

COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS



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1949/5

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NOTES ON COPPER MINING AND PRODUCTION.NORTHERN TERRITORY.- By N.H. LUDBROOK. -Report No. 1949/5
Geol. Ser. No. 3

Between 1885 and 1947, 10,492 tons of Copper Ore and 876 tons of matte and blister copper, estimated to contain approximately 3,600 tons of metallic copper, have been recorded as shipped from the Northern Territory.

Prior to 1920, over 70 per cent of the total production was obtained from the Daly River Copper Mines; the remaining 20 to 30 per cent coming from a number of small mines mainly in the Pine Creek and Brock's Creek Districts.

Since 1920, with the exception of small parcels of ore obtained from picking over old dumps in the Pine Creek District, almost the entire output from the Territory has come from Redbank (or Wollgorang) near the Queensland border and the Gulf of Carpentaria and from the Home of Bullion Mine near Barrow Creek, north of Alice Spring.

Copper is fairly widely distributed in the northern part of the Northern Territory but deposits are generally small and shipments of ore limited by high transport costs. It has always been unprofitable to ship ore containing less than 20 per cent copper.

From 1904 to 1909 an unsuccessful attempt was made to obviate high transport charges by operating a smelter at Daly River. Considerable difficulties were encountered with the reverberatory furnaces erected and insufficient sulphide ore is said to have been obtainable for satisfactory operation of the plant, which was closed down in September, 1909.

The production table at the end of this report shows, so far as records are available, the distribution of production between the various mines. Records are not complete and the total production has not been entirely accounted for. The totals shown for 1885 - 1910 are those for exports from the Territory. The table has been compiled from Annual Reports of the Administrator of the Northern Territory and from reports of the Aerial, Geological and Geophysical Survey of Northern Australia. Estimates of metallic content of ores have been made either on such information as is available, or upon the assumption that ores exported from the Northern Territory generally contained about 25 per cent copper.

The following mines have produced copper:

1. DALY RIVER (Hossfeld 1937) (Ann. Rep. 1913)

Mines in this area were worked from 1855 to 1918 for a total recorded production of 5,808 tons of ore estimated to contain about 1,680 tons of copper. The grade of the ore shipped was generally above 28 per cent; lower grade ore was smelted. The lodes occur in black slates of the Daly River stage assigned by Hossfeld to the Mosquito Creek series. The principal lode, the Daly River

Mine was worked over a length of 200 to 250 feet and to a depth of 100 feet. The width of the lode is not recorded, but may have been as much as 15 to 20 feet in the oxidized zone. A grab sample obtained from the dump appeared to represent the primary ore below the open cuts and assayed 8.28 per cent copper and a trace of gold. Several other lodges in the area were worked to shallow depths.

2. PINE CREEK BROCK'S CREEK DISTRICTS:

COPPERFIELD. 4 MILES SOUTH OF PINE CREEK (JENSEN 1919).

Lode 2 to 4 feet wide in Schists worked for many years. Production recorded from 1907 - 1916, 1,358 tons of ore valued at £12,115.

MT. DIAMOND: 2 1/2 m. E. of Pine Creek (Jensen 1919.)

CORONET HILL)
MT. DAVIS) 6 m. E. Mt. Diamond (ditto).

MT. GARDINER: 3 1/2 m. W.N.W. of Mt. Diamond (ditto).

Several lodges characterized by gossanous outcrops and occurring in hornfels associated with granite have been recorded in these localities. 569 tons of ore have been recorded from Mt. Diamond; 526 tons from Mt. Davis; 234 tons from Coronet Hill; 14 tons from Mt. Gardiner, and 69 tons from Mary River.

MT. SHOOBRIDGE: 9 m. S.W. of Brock's Creek (Jensen, Gray and Winters, 1916)

A lode 1 to 3 feet wide was worked over a length of 300 yards from 1903-1910 for a total production of 35 tons of ore exceeding 25 per cent of copper.

IRON BLOW MINE: Yam Creek (Hossfeldt 1937). 3 m. s. of GROVE HILL.

26 tons of ore were shipped in 1907. The lode was a quartz vein in slates and sandstone and carried gold, silver, copper, lead and zinc values. *It was worked for a length of 200 feet & the width was apparently very variable.*

MT. WELLS. 24 m. N.N.W. of Pine Creek.

Bunches of copper ore were met with in the hanging wall of the tin mine. 23 tons of ore recorded as produced.

GODILLA: 62 miles S.E. of Darwin.
11 tons of ore valued at £90 produced in 1907.

RUM JUNGLE: 40 miles south of Darwin.
21, tons of ore valued at £120 produced in 1907.

WOLFRAM CAMP: (Jensen 1919) 28 miles W.S.E. of Pine Creek. A lens of ore with maximum width 16 feet and length 40 feet and carrying wolfram and copper values was worked at a depth of 80 feet in the Burns Wolfram Mine. The mine consists of parallel lodges in mica, quartz, schist near a granite stock.

GRACE CREEK: 6 miles N.E. of Teralba tinfield and 40 miles north of Maranboy.

40 tons of ore were produced in 1930 from a new find. Two shafts of 20 feet and 25 feet respectively were sunk on one foot and 6 inches of good ore respectively and the lode worked between them.

3. KILGOUR CREEK. (Ann. Re. 1918) 6 miles south of Borroloola.

Allode was respected during 1916-17 and 10 tons of 60 per cent ore raised and shipped.

4. REDBANK (JOLLOCORING) (Jensen 1940). 50 miles south of Gulf of Carpentaria and 14 miles west of Queensland border.

The Redbank lodes are small and irregular and occur in low-dipping tuffaceous quartzite grading into tuff and agglomerate and trachyryolite of possible Cambrian age. They have been worked since 1916 to shallow depth (76 feet maximum) or in open cuts for a total production of 882 tons of ore of an average grade of 33 per cent copper. The remoteness of the locality and the difficulty of shipping the ore has been one of the greatest difficulties and only the highest grade ore could be profitably marketed. The ore is sent by road to Massacre Inlet thence by small vessel to Kurumba where it is transhipped and sent to Cairns. From Cairns it has been despatched either to the Chillagoe or to the Port Kembla smelters.

5. HOME OF BULLION LODE: (Hossfeld 1937c) 22 miles by road East of Barrow Creek; 200 miles by road north of Alice Springs.

This mine has been the main source of copper in the Northern Territory since 1943. The deposits consist of quantities of gold, silver and lead. The main lode has a surface length of 550 feet and varies irregularly in width from a mere stringer to a maximum of 20 feet. Its average surface width is 8 feet. The lodes occur in schists and amphibolites of the Arunta complex, which have been locally crumpled and folded.

Total production to the end of 1946 (there was no production in 1947) is 543 tons.

6. PINNACLE WELL. 36 miles north of Alice Spring.

50 tons of ore were produced in 1942 and 1943 but there is no published information on the occurrence.

7. MOUNT HARDY: (Kiek 1941) 260 miles by road north west of Alice Spring.

These deposits were discovered in 1935 and occur in highly contorted schists of the Arunta complex. They have not been thoroughly prospected and there has been no production to date.

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