COUPAR ANGUS, PERTHSHIRE

GEOPHYSICAL SURVEY, 1975

The object of this survey was to investigate the possible extent of the remains of the Cistercian abbey. The area covered lay in the field to the S and E of the churchyard around grid ref NO 225 398.

Six 30m squares close to the churchyard wall were surveyed in detail using the fluxgate magnetometer and recording system. Some of the more distinct magnetic anomalies are outlined on the 1:200 scale chart which shows the traces plotted from the instrument signal. A more general scan was made without recording over the surrounding area.

Resistivity measurements were taken across the width of the field as shown on the 1:500 plan. The probe configurations used were Wenner and double dipole and the probe spacing was 1m. Some features were tested with a 1m hand auger.

RESULTS

(1) MAGNETIC SURVEY

Tests showed the topsoil to have about 6 times the magnetic susceptibility of the subsoil. This high contrast means that any slight disturbance should be seen, and this was borne out by the number of anomalies detected.

The N-S line through the negative anomalies at the right of the chart marks a furrow at the edge of the newly ploughed area to the right, and demonstrates the possible strength of anomalies caused by displacement of the soil. There is also some local magnetic enhancement in square B and the lower part of square A which causes the furrow to give a response stronger than elsewhere. This effect often indicates a concentration of human activity. Apart from the furrow the chart shows a pattern of linear features crossing the site in both directions and many local disturbances.

The scanning showed much of the remainder of the field to be equally disturbed, but without the recorded traces it was impossible to distinguish linear features. Anomalies may tend to concentrate towards the churchyard and within the length of the raised part of the bank to the E, but this could easily be a biased interpretation of a uniform natural distribution. A strong anomaly found at the N end of the field is marked on the plan. This was augered and there was no clear evidence of archaeological material. There were some anomalies E of the bank.

The straight and parallel features found in the detailed survey can hardly be natural but their significance is obscure. They are broader and less regular than would be expected for modern land drains. Individually they could indicate robbed-out foundation trenches or drainage ditches but their plan seems improbably for both. The non-magnetic nature of the old red sandstone means that surviving masonry would tend to give negative anomalies. Possible cases are marked by dotted lines in squares A and D. The example in A may be due only to a visible dip in the ground surface, but the dip in turn might conceivably be the subsidence of a robber trench.

(2) RESISTIVITY TRAVERSES

These should give a more certain response to masonry than the magnetometer but the results were doubtful. Of the resistivity anomalies marked on the 1:500 plan only a, b and c are narrow enough to suggest walls. Of these a seems from the magnetic survey to correspond to a pit and b was near the small hole that has been dug in the middle of the site. The remaining anomalies do not correlate well with the magnetic survey. They are all broad and diffuse areas of high readings which may be due to natural but non-magnetic changes in soil texture.

The short resistivity traverses made across the reported line of the soil mark S of the churchyard gave no response and the magnetic results from the area are confused. The only linear anomaly found on this line is in square F to the east.

(3) AUGER BORINGS

Borings were made to test for masonry and occupation material. A solid layer was met at 40cm in holes 2, 10 and 11 and at 65cm in hole 7 but elsewhere the auger penetrated 1m. These findings do not relate consistently to the magnetic survey and it is doubtful that they indicate walls.

More interestingly there were widespread deposits of dark brown soil containing charcoal which gave the appearance of occupation material. This was particularly noticeable in holes 1, 3, 8, 9, 10, 11 and 16 and seems to provide good supporting evidence for human activity of some kind. The depth of the topsoil, generally more than 50cm, should have protected the features causing the anomalies from disturbance by modern cultivation.

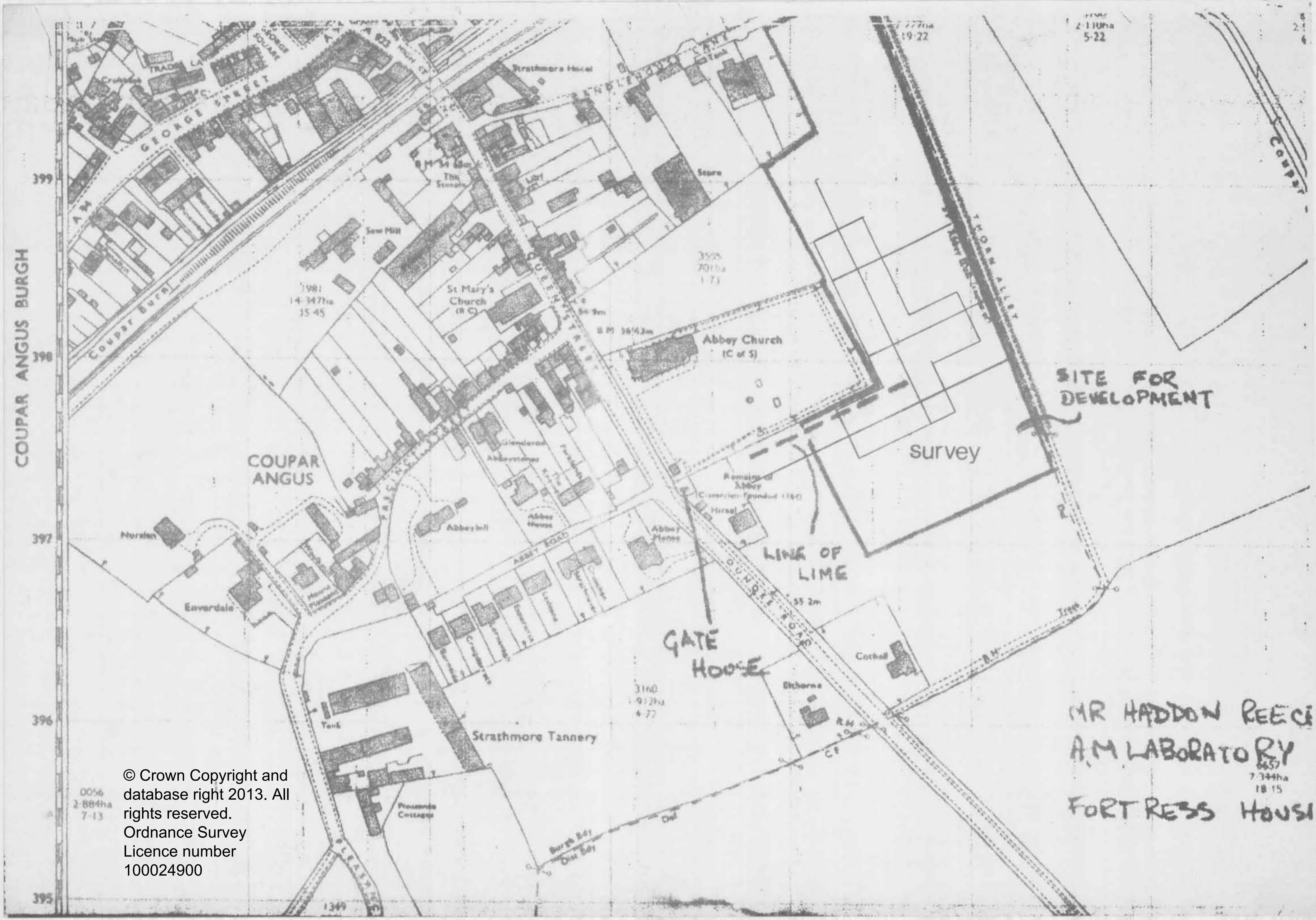
CONCLUSIONS

The site was magnetically responsive and produced a regular pattern of what seem to be ditches 1-1½m wide. The resistivity survey gave no clear evidence for any surviving masonry but augering showed considerable amounts of apparent occupation material.

The interpretation of these finds is problematical. It would be wild speculation without other evidence to suggest that Maitland in 1757 was right to place the abbey within a Roman earthwork of which the remaining bank formed the E side, but the magnetic picture does resemble that obtained from such sites. The difficulty is that some information is required to relate the magnetic results to the scale of the features involved. At one extreme the survey could represent the remains of extensively robbed ranges of buildings against a background of occupational disturbance covering most of the field, and at the other an unimportant set of drains or furrows against a natural background. The nature of the soil might suggest the latter, but a small trial section should answer the question.

A D H BARTLETT
S T CHASE

Ancient Monuments Laboratory Geophysics Section
14 April, 1975



COUPAR ANGUS

Geophysical Survey 1975

A — magnetic survey squares

magnetic anomalies

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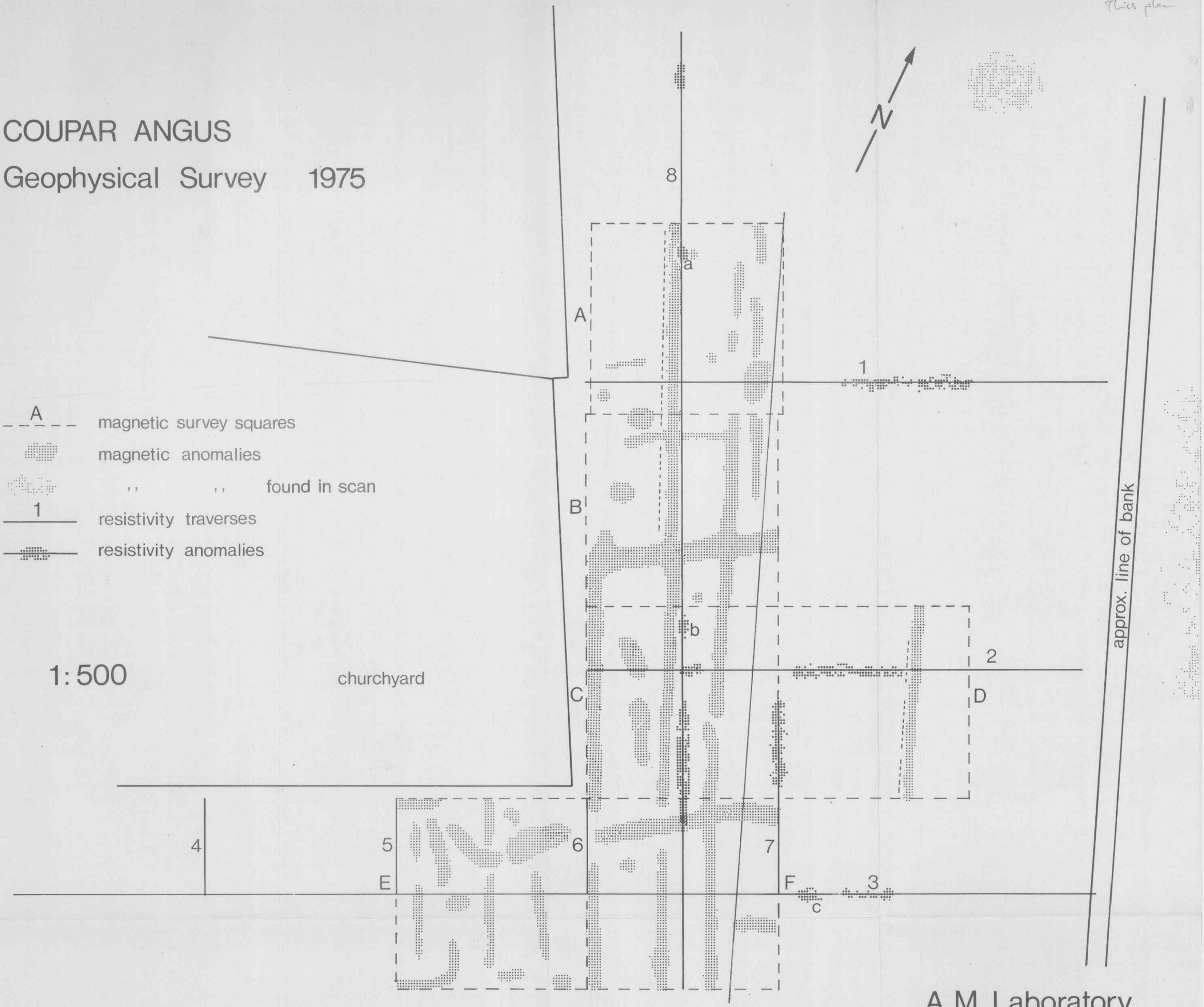
1 — resistivity traverses

resistivity anomalies

1:500



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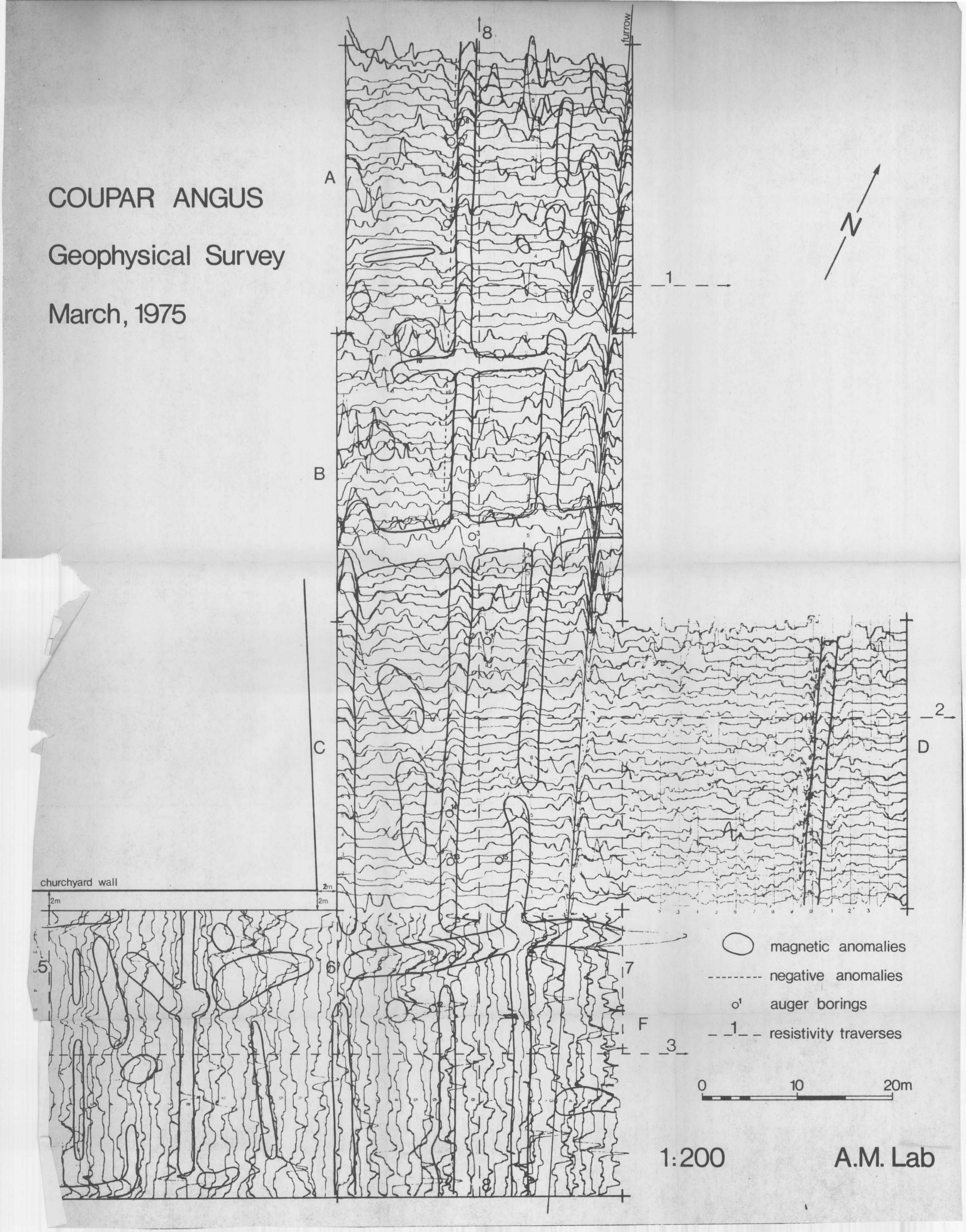
Geophysical Survey

March, 1975



1:200

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