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KIRK SMEATON QUARRY - NORTH YORKSHIRE ARCHAEOLOGICAL INVESTIGATIONS

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Roger Simpson E.R.A.R.C. 17.9.90

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KIRK SMEATON QUARRY

PHASE IV

The archaeological site at Kirk Smeaton Quarry is situated on a north facing slope just below the crest of Cusworth Hill in the parish of Kirk Smeaton, North Yorkshire (NGR 5120 1475).

E.R.A.R.C. was approached by CSL surveys on behalf of Drinkwater Saby to undertake a predetermined work programme based on the results and conclusions drawn from two geophysical surveys and limited sample excavations carried out by the West Yorkshire Archaeological Service in 1989 and early 1990.

Aerial photography had suggested the presence of field boundaries and possible enclosures within the area of the proposed quarry extension. The initial geophysical survey (Appendix 1) confirmed this interpretation and consequently necessitated sample excavations. Although these were of a limited nature, excavation did located the east-west spinal ditch and a non associated burial. A more detailed geophysical survey indicated the presence of further ditches, an enclosure, possibly further burials and a kiln or industrial area.

Sample excavations were carried out in May-June 1990, the results and conclusions drawn from this work are set out in the following report.



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FIGURE 1.

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KIRK SMEATON QUARRY PHASE IV

SUMMARY.

Excavations at Kirk Smeaton Quarry, Barnsdale Bar in May-June, 1990 represented the fourth phase of work at this site. The sample excavations located a series of ditches which appeared to form field boundaries and an enclosure dated by associated finds material to the Romano-British period. In addition to the known features as detailed by the geophysical survey, excavation located a hearth, which in conjunction with the field system tends to support the evidence for occupation/settlement within the surrounding area.



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EXCAVATION METHODS

The results of the geophysical survey were used as the basis for the areas of the site to be sampled. These areas (Fig. 5) were stripped using a JCB with a 70 inch ditching bucket. All sections cut through the archaeological and geological features were by hand.

All references to grid points within the report are central to the relevant feature.

The layer numbers in this report do not follow on from those used by WYAS.

OBJECTIVES

The work programme for the sample excavations was predetermined by the Archaeological Section of NYCC planning department as detailed below:

1) Selective Sampling of:

- a) Anomaly A field boundaries
- b) Anomaly B Enclosure and related features
- c) Anomaly D kiln/industrial area
- d) Anomaly E possible burial/burials

2) General observations of the site during and after the stripping of the topsoil and non archaeological material.

3) Survey and mapping of the archaeological features revealed by the removal of the sealing strata.

EXCAVATION RESULTS.

The areas to be sampled prior to complete stripping of the site were located from information supplied by the geophysical survey (Appendix 3).

25m centring on NGR 51265 14775 was stripped over ditch 002 (Fig. 2) and within this area lay the grave excavated by WYAS (Appendix 2). A further area (10 x 10m) centring on NGR. 51235 14785 was stripped over anomaly E. A similar sized area of topsoil was removed in an attempt to locate anomaly D, NGR. 51284 14730. A substantial part of the interior of enclosure anomaly B, NGR 51110 14840 approximately 30 x 20m was stripped. Further along the main east-west ditch, the two points of intersection with ditches running southwards were cleared to enable their physical relationships to be established, (Fig. 2).

During the first days of the investigations when large areas of plough soil were removed the appearance of regular patterns in the underlying subsoil was confusing. These were confined mainly in hollows formed in the fractured surface of the limestone bedrock. They were essentially circular in plan and because of their similarity to postholes might have been significant.



FIGURE 3.

ANOMALY A.

Anomaly A represents the main east-west boundary ditch as shown on the geophysical surveys (Appendices 1 & 3) and located by excavation in Trenches 1-3 of the Phase II excavation. The results of this excavation showed that the ditch was of "moderate proportions" with no associated artefacts to provide dating evidence. The second geophysical survey was able to show that this ditch continued for the full length of the site and that other ditches appeared to be attached. One of the objectives of the Phase IV work was to sample the main ditch (002) and to establish its relationship to other possibly associated field boundary ditches (003, 004, 005 & 006).

Ditch 002.

Following the line of the connecting ditch (006) southwards towards the main east-west spinal ditch 002 of the field system it was seen that the ditch stopped short by a matter of 2m leaving a gap or gateway and a possible entrance to the field system at this point.

On the site plan (Fig.2) two ditches are shown running northwards to the main spinal ditch (002). When the area had been cleared at the point where the westerly ditch (004) should have joined (002), it was found that another entrance way had been left, the gap being 2.5m in width. A profile of (004) was obtained (ditch cut 016).

The point at which the easterly ditch (005) joined (002) was excavated (ditch cut 019) and sections recorded. These (Fig 4, sections IJ, KJ) showed a continuity of fill from (005) into (002). The greater depth of (005) is also carried through into (002) eastwards. In plan it was seen that the width of (002) more than doubled from 65cms to 170cms after the junction with (005). Three metres to the south (ditch cut 021) a section across (005) gave a width of 150cms.

If we start with the reasonable supposition that the main eastwest ditch (002) existed as the original boundary line, then a later field system superimposed on this is represented by (005). Where (005) turns eastward into (002) it has followed the line of an existing ditch and the recutting of (002) has removed all evidence as far as was established of the original A complete profile of (002) at this point was not obtained.

Between the two southerly ditches (004) and (005), lay the point at which Trench 1 and Trench 2 of the WYAS had been excavated by machine and the results published (Appendix 2).

The photograph in Trench 1 (p.6) and the drain section of Trench 2 (Fig.3d) differed greatly from each other although only 4m apart. Looking at the photograph and section it appeared that further excavation and possible clarification would be valuable.

The reexcavated section (ditch cut 010) of Trench 2 was cut back 50cms by hand, drawn and recorded (Fig.3). It was clear from this that no primary fill of limestone rubble exists and that the appearance of the natural bedrock even at this depth is loose and heavily fissured. Although still V-shaped in profile, the sides of the ditch become much steeper and gulley (026) was established as a natural feature.

The first area to be cleared had been that centred on NCR 51265 14775 pin-pointed from the geophysical survey to include a major intersection which seemed to show a ditch running northwards from the main spinal east-west boundary. Extending westwards, a substantial area around WYAS Trench 3 (Appendix 2), was opened to see whether or not further burials existed.

After careful cleaning of the area it was possible to show that the site had been ploughed sufficiently deep to restrict the number of features present to those dug into the undisturbed subsoils.

No graves were found, although their existence would have been obvious. Equally there was no barrow ditch encircling the single grave previously discovered by WYAS.

Over most of the area the broken surface of the natural limestone bedrock was visible, any natural hollows and gullies contained yellow brown sandy silt (022) or blue grey sands (023) (Fig.5).

Following the line of the main ditch (002) on the surface it seemed likely that it was this ditch that turned abruptly northwards (established later in ditch cut 019) and a new ditch (003) contained the line of (002) eastwards. Two similar profiles of ditch (002) were obtained in ditch cuts (0i1) and (012), (Figs. 5 & 6).

A subrectangular hollow (008) was excavated separate from (003), it nevertheless could be seen to have a relationship in plan with (003) and (002).

In sectioning (003) (ditch cut 013) a recut was clearly visible. This later ditch must have closed the gap which existed between the end of (003) and (002) in a primary phase. If the hollow (008) and the gap were contemporary, a more sophisticated gateway would be produced, (Fig. 6; phase plan).

The final phase at this strategic junction would appear to be the construction or more likely the cleaning out of (002). It is possible to see this in ditch cut (019) although the shallow depth of (003) at this point leaves room for uncertainty.

Ditch cut (012) produced six abraded pottery sherds of a Roman date, found below the surface of the surrounding bedrock. Though representing more than one type of vessel, no rims or bases were found, therefore illustrations are not included.

During the later stages of the excavation, while the site was being stripped of topsoil by the JCB an additional feature was uncovered (009).

ANOMALY B.

The geophysical survey had located two sides of a possible enclosure in the north-western corner of the site. The report (Appendix 3) suggested that the enclosure could have represented a freestanding feature or did not possess any physical association with the field system.

A large area measuring $30m \times 20m$ within the centre of the enclosure (NGR 51110 14840) was stripped to ascertain the presence of associated internal features, i.e. pits, postholes or structures. No evidence for such features was forthcoming.

The enclosure ditch was sampled to determine its relationship to the field boundary ditch (006) which appeared visually to butt into the enclosure ditch (Fig. 4: G-H), and to provide dating evidence for both ditches if possible.

The section cut through the enclosure ditch (007) showed that the ditch had survived to a depth of 0.75m and measured 1.25m in width. The fills (Layers 053, 054) consisted of red/brown soil and possessed no associated pottery to provide dating evidence.

The field boundary ditch (006) survived to a depth of 0.45m and measured 1.2m in width. The section (Fig. 5: A-B-C) cut through features 006 and 007 indicated that 007 the enclosure ditch was at least 0.20m deeper than the field boundary ditch 006. This evidence coupled with the continuity of fill in 006 suggested that the enclosure ditch was earlier in construction and therefore predates the field system in this area of the site.

ANOMALY E.

After stripping this appeared as a subcircular clay filled hollow roughly 6m in diameter. To the excavator it appeared entirely the result of natural processes. To determine this, a section (ditch cut 020) was cut through the hollow along its east-west axis down into the limestone surface. Over Im in depth, its nature was established as being entirely geological. The drawn section (Fig. 3) reveals a clay (024) filled hollow whose upper fill (022) consists of yellow brown sandy silt. The decayed surface of the bedrock below is broken up by a series of solution holes.

Anomaly E was seen to be one of a number of similar natural features appearing throughout the site area.

ANOMALY D.

After stripping, no possible evidence either for areas of burning or features in the subsoil were found to account for the discrete group of high magnetometer readings. It is possible that these





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could have been caused by a large iron horse shoe discovered later in the topsoil removed by machine in this area.

HEARTH (009).

A shallow circular depression, 100cms in diameter and filled with dark soil containing some charcoal, was discovered 10m to the west of ditch (002).

A sample of its fill when processed, produced fragments of carbonised hazel-nut shell and some as yet unidentified snail shells.

A section of ditch (002) was cut opposite the hearth in the hope of obtaining dating material and further evidence of occupation. Although a 2m length of ditch fill (ditch cut 015) was removed no finds were made.

The profile of the ditch here showed it to be only 60cms wide and its depth a mere 30cms. It was not possible to follow the ditch much further northwards from this point as in all probability it petered out for reasons unknown.

A final survey was undertaken and a plan of the complete site was drawn.





FIGURE 5.



FIGURE 6.

CONCLUSIONS.

The excavation showed the accuracy of the initial geophysical surveys in locating the system of ditches which were aligned north-south at right angles to a seemingly continuous east-west spinal ditch. What the aerial photographs and the geophysical prospecting could not show was the detail exposed by excavation.

The spinal ditch (002) turns northwards and a north-south ditch (005) recuts (002), both of which were unforeseen before excavation took place. This places more importance on the north-south field boundaries than had previously been the case.

Although there is a continuous ditch running east-west parallel with the rest of the hill, (a common feature of most field systems) the relationship to the settlement would seem to be an eastward expansion of land enclosure.

It was only possible to examine the plan of this east-west ditch (002) at the end of the excavation period while topsoil stripping of the whole site was taking place. Only then was its sinuous line and considerable changes in width noticed. The profiles obtained showed an overall continuity in being steep sided, V-shaped and in achieving a depth of Im inclusive of ploughsoil. In some places however the depth was considerably less, notably where ditch (005) was recut into (002) increasing the depth and doubling the width in plan.

The two sections of (002) cut by WYAS, though only 4m apart differ enormously in that Trench 1 appears to contain two versions of (002). It maybe that here we have overlapping segments of the same ditch adding further to the piecemeal process of the construction as revealed. A possible reason for this was the underlying geology. Here towards the crest of the hill the limestone formed very hard 'cones' which would have been a major obstacle to tidy ditch construction.

The existence of gateways, not previously suggested was established through excavation. Two of them occurred where north-south ditches should have met the east-west spinal ditch were obviously terminated 2-2.5m from the point of contact. The third one is interesting, in that it produced evidence of two phases. Initially a gateway with (003) at the point where (002) turned northwards, it was later cut through when the recut of (003) was effected.

It can be postulated that a subrectangular hollow (008), positioned in the angle between the end of (003) and (002) in the first phase of modification of the simpler form. This could have held posts or fences allowing passage from one field to the next.

The depth reached by modern ploughing removes any remains of the surviving banks complementing the ditches. In addition to this no remnants of posts or post settings were found in any of the ditch cuts excavated. This leaves a set of enclosed fields with a ditch likely to have been no more than a metre deep on soil suitable for arable farming. Though these ditches may have been significant in themselves to contain stock, the entranceways would have required some form of barrier

Gaps at the ends of ditches forming enclosures in the second millennium are well established by excavation at Fengate where they are interpreted as entranceways to fields which might have been used as stock enclosures (Pryor, 1978). At Lawford, Essex, there are clear and systematic breaks along the field boundaries which justifies regarding them as gateways (Fowler, 1981).

There ar four reasons for enclosure: to keep animal in or out; to protect crops; to improve the land; to define property. (Fowler, 1981).

It is not possible to show here at Kirk Smeaton whether any of these are appropriate due to the lack of evidence from excavation and the truncated nature of the field system within the area.

Only two features other than the field boundaries were discovered, one a possible hearth and the other an individual burial. The burial remains isolated, its existence impossible to explain. 1t is sufficiently far removed from the ditch not to been interned into an existing bank and presumably have prehistoric in date no evidence of a barrow ditch was found. According to Bowen (1961) field edges such as this; 'tend to be a place where things are thrown away and with more deliberation it seems that burials were occasionally made on the edges of field's '.

The possible hearth, a hollow containing only sufficient charcoal to obtain a radio-carbon date, is in itself no real indicator of occupation. The destruction of contemporary surface surrounding it, leaves the hearth as an isolated feature of little importance in the historical record.

Dating of the ditches as excavated relies on six sherds of Roman pottery, Second/Third Century local Roman ware from Crantley Hill, near Doncaster. There position half way down the ditch in a secondary fill places some doubt on there usefulness as dating evidence as they are probably derived from the adjacent soil surface. Their abraded surfaces testify to this. As the primary silting would have taken place here rapidly, their existence and the lack of other finds of any date may confirm the antiquity of the features.



PLAN OF CROPMARKS NORTH OF SITE AREA FROM AERIAL PHOTOGRAPH.

DISCUSSION.

On deeply ploughed sites such as this, with little to be found beyond the features dug into the undisturbed subsoil, only the fastest methods of recovering archaeological evidence can be justified.

Here the pattern of field boundaries as cropmarks visible on aerial photographs may contain sufficient information to compare similar sites and develop a system of dating based on limited field work.

On sub-soils such as those encountered, clay and sands on limestone, confusion has been caused in the plotting of the anomalies in the preliminary geophysical prospecting undertaken. Together with the low magnetic susceptibility of the soil which has been established and the ubiquitous nature of the indented surface of the bedrock which simulates archaeological features, it was difficult to detect smaller features - solution holes looked like postholes.

No information from excavated sites close to the area was available and little evidence in the way of artefacts can be expected from a site of an agricultural nature such as this. It is important however, to establish the reasons for enclosure in the past. Roman Villas and medieval villages have been excavated in their entirety without identifying or examining the field systems on which there economy depended.

It is possible from a run of aerial photographs parallel to the Al Trunk road, on its eastern side to show the existence of a series of complicated enclosure systems immediately to the north of the site (Fig. 7). The patterns of fixed boundaries appear to be similar but in many cases their relationships to trackways and enclosures is apparent.

There is very little data available for geographical comparisons In an area between Doncaster and Retford the cropmarks as shown by aerial photography have been examined and plotted (Riley, 1978). They show a series of long boundaries extending for many kilometres with short cross-ditches. The long boundaries around Rossington, South Yorkshire have a north-south alignment but in other areas around Retford and Babworth, Nottingham, they have been shown to be orientated east-west. These local variations point to large scale planning.

Trial excavations at three of the enclosure groups connected with the strip systems have found pottery of Roman date in the ditch fills. This gives indication on the period of use of the strip systems but not the date at which the strips were first laid out.

Evidence for Prehistoric activity in the area surrounding the site exists, this includes; three long barrows, six miles to the south, again on magnesium limestone (Barnatt and Reader, 1982).

There was maximum extension of land under cultivation in the Romano-British period and the elements of a new agricultural

management demanded laid out field systems. Evidence for Roman interest in the area is shown by its proximity to a Roman road on high ground called the Ridgeway immediately to the south.

The abundance and distribution of prehistoric populations were mainly controlled by the needs of the economy. In Man Land Relationships in Prehistoric Britain, 1979, C. F. Hawke-Smith concludes: "Roman and Anglian settlers were entering a landscape and ecology which were already largely products of human activity and very far removed form their 'natural' state. Clearly the understanding of the agricultural prehistory of a region is essential for grasping the factors controlling its historical settlement".

APPENDIX 1.

GEOPHYSICAL SURVEY AT KIRK SMEATON, NORTH YORKSHIRE.

By WYAS.

Geophysical Survey at Kirk Smeaton, North Yorkshire.

Introduction

Two officers of the West Yorkshire Archaeology Service (WYAS), undertook a geophysical survey at the proposed quarry site at Kirk Smeaton (Grid Reference SE51201475) (Fig. 1), on Thursday and Friday 16th and 17th of March 1989. appropriate instrument to use for the detection of these particular types of sub-surface features.

The survey was initiated at the request of CSL Surveys (Planning Consultants), for Drinkwater Saby.



Fig. 1. Location of the proposed quarry site and the approximate position of the survey. Scale, 1:3000

The site was adjacent to a field which displayed crop marks described in the North Yorkshire County Council Archaeology Unit Sites and Monuments Record as an enclosure with associated ditches and a trackway. It was thought possible that similar features could extend into the area of the quarry extension. A gradiometer was considered to be the most

Ground Conditions

The underlying bedrock was a magnesian hmestone which was covered by a mid-brown calcareous soil containing a moderate amount of faceted limestone pebbles. The soil had been



Fig. 2a. A dot density print-out of the data.



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Fig. 2b A grey scale print-out of the data





Fig. 2c. An enlarged grey scale print-out of the data shown in Fig.2b. The interpretation of the data is given in the results section.



lightly tilled in a north-south direction and a thin grass crop covered the field. Due to recent rain, the soil was moist.

Instrumentation

The survey instrumentation incorporated a fiuxgate gradiometer with an inbuilt data-logging facility. The data was 'dumped' on to an Epson HX20 field computer and later transferred to a more powerful micro-computer. The data was processed using both a dot density (Fig. 2a) and a grey scales format (Fig. 2b). The grey scales software was recently developed at the University of Bradford, and provides an image similar to a blurred photograph.

The gradiometer detects the small magnetic anomalies created by the organically-richer infilling of ditches, slots and gullies which cut into the bedrock. Over the years these features will have become backfilled and indistinguishable from the surrounding field contours. On the print-out the darker areas reflect higher magnetic readings than the surrounding low readings which constitute the background measurements.

Method

The survey area was approximately 30% of the proposed quarry extension and was gridded into 20 by 20m squares which formed a transect across the field. A total area of 10,800 sq metres (1.8 ha) was surveyed with readings taken at Im intervals in a west- east direction.

Results

The print-out on Figure 2c provides clear evidence for a sinuous ditch (I), stretching across the centre of the survey area.

Associated with this ditch are at least two other ditches (11) which connect to it from the north and the south.

Also visible, although with less clarity, and series of small (c.10m diameter), enclosu (III), grouped at the north-east area of t survey.

Discussion

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All of the above-mentioned features hav produced relatively weak readings of betwee. 2 to 5 nT against a background average of -1n1 Smaller features therefore, which perhaps do not cut deeply into the bedrock, will not be easy to distinguish and could be incorporated into the background readings.

The archaeological status of the features cannot be determined by remote-sensing teclmiques, but a documentary resarch may reveal that the anomalies tie in with a boundary line which has subsequently been removed.

An examination of the first edition Ordnance Survey map (Fig. 3), shows the presence of two field boundaries running across the survey area



Fig. 3. First Edition Ordnance Survey map showing the survey area and the position of two north -south field boundaries

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in a north-south direction. Both of these boundaries have been removed but neither shows on the survey, suggesting that they were hedges and did not cut into the bedrock.

Conclusion

It is likely that the major features detected by the gradiometer represent ditches cut into the ... bedrock which form part of a field system complex.

It is also possible that small enclosures exist, but it is not possible to say if these are associated with the field system or belong to a different period.

There is a suggestion of the presence of less coherent features but due to the weakness of the readings these cannot be extracted with confidence from the data.

Magnetometry is a remote-sensing technique and the limits of detection are subject to a number of variables, including the depth of overburden, the depth of the features and the magnetic susceptibility of the bedrock and fill of the features. These factors must be taken into account and it is possible that features exist which have not been detected by the survey instrumentation.

APPENDIX 2.

TRIAL EXCAVATIONS AT KIRK SMEATON QUARRY EXTENSION SITE, NORTH YORKSHIRE.

BY WYAS.

Trial Excavations at Kirk Smeaton Quarry Extension Site, North Yorkshire

(Grid Reference SE 51201475)

Introduction

Following a geophysical survey of a proposed quarry extension site in March 1989, staff of the West Yorkshire Archaeology Scivice (WYAS) were requested by CSL Surveys (Planning Consultants) to undertake limited archaeological excavations on land belonging to their client, Drinkwater Saby (Fig. 1).

Several anomalies that appeared on the geophysical survey were pre-sclected for investigation by staff of

the North Yorkshire County Council Archaeology Unit (Fig. 2), and these were located in the trenches opened by the WYAS.

The excavation was undertaken on 25th, 26th and 27th October 1989 by three officers of the WYAS. The ploughsoil was machine-stripped using a 70" wide ditching bucket on a JCB, kindly provided by Drinkwater Saby.



Fig. 1: Location of the proposed quarry site and the approximate position of the survey. (Scale 1: 3000)

 survey and to retrieve evidence which may have helped resolve their date and function.



Fig. 2: The location of the three trenches in relation to the gcophysical survey. (Scale 1: 1000)

Description

Trench 1 (Fig. 3a)

Tinls was the most westerly of the three trenches. It measured 10 by 2m and revealed a segment (004) of an cast-west orientated ditch. This feature shows on the survey as a continuous dark line stretching across the full length of the survey area.

The line of the ditch was ascenained and it was then excavated using the JCB. The cast section of the ditch was cleaned, photographed and recorded (Pl. I).

Depth: One metre from the top of ploughsoil to the bottom of the ditch

Profile: Almost 3m wide at the top, tapering down to a U-shaped bottom with sides at roughly 45 degrees.

Fills: A inid-brown primary silt (005) was scaled by a band of limestone rubble in a red-brown sandy matrix (006). Sealing this was a stone-free layer of mid-brown sand (007). The sharp comrasi between this fill and the rubble beneath it could either rellect the primary and secondary silting process or indicate a recut into the ditch fill. Immediately adjacent to the band of fine sand was a shallow scoop filled with small stones in mid-brown soil (008).

Six metres to the south of the ditch a square-cut feature (009) was recorded in soil plan. Lack of time prevented the excavation of the feature, but it was observed during the surface cleaning that a thin band of mid-brown clay (011) appeared to line its southem edge. A similar deposit was recorded on another feature in Trench 3.

∠ (Fig. 3b)

.cnch was located 3.5m east of Trench 1 and .s required to corroborate the projected line of the ditch described above. The cast section (012) was cleaned photographed and recorded (Fig. 3d). Although the profile and dimensions were similar to those in the first segment, the nature of the fills differed slightly.

The primary fill of limestone rubble (013) was scaled by a layer of mid-brown sand containing a moderate quantity of small stones (014). A shallow scoop filled with sand (015) was observed at the northem end of the section.

No other features were present in this trench.

Trench 3 (Fig. 3c)

Trench 3 was situated 70m cast of Trench 2 and located the position of the major ditch as well as other features to its north and south.

The alignment of the ditch (022) was recorded, and in due time available due surface fill of limestone rubble in mid-brown sand (023) was excavated manually. Six and a half metres to its north, a linear feature (026), orientated diagonally to the axis of the trench, was filled with a rcd-brown elay-sand (027) to a depth of 0.10m. This was cut by a curving section of ditch (024) which was filled with a fine, mid-brown sand (025) to a depth of 0.45m.

A pit situated Im to the south of the major ditch, initially ran into the edge of the trench, but the edge was extended to reveal the full dimensions of the pit. Excavation revealed the following sequence. A north-south orientated slot (019) with a clay lining (020) on the west side had been cut by a rectangular grave pit (016). The grave may have been disturbed by a later intrusion.

The grave contained a single skeleton orientated north/south, with the head to the nonh and facing the west (PI. II). The body was crouched and rested on its right side.

The burial was located at a depth of 0.25n below the surface of the sub-soil. The fill of the grave consisted of a mid-brown sandy loam (021), and the condition of the bone was poor considering the nature of the

limcsionc-based soil of the locality. All but the most robust bones had virtually disappeared. Some of the teeth were in a ghastly condition but this could be due to poor dental healdi as opposed to poor soil preservation.

The skeleton was fully excavated, and it was established that grave goods were not present. No evidence for a surrounding barrow ditch was located in the narrow trench.

Discussion

The major ditch line recorded in the earlier geophysical survey was revealed in each of the three trenches. It was shown that the ditch was of moderate proportions, but artefacts were absent from the fill and its dale could not be established. It was not clearly demonstrated whether the ditch had been re-cut, or whether the different fillings were a reflection of the normal primary and secondary silting processes.

In the most casteriy of the trenches (Trench 3) other features produced further evidence of earlier human activity. The burial is most likely to be of prehistoric, or of pre-Christian date, owing to the north/south orientation of the body and its crouched position. The surviving bone was lifted, and it is possible that enough material exists to provide basic pathological information. The grave was situated Im south of the main ditch and no direct stratigraphical relationship between the two could be ascertained.

No other graves were present in this trench, although a rectangular feature in Trench 1 (009), which remained unexcavated, was of similar proportions to the excavated grave.

To the north of due ditch, the two gullies which were sectioned were devoid of archaeological material, but cannot be dismissed as natural because of the regularity of their edges and their proximity to the ditch and the grave. From the texture and type of fillings it was clear that the earlier of due two gullies was due linear feature, whose fill was cut by gully 024. It was not possible to stratigraphically relate the two gullies to the main ditch or the grave.



.clusion

trial trenches confirmed that die anomalies plotted on the geophysical survey warranted further archaeological investigation.

As a result of excavation, the nature of the features was established, but the absence of any dating evidence from the ditch and gully sections was lamentable.

The presence of a crouched inhumation docs not necessarily indicate intensive prehistoric or pre-Chrisdan activity on, or close to due site, although a soltary burial is unlikely and it is possible that further graves are present. It is probable dual if there were there to be any future archaeoiogical work on the site, it would inidally concentrate on discovering due extent and nature of funerary activity.

In a field to the west of the survey area, a cropmark

of a five-sided enclosure with internal features could denote an enclosed settlement site. It is not possible on the basis of a single inhumation to link the burial lo the nearby enclosure, but the possibility cannot be excluded and a relationship between the two would be significant.

Dr Jacobs, of the Claro Coroners Office, was told of the discovery of the skeleton and was informed that the crouched position of the body and the condition of the bones pointed to the archaeological nature of the burial. It was further stated that due care and respect would be paid to the exhumed remains and that they would not be disposed of in an improper manner. A copy of this report with an accompanying photograph of the burial is to be sent to Dr Jacobs who wished to be informed atout further developments.

Philip Abramson November 1989



PI. I: East section of the major ditch in Trench 1 showing the variation in the fills.



Pl. II: The crouched inhumation in Trench 3.

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APPENDIX 3.

A GEOPHYSICAL SURVEY AT KIRK SMEATON QUARRY PHASE II.

BY WYAS.

A Geophysical Survey at Kirk Smeaton Quarry, Barnsdale Bar Phase II

Introduction

Over a period of five days, two officers of the West Yorkshire Archaeology Service (WYAS) undertook a geophysical survey on the proposed quarry extension site at Barnsdale Bar (see previous reports), for Drinkwater Saby. The survey was conducted in December 1989 and January 1990.

The original survey detected a ditch system and subsequent trial excavation confirmed the existence of this, as well as revealing a crouched inhumation, probably of prehistoric origin. As a result of this work, it was decided that further geophysical prospection should be undertaken on the remaining area of the proposed quarry extension. The original survey area of 1.08 hectares was extended by 1.62 hectares so that a total area of 2.7 hectares was surveyed (Fig. 1).

The job specification prepared by the Archaeology Unit of North Yorkshire County Council included a provision for high resolution surveying in those areas where the normal survey indicated anomalies of special interest. An additional 800 square metres were surveyed under these conditions (see Results below).



Fig. 1: The position of the proposed quarry site, and the survey area. The hatched area had topsoil removed prior to the survey.

Method

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As with the previous survey, a grid was constructed over the survey area and readings were taken at one or half metre intervals, as required, using a parallel traverse.

Apparatus

The apparatus did not differ from that used in the previous survey, and readers are referred to the relevant report for this information. However, for the high resolution survey the gradiometer was programmed for 1nT at half metre intervals with grey scales print-out on Figure 2 shows the .otal survey area, and a summary of the main results is produced below:

The extent of the field system has been enlarged so that the ditches which are attached to the major east-west spinal ditch (A) can be seen to continue beyond the edge of the survey area.

An additional feature is situated at the north-western corner of the survey. Two sides of a possible enclosure (B) are clearly visible, and could represent a free-standing feature, without any physical association with the field system described above.

In the eastern and central sector of the survey a series of faint parallel lines (C) may have an association with the field system, but the possibility of medieval ridge and furrow should also be considered.

A discrete group of high readings (D) in the south-east sector of the survey would at first appear to represent a spike, caused by surface metal. The readings, however, which reach a maximum of 18nT, are distributed within an area of three square metres which is too widespread for a small metallic object.

In Figure 3 the area of high resolution surveying is shown. Two 20m grid squares were selected from the main survey area close to the position of the crouched inhumation found during trial excavations.

The increased resolution of the survey clarified the presence of a sub-circular anomaly (E) to the south of the survey area, with a possible ditch (F) running northwards from it.

Fifteen metres to the east of this, the linear anomaly of a field boundary ditch (G) was enhanced by the survey. The ditch appears to be cut at its northern end by a dark line (H), approximately 20m long and curving northwards to the edge of the survey.

Discussion

By enlarging the survey area it is clear that a more complete picture of the field system has emerged. The ditches which are attached to the major east-west ditch continue beyond the edge of the survey area. Separate from these, however, is the corner of a possible enclosure in the north-west sector of the survey. High resolution surveying in this area was not possible due to a shortage of time.

In the south-east corner, the square of high readings (D) could be caused by buried metal, but sub-surface burning (e.g. a hearth, oven or kiln) could create a similar anomaly.

In the area where high resolution surveying was conducted, however, the enhancement of anomalies has enabled a clarification of otherwise indeterminate features. The sub-circular feature (E), which appeared as an indistinct anomaly on the first survey, resolved into a stronger feature which may be related to burial activity. The crouched inhumation found during trial trenching was situated only 15 metres to the south of this anomaly.

The ditch running diagonally across the eastern sector of the survey (G) again appears as a stronger feature, and the serrated effect could be a result of plough damage to the lip of the ditch.

A feature which did not appear on the first survey is suggested by a thin dark straight line (H) which curves towards the northern edge of the survey area. Close examination shows that where this intercepts the diagonally aligned ditch, the dark line obscures the ditch. It is possible that this darker line of low value readings is a stone wall which overlies the ditch.

Only anomalies whose signal strength and/or shape suggest that they are of archaeological significance have been discussed above. Other features of an archaeological nature may be present, but have remained undetected by the gradiometer. The apparently low magnetic susceptibility of the soil is not conducive to the detection of small, shallow features.

P. Abramson January 1990

1 1 June 1 Sy CARL WAYNE PERSONA ţ`: Fig. 2: The total survey area with major anomalies superimposed. (Scale 1: 950) $\left(\right)$ Office Contract (1942) accurring . , **(**), 3

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