

## Radiocarbon dating archaeobotanical and zooarchaeological remains from Stratton, Biggleswade

Mark McKerracher

Between 1990 and 2003, development-led excavations by Albion Archaeology at Stratton, on the edge of Biggleswade, Bedfordshire, revealed archaeological evidence for ‘the evolution of a rural settlement from its creation in the early–middle Saxon period to its disappearance as a result of post-medieval emparkment’ (Shotliff and Ingham 2022, 1). Environmental sampling produced an abundant assemblage of charred plant remains spanning the Early Saxon to Medieval periods, and large numbers of animal bones spanning the same periods were recovered during excavation (Moffett and Smith 2022; Maltby 2022). Both the archaeobotanical and zooarchaeological assemblages were deemed by the Feeding Anglo-Saxon England project (FeedSax) to have strong potential for elucidating the development of crop and animal husbandry through the Anglo-Saxon and medieval periods, if a secure chronology for the grains and bones could be obtained.

Artefactual evidence and radiocarbon dates were used by the excavators to define four phases of occupation spanning the Early Saxon to Medieval periods, broadly dated as follows:

- **Phase 3 (Early Saxon):** *c.* AD 400–600
- **Phase 4 (Middle Saxon):** *c.* AD 600–850
- **Phase 5 (Late Saxon to Saxo-Norman):** *c.* AD 850–1150
- **Phase 6 (Medieval):** *c.* AD 1150–1350

Within each of Phases 4, 5, and 6, sub-phases ‘a’ and ‘b’ distinguished (where possible) contexts which could be deemed earlier or later than others within that phase. Nonetheless, it remained the case that the botanical and faunal remains were, for the most part, only broadly and indirectly dated. In order to obtain more secure and precise dates for these remains, the FeedSax project submitted animal bones from three contexts and charred cereal grains from eight samples to the Oxford Radiocarbon Accelerator Unit for radiocarbon dating. The cattle bones all derive from contexts originally dated to Phase 3, while the archaeobotanical samples represent Phases 4, 5 and 6. The animal bones submitted for dating were selected by Dr Matilda Holmes at the University of Leicester. The cereal grains submitted for dating were selected and photographed at the University of Oxford by the author; these photographs are included in the project’s photographic archive (McKerracher *et al.* in prep.).

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

## Results

sample/ context	material	laboratory no.	original phase	age BP	calibrated dates AD (confidence)
24648	cattle bone	OxA-39866	3	1602±18	420–538 (95.4%)
25000	cattle bone	OxA-39867 OxA-39938	3	1599±18 1584±21	421–539 (95.4%) 426–545 (95.4%)
24565	cattle bone	OxA-X-3054-17	3	1583±21	426–546 (95.4%)
520	2 x oat grains	OxA-38568	4a	1048±19	978–1029 (95.4%)
302	2 x barley grains	OxA-38657	4b	1181±21	772–894 (91.5%)
668	3 x rye grains	OxA-38658	4b	1181±21	772–894 (91.5%)
702	3 x rye grains	OxA-39338	4b	1201±20	774–885 (95.4%)
722	4 x wheat grains	OxA-39029	5a	1224±18	772–881 (86.2%)
507	3 x wheat grains	OxA-39339	5	1164±21	820–901 (56.1%), 916–974 (25.7%)
364	2 x barley grains	OxA-38659	5	1001±20	992–1048 (76.9%), 1083–1126 (13.5%)
168	3 x barley grains	OxA-38512	6	391±20	1446–1515 (77.8%), 1590–1620 (17.6%)

The code OxA-X-3054-17 was assigned to a bone sample deemed by the laboratory to have low collagen content: ‘586 mg gave 4.0 mg of collagen, which is less than our minimum threshold.’ However, given the consistency between this radiocarbon determination and those obtained from other bones belonging to the same phase, there seems little reason to question the result.

Many of these new dates provide confirmation or refinement of the original phasing. The cattle bones, for instance, can be dated to between the early fifth and early/mid-sixth centuries, at the earlier end of Phase 3. The later Middle Saxon date of samples 302, 668 and 702 has likewise been confirmed, with date ranges spanning the late eighth to late ninth centuries. However, sample 722, originally dated to Phase 5a, should now also be dated to that same late eighth- to late ninth-century period. Sample 507 (originally Phase 5: ninth to eleventh centuries) can now be dated to the earlier part of its assigned phase, between the early ninth and late tenth centuries. By contrast, sample 520, which was originally dated to the earlier Middle Saxon period (Phase 4a), instead belongs to Phase 5b, with a radiocarbon date range spanning the late tenth to early eleventh centuries. A similar result was returned by sample 364, which agrees with its original Phase 5 date and points more specifically towards the later part of this period. Finally, it is now apparent that sample 168 does not belong to Phase 6, but to a late or post-medieval period, in the later fifteenth or early sixteenth century.

## Acknowledgements

With thanks to David Ingham for facilitating access to the archive material, and for permitting its analysis.

## References

- Bronk Ramsey, C. (2009). Bayesian analysis of radiocarbon dates. *Radiocarbon*, 51(1), pp.337–360.
- Maltby, M. (2022). ‘Animal bone’, in Shotliff, D. and Ingham, D., *Stratton, Biggleswade. 1,300 years of village life in eastern Bedfordshire from the 5th century AD* (Oxford: Albion Archaeology and Archaeopress), Appendix A7.



- McKerracher, M., Bogaard, A., Bronk Ramsey, C., Charles, M., Forster, E., Hamerow, H., Holmes, M., Hodgson, J., Neil, S., Roushannafas, T., Stroud, E. and Thomas, R. (in prep.). 'Feeding Anglo-Saxon England (FeedSax): the Haystack bioarchaeological database and digital archives', *Internet Archaeology*.
- Moffett, L. and Smith, W. (2022). 'Charred and waterlogged plants', in Shotliff, D. and Ingham, D., *Stratton, Biggleswade. 1,300 years of village life in eastern Bedfordshire from the 5th century AD* (Oxford: Albion Archaeology and Archaeopress), Appendix A8.
- Reimer, P., Austin, W., Bard, E., Bayliss, A., Blackwell, P., Bronk Ramsey, C., . . . Talamo, S. (2020). The IntCal20 Northern Hemisphere Radiocarbon Age Calibration Curve (0–55 cal kBP). *Radiocarbon*, 62(4), pp.725–757.
- Shotliff, D. and Ingham, D. (2022). *Stratton, Biggleswade. 1,300 years of village life in eastern Bedfordshire from the 5th century AD* (Oxford: Albion Archaeology and Archaeopress).

### Calibration of radiocarbon determinations













