

FIGSBURY RINGS
GEOPHYSICAL SURVEY
AUTUMN 1981

SITE
Figsbury Rings Hillfort

OS MAP
SU 13 SE

PARISH
Winterbourne Dauntsey

LOCATION
Approximately 3 miles NE of Salisbury, on a promontory of the chalk downs, c 150m above sea level. (Fig 1).

GEOLOGY
Chalk, with flints.

ARCHAEOLOGY
The roughly circular earthworks consist of a rampart with outer ditch, and a wide inner ditch, some distance within (Fig 2).

AIM OF SURVEY
To determine whether there is any geophysical evidence for the presence of a bank originally associated with the inner ditch.

SURVEY METHODS

- 1/ RESISTIVITY - Martin-Clark Meter
Twin-probe configuration, 0.5m spacing
Readings taken at 1.0m intervals
- 2/ MAGNETIC SUSCEPTIBILITY - Conservation Instruments Meter (with 8" field coil)
Spot readings taken at 1.0 or 2.0m intervals.
- 3/ AUGER - Hand augering, down to bedrock, at 2.0m intervals.
- 4/ MAGNETOMETER - Scanning with Plessey (0.5m) fluxgate gradiometer.

Two sample areas (A and B) were chosen for investigation (Fig 2). These were aimed to cover ground outside the areas of excavation in 1924 (Cunnington 1925). Area A (132m x 30m) consisted of a strip from the centre of the site to the inner edge of the rampart. The traverses (Fig 3) correspond to the NW edge of the survey area. Area B (72m x 30m) concentrated on the ground either side of the ditch. The traverses (Fig 5) are along the N edge.

The survey grids were tied into the revised (Autumn 1981) RCHM plan.

INTRODUCTION

In the present state of our knowledge of the application of geophysics in archaeology, the two most suitable methods for detecting traces of an eroded bank are soil resistivity and magnetic susceptibility measurement. On chalkland, resistivity can either detect loose chalk blocks remaining from the bank structure, which raise the readings; or a dome of natural chalk formerly protected by a bank will give low readings at the time of year the survey was made, because of the thinner layer of relatively dry soil overlying it. Susceptibility measurement depends on the fact that topsoil is generally more magnetic than bedrock, and the remnants of a bank will dilute the topsoil, giving low readings. Measurements over the sites of the banks of Woodhenge and of the henge at Coneybury Hill, Amesbury, have demonstrated the responsiveness of both methods to the effect of chalk blocks; while study of a bell barrow on the Hog's Back has demonstrated the soil depth response of resistivity (Clark 1980). Magnetic susceptibility is also enhanced by human occupation, mainly because of the effect of fires on the iron compounds responsible for the magnetism of the soil.

Although it was tested on this site, magnetic detection by magnetometer would be unlikely to respond to a bank in these circumstances.

TREATMENT OF DATA

The traverses are reproduced in a standard graphical form, with the exception that in "D" (Figs 3 and 5) the vertical scale has been exaggerated in order to show the variation in the depth of topsoil as revealed by augering.

For the detailed survey the individual susceptibility and resistivity readings are displayed in various forms: the full set of data values is seen when the readings are displayed as traces, but for the contour and dot density plots cut-off levels are set so that only a range of values which appears significant for the interpretation of the survey is shown. Two sets of traces are included, with the lines

rotated through 90° in an attempt to show any of the subtle differences associated with a bank. Both contour and density plots are included to demonstrate different visual impressions of the plan.

RESULTS

Area A

Traverses (Fig 3)

The lips of the ditch show as distinct resistivity peaks, as expected, but no other significant anomalies are apparent. The ditch itself shows as a low area of magnetic susceptibility, a result of the lack of topsoil, particularly on the ditch sides. An increase in the susceptibility is visible inside the rampart.

Detailed Survey (Fig 5)

An analysis of the traces shows two apparently distinct regions, corresponding to a region of high background noise, and a region where the general level of reading is higher, but the background noise comparatively less. It is difficult to explain this picture, but presumably the results reflect the combined effects of differential ploughing, a slight increase in topsoil depth and the change in the slope of the ground. One thing that is clear, is that there is no geophysical evidence for the presence of a bank on either side of the ditch.

Anomalies of potential archaeological significance are visible (Fig 4, Plots 3 and 4) but it is not possible to interpret their nature without covering a larger area of ground. They may well reflect erratic ploughing disturbance and arbitrary variations in the depth of topsoil.

Area B

Traverses (Fig 4). Detailed Survey (Figs 6 and 7)

The traverses show a broadly similar picture to Area A, and the detailed survey failed to produce any conclusive evidence. The susceptibility readings are more interesting, showing a clear band of higher readings inside the rampart. Augering failed to identify a quarry ditch here. The results seem to reflect human activity, suggesting occupation in this area of the earthwork. By contrast, the readings for the interior are much lower.

Magnetic scanning with the magnetometer failed to produce any evidence for a bank, as expected, but did detect a few isolated anomalies, presumably reflecting pits.

CONCLUSIONS

Despite exhaustive attempts to extract conclusive results from the geophysical data it must be stated that there is no clear evidence to support the view that a bank was once associated with the inner ditch. Destruction of a bank by ploughing is possible, but this might have led to more silting of the ditch than is observed. The evidence, therefore, suggests that the material was transported to the outer bank either immediately or shortly after the inner ditch was dug.

The susceptibility tests suggest that any occupation is most likely to be found on the berm inside the rampart. If correct, and if the occupation was there at the time of the strengthening of the rampart, this might explain the digging of the ditch some distance inside. The continuity of the ditch suggests that it could have had a function in its own right, perhaps serving to separate the occupation inside

rampart from an inner area, reserved for stock? Detailed magnetometer surveying would be most suited to looking for patterns of occupation and coupled with phosphat analysis it might be possible to test this theory.

The problems posed by the Figsbury site may only be solved by modern excavation techniques.

REFERENCES

- Clark 1980 - Resistivity detection in archaeology
Unpublished PhD thesis, University of Southampton.
- Cunnington 1925 - Figsbury Rings. An account of the excavations in 1924
Mrs M E Cunnington WAI
June 1925 No CKLII, Vol XLIII, pp 40-50.
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Fieldwork: J A Gater, IM Welfare

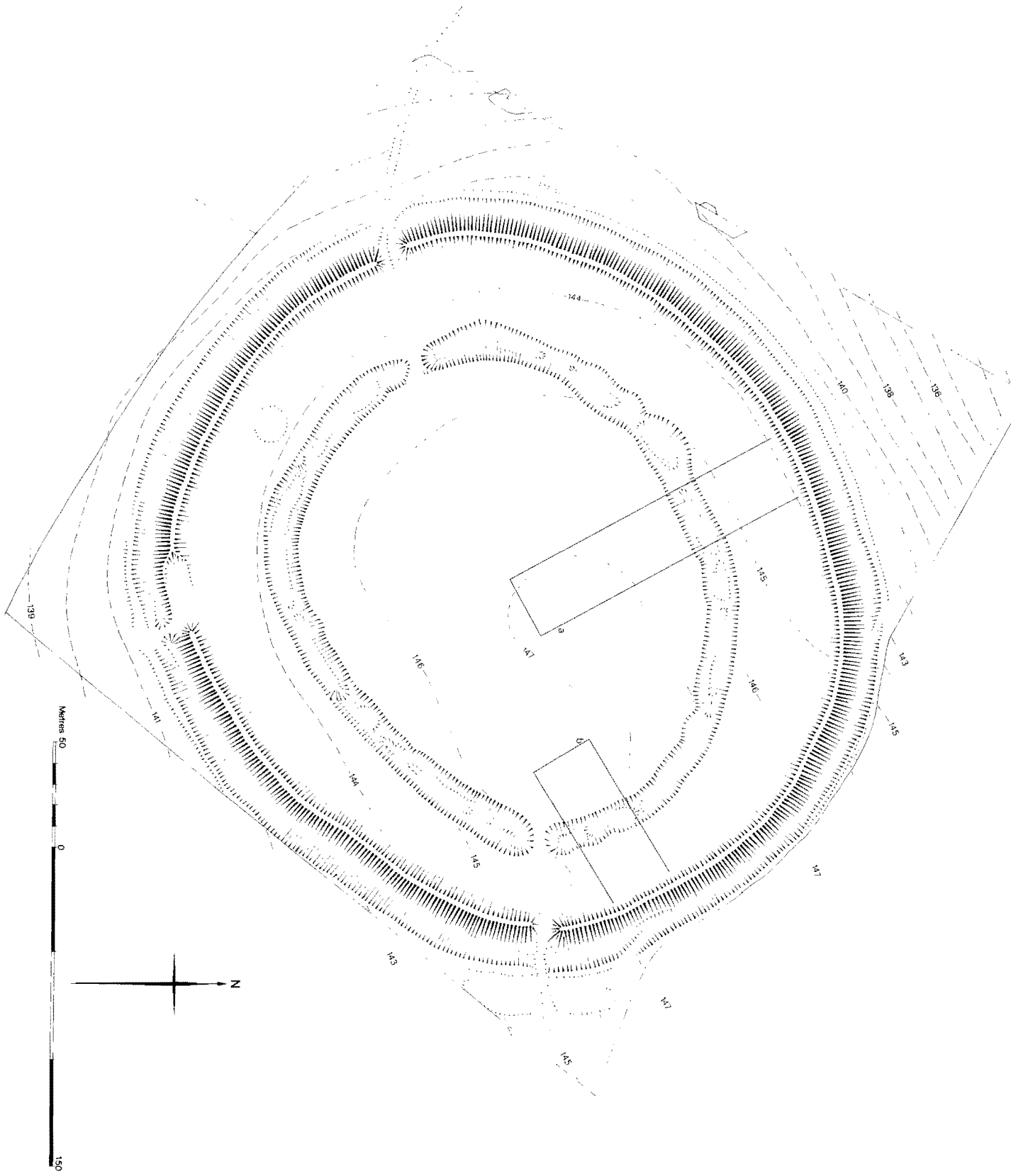
Computing: A Bartlett

Report: J A Gater, A J Clark

J A GATER
November 1981

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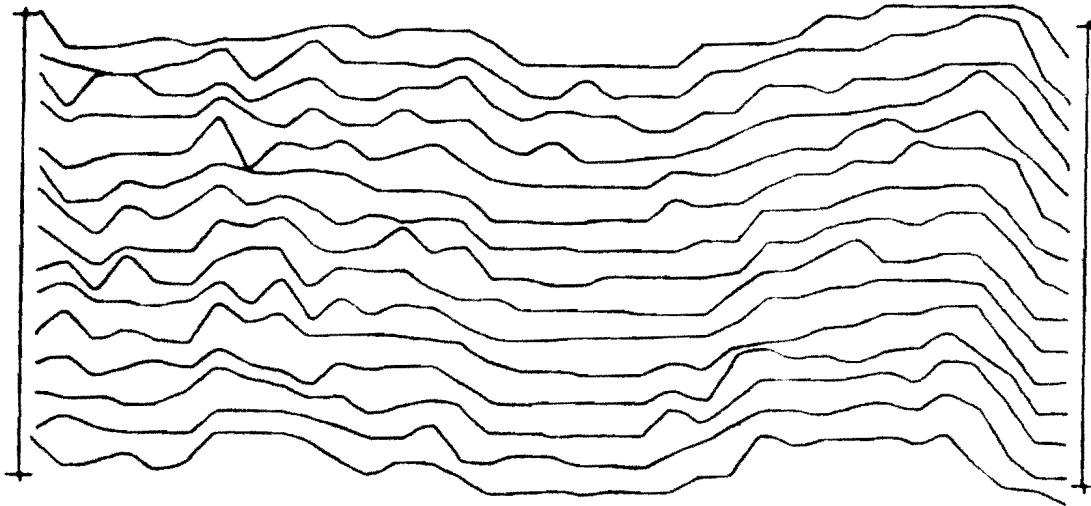
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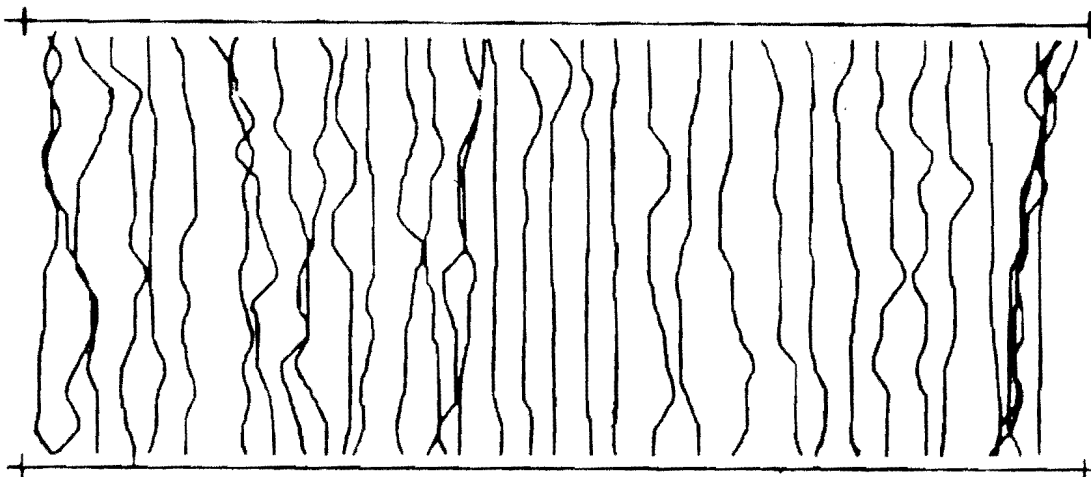
FIGSBURY RINGS AREA B

MAGNETIC SUSCEPTIBILITY

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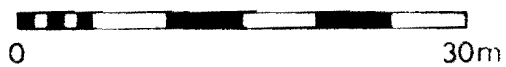
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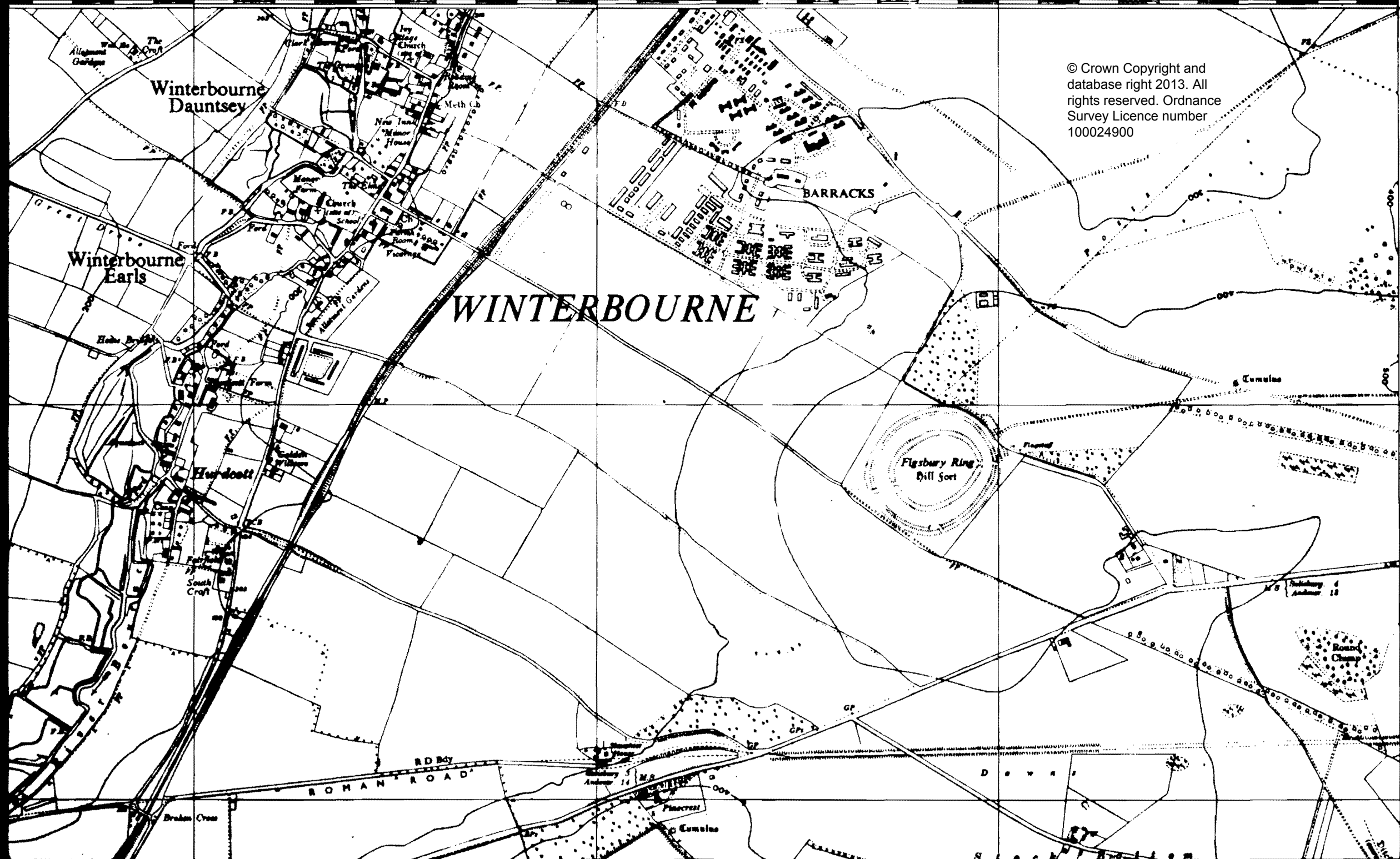
3. DDT DENSITY RANGE MEAN ± 2 S.D. 16 LEVELS



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Hill Fort

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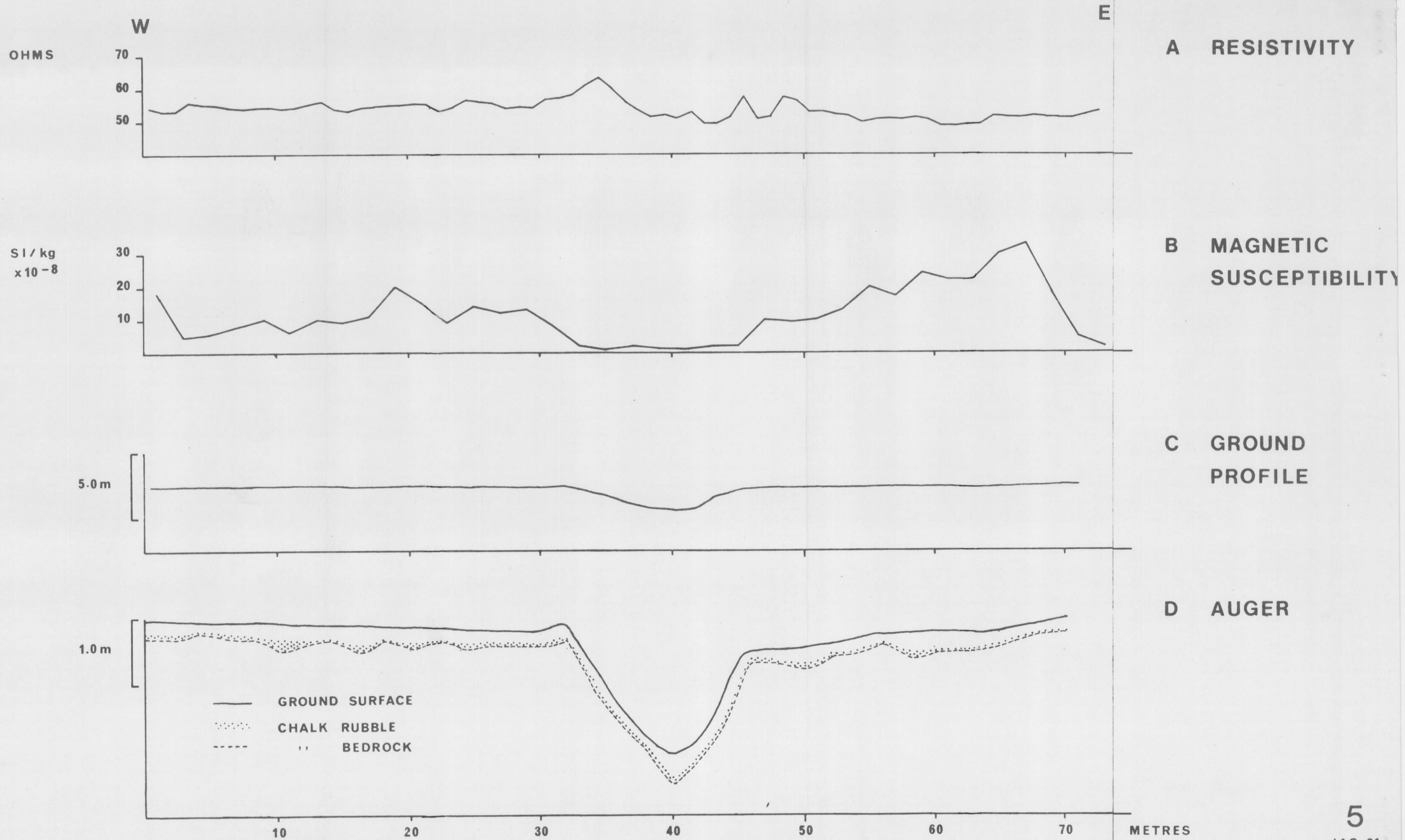
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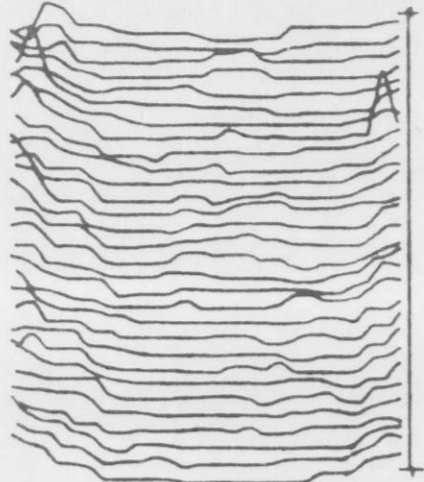
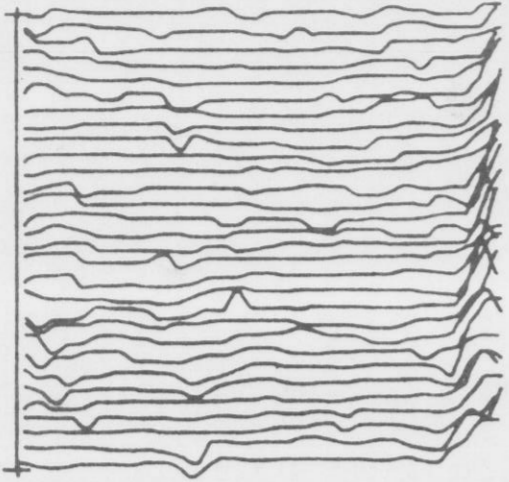
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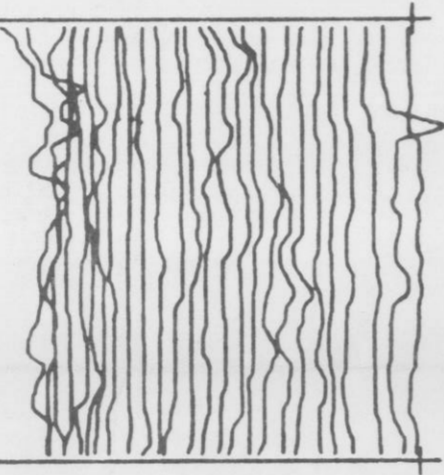
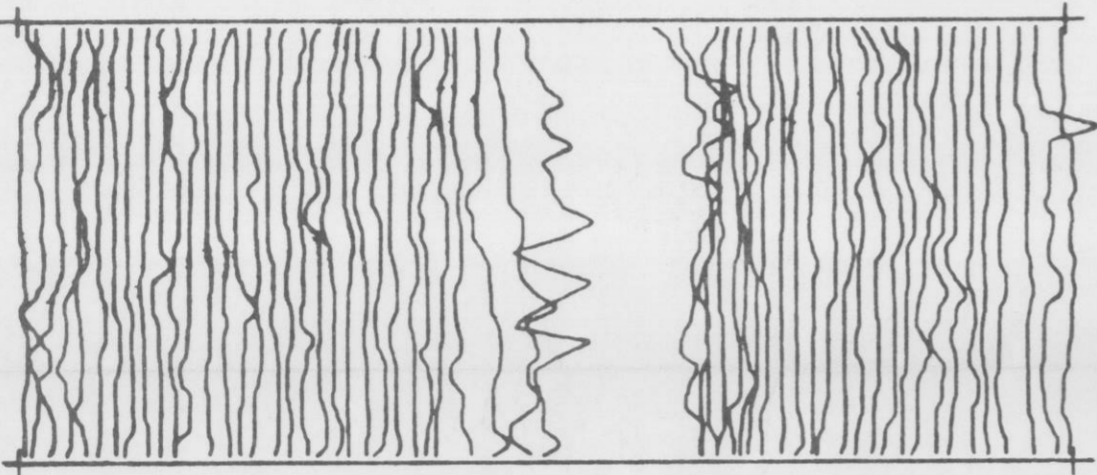
FIGSBURY RINGS

AREA B

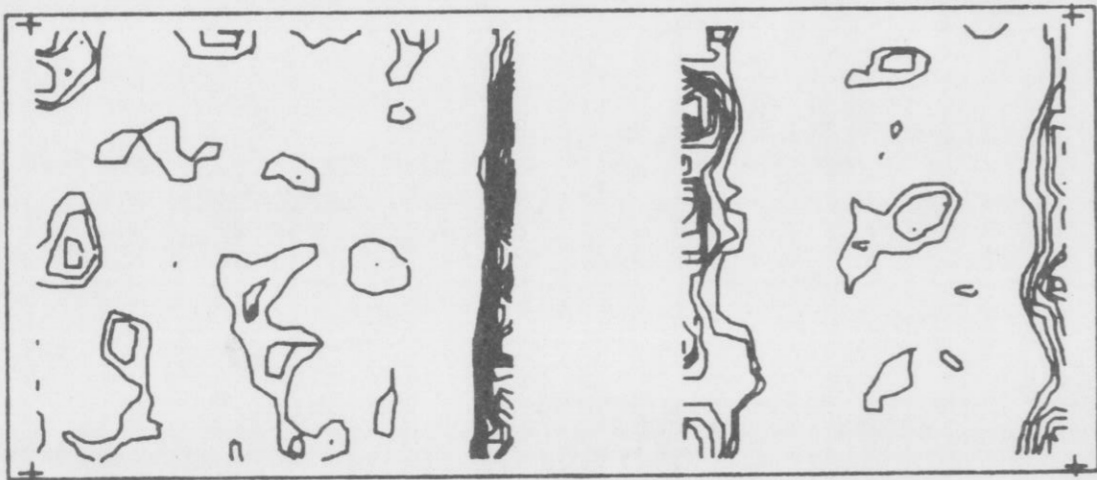
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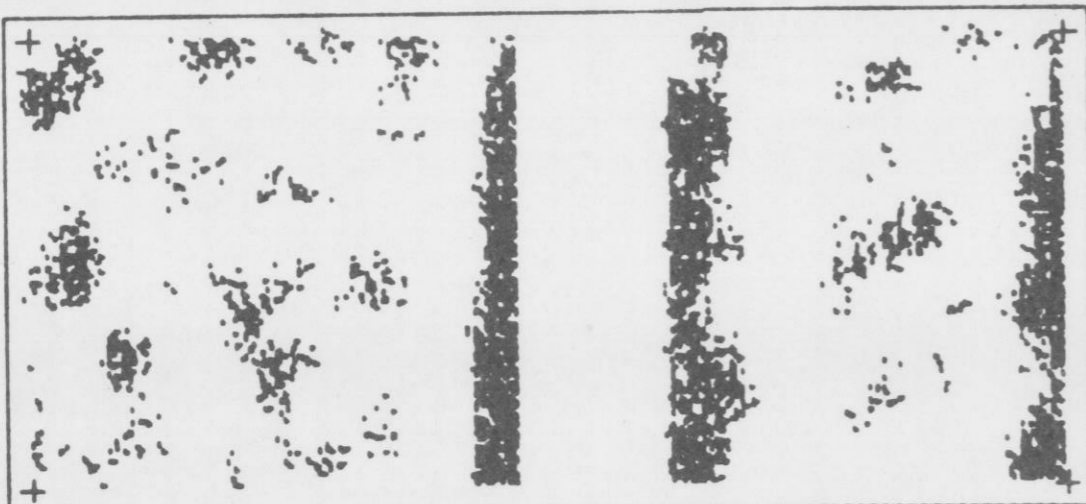
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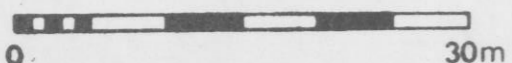


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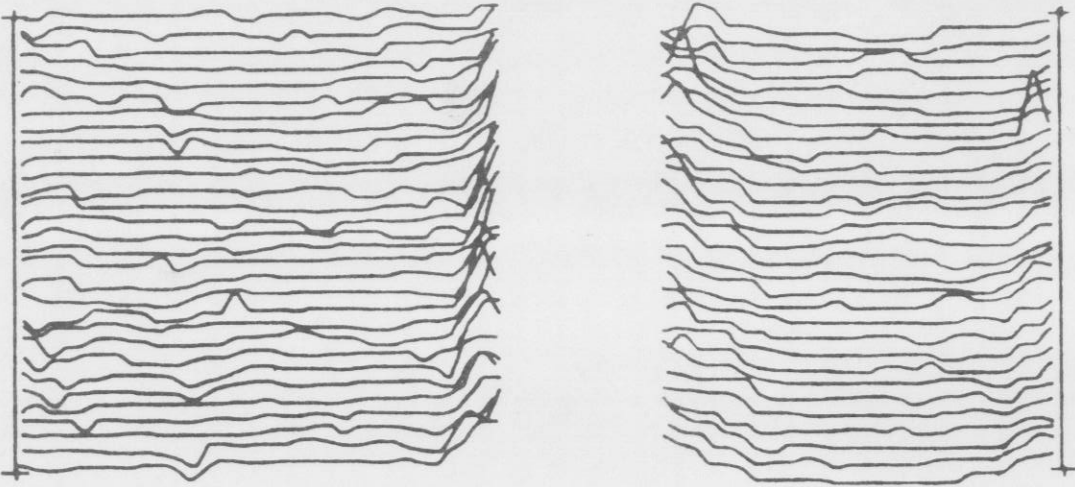
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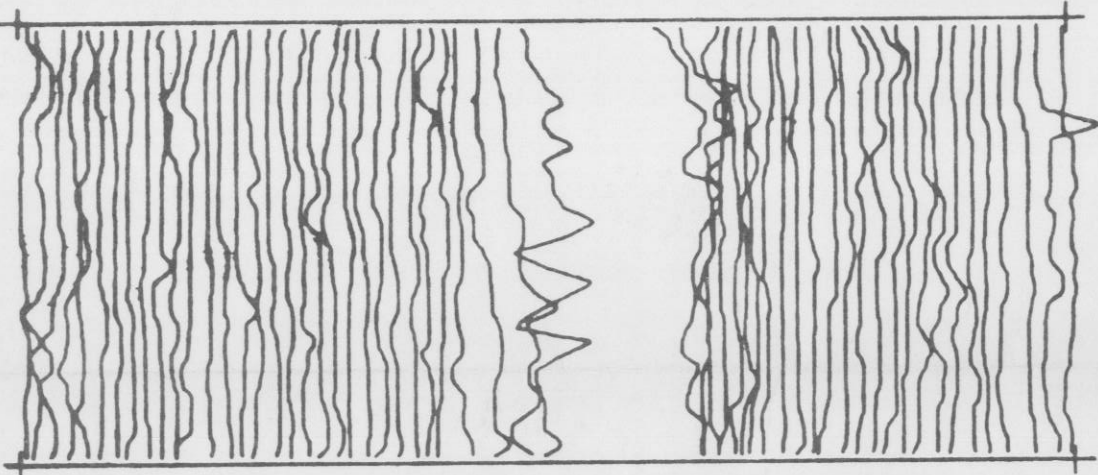
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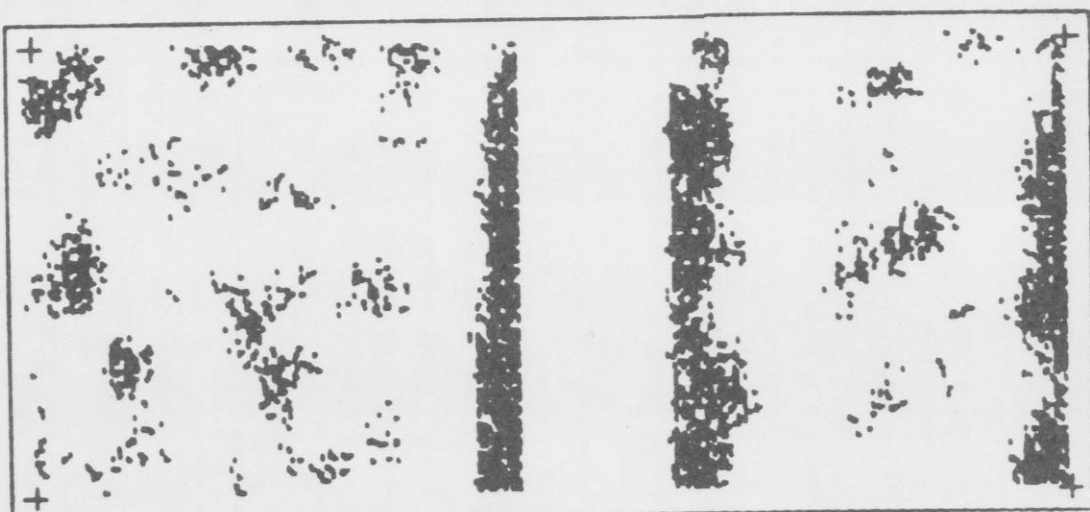
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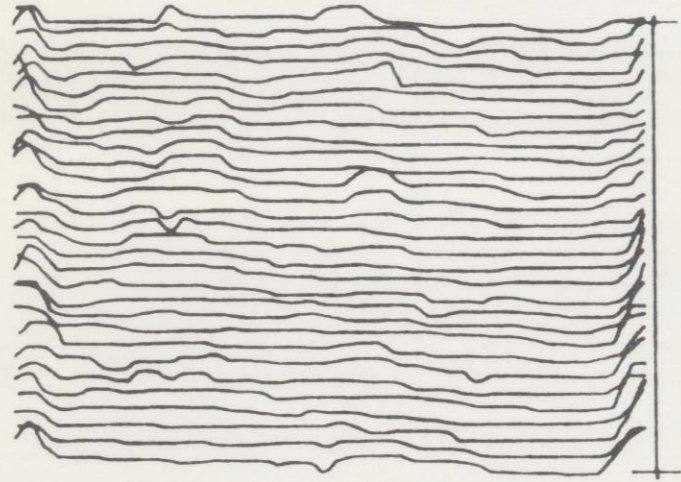
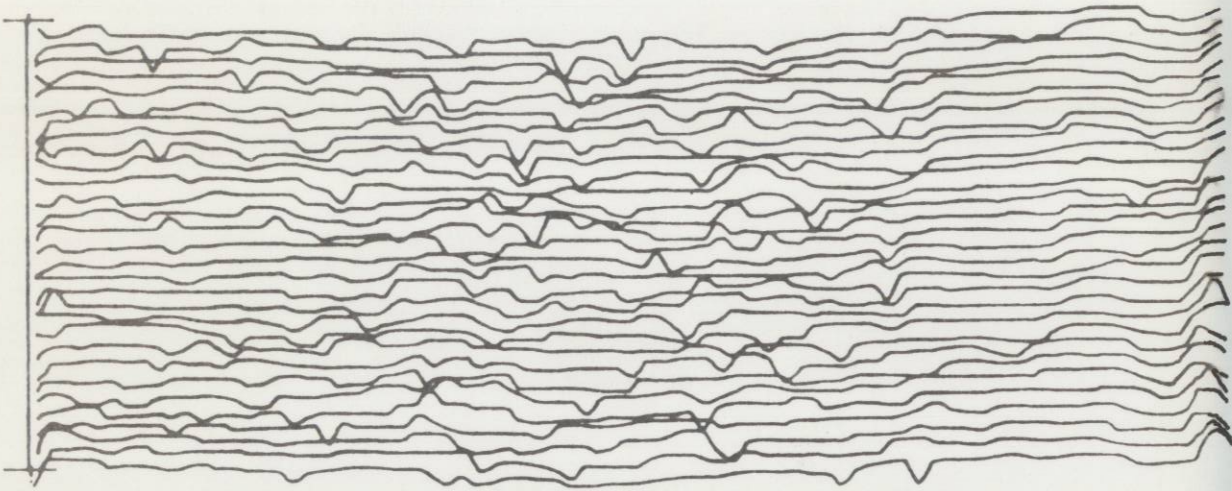
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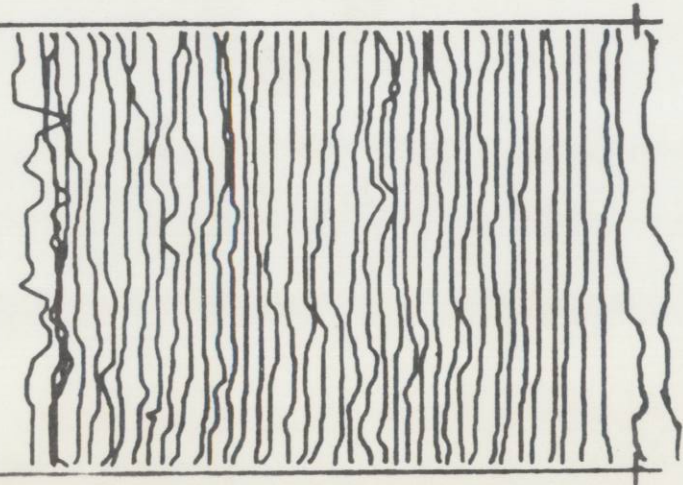
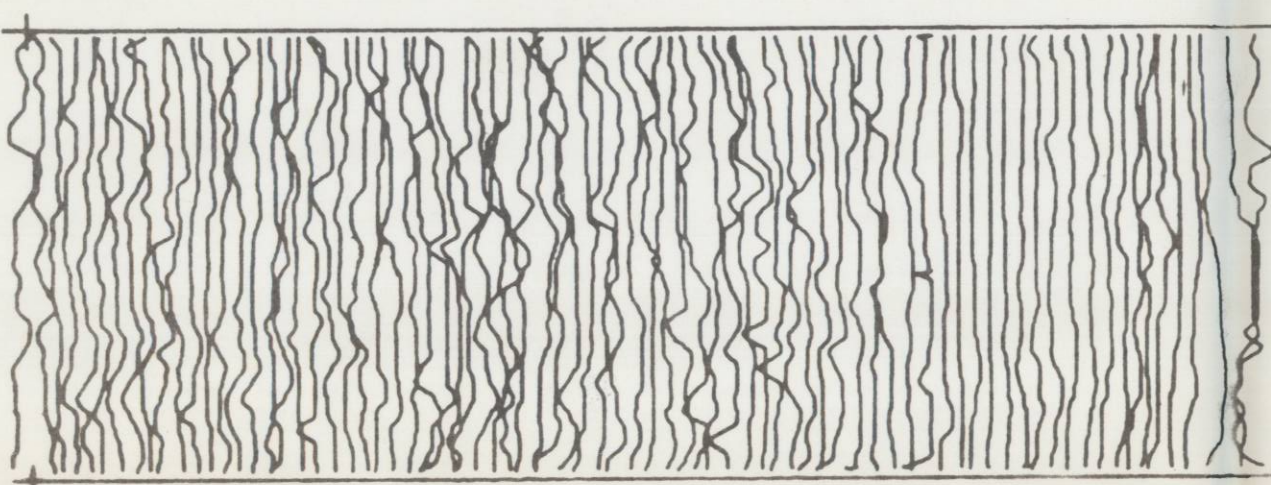
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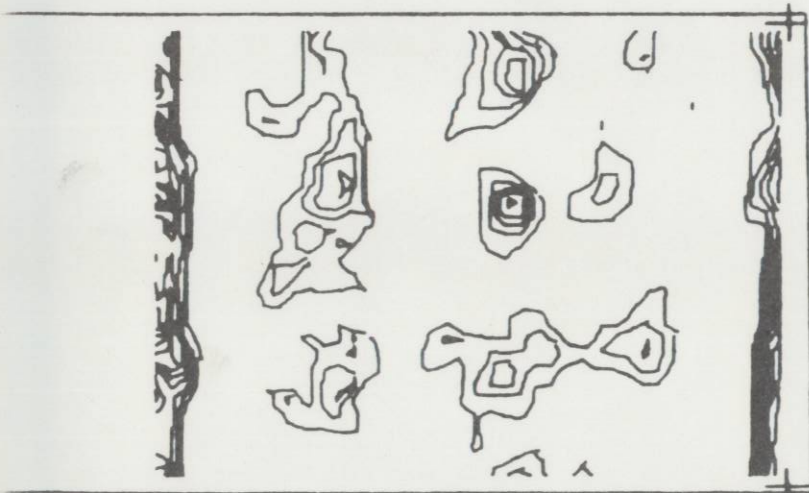
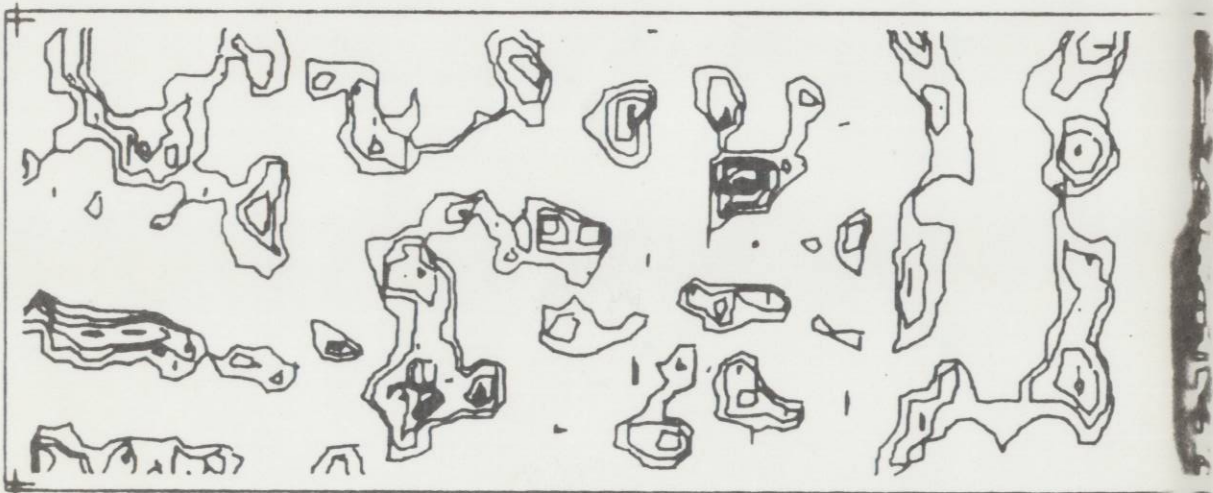
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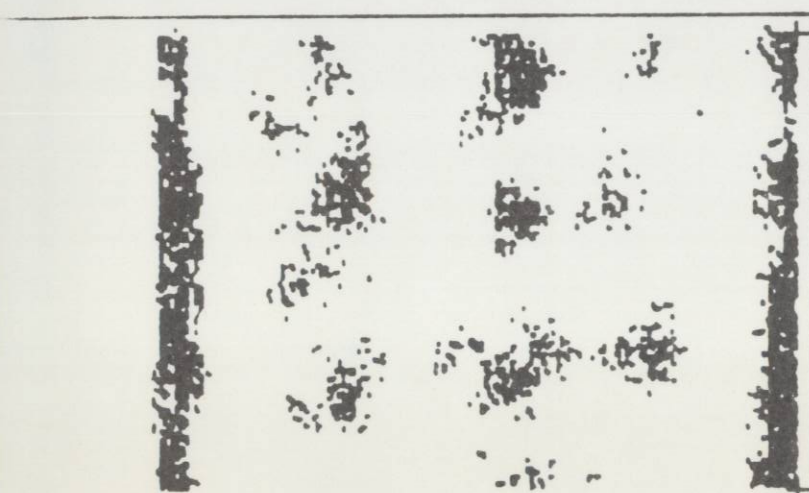
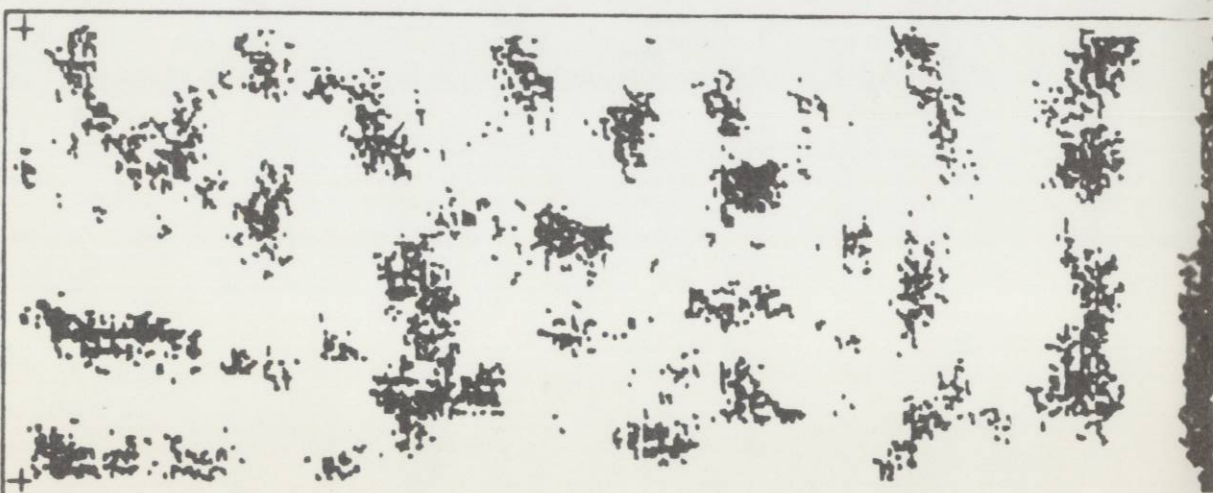
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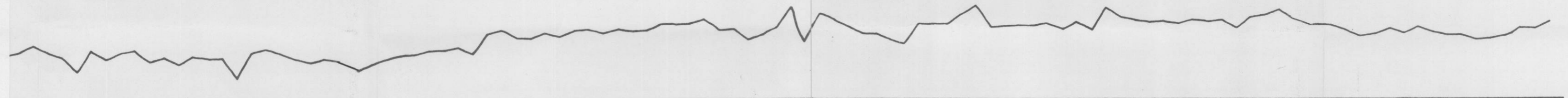


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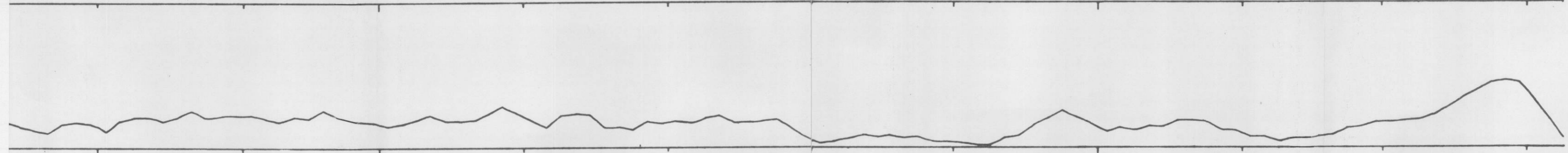
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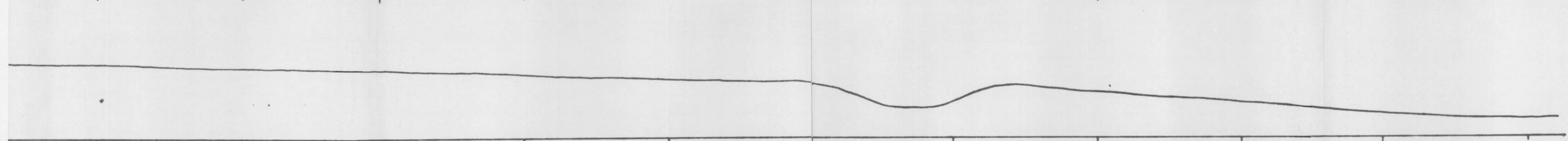
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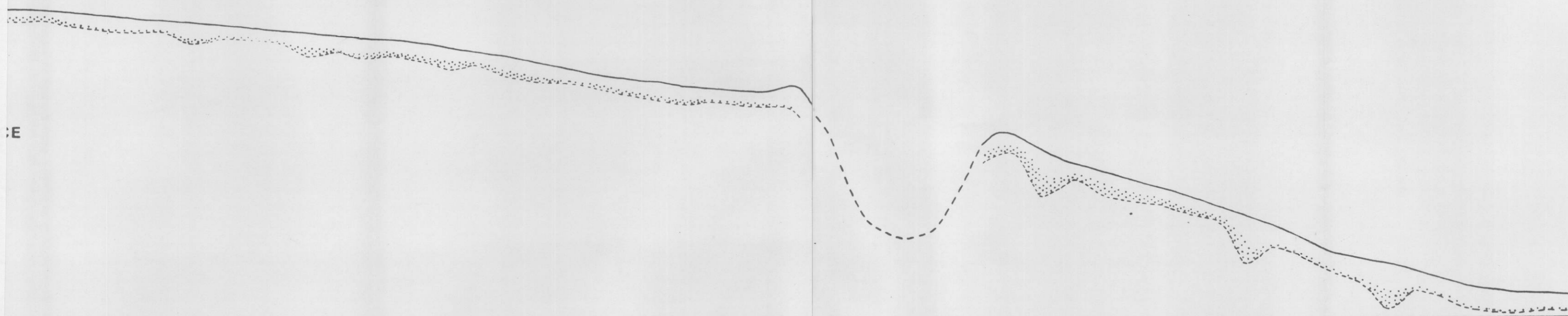
B MAGNETIC SUSCEPTIBILITY



C GROUND PROFILE



D AUGER



E

30 40 50 100 METRES