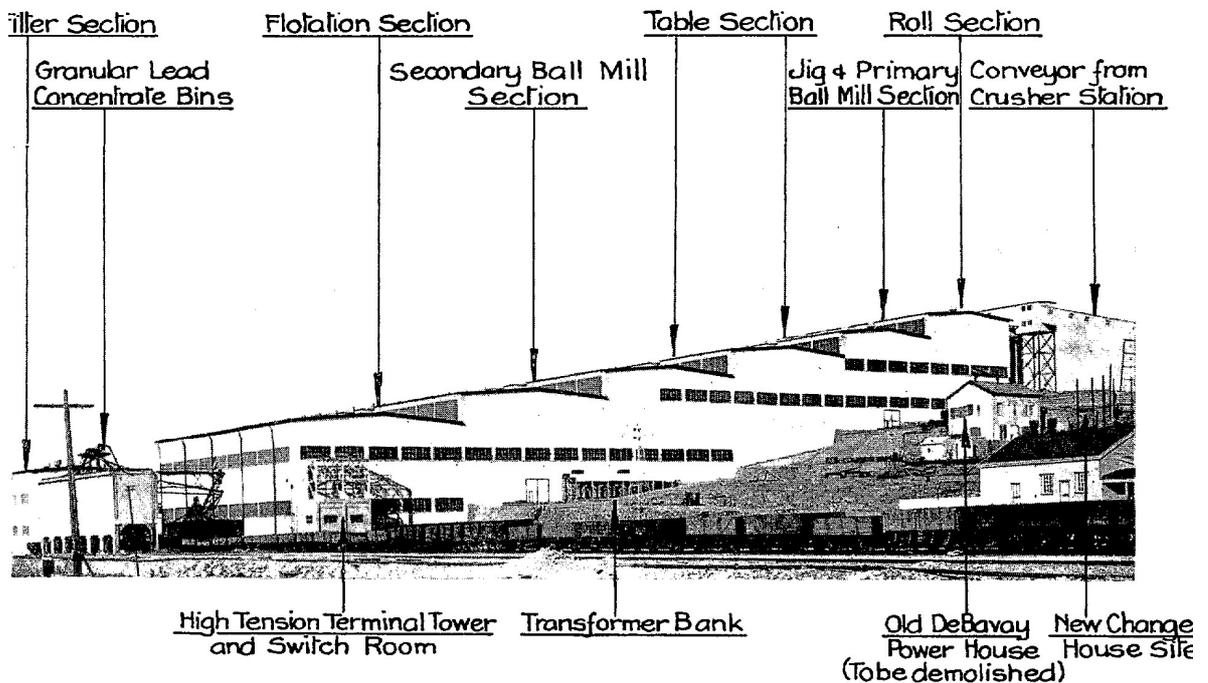
We will enter the North Mine through the Main Mine entrance (marked PN 88). On each side of the bus you can see the Mine Manager's and staff houses.

We will proceed to the entrance road which runs parallel to the railway line (originally 3'6' then Dual Gauge and, more recently, Standard). You will have a stunning view of some remains of the No 1 Mine (PN 61 & 62), then the Shaft and winding gear from No 2 Shaft PN 63 to PN 69) and then the No 2 Mill (PN 70-75). The annotated photo of the Mill shows its features. Unfortunately, we can only view this building from a distance.

We will then drive on to the No 3 Shaft which commenced as a ventilation shaft in 1950 and was subsequently developed as the mines on the southern area of the Northern leases were closed. The main construction period was from 1953 to 1956. The administration block was built in 1965. For those with an interest in Architecture, these buildings appear to be the only architecturally-designed buildings in the Broken Hill mines area – although Stephenson and Turner (“the vanguard of Australian modernism”) may not count the North Mine as a significant achievement.



NEW CONCENTRATING MILL — LOOKING SOUTH



NEW CONCENTRATING MILL — LOOKING EAST

No 2 Mill from the 1939 North mine Annual Report