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The Absolute Age of SE-RF-6 (Ngamanie) and its Relation to SE-RF-2 (Nenumbo): Two Decorated Lapita Sites in the Southeast Solomon Islands

Roger C. Green[1] and Martin Jones[2]

ABSTRACT

The relative age of SE-RF-6, SE-RF-2 and SE-SZ-8, three decorative phase Lapita sites in the Reef/Santa Cruz region of the Outer Eastern Islands of Solomon Islands, has been the subject of dispute. A review of the evidence recovered from SE-RF-6 (Ngamanie), in conjunction with a Bayesian calibration model, supports the notion that it postdates the nearby site of SE-RF-2 (Nenumbo). We conclude that SE-RF-6 represents an occupation of 50 to 100 years duration (compared with 50 or less for SE-RF-2), beginning some time in the interval 2470–2910 BP.

Keywords: LAPITA, POTTERY, SE-RF-2, SE-RF-6, SOLOMON ISLANDS, RADIOCARBON, DATE.

INTRODUCTION

In a recent monograph, Best (2002: 81) takes the view that radiocarbon dating is at present not sufficiently accurate, or not used sufficiently accurately, to answer many of the questions posed in tracking Lapita expansion from the Bismarck archipelago to the islands on the western margins of Remote Oceania.

A similar view had already been expressed about the Arawe Islands group of Lapita sites. There, a limited corpus of ^{14}C determinations forced Summerhayes (2000: 27) to conclude that any fine-grained dating would have to place "greater emphasis on the pottery analysis in terms of stylistic changes throughout the Arawe sequence, and the regional picture that emerges from this study". This presumed degree of uncertainty in the basal Lapita chronology of several regions led Best to advance a claim that certain aspects of the Lapita ceramic series were in fact able to provide an extremely sensitive method of relative dating. This in turn offered a far sounder basis for new interpretations of the Lapita Cultural Complex, interpretations that he set out at monograph length (Best 2002). The main items nominated for this chronological role are a selection of previously neglected aspects within the overall decorated system, namely the use of roulette stamping and various specialised vessel shapes, both pedestal and cylinder type stands, flat-bottomed dishes, carinated vessels, and the rare ring-footed vessel.

[1]Department of Anthropology, University of Auckland: pounamu@ihug.co.nz

[2] Consultant, Analytic Research: martin@analytic.co.nz

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However, Best (2002: 49–50, 64–65) adopts a dismissive stance regarding relative dating based on motif analysis — a type of dating that has been widely used for sequences of sites within the decorated Lapita phase of a region or for site sequences between regions. This dating method has most recently been applied by Summerhayes, but has also, in the past, been chosen by others. One such earlier example was the use of motif analysis, in concert with ^{14}C dates, to determine the chronological order and antiquity of the three decorated phase Lapita sites in the Reef/Santa Cruz region of the Outer Eastern islands of the Solomons (Green 1976, 1978 [2004], 1979, 1991). These three sites are SE-SZ-8 (Nanggu) on Santa Cruz, and SE-RF-2 (Nenumbo) and SE-RF-6 (Ngamanie) on the Main Reef Islands. For the remainder of this paper, they are referred to as SZ-8, RF-2 and RF-6.

Felgate (2003: 27–34, 50–57), who takes a similar stance to Best, but whose focus is the use and abuse of ceramic classification and seriation methods in Lapita archaeology, comes to many similar conclusions. He (Felgate 2003: 79–85) critiques the same three decorated Lapita sites of the Reef/Santa Cruz region as a case study of the validity of the analyses used until now to support claims of the sites' chronological order.

One point of difference between the authors, however, is Felgate's view that Best's "assessment largely ignores the ^{14}C evidence, which has always tended to suggest that those RF-6 materials [that] have been dated are younger than dated materials from SZ8/RF2, and the results of current dating research are awaited with interest" (Felgate 2003: 84). This paper presents one of these dating research outcomes: namely, a new result from RF-6, and a comparison of that site's dates with the recent evaluation of dates obtained for RF-2 (Jones *et al*. 2007). The dating of SZ-8 is discussed by Green *et al.* (2008).

Based on his view that both ^{14}C dating and motif analyses have provided misleading outcomes, Best claims that the previously established order of the three sites from oldest to youngest — SZ-8, RF-2 and RF-6 — should be reversed. He advocates this reversal knowing that the existing order is based in part upon independent dating, furnished by the sites' calibrated radiocarbon dates. Moreover, and just as important, he makes his claim knowing that the SZ-8, RF-2, RF-6 order finds multiple lines of support in the relative ages suggested by well studied aspects of the sites' ceramics and certain elements of their lithic content, as well as various other cultural attributes (Green 1991: 203 and Tables 1 to 3; Sheppard 1993). Granted, secular calibration of the radiocarbon determinations in the 1970s and 1980s did not permit one to distinguish the age order of RF-2 and SZ-8, and so affirm the relatively earlier status of one deduced from ceramic motifs and other analyses. The best one could claim in the 1990s was that "… SZ-8 seemingly belongs in the same age range as RF-2, i.e. between 1200 B.C. and 900 B.C., with the 11th to 12th century B.C. date provided by sample SUA-111 as indicative of a lower limit for its initial occupation" (Green 1991: 203).

On the ceramic front, however, all kinds of analyses, using different aspects of the decorative data from these site assemblages, normally yielded the same outcome as the initial study by Donovan (1973). This applied when using presence/absence values among different data sets from those of Donovan, composed of various discrete motifs within a whole series of analytical methods (Green 1978 [2004]). It also obtained when both qualitative and quantitative values were used for these same motif data sets, as well as other analytical procedures (Anson 1983, 1986; Summerhayes 2000: 160–161 and Fig. 10.11). Although the large number (178) of motifs available to Summerhayes for RF-2 had an effect on the first component in a PCA presence/absence analysis, it still demonstrated that SZ-8 and RF-2 lay far removed from RF-6 on that component (Summerhayes 2000: 160 and Fig. 10.12). In this instance, the Anson manual similarity method yields an outcome that best displays the degree of motif sharing between assemblages and between regions. Here, four tightly clustered early West New Britain Lapita sites, comprising Summerhayes' Far Western style motif assemblages, yield, through the sharing of motifs, the following values that indicate degrees of inter-regional site similarity to those in the Reef/Santa Cruz region. The Arawe site of FNY shares 24 motifs with SZ-8, 21 with RF-2 and 15 with RF-6 as expected. However, Arawe FOH sq. G shares 42 motifs with both SZ-8 and RF-2 and 25 with RF-6, and Arawe FOJ shares 41 motifs with both SZ-8 and RF-2 and 22 with RF-6. Finally, Arawe FOH sq. D/E/F shares 20 motifs with both SZ-8 and RF-2, but only 13 with RF-6. In short, on one of the more discriminating procedures carried out so far using motif analysis, it remained hard to determine the chronological order of SZ-8 and RF-2 with certainty simply on the basis of their motifs, just as had proved to be the case using the radiocarbon dates. What was easy to demonstrate was that RF-6 shared many fewer motifs with both the early West New Britain sites and with reasonably similar, earlier aged sites in the Reef/Santa Cruz region. Therefore, as Green (1991: 201) had argued, "…if SZ-8 is (in its ceramic and lithic content) earlier than RF-2 as discussed above, the interval is something less than a century or two" (Green 1991: 201). That overall outcome remained the case until challenged in 2002 and 2003 by Best and Felgate respectively.

At that point, in contrast to all other analyses investigating the problem, Best (2002: 81–86) employed methods of relative dating, by selected ceramic elements noted above, to rearrange the assemblage order completely, with RF-6 being designated the earliest site assemblage, followed by SZ-8 somewhat later, and finally by RF-2. The one similar case with an outcome contrary to the whole series of Lapita assemblages that has been examined is that of sites in the Buka region of the Western Solomons. Best (2002: 92) cited this case to support his revised view of site order in the Reef/Santa Cruz region. Recently, however, Specht (2004) has shown the outcome of that Buka analysis to be spurious. This is due to its method of merging sample assemblages in ways that constitute an invalid computational case when aimed at obtaining a chronological seriation, based on their shared motifs, for the site assemblages involved from these two regions. Finally, the Best claim, of course, implies that RF-6 was indeed significantly earlier and that that would entail an age some two standard deviations greater than the eleventh to twelfth century BC ages calculated for SZ-8 and RF-2. Dates of 1300 to 1500 BC would be implied. Alternatively, it might be held that all ^{14}C age estimates for these sites are to be rejected, not just those for RF-6. That would be the outcome, if an inferred earliest age for RF-6 in the Reef/Santa Cruz series made that site far too early in relation to those farther west to which it is most similar, whose ages are never more than 1350 BC.

This paper presents further information on the context of the two previously dated samples from RF-6 and adds a third ^{14}C determination carried out by another laboratory using more modern methods and protocols. The age relationship of RF-6 to SE-RF-2 is then addressed statistically using Bayesian methods. In this way, those reading Best's (2002: 89–92) commentary on the serial chronological relationship of these sites may decide for themselves how to judge between the published interpretations compatible with those advanced here, and those advocated by Best without the benefit of drawing on ^{14}C ages.

THE CONTEXT OF THE ^{14}C AGE DETERMINATIONS FOR RF-6

LAPITA SITE RF-6, NGAMANIE

The Ngamanie site, RF-6 (initially coded BS-RL-6), was identified in 1971, in a cleared garden area on the raised coral island of Lomlom or Ngalo in the main Reef Islands of the Santa Cruz Group. It lies on the northern side of the narrow mangrove-choked channel between Lomlom and the adjacent island of Ngangaua or Gawa, where the site of RF-2 had already been excavated (Fig. 1).

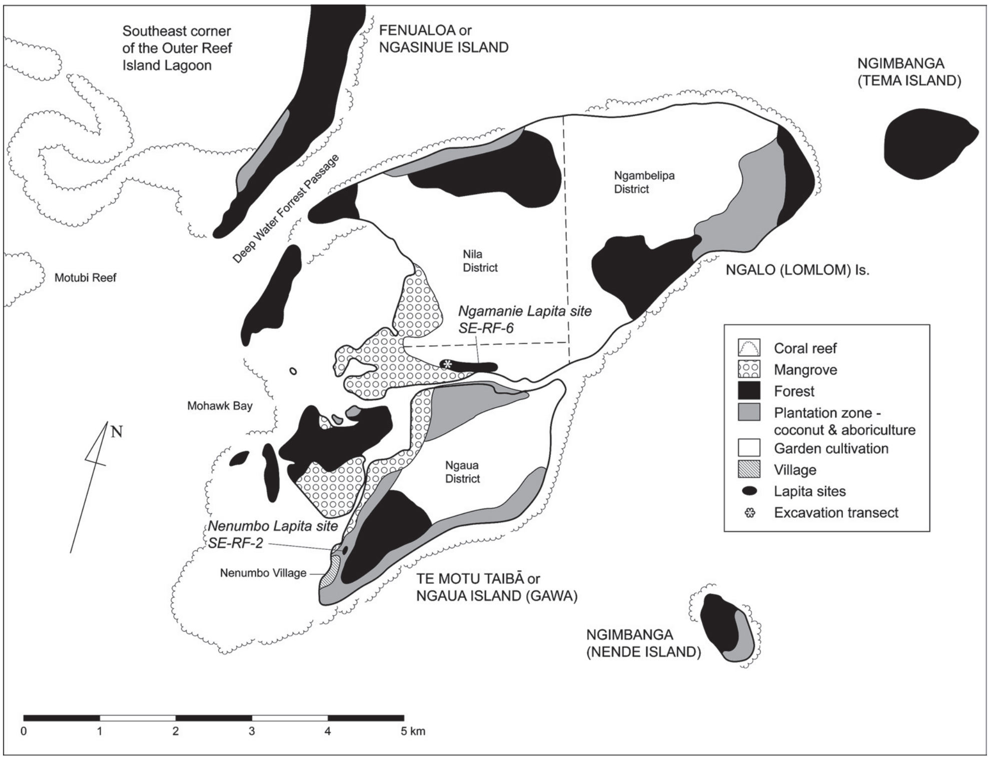

Figure 1: The central part of the Main Reef Islands, Outer Eastern Islands District, Southeast Solomons, showing locations of dentate-decorated Lapita sites.

Ngamanie was initially recorded as having a total area of 2400 m^2 (40 m x 60+ m). A formal excavation grid was laid out well back from the water's edge to provide a cross-section through the site. The squares selected for sampling through excavation are indicated in Figure 2, and the method of their choosing was described in full by Green (1976: 252, 1979: 51–52). The investigation lasted only four days, before it became necessary to catch a boat back to the expedition base in Graciosa Bay, Nendö. Hence, not all squares under excavation could be completed (Fig. 2).

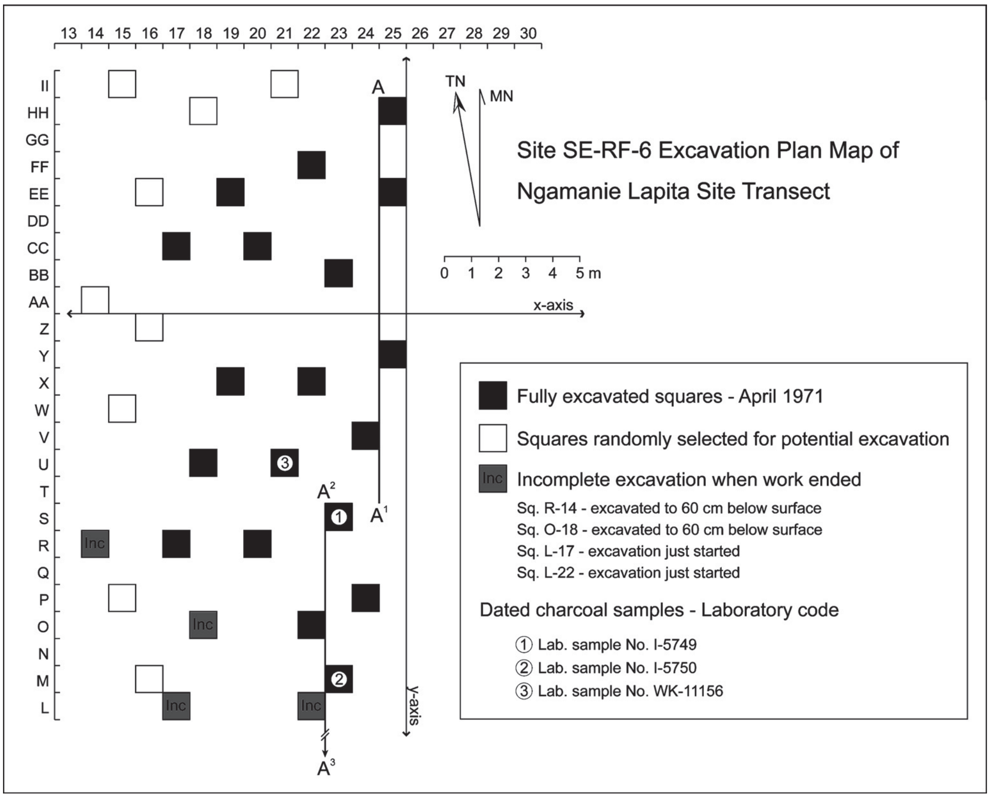

Figure 2: Plan of squares randomly selected for excavation within the gridded area of RF-6 and the locations of dated ^{14}C samples.

In Figure 3, A to A^1 and A^2 to A^3, together with a profile projection to the tidal ocean edge (A^3 to A^4), provide a slice across the site. Typical stratigraphy of a linking square (Fig. 4) ties the two main sections to each other. The positions of the radiocarbon samples are shown on Figures 2 and 3.

Further investigations of sites in the main Reef Islands took place in 1977 and again in 1979, when additional soil samples were collected and Ambrose type thermal cells for measuring annual mean temperature were placed in sites RF-6 and RF-2. Green also sought to estimate the size of RF-6 more precisely and concluded that the total length was probably *c*. 270 m. That deduction was based on surface ceramics and other cultural debris typical of a Lapita site visible in newly made gardens in the re-growth bush, trowel test pitting at 10 m intervals for evidence of sherds, and a return check measurement from the site's eastern end along the bush-free shoreline. All the new evidence was to the east of the area originally investigated, and lay parallel to and within eyesight of the high tide sea water channel edge. This expanded the probable surface area of the site to *c*. 10,800 m² (Green 1979: 51). During these visits, further information was also obtained on alternative names for the various islands of the main Reef Island group (Fig. 1).

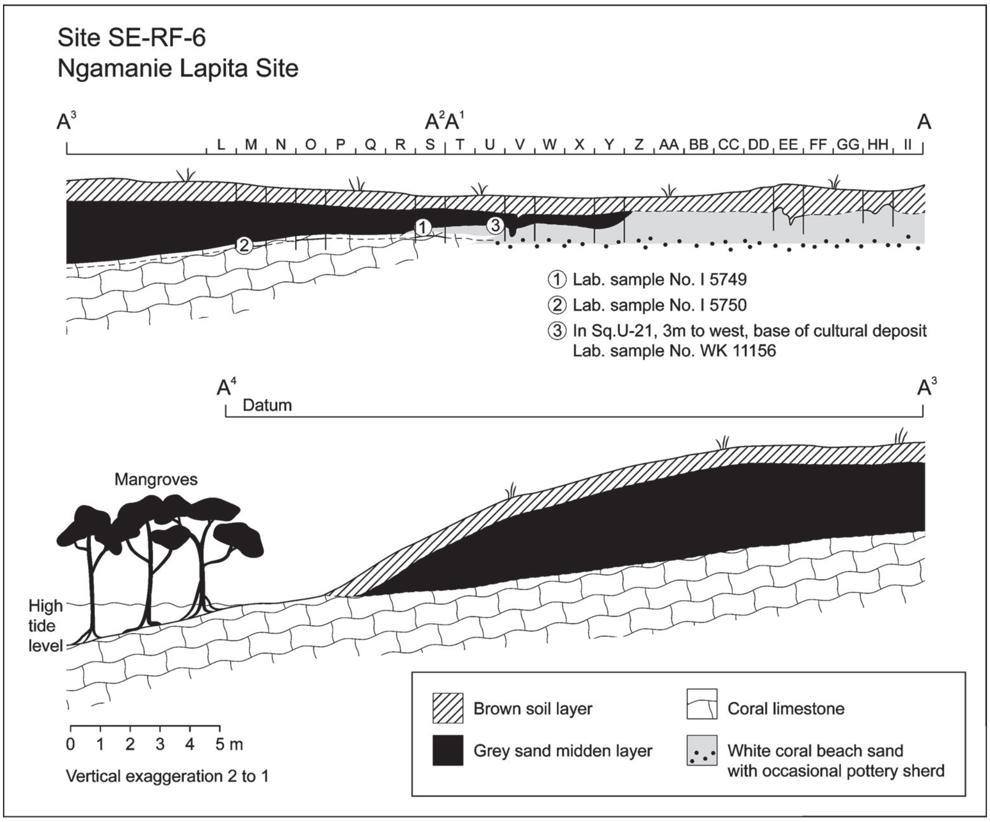

Figure 3: Cross-sections of stratigraphy in the excavated part of RF-6 (A to A^1, A^2 to A^3) and projected profile to the mangrove-lined channel (A^3 to A^4).

INITIAL ^{14}C DATING OF RF-6, RF-2, AND SZ-8

This procedure is covered in more detail than usual because it has been, in part, misreported by Best (2002: 89–90). RF-6 and RF-2 were first dated by two charcoal samples from each site submitted in April 1971. The expected age ranges for samples BS-RL-6-C-3 (I-5749) from RF-6 and BS-RL-2-C1 and C2 (I-5747 and I-5748) from RF-2, as given in the laboratory sample submission descriptions, were 2500–3500 yrs BP, with the added note that BS-RL-6-C-3 "may lie towards the younger end of that range". The expectation for BS-RL-6-C-4 (I-5750) was described as similar to BS-RL-6-C-3.

These estimates were based wholly on the raw excavation data and on dates then available from other Lapita sites. Thus none of the subsequent analyses of the potsherds or their motifs entered into the age estimations. The tentative suggestion of a possible younger/older age relationship was confirmed by four CRA age determinations delivered to Green when he was again in the field in July 1971. While the two from each site, RF-2 and RF-6, were of comparable antiquity to those from elsewhere, lying well within the anticipated 1000-year window, the combined pairs from the two sites were obviously of significantly different ages.

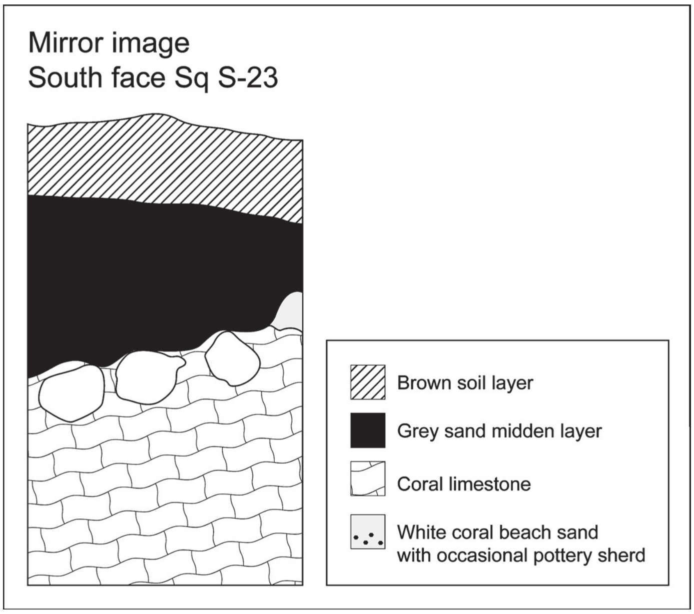

Figure 4: Linking stratigraphy between cross-section A to A^1 and A^2 to A^3 in RF-6.

The placement of SZ-8 in the series, from two marine shell CRA ages, came later (letter from Henry Polach, ANU dating lab, 30 March 1973). Thus, its position in the series, in contrast to the other two, was initially established by relative dating based on its ceramic content. However, an earlier absolute age relative to RF-2 has never been established by ^{14}C results, because until recently no robust marine shell correction could be made (Green 1979; Table 2.1; Green 1991). The best estimation, based on relative ages using proxy ΔR values, has always been that SZ-8 was similar to, or slightly earlier than, RF-2, which had four calibrated charcoal dates of *c*. 950–1150 cal. BC (Green 1991). More recently, two new shell dates for RF-2 have directly addressed the determination of an appropriate marine shell correction (Jones *et al.* 2007). Two additional age determinations have also been obtained for carefully selected marine shells from SZ-8. This makes it possible, for the first time, to estimate an appropriate age for SZ-8, which is presented elsewhere (Green *et al*. 2008).

THE CHARCOAL SAMPLES FROM RL-6

The plan positions of the three ^{14}C samples are indicated in Figure 2, and the stratigraphic positions in Figure 3.

I-5749: Square S-23, scattered charcoal from the base of the gray layer believed to be associated with a probable oven at the bottom of the square (Buckley 1975: 188). The sample consisted of concentrated charcoal bits removed in the laboratory from a bulk field sample. The amount was close to but not below the desired laboratory minimum at that time of 10 g. The charcoal was not identified.

I-5750: Square M-23, scattered charcoal from the base of the gray layer, the same stratigraphic provenance as I-5749. It had been collected very carefully with tweezers during excavation at the base of the square, where an association with an oven pit was reported as likely (Buckley 1975: 189). It was about or probably a little less than 10 g and therefore thought less satisfactory for dating than I-5749. The charcoal was not identified.

WK-11156: Square U-21, 2.3 grams of charcoal from one species of broadleaf plant, and a tiny piece of probable coconut shell, extracted in the laboratory by R. Wallace from a mixed sample that included charcoal stained sand, taken towards the base of a *c.* 1-m-deep excavation pit. It was associated with the charcoal-stained sandy gray layer encountered in the lower part of the square. It was not associated with any obvious structural feature such as an oven.

THE CHRONOMETRIC DATA FOR SE-RF-6

The full ^{14}C age determinations for the four samples from RF-6 and RF-2 dated by Teledyne Isotopes Ltd were originally published in *Radiocarbon*, along with context and commentary by Buckley (1975: 188–189), who reported the probable association of the two samples from the base of RF-6 with an oven or other concentration of charcoal from a firing feature. The precise contexts of the six dates for RF-2 are fully reported in Jones *et al.* (2007). The additional WK-11156 sample for RF-6 is reported here for the first time, as are the details of the locations of all three RF-6 determinations (Figs 2 and 3). These results are summarised in Table 1.

TABLE 1
Chronometric data used in the current analysis.

Date	**Location**	**CRA**	**Error**	**$\delta^{13}C$**	**Reservoir**
I-5749	RF-6	2530	95	†	Terrestrial
I-5750	RF-6	2460	95	†	Terrestrial
WK-11156	RF-6	2555	88	-28.3±0.2%	Terrestrial
I-5747	RF-2	2955	95	†	Terrestrial
I-5748	RF-2	2775	100	†	Terrestrial
ANU-6477	RF-2	2730	120	¶	Terrestrial
ANU-6476	RF-2	2850	130	¶	Terrestrial
WK-7847	RF-2	3100	40	+1.98±0.2%	Marine
WK-7848	RF-2	3080	45	+3.72±0.2%	Marine

† application of a standard (though unstated) assumed value of that period.
¶ application of a known and stated assumed value: -24.0±2.0% w.r.t P.D.B standard.

A BAYESIAN STATISTICAL APPROACH TO MODEL EVALUATIONS FOR RF-2 AND RF-6

In this section we apply statistical analyses and models for the relative timing of RF-2 and RF-6 on the basis of the radiocarbon data given in Table 1. Our interest here is in exploring the question of whether RF-2 precedes RF-6, RF-6 precedes RF-2 or whether they are contemporaneous. Thus we consider three different scenarios:

- Scenario 1 – RF-6 pre-dates RF-2
- Scenario 2 – RF-2 pre-dates RF-6
- Scenario 3 – RF-2 and RF-6 are contemporaneous

Here we will compare the relative likelihood of these three scenarios on the basis of the data given in Table 1, following the approach described by Jones and Nicholls (2002). Using this approach we simply regard the dates in Table 1 as coming from one of a number of phases that occur as a single non-overlapping series. Under the scenarios presented above, Scenario 1 describes a situation where RF-6 is regarded as a single phase of activity followed some unknown time later by a single phase of activity represented by RF-2; Scenario 2 describes the reverse situation; and under Scenario 3, RF-2 and RF-6 correspond to a single phase of activity. This is an implementation of the Bayesian phase model for temporally constrained radiocarbon calibration described by Nicholls and Jones (2001) and allows for the assessment of the relative likelihood of different models following the method outlined by Meng and Wong (1996) and implemented in the DateLab as described by Jones and Nicholls (2002).

In the current analysis, dates derive from two different spatial locations. Application of the phase model just described makes the following critical assumptions:

1. The two sites arise from the same general cultural process of settlement and habitation in this area, as opposed to arising from two completely independent cultural processes;

2. The dated samples presented in Table 1 actually date the associated archaeological record;

3. The dated samples represent an effectively random sample of the archaeological record.

As discussed below, we accept these as entirely valid assumptions.

RESULTS

The primary result of interest in the current analysis is the relative likelihood of Scenarios 1, 2 and 3. In this analysis the computation was conducted using DateLab 1.2 (Jones and Nicholls 2002) running with a rejection sampler. For further detail readers are referred to Jones and Nicholls (2002) and Nicholls and Jones (2001), who discuss this computation in detail with respect to the type of phase model applied here. For this analysis, the IntCal98 calibration data (Stuiver *et al.* 1998) are used and a marine ΔR of -81 ± 64 ^{14}C years has been applied (Jones *et al.* 2007).

The relevant results are summarised in Table 2. In this table, the relative likelihood of any modelled scenario *versus* another is given along the row. So, for example, the relative likelihood of Scenario 2 versus Scenario 1 is given in the first column of the second row of the Relative Likelihoods. This shows that Scenario 2 is $1x10^{11}$ times more likely than Scenario 1 given the available data. The results presented in Table 2 indicate that Scenario

2 is very strongly (Rafferty 1996) supported by the data in comparison to the two alternatives that have been considered. The primary conclusion from this analysis is that, given the assumptions listed above, the data strongly reject the notion that RF-6 predates RF-2.

TABLE 2
Relative likelihoods of Scenarios 1, 2 and 3.

	Mean Likelihood	**Relative Likelihoods**		
		Scenario 1	**Scenario 2**	**Scenario 3**
Scenario 1	$1.0 \times 10^{-40} \pm 4 \times 10^{-41}$	*	1×10^{-11}	2.5×10^{-6}
Scenario 2	$1.6 \times 10^{-29} \pm 6 \times 10^{-31}$	1×10^{11}	*	1×10^{4}
Scenario 3	$1.7 \times 10^{-33} \pm 1 \times 10^{-32}$	4×10^{6}	1×10^{-4}	*

Also of some interest are the dates of the RF-2 and RF-6 occupations. These are directly calculated from the analysis of Scenario 2 through DateLab and are summarised in Table 3. These results show that RF-2 was initially occupied some time in the interval 3270–2880 BP (95% CI) and RF-6 some time in the interval 2910–2470 BP (95% CI), but after RF–2. A key point to note here is the conditional statement at the end of the last sentence. While the potential occupation intervals for the two sites do overlap, these calculated occupation intervals are conditional upon RF-2 pre-dating RF-6. Thus the timing of the two potential occupation intervals does not infer any information on the relative timing of the two sites, and the apparent overlap in calculated occupation dates should not be interpreted as raising the possibility of RF-6 predating RF-2.

TABLE 3
Dates of occupation of RF-2 and RF-6.

Parameter	**Years BP**	
	68% CI	**95% CI**
End of the RF-6 Occupation	2350–2660	2080–2740
Start of the RF-6 Occupation	2580–2800	2470–2910
End of the RF-2 Occupation	2830–2980	2720–3060
Start of the RF-2 Occupation	2950–3150	2880–3270

DISCUSSION

In order to apply the analysis above we have had to make three basic assumptions, namely:

1. The two sites analysed derive from the same general cultural settlement process;

2. The dated samples represent an effectively random sample of the archaeological record;

3. The dated samples presented in Table 1 actually date the associated archaeological record.

Of these assumptions only the second and third may be open to any real debate.

These assumptions have already been addressed for the case of RF-2 (Jones *et al.* 2007), so we simply need to establish that they are valid for the case of RF-6.

It can be readily established that the dates constitute an effectively random sample of the 100 m² portion of the site that was the target for investigation. Thus, the test squares actually excavated were selected using a strict sample square selection among nine possible squares within a stratified systematic framework. That yielded an unbiased sample assemblage for two separate layers. In the same way, the 9 m spread of the three test squares from which the dated samples derive, including one separate firing feature, one probable one, and one context that is evidently not a feature, indicates that they are highly unlikely to derive from a single uniform activity (Fig. 2 and supporting text above). One end of this site may or may not prove to be an entirely satisfactory sample for its middle portion, which could have been occupied over a somewhat longer duration period than the occupation that later extended to the end of the site, but that issue is not in contention here. Moreover, it is an empirical question requiring further investigations.

Thus, it is with some certainty that the existing ^{14}C dates are to be associated with the other materials excavated at the same time and in the same strata — namely the ceramics, chert, obsidian and a few other portable artefacts. Moreover, when the assemblages recovered from the 20 m² excavation sample are scaled up to a constant value of 100 m², it becomes evident that the ceramics, chert and obsidian items are present in the same quantities as at the other two sites (Green 1991: Table 1). Subsequent investigations have now been conducted on the ceramic aspects and motif records for the three assemblages to assess for bias stemming from differences in their numerical size or the extent of the excavation area from which each was recovered. They too reveal the three excavation samples to be representative for the analytical and comparative purposes in which they are usually employed (Sheppard and Green 2007).

The final assumption, that the dated samples actually provide ages for the associated archaeological record, can also be confirmed fairly easily. This question is common to any archaeological investigation, and fundamentally must be resolved through controlled excavation, which was certainly practised here. Thus, we have precise locations for the ^{14}C samples, two of which are firing features (probably the remains of ovens). Moreover, all three dated samples of small charcoal bits were from the very base of the sandy charcoal-stained cultural layer, with little chance of having mixed with the upper gardened brown ashfall layer that followed centuries after the inhabitants initially discarded these items in the gray sand midden layer. Finally, when the gray layer content is compared with that of the upper brown ashfall soil layer, into which the uppermost contents of the gray layer have migrated, they are seen to be very similar and coherent in their details (Felgate 2003: Table 4). This precisely parallels the situation at RF-2, where the same taphonomic process has occurred (Jones *et al*. 2007).

The probability of all of the dates being intrusive from above is minimal, given their position at the very base of each of the excavated squares. If intrusive from below, the charcoal bits could perhaps, in one instance, have come from the burning of rubbish on the previously uninhabited clean sand surface, but this would only mean that the average age determination is in fact slightly older than it should be, but not younger. Major mixing would also have required the quite different brown soil composition, which fell on the occupation layer as an ashfall more than 800 years later, to be visibly incorporated into the lower and still intact cultural deposit. There was no evidence that this had happened when the site was excavated and recorded. Therefore, the possibility of intrusive mixing, from above or below, can effectively be ruled out.

CONCLUSION

As stated at the outset, the purpose of this paper has been to present a careful review and analysis of the radiocarbon determinations for RF-2 and RF-6 and examine the relative ordering of these two sites on the basis of these data. The intention was, in part, to assess the order proposed by Best (2002) on the basis of his relative ceramic dating approach.

The careful review of the evidence recovered from this site and the analyses of its contents rule out the possibility that RF-6 pre-dates RF-2. The radiocarbon data analysed within an appropriate modelling framework unequivocally support the notion that RF-2 predates RF-6. From the evidence presented here we conclude that the RF-6 occupation (which we believe corresponds to an occupation of 50 to 100 years duration versus 50 or less for RF-2, see Jones *et al.* 2007) begins some time in the interval 2910–2470 BP and postdates RF-2.

This result contrasts with the conclusion drawn by Best (2002) and the scepticism of Felgate (2003), who required more evidence of age order of the kind provided here. This suggests that, at least in some cases, their approaches to relative ceramic dating may not prove suitable.

ACKNOWLEDGEMENTS

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