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REPORT ON THE EXAMINATION OF BERYL PROSPECTS HARTS RANGE, NORTHERN TERRITORY.

by

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SUMMARY

An examination was made of eight mines in the Harts Range Mica Field, to assess the importance of reported beryl occurrences. Previous reports that the grade is extremely low are confirmed. The Disputed Mine contains more beryl than any other mine, but reserves there are probably less than 100 tons and the grade less than one (1) per cent beryl.

INTRODUCTION

The presence of beryl has been reported from several mica mines in the Harts Range Field. An examination of eight mines at which the mineral was reported, was made by N. Jones and D. Moore, in October 1956. Chemical tests were made in the field to confirm the identification of beryl and other minerals.

The grades of "ore" are quoted as a percentage of beryl, and the percentage of beryllium oxide (BeO) will be approximately 1/7th of that figure.

The distribution of beryl in the Harts Range was discussed with Mr. Sneddon, formerly Inspector of Mines for the field, Mr. D. Coggan, Commonwealth Mica Buyer, and with several of the miners on the Mica Field. All these confirmed that:

(1) Nowhere did beryl occur in any great quantity.

(2) The "richest" occurrence was the Disputed pegmatite. This was the only mine mentioned by all questioned.

(3) Occasional crystals have been found in a large proportion of the mica mines.

(4) Some beryl occurs in quartz veins and pegmatite, which do not contain commercial mica but these occurrences are of similar grade to the mica-bearing pegmatites.

Mr. Sneddon advised that rare specimens of the mineral phenacite ($Be_2Si\ O_4$) had been found in one of the mines on the eastern side of the Harts Range. He also advised that a search was made for beryl during World War II, and that an attempt was made to save beryl found in the working of the Disputed Mine. Results, however, did not justify the effort.

PREVIOUS REPORTS

Previous reports of beryl in the Harts Range include those by Jensen (1944), Sullivan (1948), and Joklik (1955). These reports give the nature of the beryl occurrences in the Harts Range. Jensen (p.29) discussing "Other Minerals in the Mica Dykes" states:

"Beryl is a common constituent in many dykes, but not abundant. It occurs in large crystals and aggregates often twinned at the Kismet, in long prismatic crystals in the Ajax No. 1 and Moronis mines, in smaller more disseminated crystals in the Carrara mines, and in many others. Good specimens have been obtained from the White Lady, Spotted Dog, etc." and (p.35) discussing "Other Ecnomic Minerals in the Harts Range":

"Beryl has only been found in the Harts Range as a minor ingredient in pegmatic dykes....it would not pay to hand-pick beryl for the market. Almost massive beryl formations would be required to make a profitable mining proposition".

Joklik (p.174) comments:

"At least twleve accessory minerals, none of which occur in great concentrations, have been recognised in the Harts Range pegmatites. They are listed together with the names of the pegmatites in which they are most abundant...

"Beryl- Disputed, Caruso, Dinkum, Eastern Chief, Kismet"

and also:

"Beryl is generally restricted to the wall zones and intermediate zone. It is associated mainly with potash felspar, but its occurrence in plagioclase is not uncommon. By far the best specimens of the field occur in the Disputed Mine, which contains both bluish-green (Aquamarines) and yellow beryl. Both varieties are extensively fractured".

The only mine description in which Joklik mentions beryl is that of the Disputed (p. 190).

"The zoning system of the pegmatite is fairly complete.... The intermediate zone consists of blocky microline and abundant beryl".

In view of Joklik's preceding comments "relatively" abundant is implied.

Sullivan (1948) states:

"Careful examination showed, however, that though beryl occurs in the Disputed, Eastern Chief, Kismet, Spotted Tiger, and Caruso Mines, the quantity present is small. Methods of mica mining render difficult the saving of small crystals of beryl as the main mass of discarded rock is not sorted in any way".

MINES EXAMINED

Descriptions of the mines are given by Joklik (1955).

Disputed

This mine contains more beryl than any other in the Harts Range and the beryl is more regularly distributed throughout the lode. It is difficult to estimate the grade as the dumps are known to have been well picked over by specimen collectors. Only a small part of the workings is now accessible.

Joklik states that 20,000 tons of pegmatite have been mined from the Disputed. Judging both from the dump and workings, approximately 1/3rd of the lode carries beryl, and the grade of this portion would be of the order of 1% beryl. The estimated beryl reserves are therefore somewhat less than 100 tons as very little of the remaining lode could be worked.

Spotted Dog

No beryl was seen during a brief inspection, although it is reported by Jensen. 134° 54' 23° 4'

Caruso

Beryl was not seen in situ, but judging from the dump several pockets of beryl had been found at the walls of the lode. Perhaps 2 or 3 cwt. could be obtained from the

surface of the dump. The overall grade must be extremely low, although this mine contained more beryl than any mine examined, except the Disputed.

Kismet

Most of the workings have been filled in, and beryl was not seen. One green mineral found was probably a zeolite.

Eastern Chief

Beryl has been reported but none was seen during an examination of the dumps and the accessible portion of the open cut.

Delma

No beryl is present at this mine, but some of the apatite has a beryl-like appearance.

Dinkum

Scattered beryl specimens are present in the dumps from the old workings, but none was seen in the new workings. The grade would be less than 0.2% beryl.

Spotted Tiger

This mine was not examined on this visit to the field, but no beryl was seen during an earlier examination by the writer. The grade must be extremely low.

CONCLUSIONS

The mica-bearing pegmatites of the Harts Range do not contain significant beryl reserves. It is possible, but regarded as unlikely, that more abundant beryl might be present in pegmatites or reefs poor in mica.

The only mine known which has any possibility of producing more than specimens, is the Disputed and its beryl reserves are probably less than 100 tons, and the grade too low to be economic at present prices.

REFERENCE

Jensen, H.I., 1944 : "General Report on the Geology and Mineral Resources of the Harts Range and Plenty River Areas." (unpub.)

Joklik, G.F., 1955 : "The Geology and Mica Fields of the Harts Range, Central Australia". B.M.R. Bull. No. 26.

Sullivan, C.J., 1948 : "Beryllium". B.M.R. Summary Report No. 18.

Alice Springs.
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