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THE RADIOCARBON DATES

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25 samples of bone or charcoal were dated from Phases 3–8 inclusive (all the Iron Age phases), but none from the Neolithic (Phases 1 & 2). The samples are listed by Phase in Table 73. The radiocarbon dates are quoted in conventional years before present (1950 AD) with errors expressed at the ± one sigma level of confidence. The calendar dates are from the high precision calibration of Stuiver and Pearson (1986), derived by interpolation from Table 3 of that paper as recommended by the authors. As explained by Stuiver and Pearson, it is not possible simply to calculate the probability that an actual sample date lies within the

Table 73: Radiocarbon dates from Howe

Phase	Lab No	Context	Material	Radiocarbon Date	Calibrated Date
3	GU-1760	1922 silting in well	Charcoal	2405±75 bp	760BC–683BC 657BC–637BC 592BC–585BC 553BC–397BC
	GU-1804	2046 midden	Animal bone	2420±55 bp	760BC–683BC 657BC–637BC 592BC–585BC 553BC–402BC
4	GU-1805	1993 floor	Animal bone	2305±60 bp	402BC–370BC
5	GU-1789	1861 rampart	Charcoal	2405±70 bp	760BC–683BC 553BC–395BC
	GU-1799	1001 drain/tank	Human bone	2380±50 bp	524BC–395BC
	GU-2348	1894 clay levelling	Animal bone	2280±50 bp	399BC–361BC
5/6	GU-1758	2029 rampart	Wood charcoal	2255±95 bp	400BC–200BC
	GU-1759	1857 rampart	Charcoal	1940±60 bp	2BBC–AD119
	GU-2355	1818 rampart	Animal bone	1930±120 bp	100BC–AD230
7	GU-1750	1498 layer of burning	Wood charcoal	2070±50 bp	187BC–1BC
	GU-1786	861 layer of burning	Wood charcoal	1975±55 bp	56BC–AD78
	GU-1787	1491 floor in ***NE*** building	Wood charcoal	1670±55 bp	AD257–AD297 AD320–AD441
	GU-1788	972 layer of burning	Wood charcoal	1935±55 bp	2BC–AD119
	GU-2342	858 floor in broch	Animal bone	1790±50 bp	AD128–258, AD295–322
	GU-2343	1356 floor in ***E*** building	Animal bone	2130±80 bp	362–282BC, 258–96BC
	GU-2344	1017 floor in ***S*** building	Animal bone	1810±50 bp	AD118–250
	GU-2345	826 floor in broch	Animal bone	1750±50 bp	AD213–344
	GU-2346	972 floor in ***SE*** building	Animal bone	1750±50 bp	AD213–344
	GU-2349	876 floor in broch	Animal bone	1790±50 bp	AD128–258, AD295–322
	GU-2351	906 floor in broch	Animal bone	1850±50 bp	AD77–228
	GU-2351	583 floor in ***E*** building	Animal bone	1770±50 bp	AD213–343
8	GU-1749	775 floor	Wood charcoal	1565±45 bp	AD428–549
	GU-1756	390 occupation deposit	Animal bone	2200±70 bp	388–168BC
	GU-1757	345 floor	Animal bone	1450±50 bp	AD560–655
	GU-2347	284/383 floor	Animal bone	1170±50 bp	AD785–962

given calendrical age range. Up to four separate age ranges are found for some of the radiocarbon dates because of minor fluctuations in the calibration curve.

An original set of 14 samples (GU-1749–GU-1805) have already been published in an interim report of the site (Carter *et al*, 1984, 72). The calibration used at that time was from Klein *et al* (1982), and the results differ from those published here. The main effects of changing to the Stuiver and Pearson calibration are to significantly reduce the age ranges of the samples, particularly those with radiocarbon dates of 2000–2500bp (Phases 3–6), and also to give slightly younger calendar dates, particularly for the period 1000–1500bp (Phase 8).

The purpose of the following discussion is to establish an absolute chronology for the Iron Age settlement at Howe in as much detail as the data allow. In order to clearly separate the radiocarbon dating evidence from other sources, such as imported metalwork, this chronology is based solely on the radiocarbon dates, interpreted with respect to their stratigraphic positions and the nature of the dated samples.

DISTRIBUTION OF DATED MATERIAL

PHASE 3

Two dates are available, GU-1760 from the silts in the base of the Phase 3 well chamber, and GU-1804 from the stratigraphic early midden rich deposits over the Phase 2 tomb ditch. When calibrated they allow a range of dates from the 8th–4th centuries cal BC

PHASE 4

The one sample from a floor GU-1805, gives a small age range of 402–370 cal BC. This suggests that Phase 3 need only lie within the 6th and 5th centuries cal BC unless it represents fragments of a very long occupation.

PHASES 5 & 6

Of the six dates available, three come from Phase 5 contexts and three from Phase 5/6 contexts. Phase 6 contexts are limited to Broch 1 itself and no material was recovered that was suitable for dating. For Phase 5, GU-1789 and GU-2348 are both samples of residual material incorporated into the original P hase 5 structures and therefore must predate Phase 5. GU-2348 gives the earliest possible date for the start of Phase 5 as 399 cal BC and this compares well with the Phase 4 result of 402–370 cal BC (GU-1805). GU-1799 was a sample of human bone which, at the time it was submitted for dating, was thought to be the partial remains of an adult male skeleton. It was argued that the presence of a human corpse in the Phase 5 roundhouse drain/tank indicated a date for the skeleton at the very end of Phase 5 when it fell out of use. Subsequently the bone has been re-identified as belonging to at least two individuals (9.1 Human Bone Report above), and their interpretation is now uncertain. The calibrated age range for GU-1799 of 524–395 cal BC shows that the bones are older than Phase 5, although they are very unlikely to have been deposited in the drain/tank until the end of Phase 5.

GU-1758, GU-1759 and GU-2355 are all samples of material incorporated into rebuilds of the Phase 5 rampart which were completed at or by the start of Phase 7. After calibration GU-1759 is no earlier than 2 cal BC, so that the final modifications probably occurred during the 1st century cal AD, and this may also date the end of Phase 6.

PHASE 7

Datable material from the start of Phase 7 was not recovered and the stratigraphically earliest samples, GU-1750 and 1788, are from contexts which formed after a considerable occupation of the Phase 7 settlement, judging by the stratigraphic complexity. Both samples are of charcoal formed during major fires, which, although not necessarily contemporary, both predate the first large collapse of the completed version of the Broch 2 tower. GU-1750 was from charred roof timbers, burnt in the fire that destroyed the W side of the settlement (7.2 Plant Remains above). The calibrated age is 187–1 cal BC, but this is unlikely to indicate the actual date of the fire. Large roof timbers must have been a valuable commodity and would have been reused on Iron Age Orkney. When this factor is combined with the age of the timber when cut – the wood was local willow (*Salix*) – the probable date of the fire is in the 1st or 2nd centuries cal AD. The range of 2 cal BC to cal AD 119 cal for GU-1788 from a major fire inside the broch supports this interpretation as large timbers were not involved in this sample.

The other Phase 7 samples fell into two stratigraphic groups. GU-2351, GU-2349, GU-1786, GU-2342 and GU-2345 form a series decreasing in stratigraphic age from closely related floors within Broch 2. GU-2342 and GU-2345 are from contexts assigned to Phase 7/8 as it is uncertain whether they just predate or post-date the major broch wall collapse that marks the end of Phase 7. The calibrated age for GU-1786 is significantly earlier than the other samples in this series and like GU-1750 this sample includes charred roof timbers from a major fire. The remaining four samples date this late reuse of the broch in a range cal AD 77–344. On stratigraphic grounds, a 300 year occupation seems unlikely, and an actual range of *c* cal AD 200–300 is more acceptable. The remaining five dates are from Late Phase 7 floors in structures surrounding the broch tower. GU-2343 is stratigraphically later than GU-2353 and therefore its early age range must represent residual bone from earlier phases. The other samples (GU-1787, GU-2344, GU-2346 and GU-2353) produced overlapping ranges with a combined maximum of cal AD 118–441 cal. This does not conflict with the results from the broch which place the end of Phase 7 at the start of the 4th century cal AD.

PHASE 8

Four Phase 8 samples were dated, of which the earliest stratigraphically is GU-1749 (Stage 4). This has a calibrated range of cal AD 428–549 which is significantly later than all except one of the Late Phase 7 samples. GU-1757 (Stage 10) is stratigraphically later than GU-2347 (Stage 5). If GU-1757 is assumed to include residual charcoal or old wood and therefore be too early for Stage 10, then there is a minimum of 236 years separating the dates from the Stage 4 and 5 samples. Unless there is a major stratigraphic break at this point, one or both of these samples is not accurately dating the context from which it was derived. In the absence of additional dated Phase 8 samples, the

radiocarbon data are unhelpful in improving the dating of this phase. Even if GU-1757 is derived in part from earlier material, it demonstrated that Phase 8 continued at least into the 7th century cal AD and probably later, as the final Stages of Phase 8 (Stages 11–12) remain undated.

DATING OF UNCARBONISED *RUMEX* (DOCK) SEEDS

The plant remains from Howe included two large collections of uncarbonised *Rumex* (dock) seeds from apparently well-sealed contexts (7.2 Plant Remains above). In view of a potential Iron Age collection of *Rumex* and also the fact that some of the seeds germinated, one sample was submitted to the Oxford Radiocarbon Accelerator Unit for dating.

The result obtained (Ox-A 1238. Seeds, SF No 6369 135% modern), published in the 8th Oxford Accelerator Archaeometery datelist (Hedges et al, 1988, 298), suggests that the seeds were probably collected and buried by the Orkney Vole, possibly during the five years of excavation .

CONCLUSIONS

Overall, the 25 radiocarbon dates from the Iron Age phases at Howe produce a sequence that is consistent with the site stratigraphy that extends over at least 1,200 years from 500 cal BC to cal AD 700. However, none of the key constructional events are precisely dated due to a lack of both suitable contexts and samples. The interpreted chronology for the Iron Age phases may be summarized as follows :

Phase 3: of unknown duration, possibly includes 6th and 5th centuries cal BC
Phase 4: 5th and 4th centuries cal BC
Phase 5: probably 4th and 3rd centuries cal BC
Phase 6: at least the 2nd and 1st centuries cal BC
Phase 7: 1st to 4th centuries cal AD
Phase 8: 4th to 7th centuries cal AD and possibly as late as the 9th century cal AD