

62
COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT
BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS

RECORDS:

1943/42

NOTES ON FELSPAR AT BROKEN HILL

by

N.H. Fisher

The information contained in this report has been obtained by the Department of National Development, as part of the policy of the Commonwealth Government, to assist in the exploration and development of mineral resources. It may not be published in any form or used in a company prospectus without the permission in writing of the Director, Bureau of Mineral Resources, Geology and Geophysics.

MINERAL RESOURCES SURVEY.
DEPARTMENT OF SUPPLY AND SHIPPING.
NOTES ON FELSPAR AT BROKEN HILL.
REPORT No. 1943/42.

GENERAL.

Within three miles of Broken Hill railway station are numerous pegmatite dykes carrying a high proportion of massive feldspar. A few of these dykes are worked sporadically by gougers, many of whom are miners employed by one of the companies and who work feldspar in the weekends, or during the day when they are on night or afternoon shift in the mines, or on compensation. The dykes worked are from three to six feet in width and carry varying proportions of quartz, mica and other minerals in addition to feldspar, which can usually be hand sorted to give a fairly clean grade of feldspar. Present price quoted on rails Broken Hill is £2/15/- per ton, and most of the producers can get their feldspar carted to the railway for 5/- a ton. Rail freight to Sydney is 24/6 per ton.

All the feldspar mined seems to be of the perthite variety, consisting of an intergrowth of potash and soda feldspars in proportions of 2 or 3 or more to 1. The colour varies in different dykes from flesh-coloured, light grey or slightly brownish to greenish white. Only a minor amount of ironstaining was noticed along fracture faces, but scales of fine mica and quartz are not uncommon along such faces. The samples of feldspar collected grind to fairly good colour which is only slightly off white. In most of the workings the proportion of feldspar in the dykes is in excess of 60 per cent. Both the feldspar and the quartz, which is the principal impurity, occur in large masses, and a face 6' x 3' of solid feldspar is not uncommon. The mica is also usually coarse - books were noticed in some workings up to several inches across, though generally fractured at right angles to the lamination.

INDIVIDUAL DEPOSITS EXAMINED.

On July 8th and 9th several of the dykes which were being, or had been worked were examined in company with Mr. B. Hadley, Inspector of Mines. A dyke on flat ground about three miles north of Broken Hill railway station, just east of the racecourse, had been worked for a few feet depth over a length of 30 feet. The outcrop could be traced for another hundred feet or so. The strike is northeast, dip vertical, and average width five feet. Large lumps of vitreous white quartz are distributed through the feldspar and huge crystals of beryl are found mainly along the southeast wall. These crystals are perfectly hexagonal in cross-section, up to one foot in diameter and several feet long. The colour is greenish white. Mica is fairly plentiful and small quantities of columbite are also present.

One half to one mile southwest of this dyke, numerous other pegmatite dykes outcrop on low ridges of schist and gneissic rock. Most of these strike approximately meridionally with the country, but others cut across at right angles and a few strike northeast. Dip in all cases is steep. Cross faults displacing the pegmatite are common and one dyke which had previously been worked by a shallow open cut was observed to play out on an oblique vertical fault.

A lens of good feldspar was being worked by a party of two miners by means of a shaft and a small open cut. This dyke contains a high proportion of feldspar, well segregated from the quartz, which occurs in large lumps. The dyke strikes northeast, and was noticed to be faulted several feet lefthandedly, about 100 feet southwest of the working shaft.

Two hundred yards east of these workings, across a gully,

a miner named Clarke was working an east-west dyke containing similar grade felspar, with probably less quartz and very little mica. Clarke also appeared to be the owner of the dyke with the beryl crystals.

A mile or so east of Broken Hill a similar dyke is being worked by a Mr. Andrews. Workings are down to about 15 feet depth on a 3 to 5 feet width of pegmatite. Along the southern wall of this dyke felspar is finely intergrown with quartz. The mica here is in larger pieces than observed elsewhere, and looks up to several inches across were noticed. This deposit has the distinction of being in demand in Sydney for the manufacture of false teeth, the colour being apparently just right for that purpose.

The large deposit known as Figen's, situated fourteen miles easterly from Cockburn, was not visited as it had recently been examined by Mr. E.J. Kenny of the New South Wales Geological Survey.

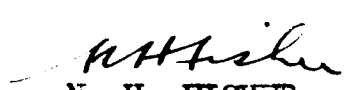
CONCLUSION.

It is obvious from the number of pegmatite dykes, both worked and unworked, in the Broken Hill area, that reserves which could be drawn on if necessity arose are considerable, even apart from the Cockburn deposit, which is reported to be producing at the rate of 60 tons per week.

Factors which have hampered production include -

- (1) Lack of a guaranteed continuous market, particularly before the shortage of Coolgardie felspar was ~~left~~^{felt} by Sydney consumers.
- (2) Scarcity of labour or of men with initiative enough to work felspar in their spare time. This is a reflection of the general high level of prosperity of Broken Hill Miners.
- (3) Unscrupulous practice on the part of some of the producers in the past. For instance, a producer might forward one or two lots of carefully cleaned felspar, then become lazy or careless and send down a consignment containing quartz, mica, etc, which would be rejected by buyers and a cessation of operations would result.
- (4) Lack of machinery for boring. The local prospector's association has been agitating for the provision of a portable compressor, which could be loaded onto a lorry and taken from one to another of the various small prospects - not only felspar - operating in the district. This suggestion has much to commend it, except perhaps for those whose task it would be to keep the peace between the various applicants for its use.

All these factors indicate the general lack of organisation of the felspar mining industry around Broken Hill and until a continuous demand is guaranteed, combined with an incentive to work which is something more than the mere desire to earn a few extra pounds, felspar production at Broken Hill will be strictly of the gougher type.


N. H. FISHER.
Chief Geologist.

27/8/43.