COMMONWEALTH OF AUSTRALIA
DEPARTMENT OF NATIONAL DEVELOPMENT
BUREAU OF MINERAL RESOURCES,
GEOLOGY AND GEOPHYSICS

RECORDS 1952 No. 86

PRELIMINARY REPORT ON

MAGNETITE DEPOSIT

GULGONG, N.S.W

by

S. HORVATH

1952/86B

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Final Typing

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GULGONG MAGNETITE DEPOSIT (NEW SOUTH WALES)

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1. INTRODUCTION

At the request of Australian Magnetite Pty. Ltd. of Melbourne and with the approval of the New South Wales Mines Department a geophysical survey was carried out over a lease held by that Company near Gulgong, New South Wales, in the Parish of Puggoon in the County of Bligh.

The area is situated about 7 miles north of Gulgong where the Company operates a mill for crushing, fine grinding and concentrating magnetite ore. The pulverized, concentrated magnetite is used in the heavy liquid separation and cleaning of coal.

2. THE PROBLEM

The present supply of magnetite ore comes from the magnetite mine at Tallawang, about 12 miles from Gulgong. As a result of increasing difficulties in mining this deposit, the best part of which has already been stoped out, Australian Magnetite Pty. Ltd. is desirous of opening up and developing a new and suitable deposit in order to ensure the necessary continuous supply of ore to the mill. The deposit of magnetite in the Parish of Puggoon is partly exposed in outcrops and in a trench, and is probably of lens-like form. It occurs in a Silurian formation. The task set for the geophysical survey was to determine the full extent of the deposit and its approximate shape before a decision was made on a position for a new opencut.

3. METHOD

Five traverses were pegged by the Company within the area of the lease. ~~Some re-pegging of these was done by the Bureau and a sixth traverse was added.~~ a sixth line of observations was taken on an unpegged traverse The traverses were pegged about 100 feet apart with observation points spaced at 50-feet intervals along each traverse. Through an error in pegging, the alignment of the observation points is somewhat faulty (see Plate 1).

A magnetic survey was carried out over the pegged area on the 4th and 5th August, 1952, by S. Horvath and H. Oldham, geophysicists of the Bureau of Mineral Resources. The magnetic measurements were made with a Watts vertical force balance with a scale value of 27.6 gammas per scale division. No horizontal balance was available at the time of the survey, but the results showed that it would have been desirable to measure both magnetic components over the area of the magnetic anomaly in order to obtain more information about the shape of the magnetic body.

4. RESULTS OF THE SURVEY

The results of the magnetic survey are shown on Plates 1 and 2 accompanying the report. Six traverses were surveyed with the magnetometer. The three southerly profiles (0, 64N and 180N) on Plate 2 show no magnetic variations of any significance, but the three northerly profiles (280N, 370N and 430N) give a clear and well pronounced anomaly. This indicates a magnetic body striking approximately north and at very shallow depth.

The maximum reading on profiles 370N and 430N exceeds 3,000 gammas and the anomaly is present on the northernmost profile with undiminished strength. The survey was, however, not continued further north, as that area is already outside the Company's lease and lies in a large wheat paddock.

The magnetic survey shows, so far, an orebody at least 150 feet in length. An old trench which lies near the southern end of the magnetic anomaly shows the outcropping ore. Also, there is an old shaft between profiles 370N and 430N on the western edge of the magnetic anomaly. A crosscut from this shaft towards the east would reveal the thickness and quality of ore as the shaft is situated close to the best parts of the anomaly.

It must be remarked, however, that the anomaly is quite close to the north-eastern corner peg of the lease held by the Company. The anomaly extends beyond the lease boundary and the present survey did not reveal the full extent of the magnetic body. It appears desirable to extend the magnetic survey beyond the area already investigated.

Some magnetite has also been found south of the surveyed area, in places where it can hardly have been shed from the body now investigated.

5. CONCLUSIONS

It therefore seems advisable to extend the survey both to the north and south of the area covered by this report to in order to determine the full extent of the magnetic anomaly a distance of several hundred feet in each direction. ~~It is~~ Moreover, it is possible that another magnetite body might be found in this way.

It is also suggested that some test traverses be surveyed over the magnetite quarry now being worked at Tallawang and probably also to both sides of it in the direction of strike. The results would enable a comparison to be made between the magnetic anomaly over the known orebody at Tallawang and the recently discovered one at Gulgong. It should also give useful information regarding reserves for the development of ~~the~~ future production.

(S. Horvath)
Geophysicist.

Melbourne.
November, 1952.

/Distribution

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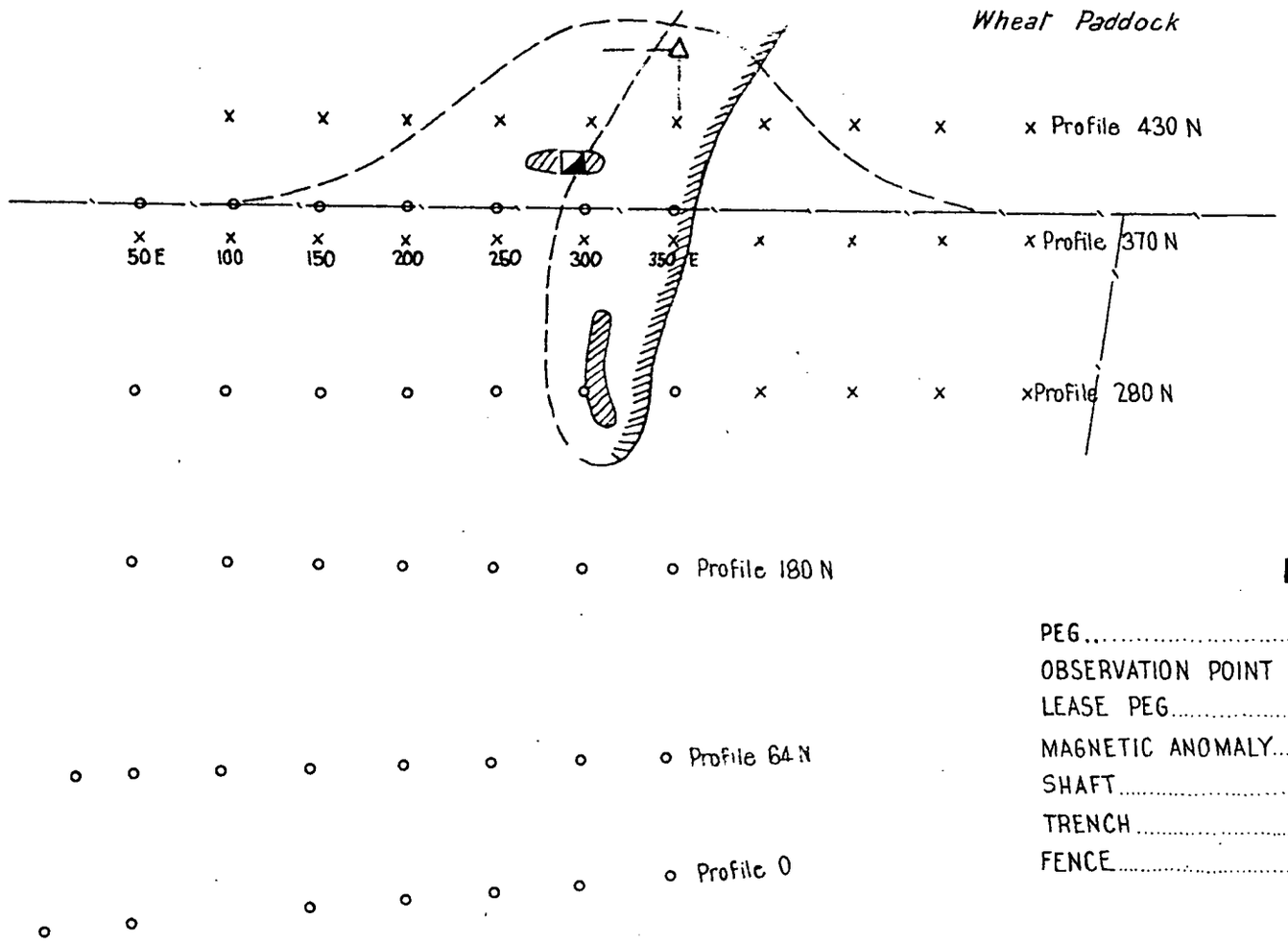
PLATE 1



LEGEND

PEG ..... o
OBSERVATION POINT WITHOUT PEG x
LEASE PEG ..... ∠
MAGNETIC ANOMALY .....
SHAFT .....
TRENCH .....
FENCE .....

SCALE

100 0 100 200 FT.

C. Howarth
GEOPHYSICIST

SKETCH MAP

OF

GEOPHYSICAL SURVEY AT MAGNETITE DEPOSIT IN
PARISH OF PUGGOON NORTH OF GULGONG N.S.W.

Geophysical Section, Bureau of Mineral Resources Geology & Geophysics

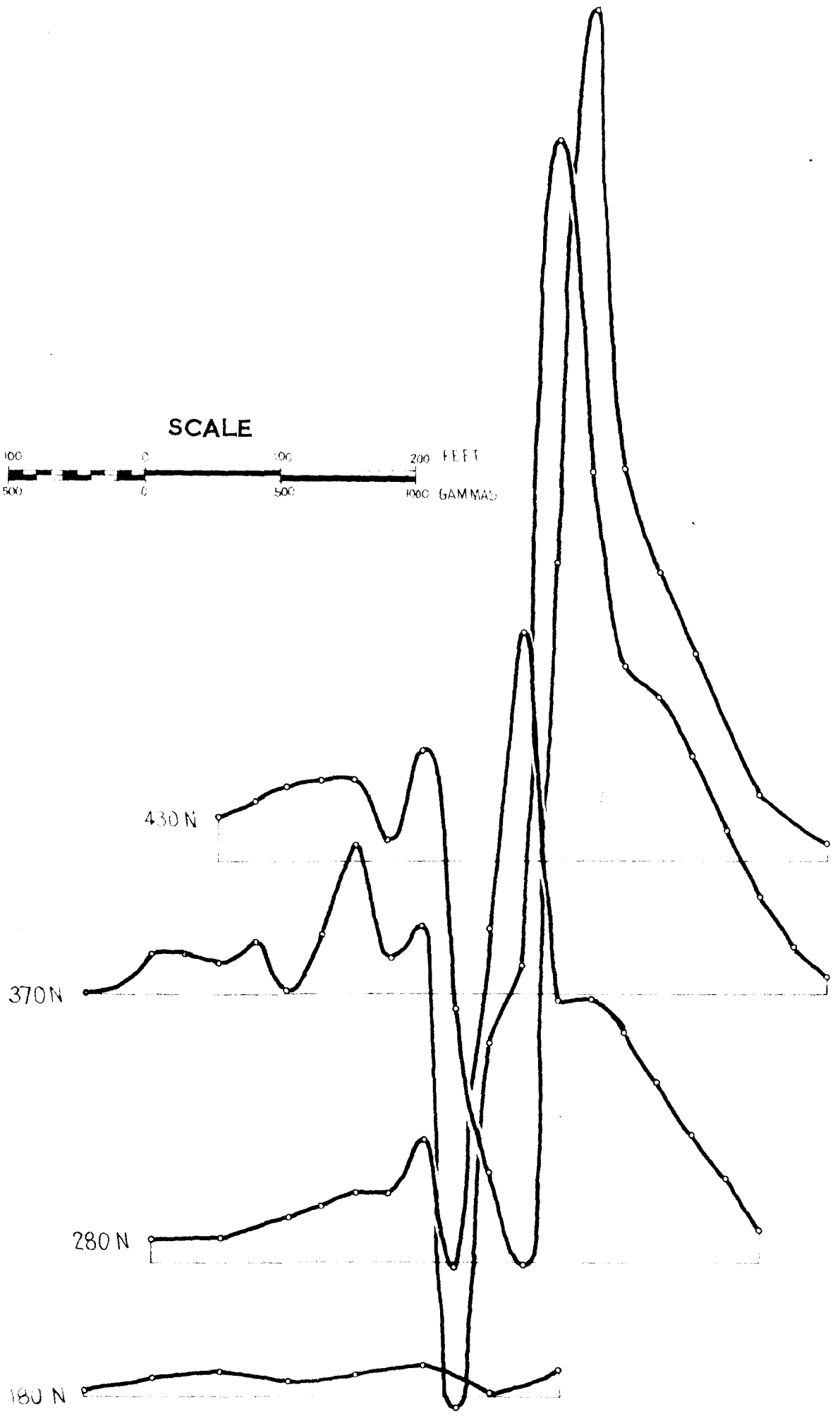
G122-1

PLATE 2

SCALE

HORIZONTAL 100 0 100 200 FEET

VERTICAL 500 0 500 1000 GAMMAS



GEOPHYSICIST

GEOPHYSICAL SURVEY AT MAGNETITE DEPOSIT IN
PARISH OF PUGGOON, NORTH OF GULGONG N. S. W.

PROFILES OF MAGNETIC VERTICAL INTENSITY

Geophysical Section, Bureau of Mineral Resources, Geology & Geophysics

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