

Radiocarbon dating archaeobotanical remains from Wharram Percy

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Between 1950 and 1990, the Wharram Research Project undertook excavations at the deserted medieval village of Wharram Percy (North Yorks), across several different areas of the settlement (Wrathmell 2012). Among the wealth of excavated finds were substantial archaeobotanical assemblages. These drew the attention of the Feeding Anglo-Saxon England project (FeedSax), which aimed to investigate developments in early medieval crop husbandry using bioarchaeological evidence such as charred plant remains. The most abundant archaeobotanical data for the Anglo-Saxon and medieval periods were available from two sites: the South Manor (site 93) and the watermill sites (30 and especially 71) (Carruthers 2000; Jones 2005).

In order to obtain a more secure chronology for these assemblages, FeedSax submitted charred grain samples from eight contexts to the Oxford Radiocarbon Accelerator Unit for radiocarbon dating: five from Site 93 and three from Site 71. Prior to submission for dating, the grains were photographed by the author at the University of Oxford; these photographs are included in the project's photographic archive (McKerracher *et al.* in prep.).

The resultant radiocarbon determinations have been calibrated using IntCal20 (Reimer *et al.* 2020) and OxCal 4.4.2 (Bronk Ramsey 2009) in the table below and figures at the end of this report.

Results

site	context / sample	grains	laboratory no.	original phase	age BP	calibrated dates (confidence)
93	60/5	3 x barley	OxA-37641	C9–12	1166±26	799–902 (57.9%), 916–974 (24.6%)
93	66	3 x oat	OxA-37642	C11–12	1130±25	878–993 (93.3%)
93	75	3 x barley	OxA-37643	C11–12	1099±23	890–995 (95.4%)
93	163	2 x barley	OxA-37644	C11–12	1006±23	991–1048 (78.8%)
93	118	2 x wheat	OxA-37645	C11–12	940±23	1035–1160 (95.4%)
71	196	3 x wheat	OxA-37727	C13	786±23	1222–1276 (95.4%)
71	206	3 x barley	OxA-37646	C13	927±23	1035–1175 (95.4%)
71	211	3 x wheat	OxA-37647	C13	828±23	1175–1268 (95.4%)

Site 93 (South Manor)

Three of the dated samples derive from contexts (66, 75, 163) belonging to Grain Drier 31, which is assigned in the published report to Phase 5A, the Norman period. Context 163 is described by Carruthers as ‘an ash layer on the oven floor’ which ‘probably represents an accumulation of grain that had fallen through the floor of the oven into the fire’ (Carruthers 2000, 193). Context 75 is described as follows: ‘Whatever form the above ground kiln structure had taken, clean, olive-brown clay had clearly formed part of it: it had collapsed or had been pushed into the drying chamber, forming a layer c.0.20m thick (93/75)’ (Stamper *et al.* 2000, 43). A York Glazed sherd from this context is taken to indicate a date ‘some time in or after the late 12th or 13th centuries’ (*ibid.*, 43). Context 66 lies directly above context 75 (*ibid.*, 42, Fig. 24).

The radiocarbon dates newly obtained from charred grains from these contexts are at odds with the ceramic date: the latest likely date range is cal. AD 991–1048 with 78.8% confidence (context 163) while the two contexts stratigraphically above this context have older date ranges: cal. AD 890–995 (context 75, with 95.4% confidence) and cal. AD 878–993 (context 66, with 93.3% confidence). If the material in basal context 163 represents the last firing, and the material from contexts 66 and 75 represents earlier waste redeposited in the backfilling of the kiln, then the period of use appears most likely to have been concentrated at the end of the tenth century, not the late twelfth or thirteenth. The published report suggests that the kiln had a short lifespan (Stamper *et al.* 2000, 43), which the radiocarbon determinations could now plausibly date to around the 990s AD, earlier than originally thought. In this case, the York Glazed sherd must be considered intrusive.

Context 118 is the ‘dark brown loam’ fill of Ditch 117 (*ibid.*, 46) which, like Grain Drier 31, is assigned in the published report to Phase 5A, the Norman period. Unlike those from the drying kiln, however, charred grains from context 118 have returned a radiocarbon date range consonant with a post-Conquest date: cal. AD 1035–1160 with 95.4% confidence. Ditch 117 is one of three parallel linear features, and the latest pottery from its fill dates from the twelfth to thirteenth centuries (*ibid.*, 46). The published report states that (*ibid.*, 37):

‘These features were cut into the black loam... They were mainly sealed by the stone-built structures and stone yard surfaces of the second half of the 13th century and later.’

It thus appears that the available stratigraphic and artefactual evidence does not allow us to refine the radiocarbon date range returned by grain from this context, and it can therefore be dated only broadly to the early eleventh to mid-twelfth centuries.

Sample 60/5 represents a one-metre grid square from the ‘black loam’ (context 60) which contained both pre- and post-Conquest pottery (Richards 2000, 197). This black loam sealed the yellow-brown loam dated in the published report to the Middle Saxon period (*c.* 650–850), and was itself cut by Ditch 117, whose fill is dated above to the early eleventh to mid-twelfth centuries. Grain Drier 31, dated above to the close of the tenth century, ‘lay outside the area covered by the loam and was dug straight into the natural chalk’ (Stamper *et al.* 2000, 37).

The published report outlines three possible interpretations of the black loam (Richards 2000, 197). First, ‘it may represent occupation material redeposited at the time of the occupation of the *camera* block’ – in which case, it is a post-Conquest layer immediately sealing a Middle Saxon layer. Second, it may be that ‘at least the lower level of the black loam is *in situ* material of the Late Saxon period’ – in which case, the post-Conquest material in the loam must be intrusive, the result of ‘unrecognised later features which had cut through the black loam and into the yellow-brown loam’. Third, it may be that ‘the black loam is post-Conquest but that the construction of the *camera* block also involved a massive terracing which truncated the Middle Saxon deposits and removed all the Anglo-Scandinavian occupation levels’ (*ibid.*).

In support of the second possibility (that the black loam represents *in situ* Late Saxon material), the published report mentions two radiocarbon dates from ‘material recovered from the penannular gully [contexts 76/52 and 76/54] but interpreted as originating in the black loam’ (*ibid.*, 197). These radiocarbon dates can now be calibrated with IntCal 20 and OxCal 4.4.2 as follows:

site	context/sample	laboratory no.	age BP	calibrated dates (confidence)
76	52	GU-5119	1030±60	888–1160 (95.4%)
76	54	GU-5120	1110±70	771–1044 (92.6%)

To this evidence can now be added the new radiocarbon date range returned by charred grains from the black loam itself (grid square sample 60/5): cal. AD 772–974, with 95.4% confidence. If the published report is correct in saying that the Middle Saxon activity sealed by the black loam ends in the ninth century, then the balance of evidence seems to suggest that the black loam itself is most likely of Late Saxon date, as proposed in the second scenario outlined in the excavation report, and contains material dating from between the late ninth and early eleventh centuries, with the grain itself likely dating from the ninth or (less likely) tenth century.

Site 71 (watermill site)

The sampled contexts from Site 71 all derive from a depression (273) to the north of the dam excavated at Site 30. Jones (2005, 191) describes the feature as follows:

‘This depression is thought to be associated with the use of the dam during and after milling activities and appears as natural silting with the presence of few anthropogenic inclusions. An interim period (Phase 2.2) occurred during which the Site 30 pond was created and infilling in Site 71 began with a view to the expansion of the land available for building. This continued in Phase 4 when rubbish was dumped into the former depression to level off the land. This dump consisted of layers of black deposits, containing carbonised grain, animal bone and pottery sherds, alternating with loose dumps of rubble...’

The three contexts considered here (196, 206 and 211) are all assigned to Phase 4, originally broadly dated to around the thirteenth century. Stratigraphic relationships between these three contexts are not clearly discernible from the published report, except that 196 is shown as one of the ‘thick ash layers’ that sealed the interleaved rubble and ash deposits filling the depression, and is therefore stratigraphically the latest context (Atkin 2005, 69; Fig. 34).

The newly obtained radiocarbon dates suggest that the three contexts 196, 206 and 211 do not all represent the same phase of activity. This is not particularly surprising: from the published descriptions, none of these contexts appears to be a primary deposit; rather, all are deemed to represent redeposited backfill material. The topmost layer 196 has returned the latest date range of the three. This context can be clearly dated to the thirteenth century (cal. AD 1222–1276 with 95.4% confidence), in accord with the published phasing. Context 211 has returned a broader date range spanning the later twelfth to later thirteenth centuries, but largely overlapping with that returned by context 196 (cal. AD 1175–1268 with 95.4% confidence; cal. AD 1215–1261 with 68.3% confidence). The charred grain from context 206, however, has produced a distinctly earlier date range: cal. AD 1035–1175 (with 95.4% confidence). These findings suggest that at least two phases of occupation are represented by these three contexts: one between the early/mid-eleventh and mid/late twelfth centuries, and one in the thirteenth century.

Significance

The newly obtained radiocarbon dates from Anglo-Saxon and medieval charred grain from Wharram Percy have thus prompted some revisions to the published chronology. The immediate upshot for the interpretation of the archaeobotanical material is that these samples can now be seen to embrace a more differentiated set of dates/phases than hitherto thought. The black loam appears to belong at the earlier end of the date ranges proposed in the excavation report. However, perhaps the most significant revision here is the proposed re-dating of Grain Drier 31 to the late tenth century, firmly pre-Conquest. The published report noted that the Late Saxon phase of activity at the South Manor site (93) was represented solely by ninth- to tenth-century artefacts: ‘It is... regrettable that no

excavated structural evidence could be assigned to this phase of occupation’ (Stamper *et al.* 2000, 37). However, if the revised dating is accepted, then at least one small structure can be assigned to this Late Saxon phase: the grain-drying oven. Further discussion and contextualisation of these results has been published elsewhere (McKerracher *et al.* 2021).

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Calibration of radiocarbon determinations









