

COMMONWEALTH OF AUSTRALIA

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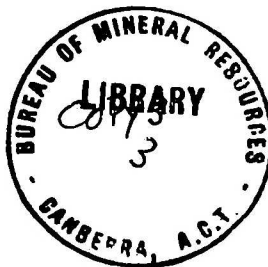
DEPARTMENT OF NATIONAL DEVELOPMENT

BUREAU OF MINERAL RESOURCES,  
GEOLOGY AND GEOPHYSICS.

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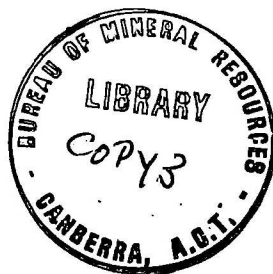


RECORDS 1957, NO. 63.

PRELIMINARY REPORT ON A GEOPHYSICAL SURVEY OF THE  
MOUNT FARRELL MINE, TULLAH, TASMANIA.

by

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## 1. INTRODUCTION.

In response to an application from the Mount Farrell Mining Company and the Department of Mines, Tasmania, a geophysical survey of areas adjacent to the Mount Farrell Mine was carried out by the Bureau of Mineral Resources between 23rd January and 15th April, 1957.

## 2. GEOLOGY.

The Farrell lode is a steeply-dipping zone of mineralisation in steeply-dipping slates (the "Farrell slates") adjacent to a boundary of slates and "porphyroid" rocks known locally as "felsites". The mineralisation occurs in a zone of shearing or fracturing along a fault line. There are no major fractures across the lode line, but local variations occur in its strike.

The ore occurs in shoots which are usually narrow (of the order of 3 feet wide) but which, in some places, are up to 40 feet wide and range up to a few hundred feet in length. Mining has proceeded to a depth of nine hundred feet. The chief mineral is galena, with pyrite and some sphalerite and chalcopyrite.

## 3. THE PROBLEM AND METHODS USED.

The problem was to determine if there is an extension of the Farrell lode and if there are any parallel lodes. The mineralisation of the Farrell lode is of a type that would render it a good electrical conductor and consequently the inductive electromagnetic method of prospecting was used.

The self-potential method was also used as this is often effective in locating sulphide mineralisation, particularly when the sulphides are undergoing oxidation.

An area about one-and-a-quarter miles long by half-a-mile wide was surveyed; the distance between traverses ranged from 75 feet to 400 feet but was mostly 200 feet. The whole area outlined on Plate 1 was surveyed using the electro-magnetic method and selected portions were surveyed using the self-potential method.

## 4. RESULTS.

In general, wherever an electro-magnetic indication was obtained a self-potential indication was also obtained. Indications were obtained in the following three areas:-

1. An area on the Farrell line of lode, but to the north of existing underground workings, where a strong persistent electromagnetic anomaly occurs. This anomaly is marked on Plate 1 as "Indication A", and could possibly represent a northern extension of the lode shear. A strong self-potential anomaly coincides with the electromagnetic anomaly. It is considered that the anomalies are caused partly by the zone of shearing and partly by a shoot of sulphide minerals in an extension to the lode. The self-potential anomaly is not as extensive as the electro-magnetic anomaly, but it may

arise from an oxidising shoot of ore.

2. An area about 800 feet east of the Farrell lode line and marked on Plate 1 as "Indication B". This indication is parallel to the Farrell lode line.

This area might warrant testing. Any lead mineralisation located by drilling on this indication would be a new discovery and any ore proved in it would add to the reserves of the field. It should be noted that this indication lies outside the leases held by the Mount Farrell Mining Company.

3. In the northern part of the surveyed area some small electromagnetic and self-potential anomalies occur between 1500 and 2000 feet east of the Farrell line of lode. The positions of these anomalies are not marked on Plate 1. It is considered that the anomalies are caused by pyritic mineralisation distributed through certain bands of slates. It is not expected that the mineralisation would have any economic value.

#### 5. CONCLUSIONS.

The results of the survey indicate two specific areas worthy of testing for the presence of ore. One is on the northern extension of the Farrell lode line, and the other a separate lode line to the east of the known Mount Farrell lode and south-east of the mine workings.