COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

RECORD No. 1962/160

CURNAMONA AIRBORNE MAGNETIC SURVEY, SOUTH AUSTRALIA 1962

by

R. Wells

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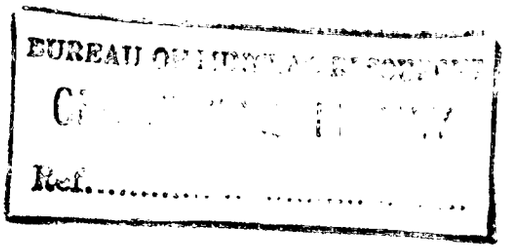

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ILLUSTRATIONS

SUMMARY

An airborne magnetic survey of the Curnamona 4-mile area, South Australia, was made in May 1962.

Survey operations and equipment are described.

Survey results were forwarded to the Department of Mines, South Australia, for reduction and compilation.

1. INTRODUCTION

The airborne magnetic survey of the Curnamona 4-mile area was made at the request of the South Australian Department of Mines. The Bureau of Mineral Resources' DC.3 aircraft VH-MIN, based at Broken Hill, was used to survey the area, from 7th May to 24th May 1962. Sixty nine lines were flown at one-mile intervals on an east-west heading. Seven tie-lines were also flown on a north-south heading. These traverses totalled 7080 miles. The survey was flown at a nominal mean height of 1500 ft above ground level and navigated visually along predetermined lines drawn on aerial photographs.

The three southernmost 1-mile areas, viz. Glenorchy, Kalabity, and Boolcoomata, were previously flown at a height of 500 ft above ground level during a survey in the Radium Hill area in 1952.

Bureau personnel in the Curnamona survey were R. Wells (party leader), F.E.M. Lilley, P.B. Turner, K. Mort and C. Braybrook. A South Australian Department of Mines officer, D. Sutton, was also attached to the survey.

2. EQUIPMENT

Changes in the intensity of the Earth's magnetic field were continuously recorded by an MFS-4 fluxgate magnetometer and displayed, with a sensitivity of 50 gammas/in., on a Speedomax chart recorder.

An Aeropath 35-mm strip-camera was used to photograph the flight path. The aircraft's air position was recorded by an air position indicator coupled to a 'Recti-riter' chart recorder. The air position cordinates in two components at right angles were also displayed on two Veeder counters which were photographed at intervals of 10 seconds.

All records were correlated by fiducial marks at intervals of 10 seconds.

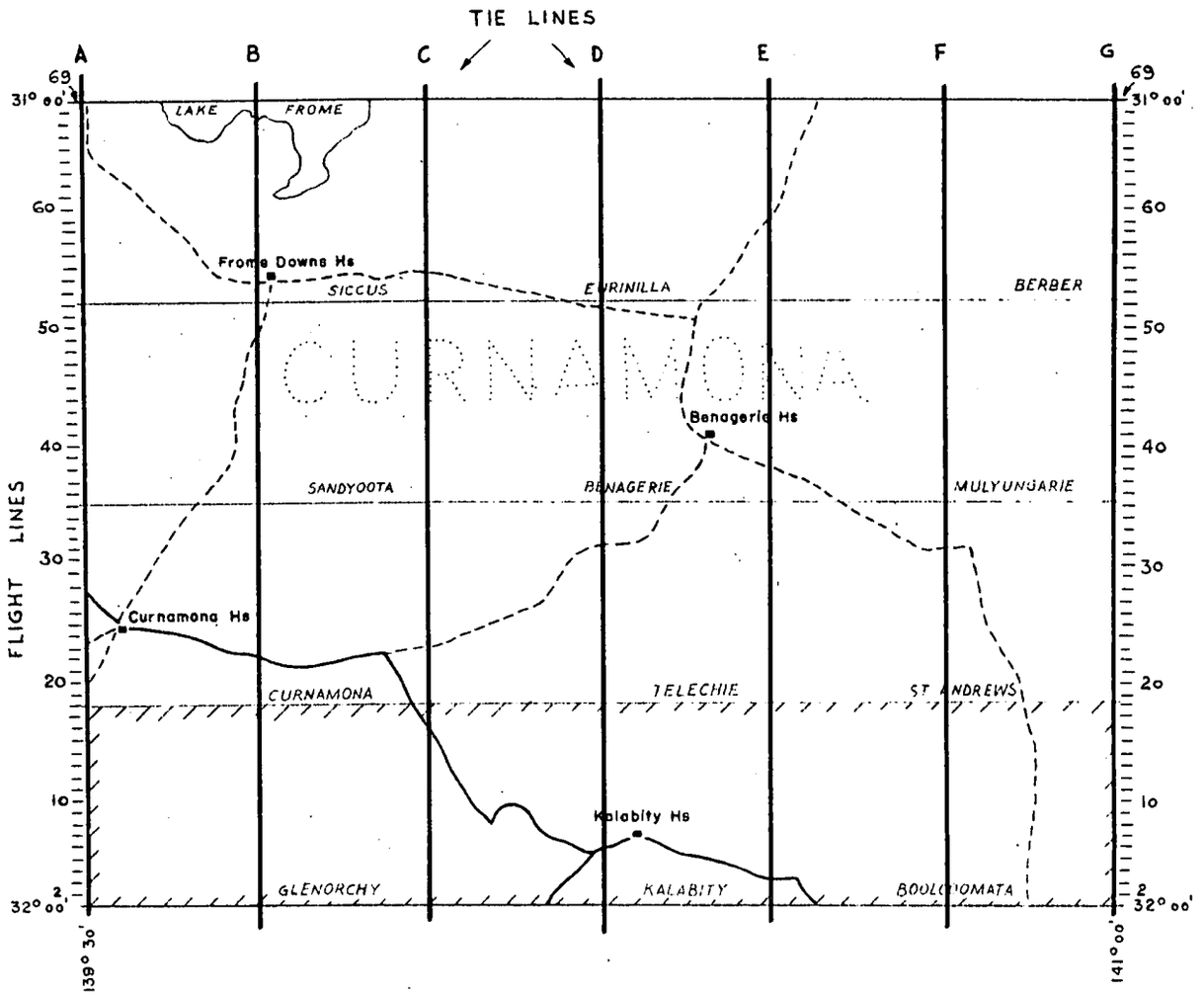
During survey flights an MND-1 fluxgate magnetometer was operated at the base station at a nominal sensitivity of 20 gammas/in., to monitor diurnal variation and magnetic storms.

3. RESULTS

A preliminary inspection of the magnetic results indicates that steep anomalies of the order of 1000 gammas occur along a line striking approximately north-north-east and passing through latitude 31° 45', longitude 139° 45'. In the northern part this line is flanked by broad anomalies of the order of 300 gammas; these broad anomalies extend to the eastern and western boundaries of the survey area. The southern part of the line of steep anomalies is less-clearly defined and is lost in the generally disturbed pattern associated with the Archaean granites and metasediments outcropping in the Kalabity 1-mile area.

By arrangement with the Director of Mines, the records of the survey were forwarded to the Department of Mines, South Australia, for reduction and compilation.

PLATE 1



AIRBORNE MAGNETOMETER SURVEY, 1962

CURNAMONA
S A

SCALE

MILES 10 0 10 20 30 40 50 MILES

RADIUM HILL, 1952 AEROMAGNETIC AND SCINTILLOGRAPH SURVEY

Geophysical Branch, Bureau of Mineral Resources, Geology and Geophysics G 428-1-2

TO ACCOMPANY RECORD No 1962/160