

VII

A NEW APPROACH TO CHURCH ARCHAEOLOGY, II: DOWSING AND EXCAVATIONS AT PONTELAND AND ST. OSWALD'S, DURHAM

*H. Denis Briggs, Eric Cambridge and Richard N. Bailey**

Introduction (R.N.B.)

IN AN earlier volume of this journal we presented the first report on a collaborative project designed to investigate the validity of dowsing as a means of recovering information about those building phases of churches which preceded the present standing structures.¹ We then reported on excavations at Woodhorn where an apse foundation was discovered in a position predicted by an earlier dowsing survey. That paper also included a new analysis of the medieval documentary evidence for the site of the Anglo-Saxon cathedral at Durham; the location which could be deduced from these documents coincided with the position suggested, completely independently, by dowsing. In the course of this first article we also pointed to a phenomenon, which we labelled "imprint", whereby a feature which had been completely removed (along with its archaeological level) seems to leave some trace on the layers below to which the dowser is capable of responding.

During 1983/84 Mr. Briggs continued his survey work and has now completed dowsed-feature plans of 36 buildings, as well as re-surveying some of the standing structures included in the earlier part of his programme. In an appendix to this paper he provides a list of the sites concerned and discusses some of the problems involved. Elsewhere he has published a record of all the plans which he has made.² The present article is concerned with progress on the other aspect of the project—exploring the possibility of validating the technique by selective excavations—and reports on work at Ponteland and St. Oswald's, Durham.

EXCAVATIONS AT PONTELAND (R.N.B.)

The building sequence discernible in the standing fabric of St. Mary's church, Ponteland is well summarised in volume XII of *A History of Northumberland* and need not detain us here.³ All that is immediately relevant is that the earliest surviving parts of the building are the lower areas of the tower and the west respond of the north arcade, which are both of Norman date. The chancel's original windows are thirteenth-century in type, though there are considerable traces of fourteenth-century alterations in this part of the church. The north transept is also of thirteenth-century date but was restored by the Alnwick architect F. R. Wilson in 1880-1. The precise

*This paper is a report on a collaborative project; initials after section headings indicate specific authorship.

extent of this restoration is not, however, clear from the surviving sources.⁴

Figure 1 shows Mr. Briggs' plan of the dowsed features located in and around the building. The excavation took place in the angle between the chancel and the north transept in an attempt to locate the apse foundations suggested in Mr. Briggs' survey. Dr. Clive Titman, of the Department of Geophysics at the University of Newcastle upon Tyne, kindly carried out a resistivity survey before excavation began. No apse-like feature was visible in his plot. Despite this, the results of trial excavations in November 1982 and January 1983 were sufficiently encouraging to justify a full excavation which was carried out by Eric Cambridge, Nigel Bailey and Richard Bailey between 11th and 15th July 1983.

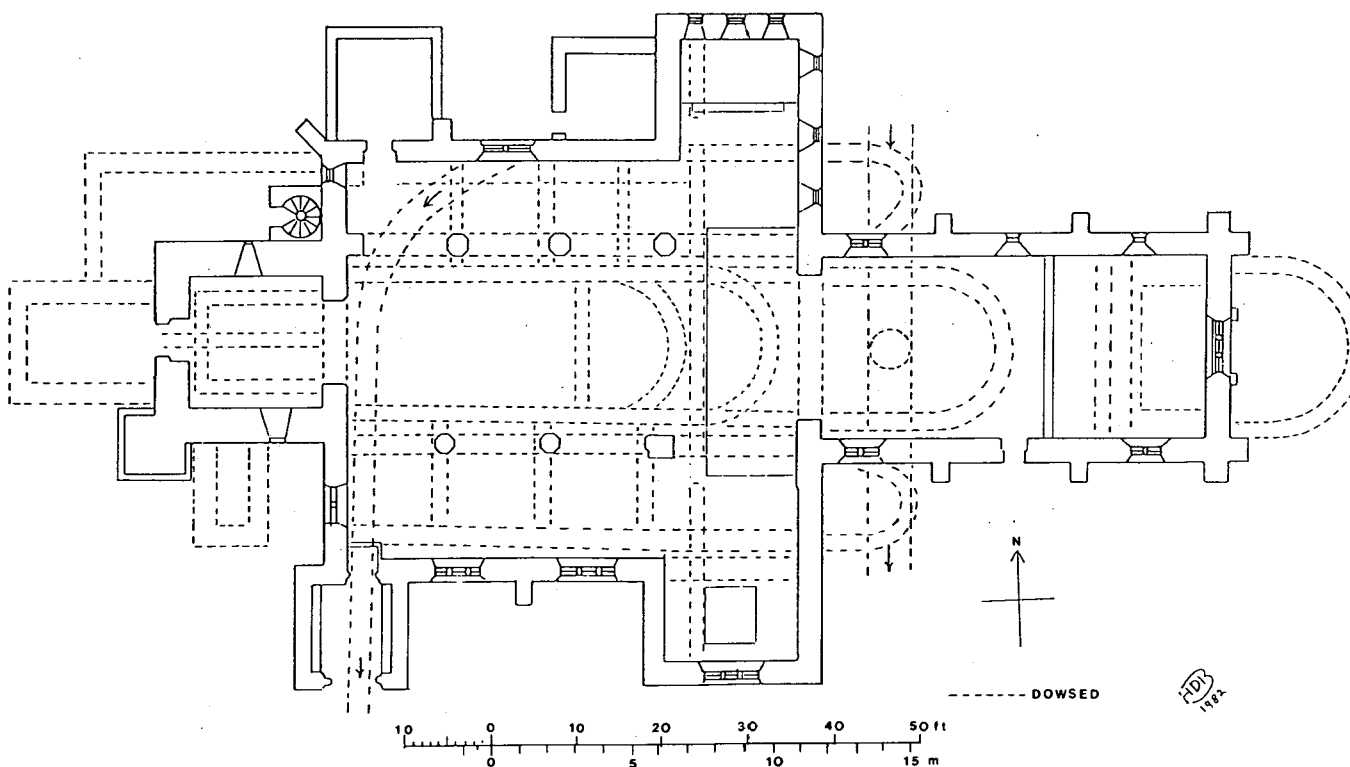


Fig. 1. Dowsed features at St. Mary's Church, Ponteland. Arrows mark the line of underground water courses.

A trench c. 3.5 m by 3.5 m was opened at the junction of the chancel and north transept (Figs. 2 and 3) and was eventually excavated down to natural at a maximum depth of 1.3 m below the datum line (c. 1.4 m below the existing ground surface).⁵ The relationship between the foundations of the standing walls and the stratification visible in the trench was (with few exceptions) only recoverable at the

lowest level of excavation since pipes had been inserted in deep trenches alongside both walls, presumably as part of the drainage scheme recorded in 1853-4.

PONTELAND 1983

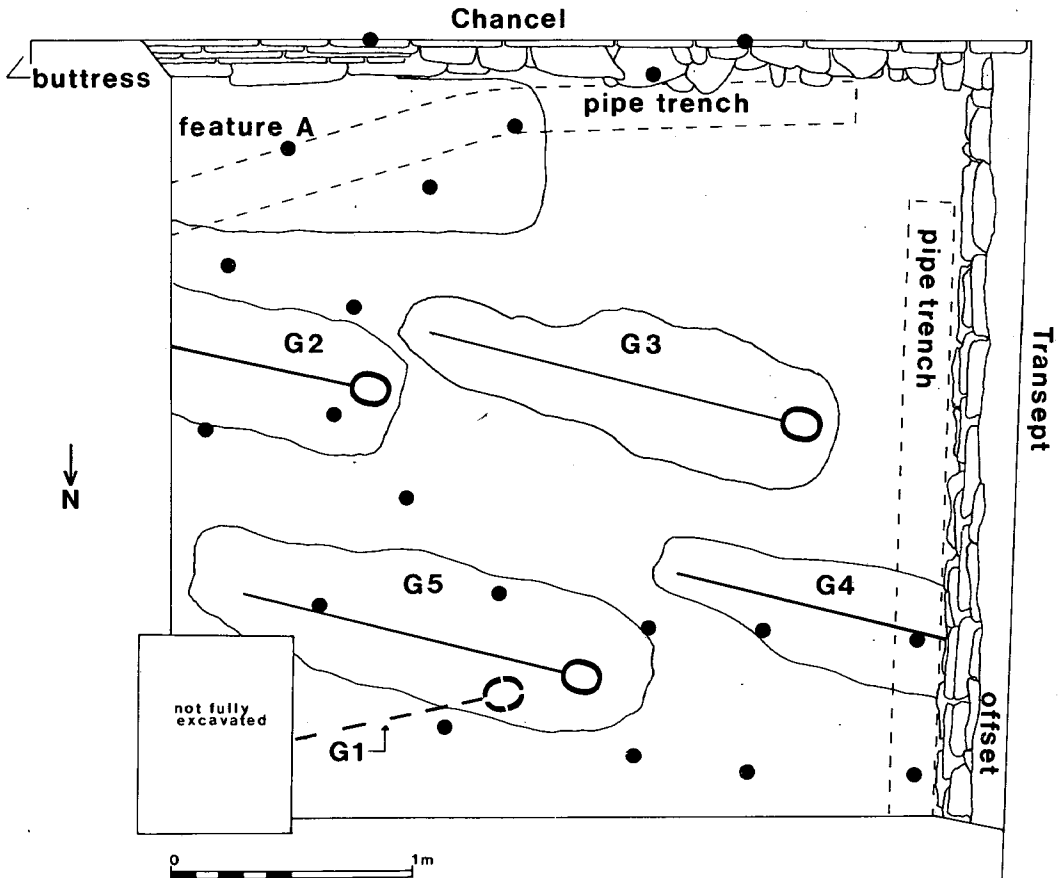


Fig. 2. Plan of excavations. G=grave. Black dots indicate the position of the apse as predicted by dowsing. Grave 1 and the pipe trenches are both projected.

The excavated sequence (Figs. 2 and 3, Plate V)

The transept foundations consisted of an offset over four courses of roughly dressed, clay-bonded stones, each course being regularly laid and stepped outwards from the line above. The chancel foundations, despite the uniform appearance of the visible wall, proved to be of two periods. At the eastern end of the excavated section they were made up of mortared, dressed and coursed stones which, further west, incorporated and over-rode earlier clay-bonded foundations of undressed and irregularly laid stones. Since the transept foundations butt against these western

chancel foundations, the latter must represent the earliest structural phase on this part of the site.

Within the trench the upper level (layer 1 of Fig. 3) consisted of rubble, clinker and disturbed earth containing Victorian material. Underneath, extending from c. 0.55 m to 0.92 m below the datum line, was a deep layer of clean medium-brown sand containing some human bone and one complete burial (layer 2 and G.1 of Figs. 2 and 3). Since there was no visible grave-cut in the sand above the skeleton, it must be assumed that the body was deposited at the same time as layer 2. This sand was cut by the Victorian pipe trenches but did not appear, in the few places where the evidence was available, to have been cut by any of the existing foundations. Underneath this deep layer was a thin band of yellow-brown patchy sand (layer 3) which lay on top of the orange-grey natural clay. The highest point of this clay was 0.93 m below the datum.

PONTELAND 1983

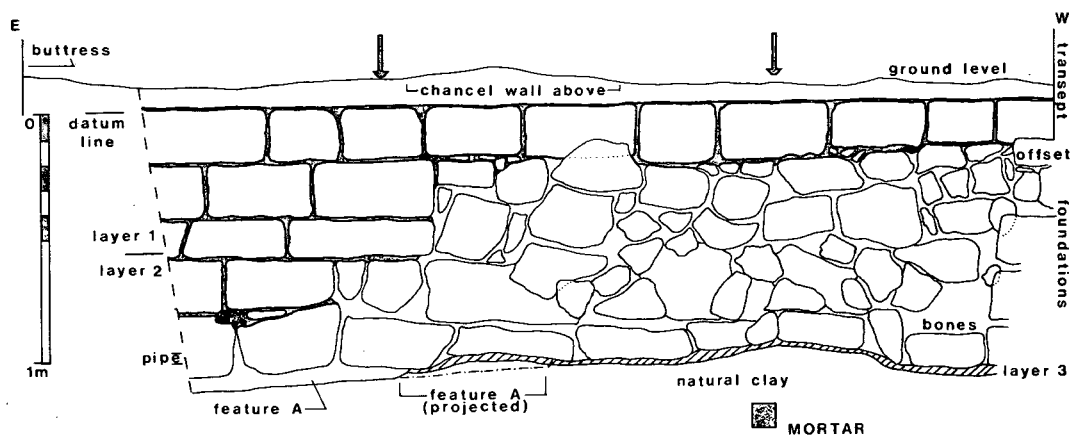


Fig. 3. South section against chancel wall. Arrows mark the points at which the dowsed apse was predicted as meeting the line of the present wall. The junction between layers 1 and 2 and the position of the pipe are both projected.

The mortared foundations of the chancel were cut into the natural clay whilst the clay-bonded foundations of the chancel and those of the transept both rested on layer 3.

In the south-east corner of the excavation, against the chancel foundations, was a feature (A, Fig. 2 and 3) cut through layer 3 into the natural clay; this contained a mixture of greyish mortar and small white stones with larger brown cobbles on top.⁶ Four skeletons lay in graves (G.2, 3, 4 and 5 of Fig. 2) aligned ESE/WNW which had been cut through layer 3 into the natural clay. All lay, fully extended, on their backs. The graves were filled with a medium-brown sand and, like feature A, were sealed by layer 2. Grave 4 underlay the foundations of the north transept. In deference to local wishes, these skeletons were not removed for examination.



Plate V. Ponteland excavations looking south. Chalk marks on the wall mark the junction of the dowsed apse with the line of the standing wall.

[Photograph: G. B. Wade]

Interpretation of the sequence

The key to the sequence lies in the mortared foundations of the chancel which clearly belong with the thirteenth-century wall above. Feature A runs *under* these foundations and extends 0.6 m westwards *alongside* the earlier clay-bonded foundations. It is best interpreted therefore as the remains of a foundation trench for the thirteenth-century chancel extensions.⁶ The clay-bonded foundations to the

west must be of pre-thirteenth-century date and, since graves 2-5 are not aligned to any known wall or foundation, they may represent an even earlier phase of the site's use; they could well be aligned on a yet undiscovered focus in the immediate vicinity.

The transept foundations might be attributable to Wilson's restoration work of 1880-1 and this assumption would conveniently account for the fact that they are clay-bonded, in contrast to the mortared foundations of the thirteenth-century chancel. It is more likely, however, that they are also of thirteenth-century date. Had they been Victorian, one might reasonably have expected them to be engulfed in masses of cement. What is more, the pipes and trench alongside the transept are clearly later than its foundations, yet must represent the drainage work of 1853-4. It seems logical, therefore, to conclude that Wilson's restoration activities on the transept were not carried down to foundation level. If the transept foundations are thus of thirteenth-century date, then the difference in bonding between these and the contemporary chancel extension requires explanation. Two reasons can be advanced. The first is that there were variations in building techniques between two phases of thirteenth-century construction. Alternatively, and more likely, the difference may be attributable to the fact that the chancel extension is built on a falling slope and its foundations would consequently need to be more firmly bedded than was the case elsewhere.

The interpretation of layer 2 cannot be divorced from consideration of layer 3, graves 2-5, feature A and the clay-bonded foundations of the chancel. Clearly the clean sand of layer 2 is earlier than the Victorian pipe-trench which cuts into it. It must, however, be later than the remains of the thirteenth-century foundation trench A and graves 2-5 which are sealed by it. It also post-dates the clay-bonded chancel foundations both because they are earlier than trench A and because, beneath the drainage-pipe, it was possible to see that the sand ran against the lower part of these foundations. It does not follow from this, however, that the top of layer 3 forms the original ground-surface level which existed before layer 2 was deposited across the site. Firstly, foundation trench A and the graves would all have been ludicrously shallow if they had been dug from the existing top of layer 3. Secondly, the clay-bonded chancel foundations can never have been exposed from a point as low as the surviving layer 3. Thirdly, the profile of those clay-bonded foundations curves inwards at the bottom in a manner characteristic of foundations set in a deep U or V-shaped trench—yet no trench survived. Fourthly, there is no trace of either a turf line or, more crucially, of a construction layer of stone chippings and mortar on top of layer 3. The implication of all this is that archaeological levels were removed after the building of the thirteenth-century chancel. This clearance down to the existing layer 3, and the top of the cemetery, seems to have taken place before the transept foundations were laid since, despite the confusion caused by nineteenth-century pipes, layer 2 could be seen to run against the stepped foundations of the transept and there was no trace of any trench in which those foundations had been laid. The ground surface removed at this thirteenth-century phase must, on the evidence of the clay-bonded chancel foundations, have been at or above the present level.

With these observations in mind, the following sequence can be proposed:

Phase A: Cemetery with graves 2, 3, 4 and 5 cut down to the natural clay from an unknown level. This phase pre-dates the thirteenth-century transept and, since the graves are not aligned on it, probably also pre-dates the clay-bonded chancel of Phase B.

Phase B: Clay-bonded foundations of the chancel set in a trench cut from a level which covered those foundations. This phase pre-dates the thirteenth-century chancel.

Phase C: Foundation trench (feature A) cut to the east of the clay-bonded chancel foundations for the thirteenth-century extension. Given the consistent nature of the standing wall above the break in the foundations, the earlier wall of Phase B must have been demolished at this stage.

Phase D: Clearing (of at least the entire area covered by the 1983 excavations) down to the surviving upper level of layer 3.⁷ This clearance removed all earlier ground surfaces together with the trench in which the clay-bonded chancel foundations had been laid. It also swept away all but the lowest parts of foundation trench A and the grave-cuts. This clearance is to be associated with the building of the thirteenth-century transept. The ground was then re-levelled with the clean sand of layer 2 which ran against the splayed foundations of the transept, covered all existing chancel foundations, and sealed what remained of foundation trench A and graves 2-5. The skeleton in grave 1 may well have been found in a semi-articulated state during clearance and subsequently re-deposited with the sand, together with other bones dug up from the cemetery.

Phase E: Victorian activity cutting into the top of layer 2 and thus removing the existing ground surface horizon, followed by levelling with the rubble and clinker-filled earth of layer 1.

The massive clearance of Phase D is difficult to explain except as a means of removing some structure from the site before the building of the transept, whose own foundations were to be set at the same level as those of the adjacent chancel. This structure must have been of such a shape as to be more economically destroyed by this method than by robber-trenching.

Implications

The excavation revealed the presence of a hitherto unsuspected pre-thirteenth-century cemetery, possibly aligned on an as yet unlocated focus. It also suggests that the chancel had a longer and more complex history than is indicated by the uniform appearance of its ashlar.

The implications for the dowsing experiment are intriguing. On the positive side it should be noted that the outer line of the dowsed apse junctions with the line of the chancel at a point where there is a clear break in the foundations. The agreement between the dowsed prediction and the excavated evidence is very close indeed: the lip of the foundation trench for the thirteenth-century extension lies only 0.06 m west of the dowsed line. There is also an apparent change *within* the

clay-bonded foundations at a point where the inner side of the predicted apse meets the chancel: as can be seen from Fig. 3, the foundation stones protrude more markedly to the east of the line than they do to the west. What must be stressed is that there was neither documentary evidence nor visible structural indications of either of these changes in the nature of the chancel foundations before our excavations commenced.

Negatively, of course, it must be admitted that no apse foundations were discovered. We have, however, argued above that analysis of the stratigraphy and the sequence which this implies, on purely archaeological grounds, for Phases C and D indicate that *some* feature had been removed from the site in the course of thirteenth-century rebuilding. This feature, moreover, seems to have been associated with the clay-bonded foundations. In view of the evidence assembled in our earlier paper for the phenomenon of "imprint" we suggest that this feature was an apse and that it now only exists in "imprint" form on layer 3 and the natural clay below. Such an explanation receives support from the group of stones which we have already noticed as protruding from the clay-bonded foundations of the chancel. Any attempt to preserve and re-use a straight-line foundation, whilst at the same time removing its apsed continuation, will inevitably leave the stub of the curve embedded in the end of the surviving foundation. This is precisely what seems to have happened at Ponteland for the protruding stones can best be explained as the remains of a curve whose continuation has been wrenched away.

Though the argument is thus in part based upon archaeological inference, there remains no doubt that features excavated at Ponteland do correlate very closely with dowsed predictions.

EXCAVATIONS AT ST. OSWALD'S, DURHAM (E.C.)

The installation of a new central heating system into the church of St. Oswald, Elvet (Durham city) provided a limited opportunity to test by excavation the results previously obtained by Mr. Briggs in his preliminary dowsing survey there (Fig. 4). A new pipe-trench running north-south across the east end of the north aisle of the nave was to be opened and two of the interfaces traced by Mr. Briggs ran across it. A small area measuring 2.82 m by 0.25 m was excavated along the line of the proposed trench by Richard Bailey and Eric Cambridge on 4th and 5th July 1983.

The excavated sequence (Fig. 5)

The west side of the trench coincided with the junction between the flagstones of the modern floor and the wooden platform (1)⁸ on which the pews to the west were set. Beneath the platform and the flagstones was a thick raft of concrete (2), which was bedded on a layer of loose yellow sand and small stones (3). The removal of (3) revealed an area of compacted brownish-yellow sandy mortar and small cobbles (5). On the surface of (5) lay a thin, flat, rectangular stone associated with a small skim of white mortar (4). A deposit of dark brown pebbly sand with lumps of white mortar (6) abutted (5) to the south. Owing to the restricted area available, it did not prove possible to establish the full depths and extents of (5) and (6).

ST OSWALD'S, DURHAM

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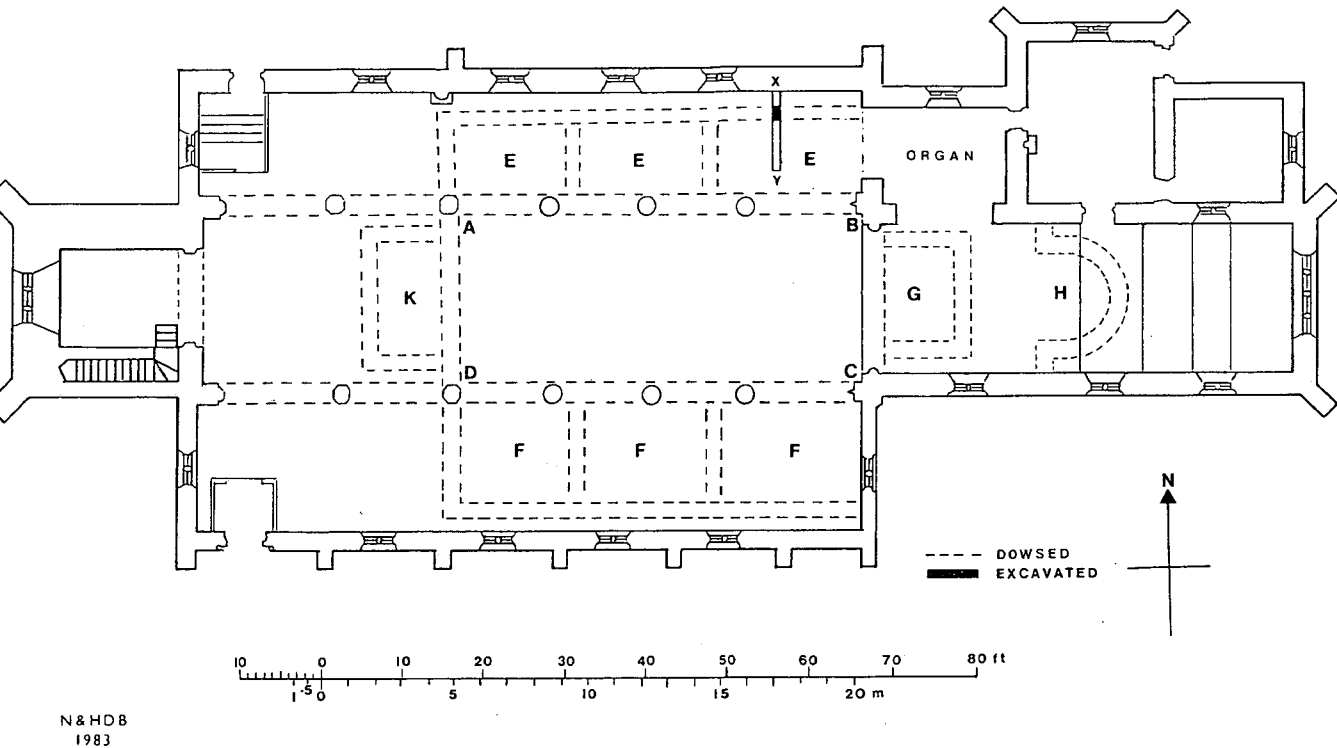


Fig. 4. Dowsed features within St. Oswald's church, Durham. The site of the excavation is marked X-Y.

Interpretation of the sequence

No artefacts were recovered, so the only clue to the dates of the features lies in their relationships to the fabric of the church itself. Feature (4) appeared to be the remains of a floor surface. It is below the level of the projecting footings of the present north aisle wall and must therefore pre-date it. This wall, to judge from the style of its surviving unaltered window tracery, is of mid-fourteenth-century date.

The nave arcades are early Gothic of c. 1200 in style. Unfortunately, the existing floor conceals the lower parts of the pier-bases and makes it impossible to establish the level of the floor when they were first built. A small part of the base of the third pier from the east on the north side was visible in 1983 in the side of a nineteenth-century pipe-duct and showed that 0.14 m of its octagonal plinth is now below floor level. If the bottom of this plinth indicates the original floor level, floor (4) cannot have formed

part of it, as it lies c. 0.18 m lower still. The masonry below the plinth course was much cut about by the pipe-duct, but might conceivably have been the remains of a sub-base of some kind. If so, (4) could have been contemporary with the arcades. It dates, therefore, from c. 1200 at the latest, and might well be earlier.

ST. OSWALD'S DURHAM

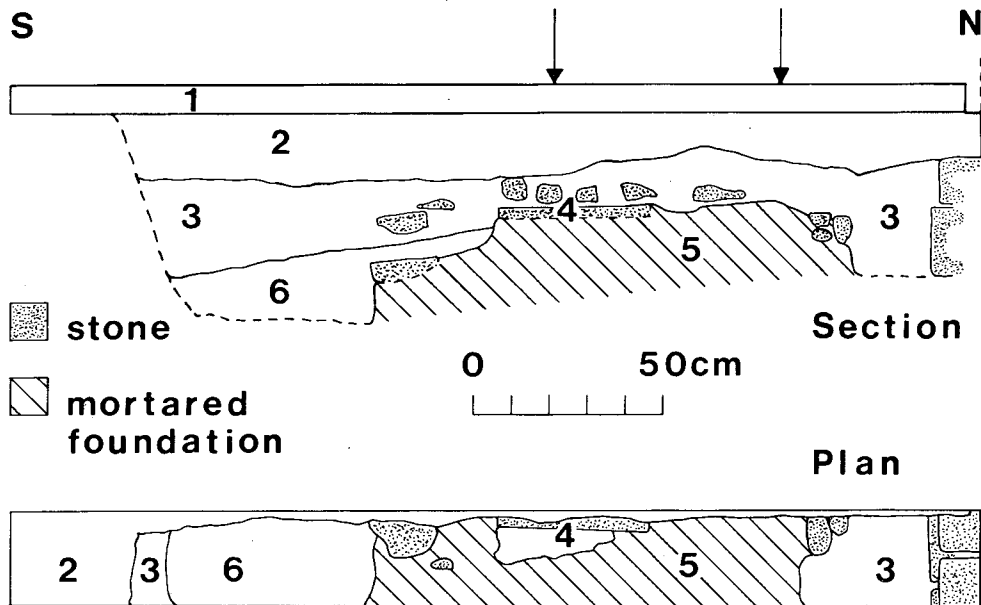


Fig. 5. Plan and section of trench in north aisle of St. Oswald's. Arrows mark the lines of interfaces predicted by the dowser.

Given that such a constricted area was accessible, it is impossible to demonstrate, on archaeological grounds alone, that (5) was part of a linear feature: it *might* be interpreted as merely the bedding for floor (4), cut to the north by the construction of the north aisle wall and to the south by a feature such as a grave, of which (6) could represent part of the fill. It would then have been deposited immediately before (4) was laid. On the other hand, its solidity and its resemblance to the composition of the foundation excavated at Woodhorn in 1982 suggest that it could have formed part of the foundation of a wall.⁹ In that case, it must pre-date (4) by a longer interval, and is therefore Norman or earlier in date.

Implications

There can be little doubt that the dowsed interfaces plotted in this area correspond to feature (5). As at Woodhorn the interfaces appear to correspond to the upper edges of the feature rather than to its wider lower parts.¹⁰

The dowsed survey as a whole is not without its interpretative difficulties. What is important for present purposes, however, is that a feature was recovered archaeologically in a position which correlates with the dowsed interfaces; and that no evidence of any other kind had given reason to suspect its existence before the excavation took place.

CONCLUSIONS (R.N.B.)

In our previous paper we emphasised that dowsing, if it proves to be a valid means of remote-sensing, will not provide easy answers to the problems of a building's history. We also stressed that the results of dowsing surveys need rigorous evaluation and must be integrated with information available from other sources. These cautionary warnings need to be repeated once more now that two further excavations strengthen the argument that the technique *is* capable of recovering details about phases of construction which would otherwise remain inaccessible.

ACKNOWLEDGEMENTS

We are greatly indebted to the vicar of St. Oswald's, the Reverend Ben de la Mare, whose support enabled the investigation to be carried out. We also gratefully acknowledge the co-operation of Canon Peter Canner and St. Mary's PCC in allowing the Ponteland excavation and supporting the necessary Faculty application. We record with thanks a grant from the University of Newcastle-upon-Tyne (Committee for Excavation and Fieldwork) which covered the costs of insurance at Ponteland and we are indebted to those friends who gave welcome help with the backfilling. Archaeology students from the University took part in the preliminary investigation at St. Mary's and we thank them, particularly Janet Ambrose. Lastly, we record our debt to Nigel Bailey, who was not only responsible for some of the dowsing but also slaved heroically in the Ponteland trench through one of the hottest weeks of the summer.

APPENDIX (H.D.B.)

The complete list of churches surveyed by the writer is given in Table I below and the plans of thirty of them have been published separately.¹¹ It is essential to investigate as many sites as possible, partly to demonstrate the feasibility of recovering plans by dowsing (obtainable by no other non-destructive means) and partly to increase the opportunities for small-scale excavations during repairs or alterations.

Table II below provides a summary of instances during the project where independent documentary, structural or excavated evidence provides, to a greater or lesser degree, confirmation of parts of dowsed plans. Full details can be found in reports published by the writer elsewhere.¹²

In assessing the reliability or limitations of the method, one must record observed difficulties. Some practical problems have already been encountered:

- (a) the occasional sideways displacement when a dowsed feature passes beneath the wall of a standing structure;
- (b) the necessity for a dowser to ensure that he does not start questing over part of a feature (e.g. a plinth);
- (c) the difficulty of interpreting parallel interfaces in close proximity.

The first two problems have already been described in our earlier paper.¹³ The last needs explanation. In Fig. 6, A, B, C and D represent two pairs of parallel interface plots. If the widths between A-B and C-D are typical of wall thicknesses, the inference might be that the foundations of two parallel walls have been located. In fact, the dowsed feature could be equally represented by any of the sections F, G, H or J. They could also, of course, represent features from several periods which lie at completely different depths.

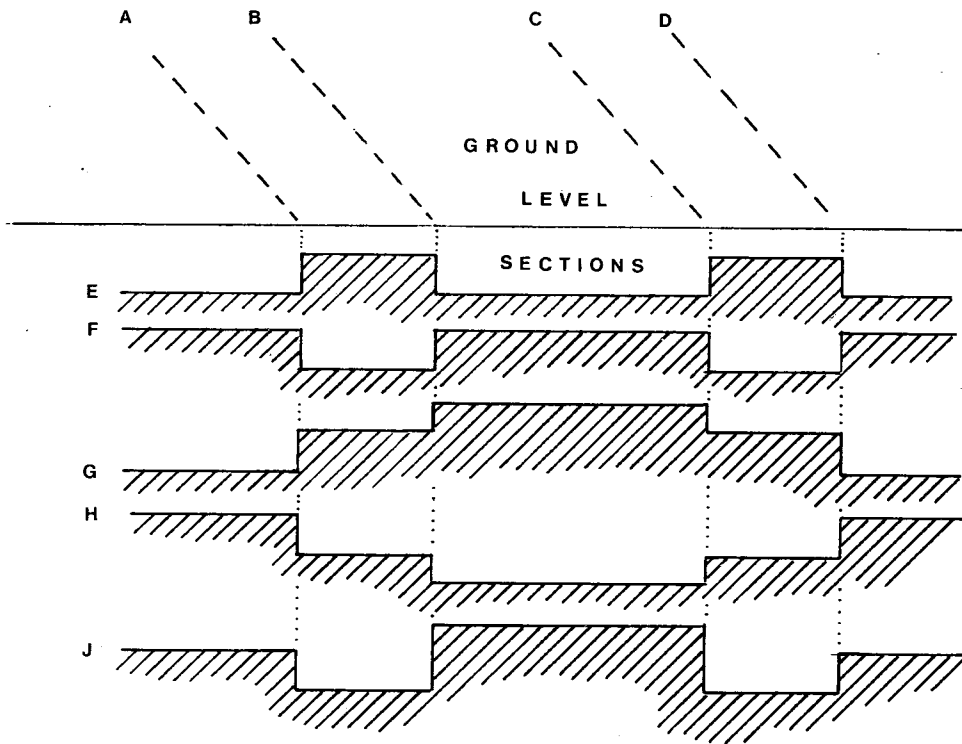


Fig. 6. Possible interpretations of dowsed interfaces.

TABLE I. Churches surveyed by dowsing

Bedlington	Longframlington
Bolam	Longhoughton
Bywell (St. Andrew's)	Mitford
Bywell (St. Peter's)	Morpeth (St. Mary's)
Chollerton	Newcastle (St. John's)
Corbridge	Norham
Doddington	Norham (ancient church)
Durham (Cathedral cloister)	Ovingham
Durham (St. Oswald's)	Ponteland
Edlingham	Rothbury
Elsdon	St. John Lee
Gosforth (St. Nicholas)	Sedgefield
Hartburn	Simonburn
Heavenfield	Thockrington
Heddon on the Wall	Warden
Heighington	Warkworth
Jarrow	Whittingham
Jesmond (St. Mary's Chapel)	Woodhorn

TABLE II. Summary of results of project investigating dowsing in church archaeology

The results are put into three categories:

- (1) Evidence from excavations;
- (2) Correlation with information from documentary sources;
- (3) Correlation with evidence obtained in subsequent examination of standing structure or observations made during building operations.

<i>Date</i>	<i>Place</i>	(1)	(2)	(3)
April 1980/March 1984	Hexham	x	x	
April 1980	Heddon		x	
April 1980	Corbridge		x	
May 1980	Woodhorn	x	x	
May 1980	Warkworth		x	
November 1980	Mitford		x	
July 1981	Simonburn		x	
March 1982	Durham Cloister		x	
April 1982	Newcastle St. John		x	
July 1982/July 1983	Ponteland	x	x	x
July 1983	Durham St. Oswald	x		
November 1984	Elsdon			x

At St. Paul's, Jarrow, it must be recorded that two trenches excavated by Professor Rosemary Cramp outside the west end of the church failed to reveal any foundations which could be related to the dowsed pattern. It may be that the dowsed traces were imprints of the much later buildings as portrayed in Carmichael's drawing of c. 1830.

NOTES

¹ H. D. Briggs, E. Cambridge and R. N. Bailey, A new approach to church archaeology . . . , *AA*, ser 5, XI, 1983, 79–100.

² H. D. Briggs, *Dowsing for Early Foundations in Ten of Northumberland's Churches*, Newcastle upon Tyne, 1981; *id.*, *Supplement to Report on Dowsing for Early Foundations in Ten of Northumberland's Churches*, Newcastle upon Tyne, 1981; *id.*, *Dowsing to Recover Plans of Early Churches in Northumbria*, Newcastle upon Tyne, 1982; *id.*, *Thirty Dowsed Plans Recovered from Churches in Northumbria*, Newcastle upon Tyne, 1984. All these reports were privately printed and are available for consultation in major reference libraries including the Newcastle City Library and the Northumberland Record Office.

³ M. H. Dodds, *A History of Northumberland*,

XII, Newcastle upon Tyne, 1926, 421–8.

⁴ In *PSAN*, ser 2, VII, 1897, 203, it is claimed that this work was carried down to at least window level.

⁵ The approximate dimensions of the trench reflect the fact that the angle between the chancel and transept is less than 90°.

⁶ It was part of the fill of this feature which was reported as a “cobble spread” in the 1983 report.

⁷ It was not possible to extend the trench to locate the full extent of this clearance.

⁸ Numbers in round brackets refer to the numbers in Fig. 5.

⁹ *Op. cit.* in note 1, 85–6, plate I.

¹⁰ *Ibid.*, 85, Fig. 3.

¹¹ See note 2.

¹² See note 2.

¹³ See note 1.