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COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT
BUREAU OF MINERAL RESOURCES
GEOLOGY AND GEOPHYSICS

RECORDS

1949/80

COBAR GEOPHYSICAL SURVEY - 5TH PROGRESS REPORT

by

L.A. Richardson

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

COBAR GEOPHYSICAL SURVEY

5TH PROGRESS REPORT

REPORT NO. 1949/80

GEOPHYSICAL REPORT NO. 5

The attached diagrams, numbered G28-11 and G28-12, show results of diamond drilling carried out by Enterprize Exploration Ltd. for the purpose of testing the Peak Magnetic Anomaly and the Spotted Leopard No. 1 Magnetic Anomaly.

In both cases the drilling has revealed the presence of wide mineralised zones containing a small amount of pyrrhotite. The rocks penetrated are slates and sandstones. The magnetic logging results serve to outline the limits of mineralisation and confirm the existence of magnetic anomaly bodies which are capable of giving rise to the magnetic anomalies measured on the surface.

Drill core from the Peak No. 1 Drill Hole has been subjected to a mineragraphic examination by Dr. F. Stillwell and a copy of his report is included as an appendix to this report. Drill core specimens from Peak No. 2 and Spotted Leopard No. 1 holes have been forwarded to Dr. Stillwell and it is likely that his report on those specimens will be available within a few weeks. When it is received copies will be furnished to serve as an additional appendix to this report.

The absence of ore in these anomaly bodies, where tested, may be regarded as a feature contrary to known conditions at Cobar where the Great Cobar, Dapville, New Cobar, Chesney and C.S.A. magnetic anomalies are closely related to useful mineralisation. In this connection attention is drawn to the following geophysical considerations which may have a bearing on the problem of ore-finding.

1. The magnetic logging results in Peak Nos. 1 and 2 holes suggest that the magnetisation of the sediments shows a tendency to increase with depth and it is possible that at some depth below No. 2 hole there exists material with strong mineralisation. There is no other direct geophysical evidence to support or condemn this possibility. However, there may be some support from the geological side, such as the suggestion by C.J. Sullivan that the basement is deeper at the Peak area than at Great Cobar area. The results of Dr. Stillwell's examination will probably contribute important evidence on this subject.

2. The Peak Drill Holes 1 and 2 have tested the upper portion of the anomaly body in a vertical plane at approximately the centre of the anomaly. The strike-length of the anomaly body is considerable and perhaps it should be tested at other parts where useful mineralisation could exist. Geological investigations may suggest such parts for testing.

3. Drilling completed on the Peak area to date gives no clue concerning the origin of the gravity anomaly found to exist there.

4. The very weak mineralisation encountered in the Spotted Leopard No. 1 Drill Hole gives no encouragement for

deeper examination of that anomaly body. Other anomalies are present on this "line" which are in the same class as the Spotted Leopard No. 1 anomaly from the geophysical point of view, but these may be in a more suitable environment for mineralisation than that of the No. 1 anomaly. If they are to be tested it is likely that additional and more detailed field work will be needed before a drill site is selected.

L. A. Richardson

(L. A. RICHARDSON)
Superintending Geophysicist.

Melbourne,
27th May, 1949.

MINERALOGRAPHIC INVESTIGATIONS

OF THE COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH. REPORT NO. 403.

University of Melbourne

24th March, 1949.

Drill Core from No. 1 Hole Peak Area, Cobar, N.S.W.

A number of specimens of drill core from the No. 1 hole Peak Area, Cobar, NSW. have been submitted for inspection and examination by the Bureau of Mineral Resources. The specimens range from 590' to 800' in the bore and consist of slate with pronounced cleavage from 590' to 750'. The core consists of an arenaceous sediment from 760' to 790' with slate bands at 770'. At 800' the core is again slate.

The drill throughout this length of core has traversed a lightly mineralised zone which may possibly represent the fringe of more intense mineralisation.

No magnetite has been detected in the specimens and the magnetic properties of the core appear to be solely due to disseminated pyrrhotite.

The sulphide minerals are essentially pyrrhotite and pyrite. Occasional traces of chalcopyrite and arsenopyrite occur with the pyrrhotite. A small calcite vein, 3/4 cm. wide intersects the core at 780' and contains traces of sphalerite and galena in addition to pyrrhotite.

The pyrrhotite throughout the slate occurs in narrow discontinuous threads, generally less than 1 cm. in length and about 0.1 mm. in width, which lie along the cleavage planes of the slate. A visible increase in the amount of pyrrhotite occurs in occasional, narrow, individual beds in the slate, indicating some beds have been more porous to the mineralising solutions than others. Occasionally there are discontinuous, irregular veinlets of pyrrhotite, 1-2 mm. across, along a bedding plane.

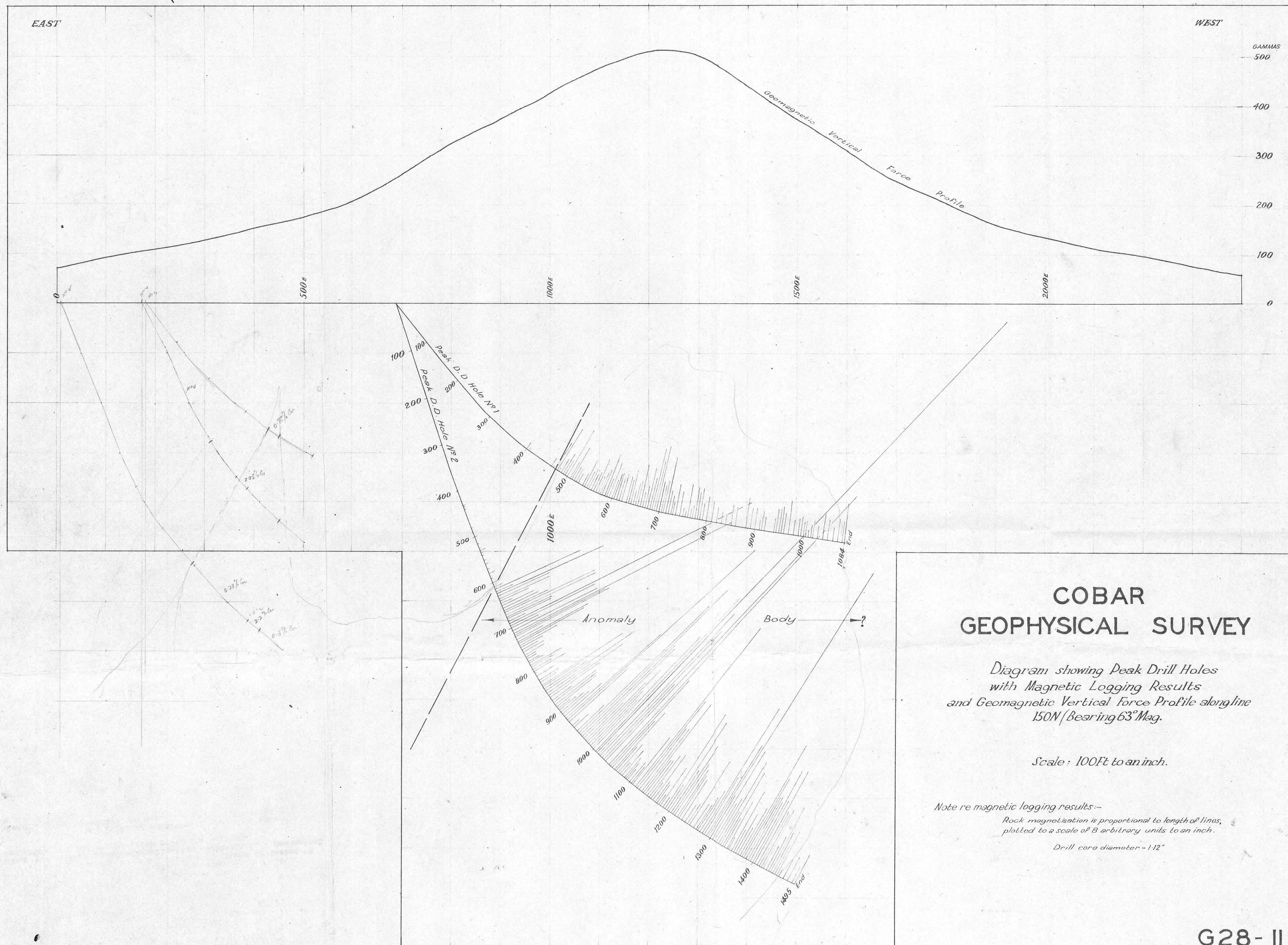
Pyrite accompanies the pyrrhotite in most of the core. Rarely it appears as sporadic cubes 2-3 mm. across. More often it occurs either as isolated sporadic minute crystals in the slate or as crystals surrounded by pyrrhotite and with tails of pyrrhotite extending from the pyrite in both directions along the cleavage plane.

A trace of chalcopyrite occurs with pyrrhotite in many sections of the bore, but crystals of arsenopyrite were observed only at 640' and 709'. Small amounts of rutile or anatase occur in most of the samples.

Narrow calcareous beds up to 1/2 cm. in width occur in the core at 630' and there is a slight concentration of pyrrhotite along the margins of these beds.

Where the core is arenaceous as at 760', 780' the cleavage is indistinct or lacking and the minute grains of pyrrhotite and pyrite are sparsely but uniformly dispersed through the rock.

(sgd) Frank L. Stillwell.



COBAR GEOPHYSICAL SURVEY

*Diagram showing Peak Drill Holes
with Magnetic Logging Results
and Geomagnetic Vertical Force Profile alongline
150N (Bearing 63° Mag.*

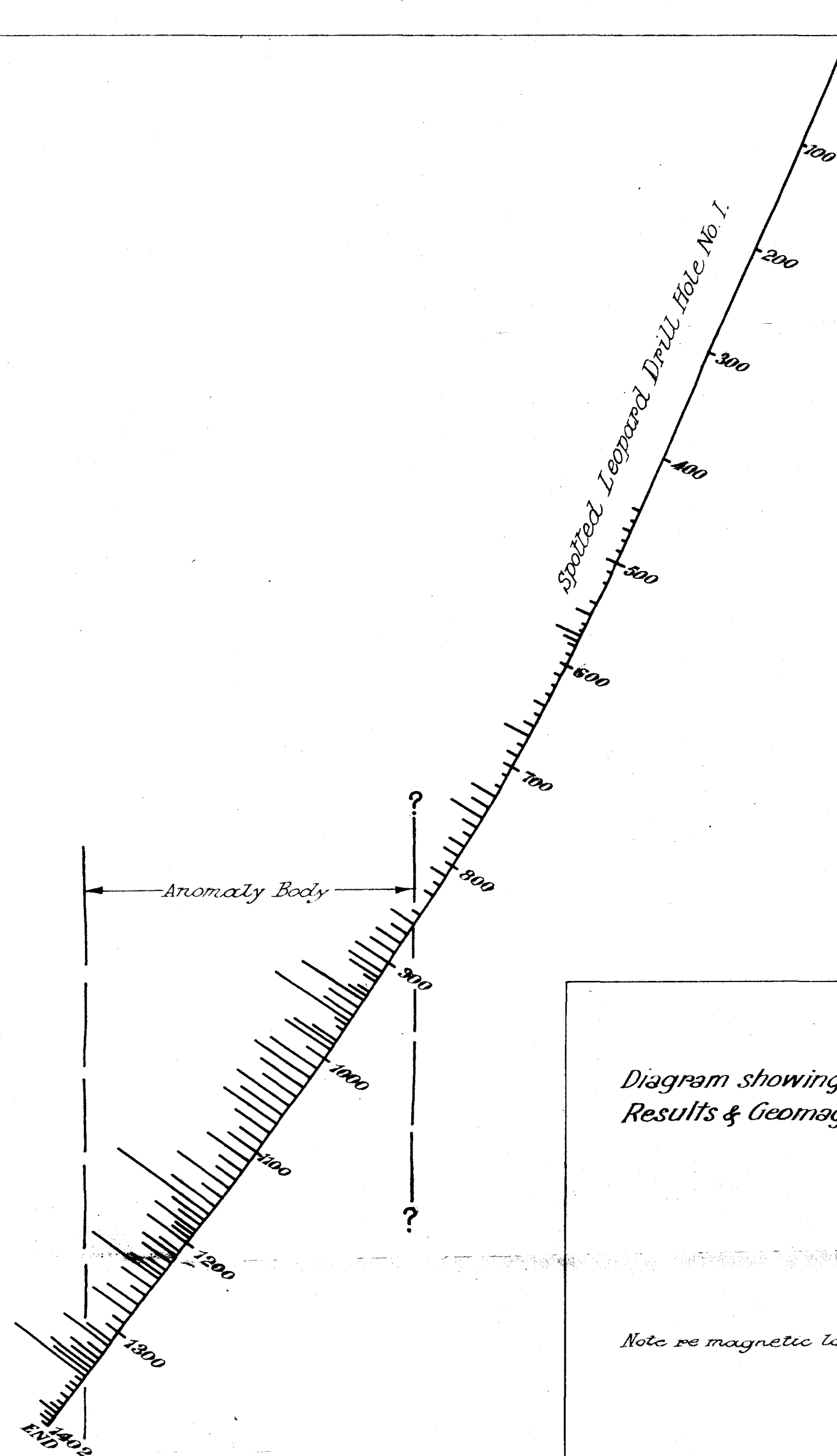
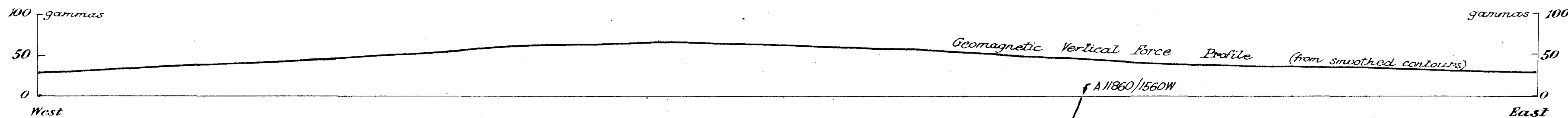
Scale: 100ft to an inch.

Note re magnetic logging results:-

*Rock magnetisation is proportional to length of lines,
plotted to a scale of 8 arbitrary units to an inch.*

Drill core diameter = 1.12"

G28- II



COBAR GEOPHYSICAL SURVEY

Diagram showing Spotted Leopard Drill Hole 1 with Magnetic Logging Results & Geomagnetic Vertical Force Profile (on line bearing 259 mag.)

Scale: 100 Feet to an inch.

Note re magnetic logging results:-

Rock magnetisation is proportional to length of lines, plotted to a scale of 8 arbitrary units to an inch.

Drill core diameter = 1.65"

G28-12