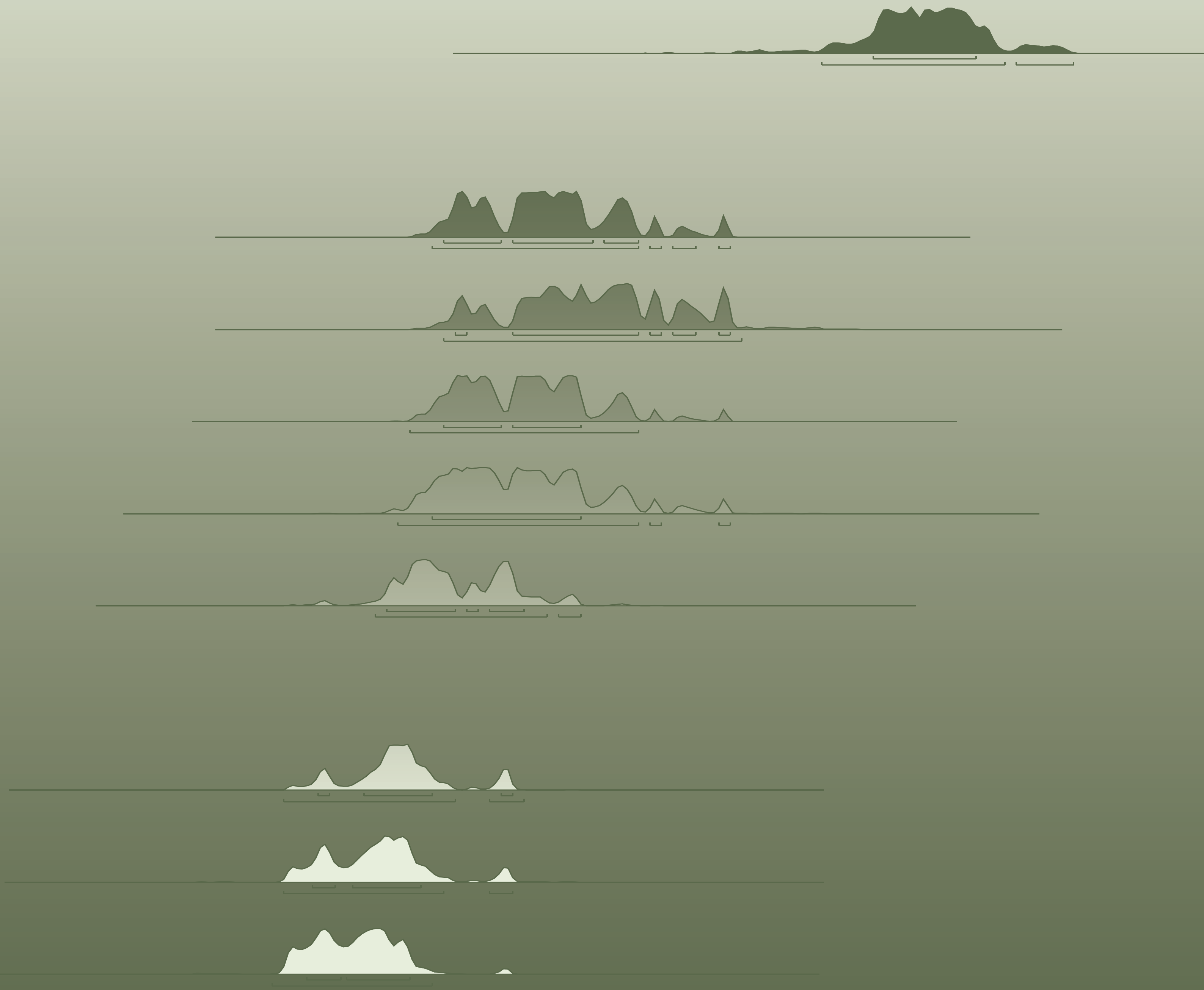
CHAPTER 37

Radiocarbon dating



by Fraser Brown

37 Radiocarbon dating

Fraser Brown

A programme of radiocarbon dating was employed at Stansted to establish an absolute chronology with which to study the archaeological remains excavated. A phased strategy was devised and undertaken during post-excavation analysis, targeting features and deposits that seemed most significant from the results of finds, environmental and stratigraphic analysis. It was hoped that it would be possible to refine the artefact typologies; date environmental sequences; and phase features and deposits for which there was no other dating evidence. A range of different feature types and contexts were dated over a wide spatial and temporal distribution, and efforts were made to ensure that the materials sampled were likely to be the same date as the deposits in which they occurred. Where it was possible to do so, determinations were retrieved in sequence from well stratified deposits. These sequences allow the dating of changes in the character of deposition and practice over time and help determine the duration over which deposition took place.

In total 38 radiocarbon samples were processed, the results of which are displayed in Table 37.1. The majority of the samples (all those prefixed with 'NZA') were processed by the Rafter Radiocarbon Laboratory, Institute of Geological and Nuclear Sciences, New Zealand but two samples of cremated bone were processed by the Oxford Radiocarbon Accelerator Unit. All the samples were measured using Accelerator Mass Spectrometry (AMS). Unless otherwise stated, all the calibrated date ranges quoted in this vol have been given to 95% confidence and have been calibrated using a computer program (Oxcal (v3.9), Bronk Ramsey 2003) and the datasets published by Stuiver (1998), Stuiver and Pearson (1986) and Pearson and Stuiver (1986). The date ranges in Table 37.1 and elsewhere in this vol have been calculated using the maximum intercept method (Stuiver and Reimer 1986), and are a 'short hand' way of referring to the date of each sample. The date ranges displayed diagrammatically throughout the volume are more accurate representations of the probability distributions. Where the text in these diagrams occurs in *italics*, OxCal has been used to mathematically model the ranges.

The vast majority of the samples (28) were charred plant remains; four were waterlogged wood; two were cremated bone; one was from an articulated human skeleton; two were from partially articulated animal skeletons and one was a disarticulated cow bone. The charred plant remains comprised cereal grains, hazelnut shells or pieces of small diameter roundwood, so the 'old wood effect' (Bowman 1995, 15 and 51) should not be a problem. By choosing samples from well stratified and sealed deposits where the formation process was understood, every effort has been made to reduce the risk of sampling charred remains from secondary contexts or that are intrusive or residual but a slight possibility always remains that this is the case. In two instances, the results conflicted with the expected date of a feature suggested by the finds evidence. Sample NZA-25460 was from the bottom of a cess pit that was almost certainly late Saxon but returned a modern date, suggesting that some contamination of the sample had occurred (NZA-26251 another sample from this deposit did provide a late Saxon date). Sample NZA-25461 was from flax seeds in the top of a tree-throw containing Neolithic flint and pottery but provided a late

Saxon date, and probably results from contamination during processing rather than residuality.

Two of the samples of waterlogged wood (NZA-23240 and NZA-23243) were posts in the same waterhole but were dated centuries apart, so it is likely that they related to different phases of use in this feature. One sample (NZA-23237) was from a large worked oak timber in the basal deposit of a ring ditch, which also contained bark chippings (NZA-23242). It is likely that the bark chippings most closely date the deposit and the slightly earlier date obtained from the timber may reflect its previous use in a structure or the length of time it remained growing as a tree.

Disarticulated bone was generally excluded from the radiocarbon programme, however, a disarticulated cow bone (NZA-23282) was processed. This was to determine the date of a pit, that may have been either Bronze Age or Neolithic (it was in the MTCP Bronze Age settlement but contained Neolithic pottery), and, as such, short term residuality was not an issue. The samples from cremated bone and the articulated animal and human bone probably closely date the time of their burial or deposition but the possibility that the cremated bone was stored for a period of time prior to its deposition still exists. A partially articulated deer skeleton (sample NZA-23750), one of several occurring near the base of a waterhole, was dated to the medieval period. However, the waterhole contained only Iron Age and Romano-British pottery, and the pollen sample taken from this feature was considered to be atypical for the medieval period (Huckerby *et al.*, CD Chapter 31). The pottery is likely to be residual, deriving from earlier deposits eroding into the waterhole, which is dated by the deer carcasses within it.

The radiocarbon date range for Stansted spanned the Early Neolithic to early post-medieval periods (excluding the single modern date); the maximum date range being 3760 cal BC - cal AD 1640. The majority (20) of these dates were within the conventional Bronze Age period (Needham 1996) but this was largely an artefact of the sampling strategy, which specifically targeted features of this period. Two dates were Early Neolithic; one date was Late Neolithic/Early Bronze Age; two dates were Late Bronze Age/Early Iron Age; two dates were Iron Age; one date was Romano-British; five dates were late Saxon; one date was late medieval; and two dates were late medieval/early post-medieval.

With the exception of the Neolithic, Bronze Age and early medieval periods, artefacts such as pottery and coins were considered to be more useful than radiocarbon dating for precisely dating features and deposits within their periods. For this reason it was decided to limit the number of radiocarbon samples processed from the Iron Age, Romano-British, medieval and post-medieval periods, so that resources could be concentrated elsewhere, where they had the potential to be more useful. However, some features, such as an Iron Age inhumation, were sampled in order to ensure precise dating, and certain other features were sampled to provide controls on artefact typologies.

The paucity of Neolithic radiocarbon dates reflects the general rarity of features of this period but the few dates obtained were successful in establishing the presence at Stansted of hunter gathererer communities early in the period. The Bronze Age radiocarbon dating series has provided a good chronology for the colonisation of the landscape by sedentary farmers, demonstrating that this occurred at the end of the Early Bronze Age. It has allowed a detailed reconstruction of the Bronze Age settlement history at Stansted, particularly for the MTCP site, where it has been possible to demonstrate the interrelationship of a nucleated settlement with other features in its immediate hinterland, and that this settlement was broadly contemporary with other Bronze Age settlements in the wider landscape. The Bronze Age dates have helped develop ceramic typologies for Stansted, which will prove useful for the region in general and which may make an important contribution to national studies. The late Saxon radiocarbon dates from SG and the MTCP site formed a tight cluster, indicating the existence of a settlement here prior to the Norman Conquest. The late medieval and early post-medieval dates all occurred in features within the bounds of a deer park on the Stansted Estate, and are contemporary with its later use.

Generally, the radiocarbon dates from Stansted do not warrant in-depth analysis here, as they have little more to tell us other than the date of the deposits from which they were sampled, and this has already been considered within the stratigraphic narrative (see Chapters 3-10). The exception is the Bronze Age period, where some analysis of the dates informs a detailed understanding of the settlement on the MTCP site; by discussing the interpretation of the dates, it is hoped to clarify the rationale behind the phasing of the settlement.

An absolute chronology for the Bronze Age

A series of 20 radiocarbon determinations dating to the Bronze Age were obtained from the Stansted landscape (MTCP, FLB, LTCP, and M11 sites; excluding two transitional Late Bronze Age/Early Iron Age dates). Figure 37.1 shows all 20 dates in chronological order. They span a period of between 450 and 850 years (the maximum possible date range being 1690 cal BC - 830 cal BC; the minimum date range being 1510 cal BC - 1050 cal BC), potentially ranging from the end of the conventional Early Bronze Age to the end of the Late Bronze Age (Needham 1996). This absolute chronology provides a framework with which to study the archaeological remains excavated.

The determinations have a wide spatial distribution, occurring on both the east and west of the airport but the majority (14) came from the MTCP site, with most of these coming from the features within the Bronze Age settlement. The distribution of the determinations reflects the availability of suitable materials and contexts for dating. Datable material is only available today because those inhabiting the Stansted landscape in the past had adopted a suite of cultural practices that involved the deposition of material in a manner that meant it survived to be dated. The spatial distribution of the determinations therefore bears a direct relationship to the intensity of the Bronze Age inhabitation of the landscape.

Some of these practices (for example the construction of funerary monuments and deposition of burnt mounds) are commonly associated with both the Early and the Middle Bronze Age but others are usually associated with the Middle Bronze Age alone (for example digging waterholes and erecting permanent dwellings in settlements). At Stansted, the radiocarbon dates from a burnt mound and the ring ditch of a funerary monument, both associated with watercourses, date to the very end of the Early Bronze Age and seemingly continue into the Middle Bronze Age. The settlement features appear slightly later, however, suggesting that the permanent settlement of the Stansted landscape happened at the beginning of the Middle Bronze Age.

Yet, this distinction may be too rigid, as all these practices could have been broadly synchronous; especially considering the ambiguity of the radiocarbon date ranges and the fact that it is the disuse deposits within the earliest waterholes that have been dated. It is possible that the practices of monument construction and deposition in watercourses were related in some way to the settling of the landscape. This is reflected in the phasing of Bronze Age activity at Stansted. Three phases have been defined on the basis of stratigraphic and radiocarbon evidence and can be equated with the ceramic typology outlined by Leivers (see CD Chapter 17). Radiocarbon Phase 1 is equivalent to Leivers' Ceramic Period 1; Phase 2 is equivalent to Ceramic Periods 2 and 3; and Phase 3 corresponds to the introduction of transitional Middle Bronze Age/Late Bronze age ceramics. The funerary monument, burnt mound and earliest settlement features have all been assigned to Phase 1 (Figs 37.2 - 37.4). This phase spans a maximum of 300 years, from *c* 1700 cal BC to *c* 1400 cal BC.

Within the settlement on the MTCP site, a second, later phase (Phase 2) of house construction and waterhole digging replaced the first. This can be radiometrically dated and seems to correspond with developments in ceramic technology and has thus been extended across the landscape (Figs 37.2 - 37.4). Phase 2 spans 200 years, possibly less, starting *c* 1400 cal BC and ending at *c* 1200 cal BC. It is notable that although the ring ditch of the funerary monument was silting up at this time, the monument appears to still have been in use. The settlement on the MTCP site was largely abandoned at the end of Phase 2 but a number of other features in the wider landscape provided later radiocarbon dates, as did a pit within the area of the abandoned settlement (all assigned to Phase 3; Figs 37.2 and 37.3). Phase 3, although probably much shorter, lasted no more than 350 years from *c* 1200 cal BC to *c* 850 cal BC, with the pit in the settlement being somewhat later than the other features in this phase. With the exception of a pit on the SCS site, which may in fact on the basis of pottery evidence be Early Iron Age (Fig. 37.4; Havis and Brooks 2004, 24), no other features in the wider Stansted landscape have yielded contemporaneous dates but other evidence implies activity at this time.

It is worth noting that because the radiocarbon technique can only provide probabilistic date ranges, it can imply that a phase of activity lasted longer than it necessarily did. While there was undoubtedly several hundred years of Bronze Age activity at Stansted, large periods of time could have separated the isolated events for which evidence exists; there may have actually been more disjuncture than Figure 37.2 perhaps suggests. In the case of the MTCP settlement, we have a good sequence of dates informed by archaeological evidence that suggests continuous occupation. We may, therefore, interpret the radiocarbon evidence, and perhaps prefer to believe that the settlement was more likely occupied for somewhere between 200-300 years in total, rather than the 500 years that is possible; the actual duration of each structural phase being around 100-150 years. This assertion is explored in more detail below.

Dating the MTCP settlement

In the section above, two phases have been inferred for the occupation of the settlement on the MTCP site. This is largely based on the evidence from radiocarbon samples retrieved from pits and waterholes as, unfortunately, no material suitable for radiocarbon dating was retrieved from any of the settlement structures. As such, the case for two structural phases has largely been made on stratigraphic and morphological grounds, and it is only through interpretation than these structural phases can be equated with the radiocarbon phases. The suggested model is corroborated to some extent by the results of the pottery analysis but there exist few instances where it is possible to phase features within the Bronze Age on the basis of ceramic evidence alone, and the features where it is possible to do this are generally pits and waterholes rather than structural features. Therefore, a degree of uncertainty hovers over the structural sequence within the settlement and it difficult to prove which, if any, of the structures are contemporaneous. The interpretation advanced here is one of several possible scenarios but it is felt that it holds up well given the available evidence.

It is suggested that ***Roundhouses 1-4*** were broadly contemporary and belonged to the first phase of structural activity within the settlement (the stratigraphic grounds for asserting this are set out in Volume 1). Three radiocarbon dates (Table 37.2; Fig. 37.2) were retrieved from settlement features, which are thought to date this first phase of activity (Table 37.2). Two of these were obtained from charcoal in the disuse fills of waterholes (323001 and 302043) and one from a basal fill of a pit (314079) that appears to be associated with ***Roundhouse 1***. The calibrated date ranges show close agreement and, if anything, the date from the basal fill in the pit is slightly earlier than the dates from the backfills in the two waterholes, which is what might be expected if all the features were open and in use at the same time.

It is considered unlikely that these features predate the roundhouses because: -

- the waterholes and pit occurred either within or adjacent to the settlement enclosure
- there is evidence from finds and soil micromorphology that the waterholes and pit were associated with nearby settlement activity
- the existence of a settlement in close proximity would surely be a precondition for digging the waterholes (none of this date were found elsewhere in the landscape).

In addition to the waterholes described above, another waterhole (***309075***) was associated with the settlement and, as well as an abundant artefactual assemblage, this produced three well stratified radiocarbon dates relating to its disuse (Table 37.3; Fig. 37.2). Although there is some overlap in the date ranges, and it cannot be ruled out that the waterhole was already in existence during Phase 1, the radiocarbon dates suggest that it was associated, along with two pits that were also sampled for radiocarbon (Table 37.3; Fig. 37.2), with a later phase of activity at the settlement (Phase 2) during which ***Roundhouses 5-9*** were constructed.

It is worth noting that a boundary ditch (***Boundary 4***) associated with the settlement cut through deposits within pit 303015 and must be later than it, suggesting some activity after the backfilling of the pit. This serves as a reminder that Phase 2 may encompass more than one sub-phase and all the structures need not be contemporary.

Modelling the radiocarbon dates for the settlement on the MTCP site

The unmodelled date ranges for the settlement on the MTCP site (Fig. 37.2), are quite broad and, although they seem to divide into two successive phases, it remains possible that the phases overlap. By using a computer package (OxCal 3.9 (Bronk Ramsey 2003)) with a view to determining how well the radiocarbon evidence supports two phases of activity, it is possible to model the likely order of all the dated features and events (Fig. 37.5 and Table 37.4) and estimate the potential interval separating them (Fig. 37.8). (In modelling this order, the known stratigraphic sequence of the three dates within waterhole 309075 was entered into OxCal but no other assumptions were made. There was no statistically significant variation with the radiocarbon dating sequence (A=95.3%).

When considering the probable chronological order of the features (Table 37.4), it seems extremely unlikely that the silting and backfilling of waterhole 309075 took place before the Phase 1 features were backfilled and it is possible that pit 303015 pre-dated the deliberate backfilling of waterhole 309075 but perhaps not its initial silting. When considered separately, it is possible that, in all instances, the features might overlap but the probability distributions make it less likely that the Phase 1 waterholes overlap with waterhole 309075 and, although the pits could overlap with either the Phase 1 waterholes or waterhole 309075, the latter is perhaps more likely (Fig. 37.6). This suggests that two successive phases to the settlement are likely, indeed probable.

A stratigraphic model of the radiocarbon dates from the settlement on the MTCP site

In order to refine the dating of the settlement it is possible to model the radiocarbon dates on the basis of the archaeological evidence. It must be emphasised that the model is an interpretation but one based upon an empirical understanding of the stratigraphy. A number of assumptions have been made in the model: -

1. that waterholes 323001 and 302043 and pit 314079 belong to one early phase of activity (Phase 1) and the dates relate to the end of this phase

2. that this predates a later phase of activity comprising pits 316032 and 303015 and waterhole 309075 and it is the end of this phase that has been dated

3. that the sequence in waterhole 309075 can be understood as an initial silt followed by a series of rapidly deposited dumps, with the earliest radiocarbon date sampling the silts and the latest two sampling the dumps (see stratigraphic analysis outlined below)

The dated deposits in the waterhole comprise a series of dumps, interspersed by deposits of silt. The silt deposits are not thick and comparison with the deposits in other deep, waterlogged features at Stansted might suggest that they did not take overly long to accumulate. The dumped deposits, especially in the middle part of the sequence from which the two later dates were derived, were probably deposited in fairly quick succession, and the material in them is likely to be redeposited midden material. This may explain why the date in the upper part of the sequence is apparently older than the date in the lower part of the sequence: either the deposits were deposited within a short time of each other and the discrepancy in date can be explained by the error margin of the radiocarbon method; or the upper sample is indeed older than the lower sample but the carbonised material had been stored elsewhere prior to deposition, and the later material was deposited before the earlier material. This latter situation might be expected if it was the upper part of a midden that was removed for redeposition before the lower part.

There was no statistically significant variation in the modelled radiocarbon dates (A=112.8%), suggesting that the model is plausible (Figs 37.7 and 37.8). By interpreting the probability distributions and erring towards a shorter estimate, it would seem likely that Phase 1 dated somewhere between 1500 cal BC - 1400 cal BC; Phase 2 dated somewhere between 1400 cal BC - 1200 cal BC; and the settlement was likely to have been occupied for around 130 - 290 years.

Table 37.1: A summary of radiocarbon dates from Stansted

Context Number	**Cut Number**	**Site**	**Laboratory Code**	**Radiocarbon Age (BP)**	**δ ¹³ C (‰)**	**Calibrated Date Range (1σ)**	**Calibrated Date Range (2σ)**	**Material**	**Feature**
106069	106068	LTCP	NZA-23231	1244±30	-24.6	AD 690 - AD 860	AD 680 - AD 890	*Quercus* sapwood	Hearth
107057	107058	LTCP	Oxford-OxA-15551	1851±28	-20.5	AD 125 - AD 220	AD 80 - AD 240	Cremated bone	Cremation burial
110090	110084	LTCP	NZA-23280	2087±35	-20.1	170 BC - 46 BC	200 BC - AD 10	Right human tibia	Inhumation burial
116009	116013	LTCP	NZA-23230	3126±30	-23.7	1440 BC - 1320 BC	1500 BC - 1310 BC	*Hordeum*	Pit
116028	116029	LTCP	NZA-23281	365±40	-22.5	AD 1460 - AD 1630	AD 1440 - AD 1640	Horse femur	Pond
134066	134059	LTCP	NZA-23750	497±30	-22.8	AD 1414 - AD 1437	AD 1330 - AD 1450	Articulated deer bone	Deer skeleton in waterhole
302005	302001	MTCP	NZA-23234	3146±30	-25.2	1490 BC - 1320 BC	1520 BC - 1310 BC	Maloideae	Waterhole
303017	303015	MTCP	NZA-25412	3043±30	-23.9	1380 BC - 1260 BC	1410 BC - 1210 BC	*Hordeum* grain	Pit
309085	309075	MTCP	NZA-20915	3030±30	-23.77	1380 BC - 1210 BC	1390 BC - 1130 BC	Hazelnut shell and twigs	Waterhole
309108	309075	MTCP	NZA-20914	3006±35	-24.2	1370 BC - 1130 BC	1360 BC - 1120 BC	Maloideae twig	Waterhole
309118	309075	MTCP	NZA-20917	3053±40	-27.18	1390 BC - 1260 BC	1420 BC - 1130 BC	*Prunus*	Waterhole
314090	314079	MTCP	NZA-25413	3182±35	-25.4	1500 BC - 1410 BC	1530 BC - 1390 BC	Maloideae charcoal	Pit
314206	314205	MTCP	NZA-23749	399±30	-26.3	AD 1440 - AD 1620	AD 1430 - AD 1630	Charcoal	Burnt tree-throw
315009	315008	MTCP	NZA-23235	1022±30	-23.5	AD 988 - AD 1024	AD 900 - AD 1160	*Triticum spelta/dicoccoides*	Beamslot in building
316034	316032	MTCP	NZA-23282	3108±35	-21.9	1430 BC - 1310 BC	1440 BC - 1260 BC	Right cattle calcaneum	Pit
316114	316118	MTCP	NZA-20919	2925±35	-27.19	1220 BC - 1040 BC	1260 BC - 1000 BC	*Prunus spinosa*	Pit
320060	320046	MTCP	NZA-20916	2813±35	-25.42	1005 BC - 915 BC	1050 BC - 830 BC	*Prunus spinosa*	Pit
320132	320131	MTCP	NZA-23242	3241±30	-27	1525 BC - 1445 BC	1610 BC - 1430 BC	Bark chippings	Ring ditch
320133	320131	MTCP	NZA-23237	3309±30	-26.1	1620 BC - 1520 BC	1690 BC - 1510 BC	*Quercus* large worked timber	Ring ditch
320137	320131	MTCP	NZA-20961	3105±35	-24.86	1430 BC - 1310 BC	1440 BC - 1260 BC	*Prunus*	Ring ditch
323003	323001	MTCP	NZA-23236	3162±35	-23.7	1495 BC - 1400 BC	1520 BC - 1320 BC	Cereal grain	Waterhole
323036	323037	MTCP	NZA-20918	4883±35	-25.36	3700 BC - 3640 BC	3760 BC - 3540 BC	*Corylus* charcoal	Pit
334064	334059	MTCP	Oxford-OxA-15389	2937±30	-22.8	1260 BC - 1050 BC	1260 BC - 1010 BC	Cremated medium mammal bone	Cremation burial
353012	353011	MTCP	NZA-20960	4741±35	-24.41	3640 BC - 3380 BC	3640 BC - 3370 BC	Hazelnut shell	Pit
408015	408013	FLB	NZA-20962	3053±30	-25.3	1380 BC - 1260 BC	1410 BC - 1210 BC	Hazelnut shell	Waterhole
420069	420068	M11	NZA-23238	3947±35	-24.9	2550 BC - 2350 BC	2570 BC - 2300 BC	cf Maloideae	Tree-throw
423158	423113	M11	NZA-23239	2490±30	-25.9	770 BC - 520 BC	790 BC - 410 BC	Maloideae	Pit
426034	434076	M11	NZA-23243	3204±30	-26.4	1515 BC - 1435 BC	1530 BC - 1410 BC	*Quercus* roundwood	Waterhole
431035	434076	M11	NZA-23244	3051±30	-26.3	1380 BC - 1260 BC	1410 BC - 1210 BC	*Acer campestre*	Waterhole
435077	435074	M11	NZA-23241	2255±40	-22.4	390 BC - 210 BC	400 BC - 200 BC	cereal grain	Ditch
436092	436091	M11	NZA-23240	2528±35	-23.8	800 BC - 540 BC	800 BC - 520 BC	*Acer campestre*	Pit
464010	464010	LTCP	NZA-23232	3252±30	-24.5	1600 BC - 1450 BC	1620 BC - 1430 BC	*Prunus* charcoal	Burnt mound
470042	470040	LTCP	NZA-23233	3283±35	-24.8	1615 BC - 1515 BC	1690 BC - 1450 BC	*Prunus*	Pit below burnt mound

Context Number	**Cut Number**	**Site**	**Laboratory Code**	**Radiocarbon Age (BP)**	**δ ¹³ C (‰)**	**Calibrated Date Range (1σ)**	**Calibrated Date Range (2σ)**	**Material**	**Feature**
494015	494014	SG04	NZA-25414	1101±45	-26.8	AD 890 - AD 995	AD 780 - AD 1030	*Corylus* charcoal	Pit
496006	496001	SG04	NZA-25461	1175±30	-26.4	AD 780 - AD 900	AD 770 - AD 970	Flax seeds	Tree-throw
498021	498020	SG04	NZA-26251	1219±30	-26.2	AD 760 - AD 890	AD 770 - AD 900	cf Maloideae	Pit
498021	498020	SG04	NZA-25460	255±35	-23.1	AD 1520 - AD 1800	AD 1510 - AD 1950	*Triticum* sp. Grain	Pit
500031	500030	SG04	NZA-25415	1054±30	-22.4	AD 900 - AD 1020	AD 890 - AD 1030	*Triticum aevistum* grain	Ditch

From Bronk Ramsay 2003 OxCalv3.9 www.rlaha.ox.ac.uk

Table 37.2: Phase 1 radiocarbon dates

Feature	Type	Material	Lab code	Radiocarbon date BP and error factor	Calendrical date cal BC (2σ)
314079	Pit	Maloideae charcoal	NZA-25413	3182±35	1530-1390
323001	Waterhole	Charred cereal grain	NZA-23236	3162±35	1520-1320
302043	Waterhole	Maloideae charcoal	NZA-23234	3146±30	1520-1310

Table 37.3: Phase 2 radiocarbon dates

Feature		Type		Material	Lab code	Radiocarbon date BP and error factor	Calendrical date cal BC (2σ)
316032		Pit		Cattle bone	NZA-23282	3108±35	1440-1260
303015		Pit		*Hordeum* grain	NZA-25412	3043±30	1410-1210
Waterhole 309075							
Feature	**Deposit**	**Deposit type**	**Relative position in sequence**	**Material**	**Lab code**	**Radiocarbon date BP and error factor**	**Calendrical date cal BC (2σ)**
309075	**309081**	Erosion and silts	Lowest	Maloideae twig	NZA-20917	3053±40	1420-1130
309075	**309099**	Silty backfill	Middle	*Prunus* stone	NZA-20914	3006±35	1390-1130
309075	**309127**	Charcoal-rich backfill	Highest	Hazelnut shell and twig	NZA-20915	3030±30	1360-1120

Table 37.4: Probable chronological order of dated deposits of features within the settlement (percentage probabilities in chart show the likelihood that the dated sample from the feature in the Y axis predates the dated sample from the feature in the X axis)

	Pit 314079	Waterhole 323001	Waterhole 302043	Pit 316032	Waterhole 309075 (lowest deposit)	Pit 303015	Waterhole 309075 (middle deposit)	Waterhole 309075 (highest deposit)
Pit 314079	-	63.4%	76.7%	94.4%	98.0%	99.3%	99.7	100.0%
Waterhole 323001	36.6%	-	63.9%	87.6%	94.1%	97.4%	98.7%	99.8%
Waterhole 302043	23.3%	36.1%	-	79.1%	88.9%	95.3%	97.7%	99.5%
Pit 316032	5.6%	12.4%	20.9%	-	63.9%	80.4%	89.6%	97.4%
Waterhole 309075 (lowest deposit)	2.0%	5.9%	11.1%	36.1%	-	72.3%	100.0%	100.0%
Pit 303015	0.7%	2.6%	4.7%	19.6%	27.7%	-	62.6%	83.8%
Waterhole 309075 (middle deposit)	0.3%	1.3%	2.3%	10.4%	0.0%	37.4%	-	100.0%
Waterhole 309075 (highest deposit)	0.0%	0.2%	0.5%	2.6%	0.0%	0.16.2%	0.0%	-

Overall agreement 95.3%

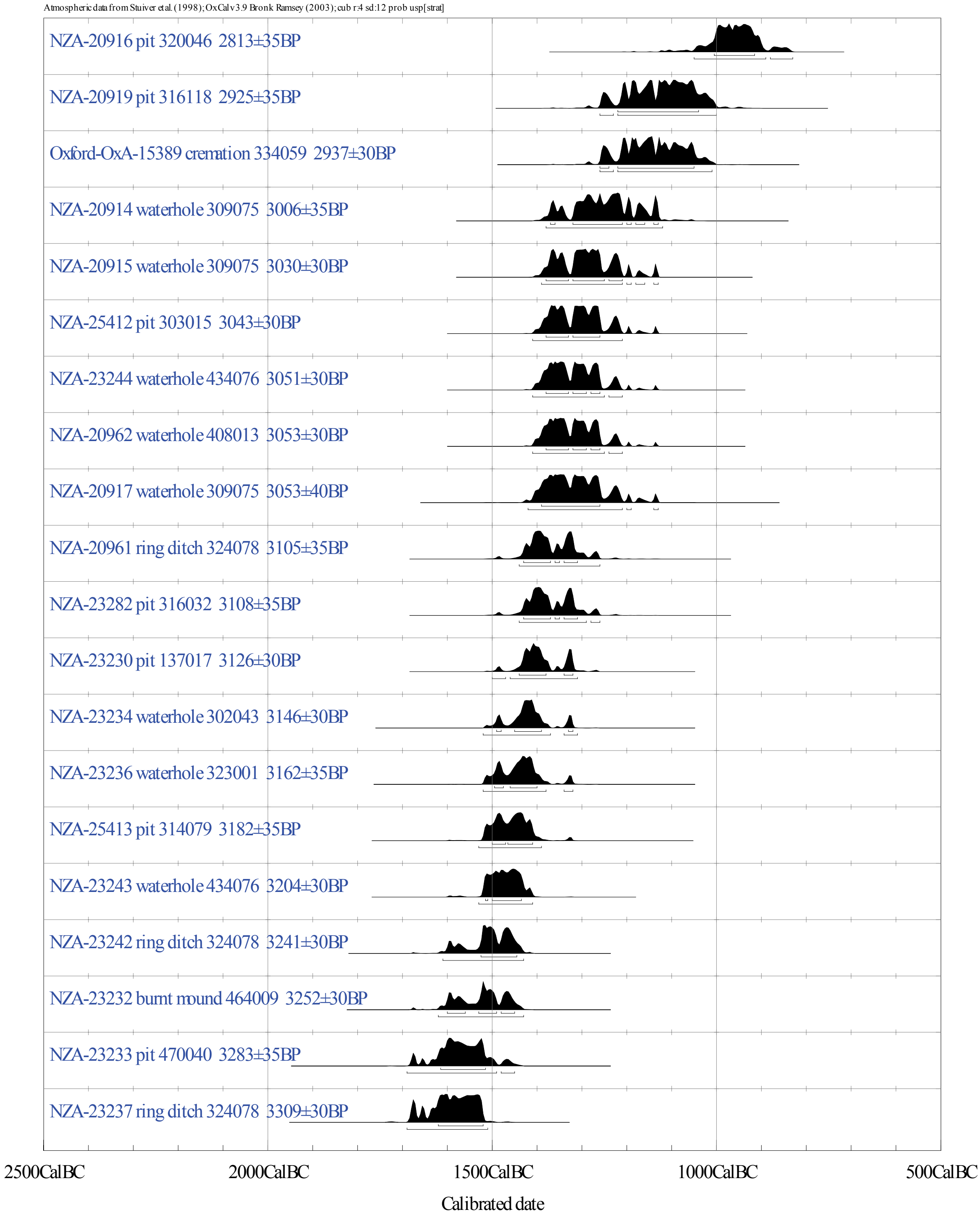


Figure 37.1: All of the Bronze Age radiocarbon dates from Stansted

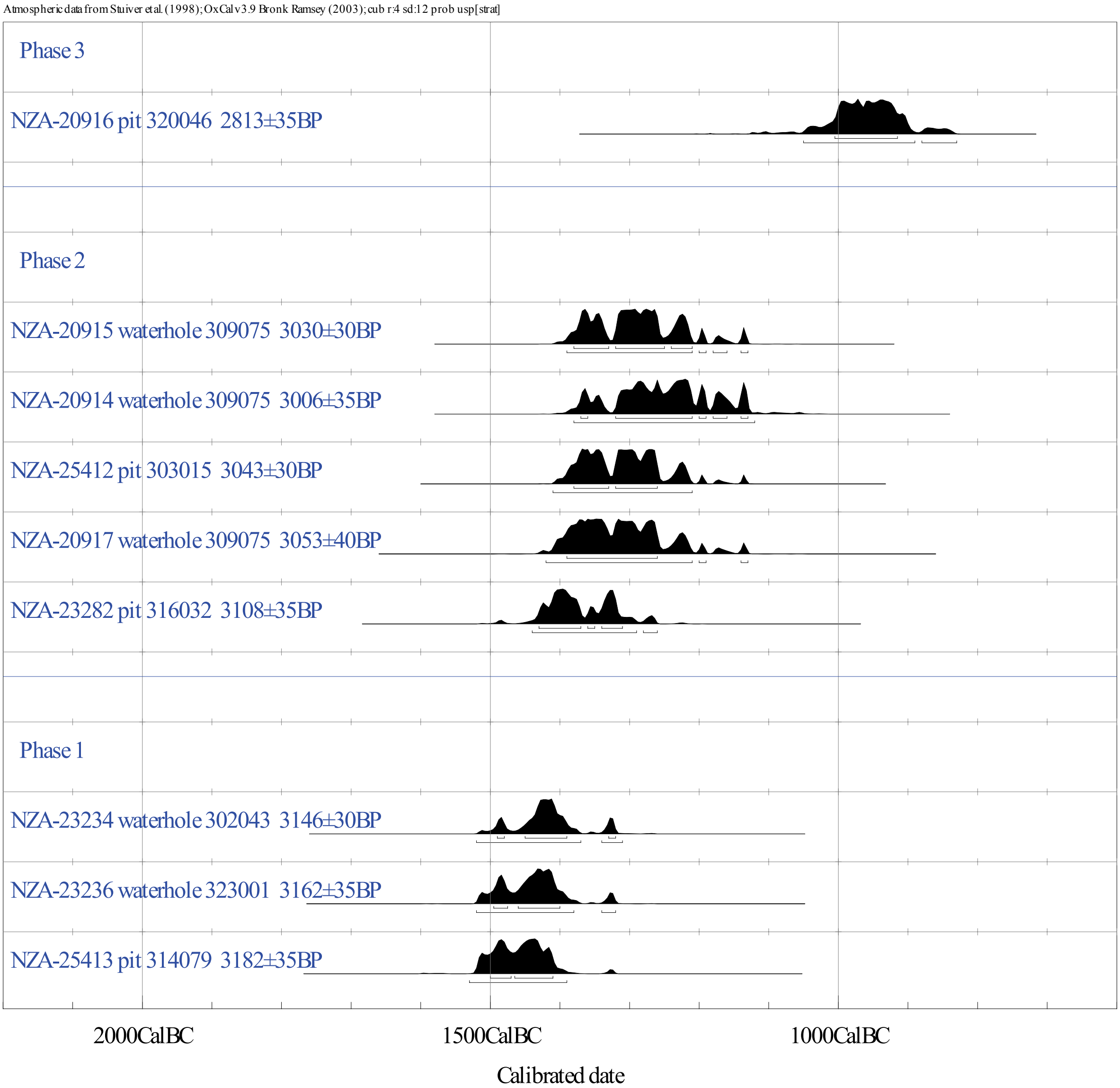


Figure 37.2: Bronze Age radiocarbon dates from the MTCP settlement

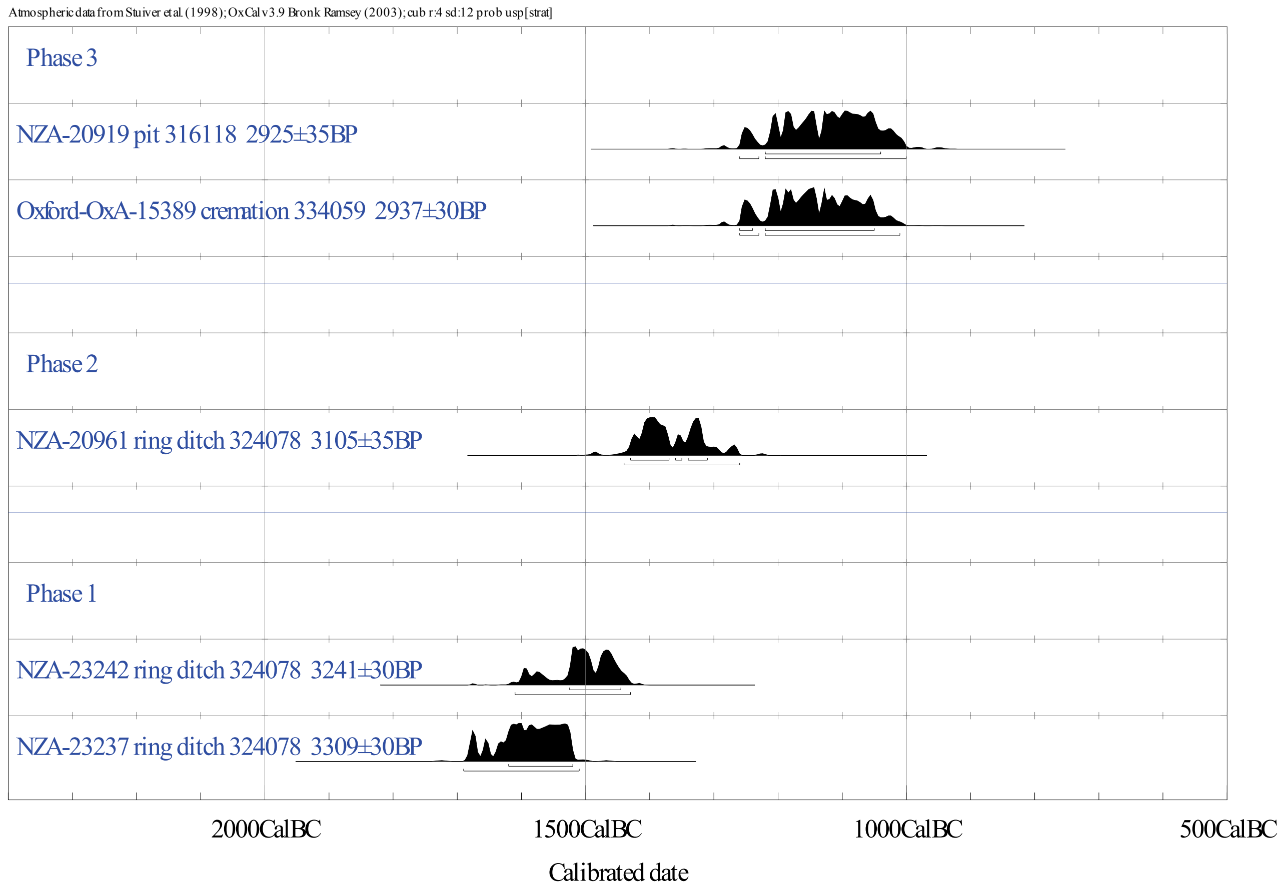


Figure 37.3: Bronze Age radiocarbon dates from the MTCP landscape

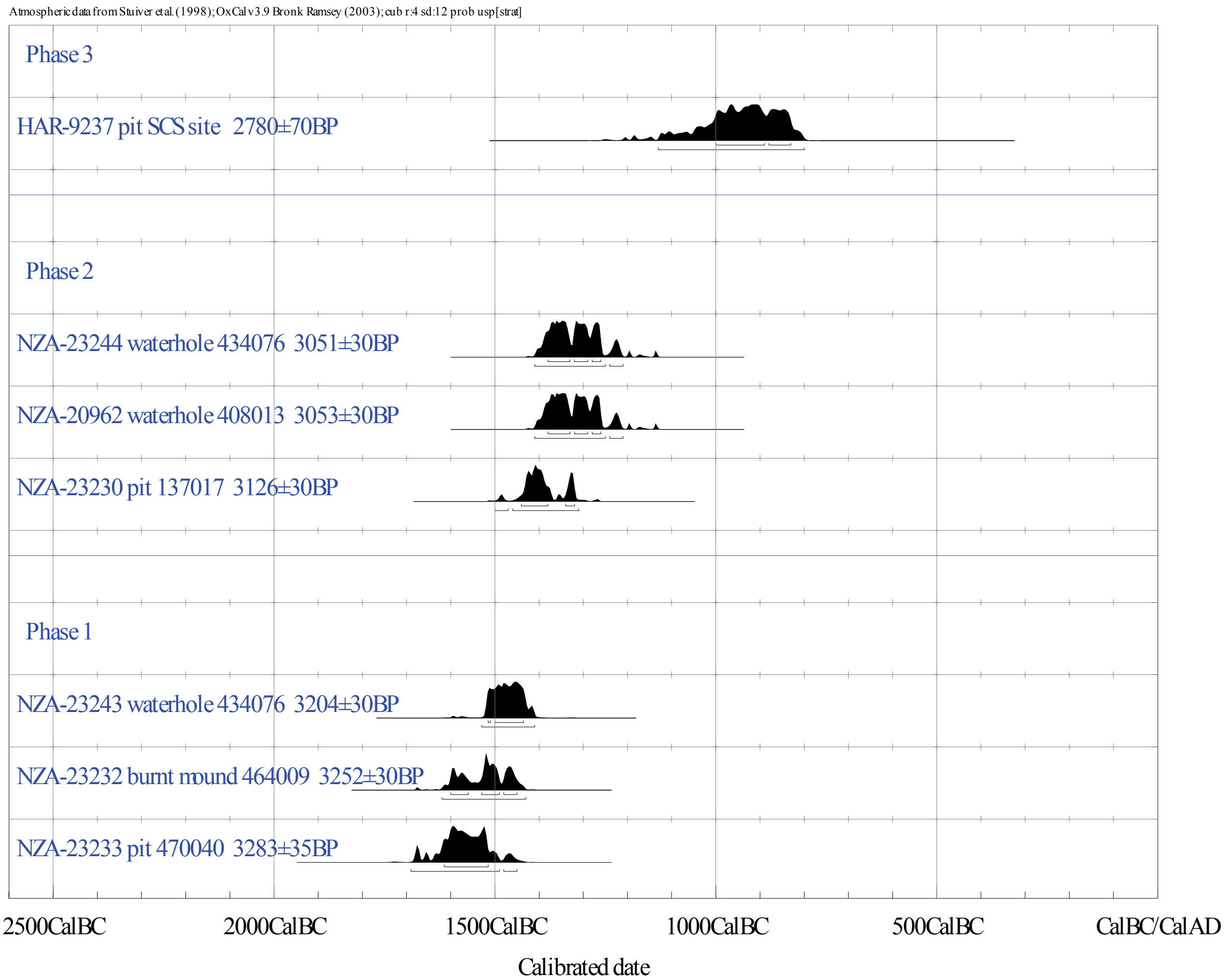


Figure 37.4: Bronze Age radiocarbon dates from the wider Stansted landscape

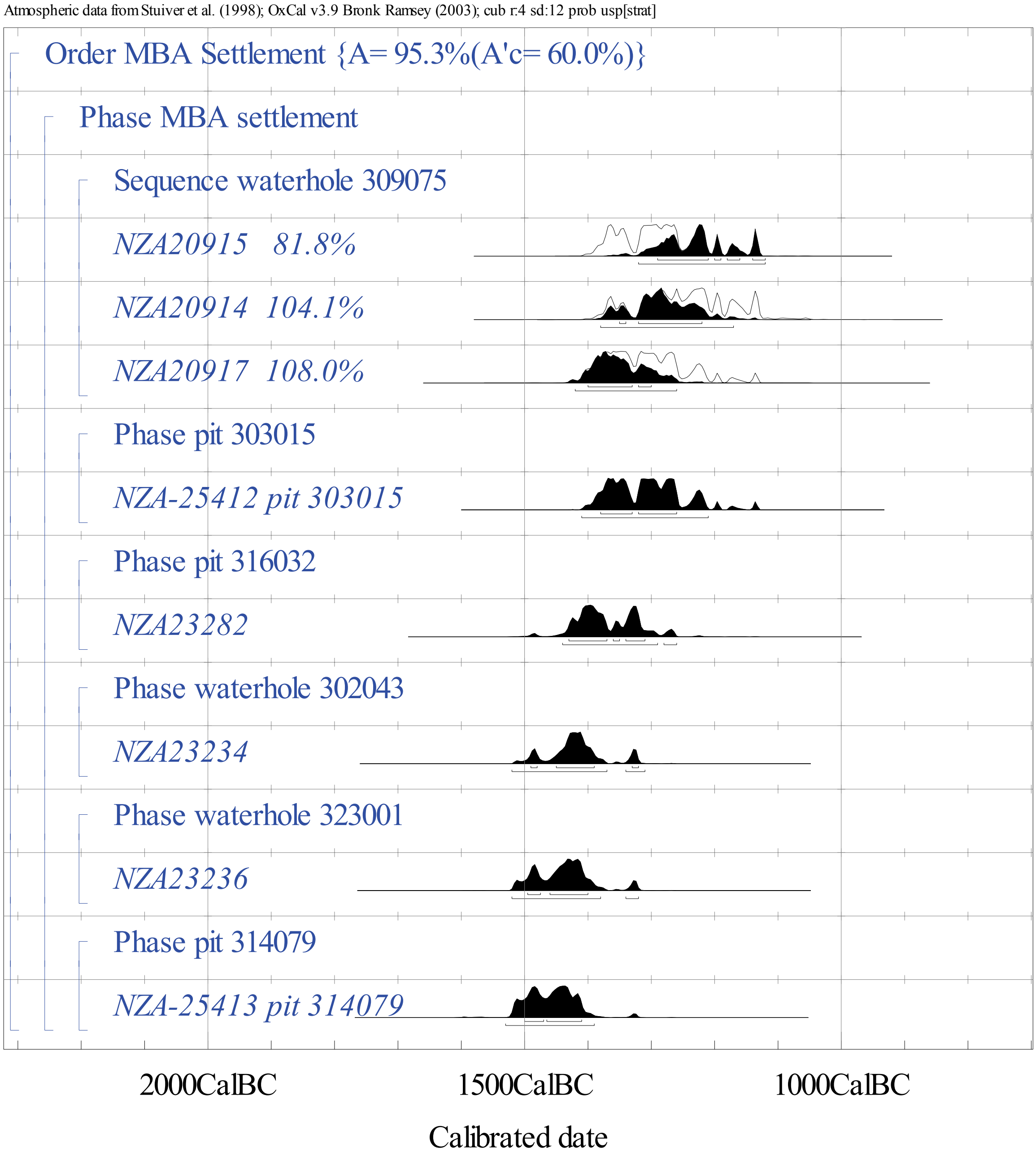


Figure 37.5: The radiocarbon dates associated with pit 316032 and waterholes 323001, 302043 and 309075. Where two distributions have been plotted (the three samples from waterhole 309075): the one in outline is the result of a simple radiocarbon calibration and the solid one takes into account the stratigraphic sequence

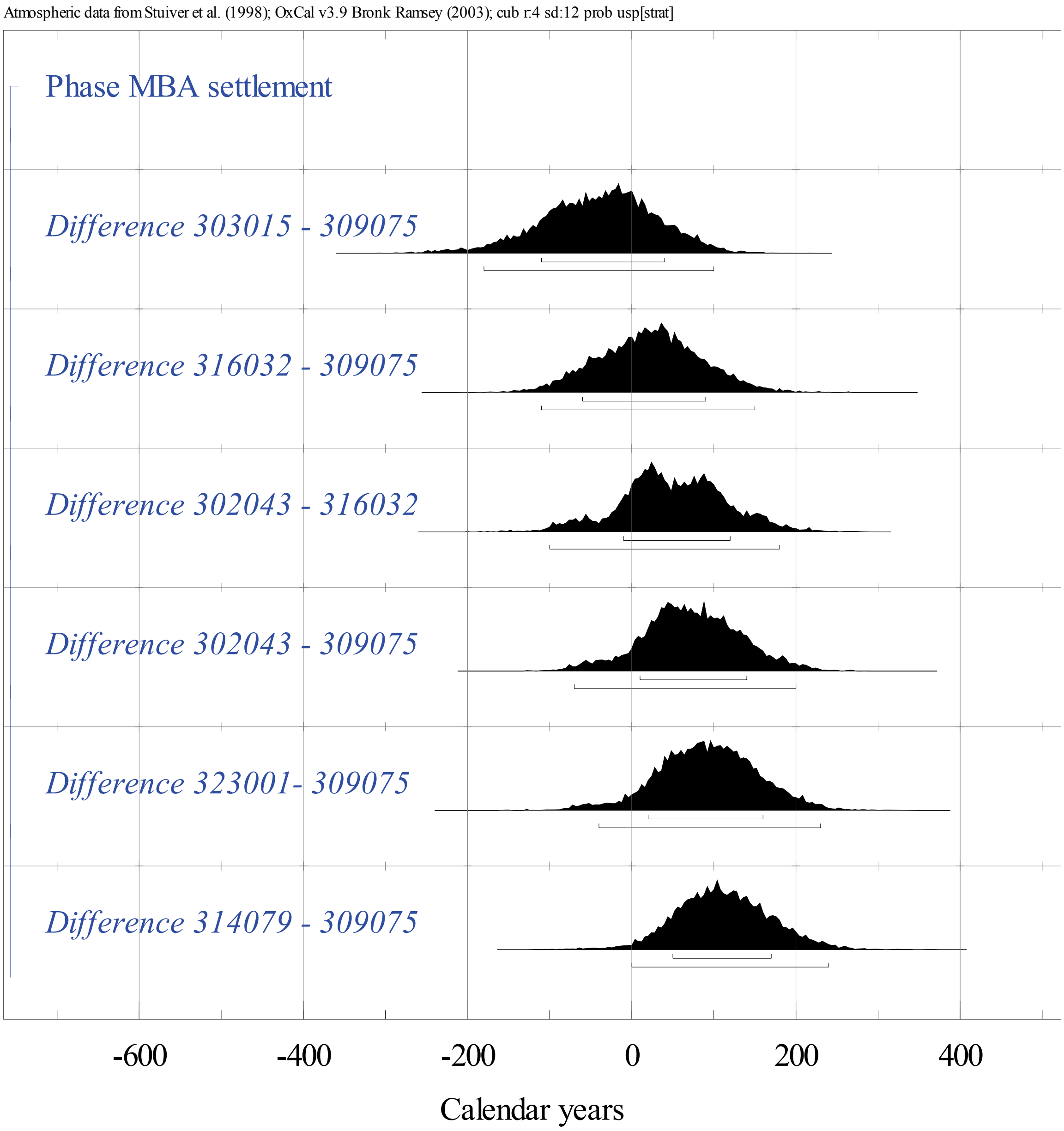


Figure 37.6: Potential intervals between dated features (negative distributions indicate a potential overlap)

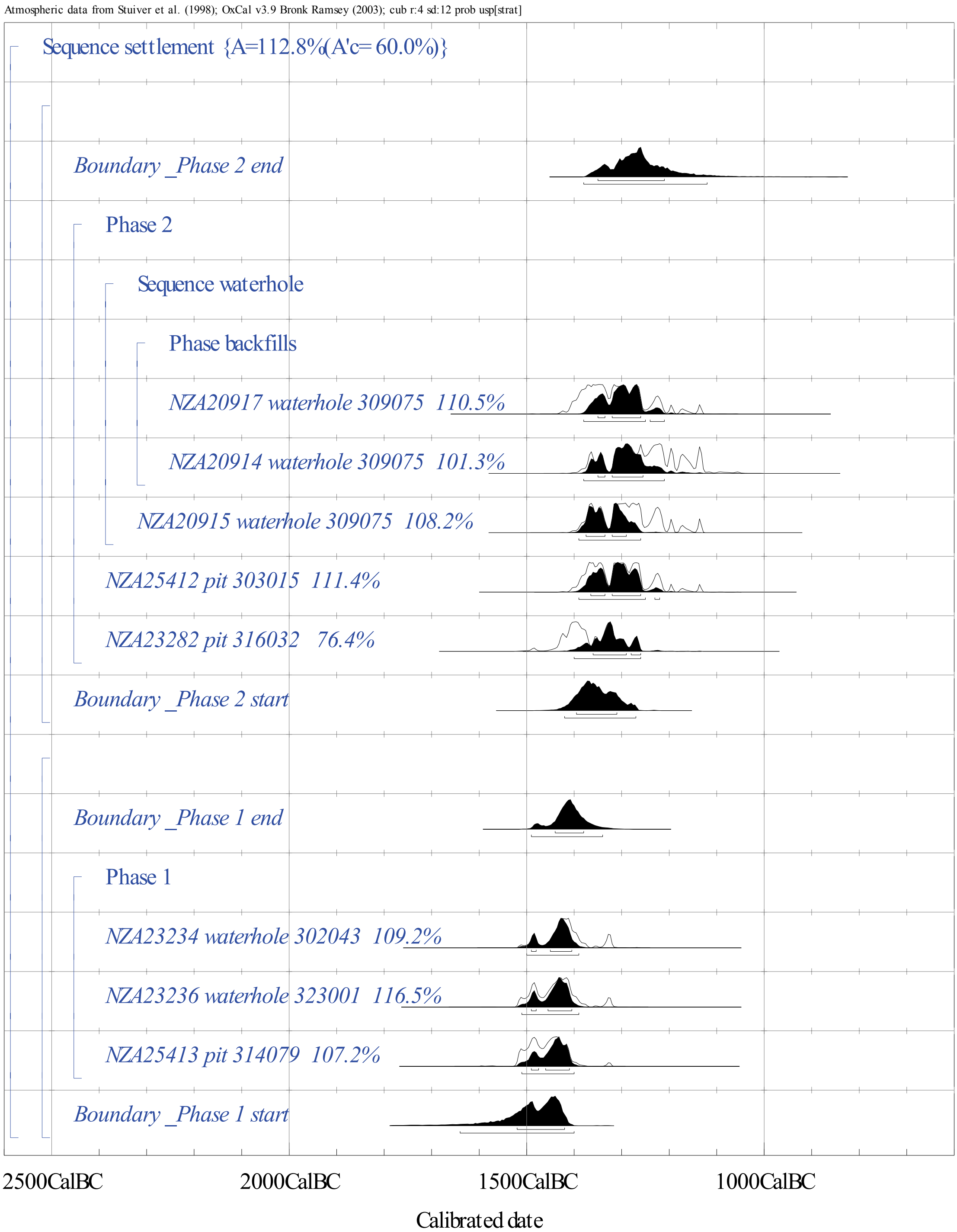


Figure 37.7: The modelled distributions for the radiocarbon dates from the settlement on the MTCP site based on an interpretation of the stratigraphy

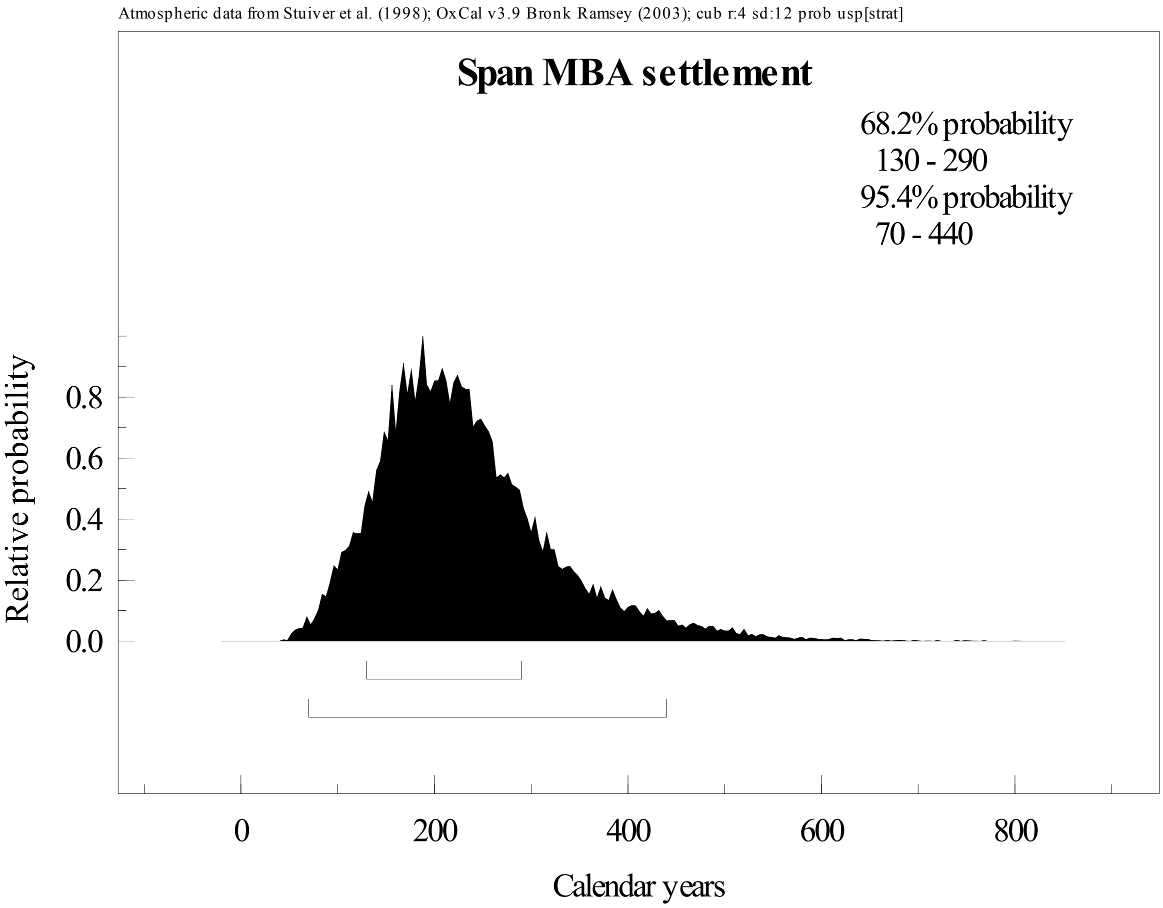


Figure 37.8: The modelled distribution for the span of the settlement on the MTCP site based on an interpretation of the stratigraphy

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