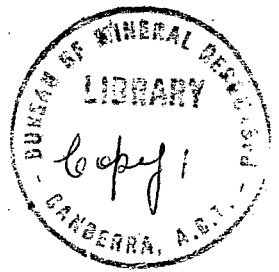


1944/22
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COMMONWEALTH OF AUSTRALIA.



DEPARTMENT OF SUPPLY AND SHIPPING.
MINERAL RESOURCES SURVEY.

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REPORT No. 1944/22 .

Plan No. 1071, 1072.

THE BLACK ANDREW MINE, NEAR BURRINJUCK, COUNTY BUCCLEUCH,
NEW SOUTH WALES.

By

H. B. OWEN
GEOLOGIST.

CANBERRA.

17th May, 1944.

DEPARTMENT OF SUPPLY AND SHIPPING

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1. SITUATION AND ACCESS.

The mine is situated on Black Andrew Mountain about 4 miles south of the wall of Burrinjuck Dam and in the parishes of Goodradigbee and Childowla. It is most easily reached from Yass by road via Weejasper (34 miles southwest from Yass) on the Goodradigbee River. A good mountain road connects Weejasper and Tumut and this road is followed westerly for 12 miles before turning off to the north along the Tumut shire boundary. From this turn-off the road becomes a narrow twisting track through heavy timber with some steep grades and boggy patches. The mine is 7 miles from the Weejasper to Tumut Road and is at an elevation of about 2350 feet above sea level.

2. MAPPING.

Surface features were mapped by C.H. Zelman and H.B. Owen in November, 1942 by stadia alidade and planetable, and underground mapping was brought up to date by F. Canavan and H.B. Owen on 20th March, 1944 using tape, alidade and clinometer.

3. DESCRIPTION OF PLATES.

Plate I shows surface features on a scale of 1 inch equals 100 feet. Topographic contours are at vertical intervals of 10 feet and are referred to a datum established by aneroid at approximately 2350 feet above sea level. The whole of the area covered by the plate is occupied by granite except where basalt is shown. Quartz outcrops are shown in red and the position of the 46 ft. level is indicated by broken lines.

Plate II shows a plan of the level and a longitudinal section of the mine projected on to a vertical plane parallel to the strike of the reefs. The projection is necessarily fore-shortened vertically and to a slight extent horizontally. Thickness of the reefs in inches are indicated.

Stoping indicated by broken lines and the short sub-level below the main shaft have been drawn from sketches supplied by Mr. Hodgkinson, manager of the mine, as some of this work has been carried out since the visit to the mine in March.

4. HISTORY AND PRODUCTION.

Prior to 1942, much exploratory work had been carried out at different times. The two underlay shafts shown on the plan as No. 1 and No. 2 were sunk during the 1914-1918 war and No. 3 Underlay shaft was sunk to a depth of 35 feet down the dip of the vein in 1934. An adit was driven on the vein from the southeast for a distance of 244 feet in 1936-1937.

The total production during all the operations outlined above amounted to about 1.4 tons of concentrates. Assuming that these concentrates were of similar grade to those produced recently the quantity produced would be equivalent to about 0.60 ton tungstic oxide and 420 lb. of bismuth.

The mine was re-opened in April, 1942 by Mr. J. L. Hodgkinson and from May, 1942 to October, 1943 operations were financed by the Controller of Minerals Production who advanced a total of \$8,000. Production from the mine during this period and to the end of March, 1944 is shown in the following table:-

<u>Year</u>	<u>Tons Crushed</u>	<u>Tons Concentrate</u>	<u>Grade</u>		<u>Value (gross proceeds of sale of concen- trates).</u>	
			<u>WO₃ %</u>	<u>B1 %</u>	<u>WO₃</u>	<u>B1</u>
					<u>£A</u>	<u>£A</u>
1942	-	1.50	45.5	15.0	335	95
1943	1,270	5.40	45.9	14.3	1,256	578
1944 [≡]	-	0.75	40.0	12.0	160	65
Total:	-	7.65	45.2	14.2	1,751	738

[≡] Estimated from incomplete data.

5. DESCRIPTION OF WORKINGS.

(See Plate II)

The recent workings consist of a vertical shaft measuring 7 feet by 3 feet 6 inches inside the timber sunk to a depth of 46 feet and a crosscut extended 16 feet from the bottom of the shaft to intersect the vein. This shaft was sunk as a main haulage way but when the underground workings extended to the vicinity of No. 3 Underlay shaft, the latter shaft was connected through to the level and equipped for haulage.

A drive at the 46 ft. level extends along the vein 210 feet northwest and 108 feet southeast from the main shaft crosscut. Three stopes, shown in the accompanying projection have been opened above the drive.

The No. 3 Underlay shaft was continued below the level for 20 feet, and an underlay winze started in the drive at a point opposite the main shaft.

At a point 80 feet southeast from the main crosscut the drive intersected a crosscut from old No. 2 vertical shaft which had been sunk probably between 1930 and 1934. At this point the back of the drive is only 23 feet below the surface.

Other workings are mentioned in Sections 4 and 7 of this report.

6. GENERAL GEOLOGY.

The area in the immediate vicinity of the mine is occupied by acid granite, overlain to the west and southwest of the mine by basalt.

The granite is a pinkish rock with pink orthoclase, glassy quartz and very little biotite.

At the Black Andrew mine the granite is traversed by two or more parallel quartz veins striking northwest and dipping southwest at from 40 to 70 degrees. These veins constitute the wolfram-bismuth deposits.

The weathering is deep and the surface is much obscured by soil cover, and, near the mine, by spoil from shafts, pits and costeans.

7. ECONOMIC GEOLOGY.

46 Ft. Level: The vein to which recent development has been confined is developed along the strike by underground workings for a total distance of 290 feet. In the southeastern end of the drive at 85 feet from the crosscut the vein turns to the south, narrows and splits into several narrow stringers which rapidly die out. The granite is highly silicified at this point. It is possible that the drive has been turned to follow a branch and that the main vein has passed into the wall and been overlooked.

From 80 feet southeast of the crosscut to 80 feet northwest the vein has an average width of 12 inches but increases to 4 feet in the back of the stope 60 feet southeast from the crosscut and 20 feet above the floor of the drive.

At 80 feet northwest from the crosscut the vein is displaced 24 feet to the west by a nearly vertical fault striking east and west. The vein continues on the original strike for 100 feet where it is displaced to the north by a fault dipping west at 75 degrees. A parallel vein comes in on the western side at 50 feet northwest from No. 3 underlay shaft and is truncated by the same fault. The thickness of the second vein at the point where it is intersected by the fault cannot be determined as only the footwall is exposed. On the western side of the fault at 18 feet north of the second vein there is a showing of quartz about 4 feet wide. This may be the continuation of the western vein.

The grade of ore recovered from the main reef in recent operations has been consistently low. During 1943 a total of 1,270 tons was crushed for a recovery of 5.40 tons of concentrates containing 2.47 tons of tungstic oxide and 1,730 pounds of bismuth. This indicates that the grade of the ore delivered to the battery was 0.195 per cent. recoverable tungstic oxide and 0.065 per cent. recoverable bismuth. Undoubtedly dilution of ore with wall rock was serious owing to the narrowness of the vein and the softness of the hangingwall granite, but the effects of dilution were partially off-set by the presence of low values in the wall rock.

At the time of inspection, values in the faces were so low as to be indiscernible to the unaided eye except in the underlay winz where one small speck of wolfram was noticed. Ore on the surface awaiting crushing showed only a trace of wolfram.

In addition to wolfram and bismuth minerals the vein matter is much stained with manganese in places and contains pyrite. A trace of molybdenite was observed on the occasion of the visit to the mine in 1942. It is possible that the manganese staining has led to optimistic estimates of values by the operator.

Adit Level: In the adit the vein widens from 1 inch at the portal to about 18 inches at the face. Values are low and it is reported by C. St. J. Mulholland (Report "Black Andrew Wolfram and Bismuth Mine" dated 27/4/43) that 8 cwt. of picked ore won from the adit in 1937 assayed 4 per cent. tungstic oxide and 0.2 per cent. bismuth.

No. 1 and No. 2 Underlay Shafts: Northwest of the No. 3 Underlay shaft a quartz reef which strikes slightly more westerly than the main reef was developed by the two shafts shown on the plan as No. 1 and No. 2 Underlay shafts. These shafts have now caved and are not accessible but at the surface the reef is 36 inches wide and dips southwest at 52 degrees at No. 1 shaft, and is 18 inches wide dipping 70 degrees southwest at No. 2 shaft. In 1936 a parcel of 11 tons of picked ore from these shafts yielded 0.65 tons of concentrate containing 0.29 ton of recoverable tungstic oxide and 250 lb. of recoverable bismuth, equivalent to 3.2 per cent. tungstic oxide and 1.0 per cent. bismuth contained in the selected ore.

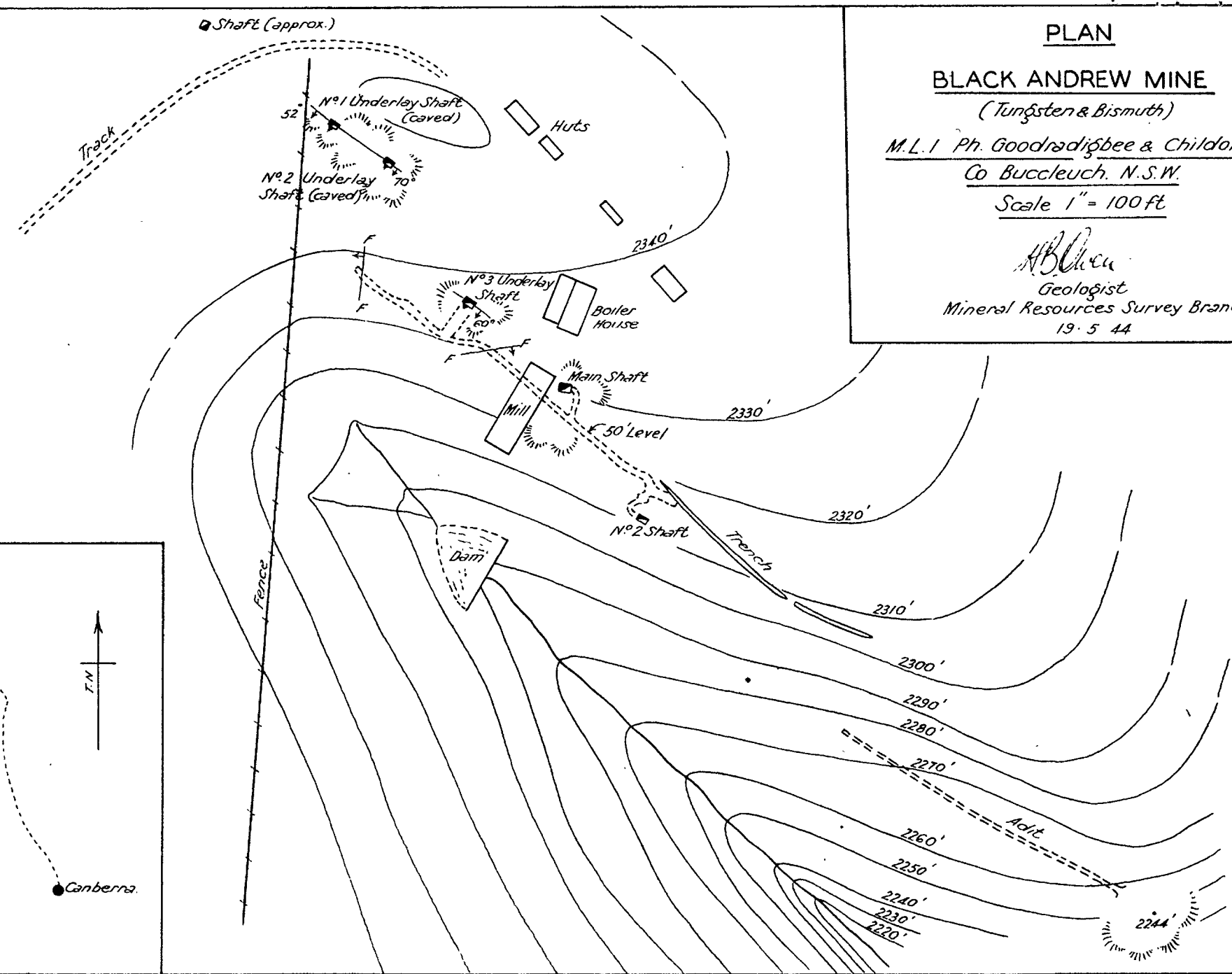
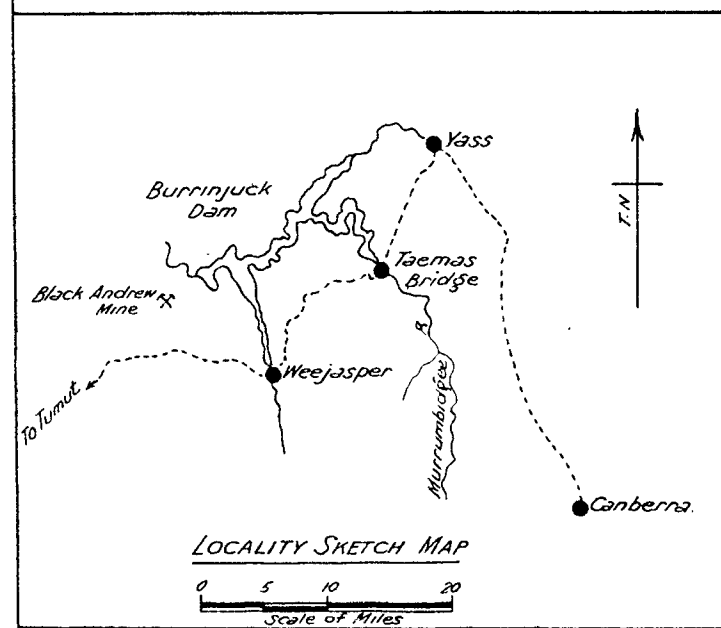
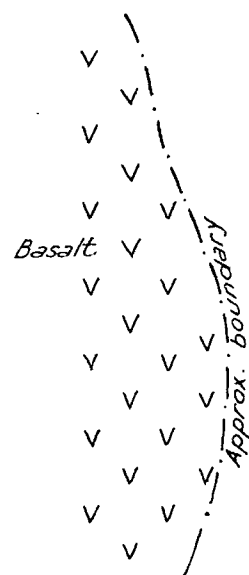
3. CONCLUSIONS.

From the past history of the mine it is evident that the low grade of the ore mined since 1942 is not due to the exhaustion of a rich shoot during earlier activities. Such evidence as can be adduced indicates that values have been low throughout, except for parcels of picked ore, and that former parties of prospectors soon satisfied themselves that the reef did not possess encouraging prospects. The more persistent endeavours of the latest operator failed to disclose payable values and there is no reason to expect any improvement in grade with greater depth. On the other hand an increase in the quantity of pyrite, causing added difficulties to treatment, could be expected.

CANBERRA.
17/5/44.

H. B. Owen.

(H. B. Owen)
GEOLOGIST.



PLAN

BLACK ANDREW MINE

(Tungsten & Bismuth)

M.L.I Ph. Goodradigbee & Childowla

Co Buccleuch. N.S.W.

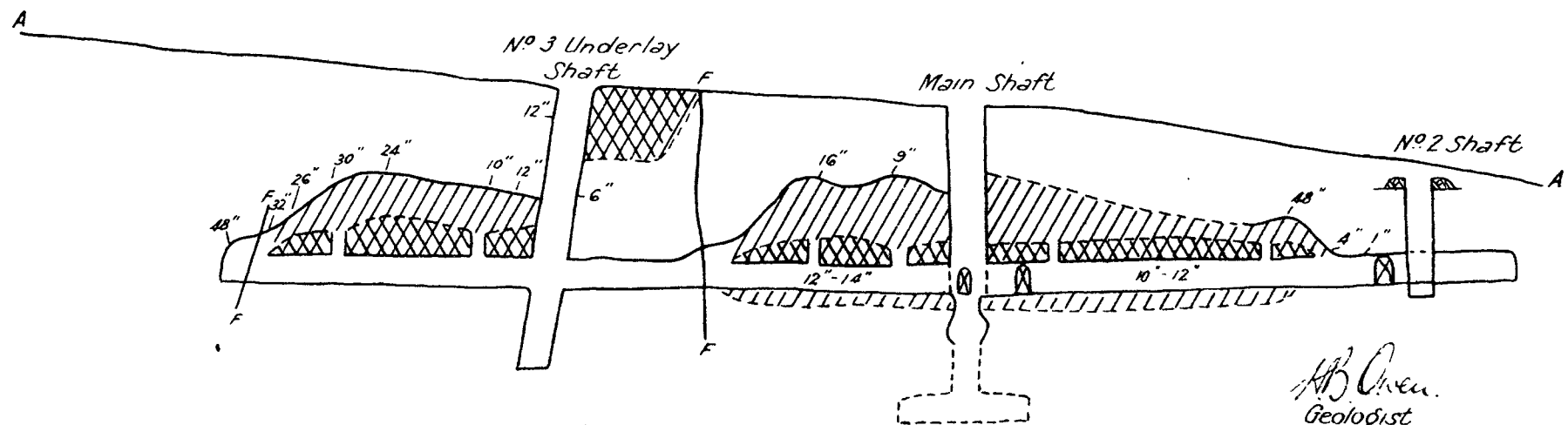
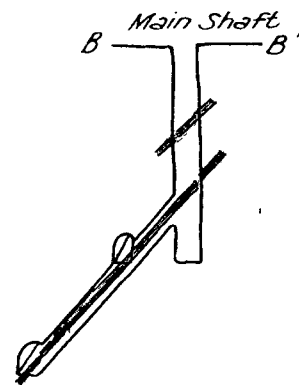
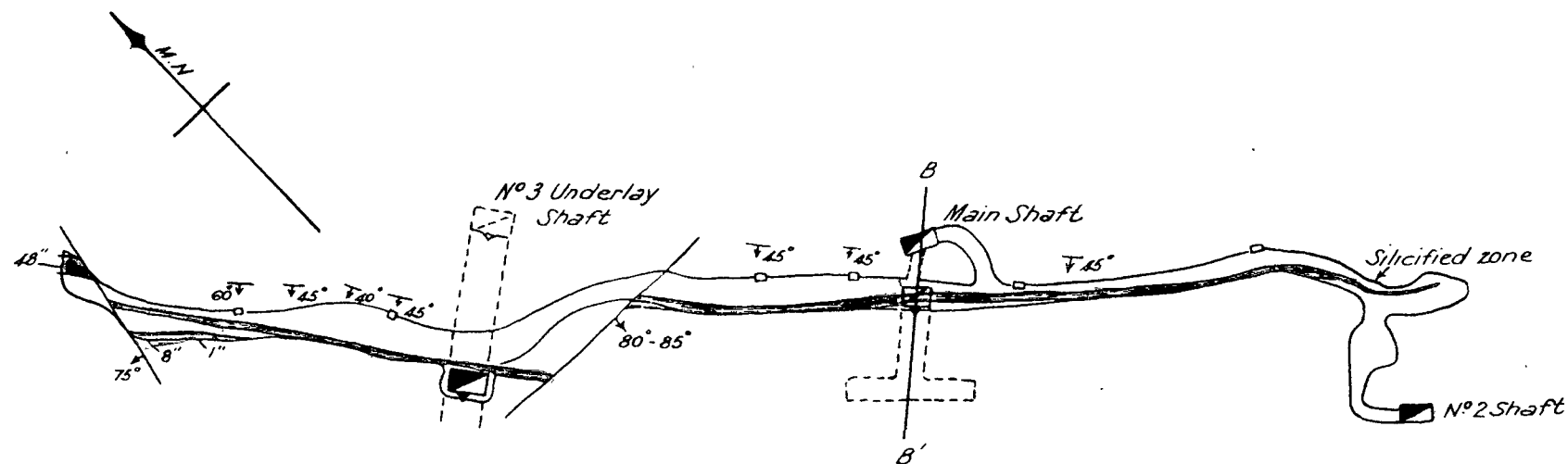
Scale 1" = 100 ft

A.B. Curran

Geologist

Mineral Resources Survey Branch

19. 5. 44






BLACK ANDREW MINE

*Plan & Vertical Projection
of Workings*

Scale 1" = 40 Ft.

Reference

Quartz reef 
 Slope: open 
 " filled 

A.B. Chen.
 Geologist
 Mineral Resources Survey.
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