A possible Vineyard of the Romano-British period at North Thoresby, Lincolnshire

D. & H. WEBSTER and D. F. PETCH

INTRODUCTION

IN the autumn of 1955 Romano-British pottery was found during the course of ploughing a field (O.S. 144, TF/266981) at North Thoresby. Mr. C. L. E. Haigh, the owner of the land, informed the City and County Museum, Lincoln, and the site was examined by D. F. Petch.1 It was noted that when this field was ploughed dark lines or patches of soil were revealed, but no clear conclusion was reached at the time as to the character of the site, and these marks quickly faded.

After the site had been ploughed in the autumn of 1959, however, the dark marks were very clear, and persisted for some time due perhaps to the excessively dry state of the soil. An examination of the site by H. and D. Webster immediately after the ploughing demonstrated that the whole field was covered with dark bands of soil, and that in (or close to) these bands was a quantity of Romano-British pottery, together with animal bones and large stones. Viewed from the ground it was not at first possible to recognise any pattern, but air photographs taken at the instance of Mr. Haigh (plate VI) showed that the field was in fact covered with a regular network of darker lines which in one area formed a definite grid enclosing areas roughly rectangular in shape. Using the air photographs as a guide the soil marks were planned by reference to the surface indications. It was assumed that the dark soil represented the fill of ditches: to prove this six trenches were dug at selected points (see plan, fig. V).

THE EXCAVATION

Six sections were excavated and the sequence in each was found to be similar. In each case a ditch was found to have been dug into the natural clay, varying in width from 5 feet to 6 feet, and in depth from 3 feet to 4 feet 6 inches. The profile in each case was also similar, being a U-shape with a rounded bottom. Large quantities of pottery, bones, chalk and stones were found in the uppermost two-thirds of the fill, the lower fill being comparatively sterile. Samples of soil from the fill of the ditches were analysed and compared with a sample taken from the field soil, and it was found that there was eight times the quantity of phosphate in
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the ditch fill as was encountered in the field soil. This high level of phosphate is also found in old garden soils, and may be attributed to the use of quantities of manure: it is also noteworthy that the ditches produced twice as much organic matter as the field soil. The darkening of the ditch fill was apparently due to this organic matter and combined iron. A superficial examination of the bones showed that these represented oxen and sheep.

The pottery was all coarse ware, including a large proportion of black gritted ware. Of the pieces drawn and described (see below, p. 58) it will be noticed that there is a high proportion for which a third century date is either certain or very likely. There are rather fewer sherds for which a date in the second rather than the first half of the century seems to be required, and this is precisely what we would expect if the date of deposition of the pottery was within a year or two of A.D. 277. Three or four of the sherds would be as much in place in a group of the first half of the fourth century as in the later third century, and it is interesting to note that item 23 (fig. IV) is of a form which may be paralleled from the Rookery Lane kiln at Lincoln (assigned the period 300 - 350), although one may doubt whether this was in fact its kiln of origin. Only one sherd gives unequivocal evidence of being second century rather than third century in date. That the groups in question should contain a fair proportion of residual material seems reasonable in view of the proposed origin of the material containing the sherds in the midden of the farmhouse. Comparison of the pottery from one trench with that from another gave no grounds for believing that any differentiation in date could be made, or that a difference had in fact existed. The conclusion tentatively drawn from the pottery is, therefore, that the trench-system is assignable to the third century, almost certainly to the second half of that century, and that a date c. A.D. 275 - 80 would be completely in accordance with the evidence.

D I S C U S S I O N

An area of at least twelve acres had been covered by the network of ditches, and the air photographs suggest that within this area some of this system has been lost as a result of deep ploughing. The field in which the ditches survive has a slope of approximately 1 in 100 in an easterly direction, and it was clear that the ditches ran with this slope, although at intervals other ditches ran across the slope to link the main ditches. The ditches were quite regularly spaced, being roughly 25 feet apart, and, as they were so close together it was possible to discard the theory that they represented field boundaries, even if these were supposed to be of different periods.

A much more likely explanation for these ditches is that they were dug for the cultivation of a crop whose character may be conjectured, although no conclusive evidence was recovered. It is instructive here to turn to the works of Columella where we find similar cultivation ditches mentioned: "Some, ............... make a furrow two and three-fourths feet deep and five feet wide; then leaving three times as much unbroken ground, they cut the next furrows. When they have done this throughout the whole plot set aside for vines they set upright in the sides of the furrows either quicksets or young vine branches ............... putting in ............... a great number of cuttings, which, after they have gained strength, they may propagate in cross trenches in the ground which was left unbroken ......... ." A further passage provides an explanation for the difference found in the sections between the upper and lower fill of the ditches: "In the bottom of the planting hole you should place stones about five pounds in weight ............... then half fill the planting hole or furrow with well manured earth; then during the next three years you should gradually fill the planting hole or furrow up to the top," while the practice of including stones in the fill is also reinforced by another passage: "But the planter's duty is, first, to transfer the plant from the nursery ............... to prune it ............... reducing it to one strong cane ............... and then to set out the plant, bending it in such a way
that the roots of two vines may not be intertwined. For this is easy to avoid by placing along the bottom, close to the opposite sides of the trenches, a few stones whose weight should not exceed five pounds each. These seem ....... to ward off the winter’s wetness and the summer’s heat from the vine roots. 73 The second of the passages quoted above may very well account for the pottery and bones in the upper fill, since this is most likely to have been derived from the midden. Another passage in De Re Rustica 7 may also help to explain the occurrence of this material in the ditch fill. This deals with the practice of ablation, which involved uncovering the roots of the vine and cutting off all summer rootlets in order to drive the root system to develop deeper below ground and thus obtain greater protection from cold and drought. All roots were cut away down to a depth of eighteen inches from ground level and the root left exposed for some time. The vine was later manured and the hole filled in. This process was undertaken yearly for the first five years and then at three yearly intervals and would involve a very heavy manuring of the uppermost eighteen inches of the fill of the ditches.

Nor is our knowledge of these cultivation ditches merely confined to treatments on agriculture, since air photographs of Mediterranean lands often show the remains of such systems of parallel ditches. 7 The extent to which individual systems would depart from the ideal arrangement put forward by Columella is uncertain but it would seem very likely that there would be divergences from these figures to suit particular types of sites and soils. The system at North Thoresby is an elaborate one and can surely have been justified only by a crop of considerable value. Fruit trees do not seem to provide the product value required, and in the Roman period seem to have been usually planted in individual planting holes rather than in trenches. On the other hand, it would seem that the distance between the ditches would be appropriate to a fruit orchard, and this possibility cannot be completely dismissed. However, the most obvious purpose for an elaborate system such as has been described would seem to be for the cultivation of grape vines, and these would provide a crop of sufficient value to justify the amount of preparation involved. That vines were cultivated in Britain during the Roman period is beyond question, 8 and indeed their cultivation in this province was expressly permitted by Probus. 9 As has been remarked, similar systems of parallel ditches are commonly seen as cropmarks on air photographs of countries bordering on the Mediterranean, and these are always construed as representing vineyards of the Roman period.

There are, unfortunately, also some strong objections to the identification of this particular site as a vineyard which have been put before us by Mr. R. Barrington Brock. 10 The first, and perhaps the main, objection is that the spacing between the trenches is more than double the greatest distance used today, the normal range being between three and ten feet. A second point of some importance is that stiff clay is by no means the most suitable soil for the cultivation of vines, since it is usually too wet. The third point raised by Mr. Brock, concerning the unfavourable latitude of the site, may be answered by pointing out that there have been quite considerable climatic fluctuations even over the last millennium, and that it was possible to establish at least one vineyard at Lincoln during the Middle Ages is indicated by the old street name Vinegar Lane. 11 One assumes that attempts to cultivate the vine in Britain during the Roman period would have coincided with climatically favourable periods, although it is agreed that Lincolnshire must always have been near too, and often beyond, the northern limit of the area in which viticulture is possible.

The distance between trenches, approximately 25 feet, does not exceed by too great a factor the 15 feet recommended by Columella for initial planting, and as the system did not develop with the cross-trenches referred to in the same passage it would seem that we must infer that this was a short-lived experiment. In short, it is reasonably clear that the experiment was not a success, and it is tempting to see as a contributory cause of failure the inexperience of the farmer and his men, perhaps demonstrated by the choice of an unsuitable soil and situation. However, the farmer may not have been wholly to blame, and it may be relevant to recall that Mrs. Hallam’s work on the Romano-British settlements in the Pens has
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clearly indicated a diminution in their numbers in the period beginning in A.D.270 which
she attributes to a period of rapid submergence by A.D.300. This is paralleled by a similar
deterioration at approximately the same period in North Somerset, and it may be that a
comparatively slight climatic fluctuation at that time was sufficient to make continuation of
the experiment at North Thoresby unprofitable.

CONCLUSIONS

The field investigation proved conclusively that the soil marks observed on the ground
and from the air represented trenches or ditches. On the evidence of the pottery from their
fill they could be dated with certainty to the third century, and with a high degree of probability
to the latter part of the century, perhaps in the five or ten years following A.D.275. The
trenches gave every indication of having been deliberately filled, and are apparently all of
the same period, so that they are more convincingly interpreted as cultivation trenches rather than
as (for example) drainage gullies. Such trenches are well-attested in provinces bordering the
Mediterranean, following the form described by Columella, where they are interpreted as
vineyards. No positive indication of the crop was obtained at North Thoresby, but the date
and form of the trenches, taken with the indications that a cash crop was involved, point
towards viticulture.

It is tentatively proposed, therefore, that the site at North Thoresby was an unsuccessful
experimental vineyard, established in all probability soon after the edict of Probus of c.277,
presumably by a land-owner of some substance who could afford to experiment with new crops
in this way. The attempt did not last long, apparently, due to the choice of unsuitable soil
and aspect, lack of expertise, and possibly also to the development of unsuitable weather
conditions.

THE POTTERY (fig. IV). 15

1. Rim of jar grooved on shoulder, hard grey fabric. Cf. Jeory Wall 16 fig. 50, 41, first
half third century.
2. Narrow-mouthed jar, fabric similar to (1) but with the addition of grits which have
leached out. Cf. Norton 17 form 4b, and therefore possibly handled. Third century
to c. 280.
3. Fragment of rim of large storage jar with prominent bead rim. This type of vessel is
encountered in the first century: for a third century parallel cf. Jeory Wall fig. 30, 16
(first half of third century).
4. Fragment of the rim of a jar similar to Gillam’s form 157. 18 Cf. Brough 1936, 16 fig. 15,
143-7. A late third or fourth century form. Grey ware.
6. Rim of wide-mouthed jar very similar to (1) above, date presumably similar.
8. Wide-mouthed jar or bowl in grey ware, rim deeply grooved internally. Cf. Cantley, 19
fig. 11, 158. A later third and fourth century form.
9. Large bowl with plain square rim in calcite gritted fabric.
10. Jar similar in form to (4) above, dark grey gritted fabric. Cf. Torksey third century. 20
12. Rim and shoulder of large storage jar in gritted fabric: the internal profile of the rim is
angular. A close parallel is Brough 1936, fig. 10, 18, and see also (3) above.
13. Jar in grey fabric, comparable with Throlam 21 fig. 14, 74. Second half of the third
century.

Other grey sherd from same or similar vessel.
14. Body sherd from a folded colour-coated beaker with scale decoration, similar to Gillam’s form 93 (c. 190-270).
16. Narrow-mouthed jar in grey ware with rim grooved internally.
20. Similar to (21).
21. Platter with plain rim, grey ware, third century; too small a rim sherd to obtain diameter.
24. Large storage jar in black shell-gritted fabric, similar to (3) above.

Appendix ‘A’

**The Soil Analysis**

<table>
<thead>
<tr>
<th>Component</th>
<th>Fill of Ditches</th>
<th>Natural soil of Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>6.9</td>
<td>7.1</td>
</tr>
<tr>
<td>Free CaCO₃</td>
<td>Trace</td>
<td>1%</td>
</tr>
<tr>
<td>Available P₂O₅</td>
<td>330mg.%</td>
<td>40mg.%</td>
</tr>
<tr>
<td>Available K₂O</td>
<td>8mg.%</td>
<td>10mg.%</td>
</tr>
<tr>
<td>Moisture in oven dry soil</td>
<td>3.8%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Loss in Ignition</td>
<td>9.0%</td>
<td>4.7%</td>
</tr>
<tr>
<td>Organic Matter</td>
<td>2.1%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Total Sand</td>
<td>42.5%</td>
<td>35.0%</td>
</tr>
<tr>
<td>Silt</td>
<td>13.8%</td>
<td>13.0%</td>
</tr>
<tr>
<td>Clay</td>
<td>42.2%</td>
<td>51.2%</td>
</tr>
<tr>
<td>Free Fe₂O₃</td>
<td>2.1%</td>
<td>3.1%</td>
</tr>
<tr>
<td>Total Fe₂O₃</td>
<td>5.6%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Total Silica</td>
<td>70.2%</td>
<td>64.1%</td>
</tr>
</tbody>
</table>

The Soil Chemist commented that the main point of interest was the considerable difference in the amount of Citric soluble phosphate in the two samples – 330 as opposed to 40 mg. He stated that the high level was similar to that found in glass houses or old garden soils while the lower level is that of the more normal agricultural soils in high farming areas. The high
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organic matter, in his opinion, suggested that the darkening was due to organic matter and combined iron, while the high sand fraction in the darker soil could be due to importing sandy material such as is used in road making.

A minera geological examination showed that there was little difference between the soil of the fill and the slope generally except that apatite was present in the latter but not in the fill of the ditches.

Appendix ‘B’

MR. R. BARRINGTON BROCK’S LETTER

“I was extremely interested in your details of the finds at Grainsby but I doubt if I can give a very authoritative answer. I do agree that this is clearly some very expensive arrangement and that vines would probably have ranked very highly in the economy but the spacings are very wide indeed for vine cultivation and make me doubtful.

First of all, I would say that stiff clay is notorious for killing vines by waterlogging so that if someone did want to grow vines there, then he might well have made drainage areas like these. Normally, however, all over the world, the spacing has evolved at between three and ten feet even in hot climates.

There are records that vines were grown as far north as the Baltic a few hundred years ago, but even then, Lincoln would have been near the upper limit. Sharp drainage was always important so that stones would not be unusual at all in the trenches, but this might apply to any fruit.”

ACKNOWLEDGMENTS

The writers would like to acknowledge in particular the assistance afforded by the late C. L. E. Haigh, Esq., of The Grange, Grainsby, on whose land the site lay, and who drew attention to the site both in 1955 and in 1959. Without his enthusiastic co-operation little would have been achieved. We are also grateful to R. Barrington Brock, M.B.E., B.Sc., F.I.C. of the Viticultural Research Station, Oxted, and to other colleagues for helpful comment and criticism. We are indebted to the Ministry of Agriculture, Fisheries and Food for the soil analysis, and to the Minister for permitting its publication here. The authors are grateful to J.B. Whitwell, Keeper of the City and County Museum, Lincoln, for considerable help in seeing this report through the press.
Notes

2 See below, p. 59, for analyst’s report.
3 De Re Rustica, Book III, xiii, 5. This and the following work are quoted in the Loeb translation.
4 De Arboribus, Book IV, 4–5.
5 De Re Rustica, III, xv, 3–4.
7 J. P. S. Bradford, Studies in Ancient Landscapes. Cf. for example, plate 25 and text.
8 Godwin (History of the British Flora, 290) lists four Roman sites which have produced grape seeds: Silchester (Archaeologia, LVII, 252 and LVIII, 427), London (Ibíd., LX, 216), Bermondsey (Geol. Mag., IV, 10, 456), and Gloucester (T.B.G.A.S., XIX, 155). To these should be added Southwark (Archaeologia, LVIII, 427) and presumably Ixworth (cf. S. S. Frere, Britannia, 293 and f.n. 2) where Collingwood recorded the discovery of vine-plants near a villa (Tenney-Frank, Economic Survey of Ancient Rome, III, 78 et al.).
9 S.H.A., Vita Probi, 18, 8.
10 See below, p. 60.
12 Ant. f., xiv (1964), 28.
15 The pottery is described in the various groups in which it was found rather than in order of forms. It was drawn by Hugh Webster.
17 R. H. Hayes and E. Whitley, The Roman Pottery at Norton (Roman Malton and District Report No. 7).
18 J. P. Gillam, Types of Roman Coarse Pottery Vessels in Northern Britain (Arch. Ael. 4th ser., vol. XXXV).
20 The Romano-British Pottery at Cantley, Doncaster, Kilns 1–8.
21 A. Oswald, The Roman Pottery Kilns at Little London, Torksey.
22 The Roman Pottery at Tivolam (Roman Malton and District Report No. 3).
25 The pottery and other finds are stored at the City and County Museum, Lincoln.