BURIALS AND TIME AT GILLMAN MOUND, northern Adelaide, South Australia

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Abstract
Gillman Mound, on the Adelaide Plains, South Australia, was excavated in 1970 after human remains were discovered during redevelopment. Twenty-two individuals were recovered, along with a further 16 from the Wingfield area. In collaboration with the Kaurna Nation Cultural Heritage Association, these remains were recently analysed and dated. This paper analyses the burial practices in order to identify temporal and spatial continuities and discontinuities, both within the site, and in a more regional context. One of the major issues with burial sites is their interpretation in terms of a temporal scale. The burials at Gillman date to between 1100 and 600 BP. Given that on at least two occasions a single grave was used for the burial of two people, the time frame suggests approximately one burial per generation (or potentially a more episodic use of the site). This points to the existence of multiple places in use for burial at the same time and raises the question of which people were buried at particular places. While some of the burial practices in the mound are congruent with ethnohistoric accounts of Kaurna burials, others point to discontinuities in time or space.

Introduction
Rituals of burial provide an avenue whereby a society can deal with the challenge caused by the death of one of its members. The ritual moves that individual from the world of the living to that of the dead, healing the breach caused by the death itself. Consequently, the analysis of human burials, particularly where multiple burials occur at a single location, can provide insights into social practices and beliefs (Goldstein 1981). One of the major challenges towards an archaeology of death is the question of scale: links between individual burials, the long-term patterning of the archaeological record of multiple burials, and taphonomic processes (Chapman 2004). It is therefore productive to pay attention to the dating and construction of burial sites, looking for the presence of long-term regularities, change, and the relations between earlier and later acts (Fahlander 2008). In this paper, we identify variability, continuity and discontinuity at the Gillman Mound site, on the Adelaide Plains in South Australia (SA), and undertake a preliminary comparison of these results with both local and regional records of burial practices.

Gillman Mound, and its Aboriginal burials, was discovered during the 1960s development of Port Adelaide, at which time they were reported to the police and in the local papers. At the time, Graeme Pretty (South Australian Museum [SAM]) was asked to excavate, but, his time being occupied with excavation elsewhere, he asked a group of trained volunteers to undertake the task; the Gillman Mound site was subsequently excavated in 1970 (Hodges 1973), though results were not analysed at that time.

Recent moves towards the repatriation of these burials prompted analysis of the Gillman Mound finds during 2010 and 2011, the results of which form the basis for this paper. This work was supported by the Kaurna Nation Cultural Heritage Association, who collaborated in the reanalysis of the human and other remains from the site prior to their repatriation. The reanalysis included examination of the human remains, dating and analysis of the associated artefactual material, non-human bone and shell (Walshe et al. 2011). The recording was done by the authors, with Eleanor Adams, Rebekah Candy, Sam Hoare, Gina MacFarlane, Joe Mitchell and Jeffrey Newchurch.

The Site
Gillman Mound was a sand hill about 12 m in diameter and 3.5 m high in northern Adelaide. To the north of the mound was a mangrove woodland around the reaches of the Port River, and to the west lay Largs Bay, an open sandy beach (Figure 1). The area immediately surrounding the mound itself was covered by low sandy spinifex rises interspersed with saline samphire marshlands. To the northeast, beyond the mangroves and sand hills, lay open woodland of acacia, native pines, she-oaks and paperbark trees (Walshe et al. 2011).

At the time of archaeological excavation, more than half of the mound had already been destroyed, during which time human remains had been salvaged (Hodges 1973). The salvaged bones are designated herein as the ‘Wingfield’ remains and, unlike the excavated Gillman remains, are unstained, indicating that, although they came from the same general area, they were not associated with the dark ashy mound deposit from which the Gillman remains were recovered. The Wingfield remains comprised partial remains of 16 individuals; accompanying documentation suggests they were dispersed on the flatter area surrounding the mound. A further 22 individuals were excavated from the Gillman Mound, one of whom probably came from the same area as the Wingfield remains (based on a similar degree and colour of bone staining). In this paper the Wingfield remains are used for comparative purposes only, since we lack any information regarding the burials themselves.

The sand hill deposit of the Gillman Mound consisted of an upper layer (Layer 1) of 2–3 m of light calcareous sand, the upper 1 m of which was stained black with occupation debris and included some discrete shell lenses (Layer 1, Zone I in Figure 2). The lower layer (Layer 2) consisted of red sand extending to below the surrounding contemporary ground level, and was evidently a remnant mound. Burials were found within Layer 1 at the base of Zone 1 and within Zone II.

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Site Chronology
At the time of excavation it was assumed that the burials post-dated, or were contemporary with, the occupation debris. Recent dating, however, suggests that there has been significant mixing of the undulating sandy deposit, resulting in a re-evaluation of the relationship between burials and occupation. Four samples of burnt shell, animal bone, burnt soil and burnt clay were obtained from Layer 1, Zone II (Table 1) and submitted to the Rafter Laboratory. All results were calibrated using the SH04 curve (McCormac et al. 2004), except for the oldest burnt clay sample (NZA 38322) which was calibrated with the Int09 curve (Reimer et al. 2009).

The burnt clay is the earliest date from the site at approximately 10,000 years ago. This single date needs reconfirmation. Its position at the time of excavation suggests mixing of the deposit, possibly through deflation bowls. Mixing is also suggested by the

Figure 1 Map of Gillman Mound in relation to the Adelaide Plains (produced by Craig Westell).
burnt shell and dingo bone dates. The excavators suggested that the shell was part of ‘fossil’ surface litter (Hodges 1973:28). The burnt soil and burnt animal bone samples are dated to within the last 500 years, and recent usage of the site was confirmed by the presence of tin in the re-interment of one set of remains.

In addition to the aforementioned dates, seven of the Gillman burials were also dated through AMS determinations on bone (Table 1 and Figure 3). Results cover an approximately 300–500 year period and appear to predate the later occupation phase by an estimated 200 years. Increasing age determinations from these burials do not correlate with increasing depth in the mound, confirming the hypothesis that the site was subject to deflation and significant mixing of the deposit. Burials 1 and 2, which returned near identical radiocarbon determinations, were 3 m apart on the mound surface, while Burials 3 and 6 also returned very similar dates and were adjacent to each other. The dates, therefore, give no clear indication of changing burial location with time.

The non-burial remains indicate both an earlier and later secular use of the Gillman Mound. The burials date to a particular phase of site use, between approximately 300 and 500 years in length. The chronological relationship between these and the Wingfield series remains unclear.

Methods of Analysis

While Gillman Mound was excavated ca 40 years ago, the careful investigation and associated documentary record, including photographs, allow a more detailed reconstruction than might otherwise have been possible. In addition, work by Duday (2006) and others (Haglund and Sorg 1997; Roksandic 2002) allows a mode of analysis which relies on an element by element analysis of the body and its position in situ. The aim of such analysis is to document funerary rites, illuminating in greater detail the processes accompanying burial, as well as post-mortem disturbance. In particular, the approach relies upon reconstructing the burial through examining the displacement of elements within space. We used this approach in reanalysing the Gillman Mound photographic record, along with examining the remains themselves.

The age and sex of remains were recorded using standard measures as described in Buikstra and Ubelaker (1994). In particular, sex assessments for adults relied primarily upon standard pelvic indicators, along with measurement of the femur head and comparison with Davivong’s (1963) measurements. Adults were grouped into young (ca 18–30), middle-aged (30–50) and old (50+) adults, though there are several individuals for whom no determination could be made beyond adult. Sub-adult ages were assessed on the basis of dental formation and eruption (Buikstra and Ubelaker 1994). This is less accurate for Aboriginal remains than many other populations given the earlier eruption schedule of Aboriginal teeth (Barrett et al. 1964), but the broad age ranges make this acceptable for the current level of analysis.

The Individual Burials

Excavation at Gillman Mound recovered 22 individuals (not all complete), 15 with recorded locations. The burials were identified primarily in the southwest quadrant of the mound, in an area covering approximately 36 square metres (Hodges 1973) (Figure 4). They form four groups: (1) Burials 2–7 and 10, all of which were less than 1 m from each other in the centre of the southwest quadrant; (2) Burials 1 and 8 were separated by less than 1 m, although the latter was significantly higher than the former; (3) Burials 12 and 9 at the western edge, both of which were disturbed; and (4) Burials 11 and 13–15 on the southern edge, which were also probably disturbed (Figure 4).

Burial 5

At 897 to 1021 AD, the earliest dated burial from the Gillman Mound is Burial 5, located in the centre of the southwest quadrant (Table 1, Figure 4). This was a fully articulated primary burial of an older woman (45–55 years). The body was laid largely on its
right side but the thorax had rolled over slightly so that, as the body collapsed, the right ribs became visible. The legs were fully flexed at the hip and very tightly flexed at the knee, a position suggestive of binding. The feet lay at 90° to the distal tibia. While the vertebrae and ribs had slumped forward, the left shoulder, which must have been hunched up over the left temporal, had remained in situ, although the left humerus had broken mid-shaft as part of the general collapse. The left arm was flexed at the elbow (ca 135°), with the radius and ulna lying over the top of the left femur. The fingers of the left hand were splayed at the level of the head. The head was on its right side with the face oriented downwards towards the thorax. Alignment of the hip to head was south, with the face oriented towards the southwest. The evidence of in situ collapse, plus the burial position suggests a primary flexed burial, though with a definite possibility of some wrapping or binding of the lower limbs.

**Burial 15**

Burial 15 dates to 905 to 1024 AD and comprises a disarticulated group of bones belonging to a middle-aged adult male (30–40 years) (Table 1). The uppermost bones in the bundle include vertebrae, ribs and bones of the hands and feet overlying a skull, long bones, scapulae and innominate. There was no apparent ordering of the remains, but the skeleton was largely complete, missing only the left humerus, part of the left ulna and hand, and some bones from both the left and right feet. The bones had been buried atop a piece of rusted metal and, based on their weathered appearance (particularly the skull), presumably represent a secondary reburial following exposure through erosion. This deliberate reburial during post-contact use of the site means it is impossible to determine the original location or position of the burial.

**Burial 1**

Burial 1 was a nearly fully articulated, tightly-flexed middle to older-aged adult woman laid in the ground face downwards, dated to between 1161 and 1224 AD (Figure 5). While her feet were still in anatomical position at the time of burial, her right femur lay adjacent to the right side of the body, ventral side up, with the femoral neck lying partly under her head. Her spine had collapsed at the joint between the sacrum and the fifth lumbar vertebra and had fallen down as her body decomposed in situ. Her arms were bent at the elbow with the hands up in front of the shoulders, and her head was positioned face down with the vertebral column disarticulated at the atlas (which has become dislodged to the left). The right clavicle was also displaced. The cervical, thoracic and lumbar vertebrae remained articulated, while the ribs, although collapsed, had also remained in anatomical arrangement. The orientation of her head was to the southeast, with her face to the southwest.

This individual was unlikely to have been placed vertically in a burial pit, since her left foot was articulated with the sole upwards and the vertebral column had only partly collapsed vertically; however, given the accentuated bodily curvature, her body may have been vertical at some stage. The final interred position suggests that the body had been tightly bound with the knees up to the chest, with the feet alongside the hips. Before burial the body appears to have partly decomposed, since the right femur was not in anatomical position despite its close placement against the right side of the body. This suggests there may have been an elapsed period of time between death and burial.

**Burial 2**

No photographs were available of Burial 2, which was determined to be of a middle-aged man (35–45 years), dated to between 1161 and 1224 AD. He was buried approximately 3 m from Burial 1, though slightly deeper; the two radiocarbon determinations for these individuals are very similar. According to the original site description, this was a flexed burial lying on its right side. His arms were bent with his hands on a level with his face. His legs were loosely flexed. Orientation of his body was northwest, with his face to the southwest.

A maxilla and mandible were found in a bag in the same box as Burial 2; however, based on MNI they do not belong to that individual, though they are the remains of an adult.

**Burials 3 and 4**

Burial 3 is dated from 1226 to 1297 AD and was part of a double interment of two individuals less than 5 cm apart. Burial 3 was the body of a young child of indeterminate sex, between 2 and 2.5 years old, lying on his or her right side. The body had slightly rolled forward. The legs were bent

<table>
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<th>Sample Material</th>
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<th>Radiocarbon Years BP</th>
<th>Cal BC/AD (95% range)</th>
<th>Δ13C %</th>
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<tr>
<td>Burnt clay</td>
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<td>10,468±35</td>
<td>10,628 BC to 10,200 BC</td>
<td>-38.1</td>
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<td>Burnt shell</td>
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<td>2486±15</td>
<td>748 BC to 404 BC</td>
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<td>NZA 35556</td>
<td>1121±20</td>
<td>897 AD to 1021 AD</td>
<td>-19.3</td>
</tr>
<tr>
<td>Burial 15 bone</td>
<td>NZA 35819</td>
<td>1106±15</td>
<td>905 AD to 1024 AD</td>
<td>-15.9</td>
</tr>
<tr>
<td>Burial 1 bone</td>
<td>NZA 35555</td>
<td>895±15</td>
<td>1161 AD to 1222 AD</td>
<td>-18.7</td>
</tr>
<tr>
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<td>1496 AD to 1630 AD</td>
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*Table 1* Radiocarbon determinations from Gillman Mound.
Figure 4 Location of burials on the Gillman Mound.
upwards at the hips into a semi-flexed position and were close to fully flexed at the knee, with the feet still in situ. The lower legs were significantly higher than the rest of the body, indicating an uneven floor to the pit at the time of burial. The arms were lying in front of the body, with the elbow fully flexed and hands in front of the face, which faced slightly downwards towards the thorax. The ribs had collapsed into the thoracic cavity but remained in anatomical order with the exception of one upper rib. The latter had moved towards the face due to the weight of the scapula and humerus which, while still in anatomical relation to each other, had collapsed downwards.

The level of collapse associated with Burial 3 suggests that decomposition occurred prior to sand infiltration, indicating that there may have been some covering over the child (in contrast to Burial 4). The level of collapse and the position of the bones indicate that the body had largely decomposed in situ, suggesting that there was probably no significant delay prior to interment.

Burial 4, a very young infant of indeterminate sex, lay at right angles to the back of Burial 3, with its head positioned around 5 cm from the thoracic vertebrae of the older child and at the same level. Burial 4 was largely complete and lying on its left side but had rolled slightly backwards so that both legs were visible from the top. The legs were tightly flexed at the hip joint and at around 45° at the knee, with the right leg lying directly over the left. Burial 4’s arm position was not visible in the photograph, but a written description suggests the arms were flexed at the elbows with the hands up to the face (Hodges 1973). As the bones defleshed they collapsed, though the mandible indicates the original upwards looking position of the face. The ribs have retained some height above the vertebral column, suggesting infiltration of sand into the rib cavity during decomposition, in contrast to Burial 3. Again, there is no real evidence of secondary interment since the bones are in position and the ribs not disordered. This does not rule out one death having occurred before the other, but suggests relatively little time between the two events; interment of Burial 3 took place shortly after that of Burial 4.

Burial 3 was oriented east-west with the head facing to the north-northwest, while Burial 4 was aligned north-south with the original head position to the east in an opposing arrangement to Burial 3. The excavators could not discern the grave pits for these burials, but the close positioning, particularly given that Burial 3 was wrapped, the lack of disturbance and the shared level, suggest a single interment, with Burial 4 possibly being laid down first, since it is on the broadest level surface, while Burial 3 slopes upwards.

**Burials 6 and 7**

Burials 6 and 7 are another paired juvenile interment, located less than 1 m to the east of Burials 3 and 4 at the same depth in the mound (Figure 6). The younger child (Burial 7) was placed in the grave first, with the older child (Burial 6) overlying him or her. Burial 6 returned an age estimate of 1228 to 1287 AD, very similar to that of Burial 3.

Burial 7, a child estimated to be approximately seven years of age at the time of death, was buried on his or her left side, but with the body nearly prone, including the hips. The head was primarily on its left side, with the face angled downwards. The left scapula was visible from the surface and one clavicle was displaced. The arms were flexed, although their original position was unclear. The hips were in situ but the left ischium was disturbed, despite the proximal epiphysis of the femur.
being still in position (it is possible that this movement might have occurred during excavation). The right ilium and ischium also appeared slightly out of anatomical alignment. The left leg was not visible, but the right leg was nearly fully flexed at the hip with the knee also fully flexed, and the tibia and fibula nearly parallel to the femur. Bones of the feet were visible at the end of the tibia and fibula, although their original position was unclear.

Burial 6 was a fully articulated older child who was buried at right angles to Burial 7, with its head lying on the right side of Burial 7’s back (Figure 6). Burial 6 was laid in a semi-flexed position on the right side. The body was slightly prone to the left side, a position accentuated by decomposition. The dorsal left ilium was visible and still in articulation, indicating that the prone position was deliberate. The legs were bent at approximately 90° at the hip (the left one slightly more than the right), with the knees flexed at ca 45°, and the feet still articulated and positioned at right angles to the ankles. The ribs had collapsed completely flat, suggesting limited or no sand infiltration before this occurrence; this is most likely to have occurred if the body was clothed or wrapped. The knees were at a higher level than the rest of body, suggesting again that the pit had a sloping floor.

While Burial 6 was aligned to the north-northwest, with the head facing east, Burial 7 was aligned at right angles to Burial 6, with the body lying west and the face oriented towards the south. An adult tooth, left distal fibula and first left metatarsal were found in the same box as Burial 6, probably as the result of post-excavation mixing.

**Figure 6** Burials 6 and 7 showing the opposing positions of these two children.

**Burial 10**

Burial 10 was the only other undisturbed individual, this being a young adult woman (25–30 years), buried on her left side in a fully flexed position. Her body was aligned to the north with her face to the southeast. Her head and shoulders were lower than her hips and her body was twisted slightly so that her left knee was lower than the right. Her legs were fully flexed at the hip with her feet between her thighs. Her feet appeared to be at 90° to the ankles. The right femur had disengaged from the hip socket prior to, or at the time of, interment. Her arms were brought up close to shoulder height and flexed at the elbows so that her hands cradled the back of her head. Her left hand was in situ, though her right hand had slipped. Her head was lying on its left side and tipped downwards towards her chest. One right rib had become separated from the vertebral column and was lying upside down in the abdominal cavity.

Burial 10 appears to have been the secondary burial of a wrapped woman’s body. Some disarticulation (e.g. of the rib and right femur) occurred before final burial; however, given that the left hand and the feet were in their anatomical positions, there could only have been very limited decomposition prior to interment (the slippage of the right hand can be accounted for by its unstable position balanced on the head).

**Burial 12**

Burial 12, dated from 1229 to 1382 AD, comprised the highly fragmentary, very partial remains of a probably male adult recovered from the lower layer of clean sand, whose original position was partly visible from the cranium. These remains consisted only of the skull and humerus. The body was found with the head lying on its left side. It appears that the right arm was flexed at the elbow and lying under the head (in a similar
position to that of Burial 10). The skull was surrounded by an organic matrix suggestive of a bark sheath. The head was oriented to the east-southeast, with the face looking to the south-southwest.

Also labelled Burial 12, though clearly not from the same individual, was the left femur of a child aged around 6–10 years. This bone had signs of scorching on the surface.

**Other Burials**

The remaining burials were all disturbed, so there is no information about their original positions.

Burial 8 was a child aged between 3–6 years. This burial was eroded and there is no detail regarding its position, though, according to the field notes, it was found lying on its left side.

Burial 9 comprises remains assigned to a minimum of three adult individuals. One is the single femur of an adult male disturbed by the bulldozing of the site; however, unlike the other Gillman Mound remains, this bone was unstained, suggesting it had originated from an off-mound location (as with the Wingfield remains). The other two adult burials were of a near complete young adult woman, and the right foot of another adult.

Burial 9a comprises two sets of remains (9ai and ii), recovered from an unknown position in the mound. One set of remains are fragments of a cranium and deciduous teeth which derive from a child aged around 18 months. A second child is represented by some phalanges, metacarpals and metatarsals. The degree of epiphyseal fusion means this child was around 10–15 years of age at the time of death. Neither of these sets of remains can be attributed to any of the other juvenile burials already described.

Burial 11 is represented by a complete adult sacrum and left temporal and part of an occipital bone. These disarticulated remains were recovered from the south trench in Layer 1, Zone 2.

Two disarticulated assemblages of bones from the mound, in close proximity but discrete (according to the field notes), were labelled as Burials 13 and 14. Burial 13, to the east, comprises the ribs, vertebrae, calcaneus, right scapula and proximal left humerus of a probable adult female. Burial 14, to the north, comprises a left innominate, femur, patella and calcaneus, with the skull sitting base down alongside the femur. This individual is estimated to be a young to middle-aged (i.e. 25–35 years) adult male.

The three completely disarticulated burials on the site (Burials 13, 14 and 15) appear to have been redepotted, and it is impossible to determine whether they were originally primary or secondary burials.

General characteristics of the burials, including the Wingfield series, are summarised in Table 2.

**Gillman Demographics**

It is possible to compare the age and sex distribution of the Wingfield series with those from Gillman (Table 3). At Gillman, infants represent 25% of the total number of children (i.e. individuals <17 years), which reflects the high proportion of deaths that occur within the first year of life in most populations. Overall, subadults represent more than one-third of the total number of individuals buried in Gillman Mound though, given the generally poor state of subadult preservation, this is obviously a minimum percentage. The differences to the Wingfield series show how insecure such estimates are, since the conditions of recovery markedly affect how many subadults were recovered and recorded.

While in the Gillman Mound site there is equal representation of males and females, males outnumber females in the Wingfield series. This preponderance of males to females has been noted in numerous accounts of Aboriginal burial sites and has been attributed to both problems in the identification of sex (Donlon 1998) and to burial practices (Littleton 1998). Again, issues of sample size and preservation clearly have a role and it is apparent in both series that women of every age group are represented, in contrast to the situation in some areas where older women were typically absent (e.g. Donlon 1998; Ellender 1999; Littleton 1998).

Given that individuals of all ages and both sexes were buried at Gillman Mound, albeit in age specific and possibly gender specific ways, the local burial practices appear to have been inclusive.

**Burials and Occupations at Gillman**

The radiocarbon dates suggest a temporal separation of the burials from later occupation of at least five or more generations. However, there are several indications that people living and using the mound later were aware of the existence of burials: Burial 12 has small patches of scorching on the left femur, while Burial 15 is weathered, indicating surface exposure prior to its reburial. In addition, the unstable deposit and the mixing of deposits around the burials suggests that people would have been aware of at least some of the burials. There may be a temporal factor at work here, with any reluctance to camp near a burial place being offset by the loss of memory of relationship.

The area was used after European settlement of Adelaide: Pretty collected reports of a pig farm having been in the area, and lime mortar bricks were found on the site, as well as pieces of rusted metal (Hodges 1973). This evidence was centred on the southeast quadrant where the series of disturbed burials (8, 13, 14 and 15) were found. The collection of remains and their reburial upon a piece of tin is a reminder of the interactions between people and the long dead. The bulldozing and subsequent destruction of burials in the 1960s and 1970s is also a reflection of a set of attitudes towards Aboriginal remains. There are accounts elsewhere of European reburial of Aboriginal remains (Littleton 2007a), as well as accounts of Aboriginal people reburying European remains (John Hodges unpub. data) and this remains a little explored area of interaction and exchange between the two groups.

**Site Usage**

Since the site has been subject to erosion and disturbance, particularly in the area of Burials 9 and 12 (in the northwest of the southwest quadrant), the number of individuals recovered represents the minimum number ever buried at the site. However, the dates do not suggest any spatial succession, so that it is possible to assume a coherent burial phase for the site. This makes it possible to explore the relationship between individual burial events and the site as a whole.

The physical contact between Burials 6 and 7 without disturbance of the lower body indicates a simultaneous interment. The close horizontal and vertical position of Burials 3 and 4 also suggests a single interment. It is possible that the two
children labelled as Burial 9a were also a single interment. This means there were 19–21 possible burial events on the site. There are two possible interpretations: an average of one interment per generation or, possibly, increased usage over time if we assume that the paired burial dates and the date for Burial 12 indicate clustering (Figure 3). The radiocarbon determinations do not allow for either of these two alternatives to be rejected. However, they do rule out use within only one or two generations and thus any notion that this site would represent all burials within a social group over a short period of time. A group of 10 individuals, for instance, with a generation length of between 20–30 years, would result in 33 to 50 bodies within 100 years. The nearby mound site of Greenfields (Figure 2) contained 15 burials and it is hypothesised that this was also a cumulative deposit rather than representing a short-term intensive use for burial (Vivienne Wood pers. comm. 2010). Whether this is true for all mounds containing burials needs testing through dating of individual burials and of the deposit.

Hunter-gatherer burial places are often dichotomised as either unique locations where burials have no relationship to each other apart from chance or convenience, or exclusive cemetery locations (Pardoe 1988; Woodburn 1982). In an analysis of hunter-gatherer burial beliefs, Binford (2004) suggested ‘family locations’ as an intervening level. However, at Gillman the number of burials

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<td>F mid–old adult</td>
<td>Semi-prone, fully flexed</td>
<td>R</td>
<td>NW</td>
<td>SW</td>
</tr>
<tr>
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<td>L</td>
<td>SW</td>
<td>SW</td>
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<td>10–12 years</td>
<td>Semi-flexed</td>
<td>L</td>
<td>SW</td>
<td>NE</td>
</tr>
<tr>
<td>7</td>
<td>7–8 years</td>
<td>Semi-flexed</td>
<td>R</td>
<td>NW</td>
<td>SW</td>
</tr>
<tr>
<td>8</td>
<td>3–6 years</td>
<td>Disturbed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9ai</td>
<td>1–2 years</td>
<td>Disturbed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9a</td>
<td>10–15 years</td>
<td>Disturbed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>F young adult</td>
<td>Bundle, fully flexed</td>
<td>L</td>
<td>W</td>
<td>NW</td>
</tr>
<tr>
<td>11</td>
<td>Adult</td>
<td>Disturbed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>M? adult</td>
<td>?</td>
<td>L</td>
<td>ESE</td>
<td>SW</td>
</tr>
<tr>
<td>13</td>
<td>Adult</td>
<td>Disturbed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>M young adult</td>
<td>Disturbed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>M mid-adult</td>
<td>Disturbed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**No Definite Location on Mound**

|        |        |                  |      |                   |                   |
| 9b      | Y adult female | Disturbed      |      |                   |                   |
| 9c      | Adult     | Disturbed      |      |                   |                   |
| 9       | Adult     | Disturbed (Wingfield?) |      |                   |                   |
| 6b      | Adult     | Disturbed      |      |                   |                   |
| 2a      | Adult     | Disturbed      |      |                   |                   |
| 12a     | 6–10 years | Disturbed      |      |                   |                   |

**Wingfield**

| 57762a  | F mid-adult | Complete individual |
| 57762c  | F young adult | MNI based on scattered long bones and innomimates |
| 57762d  | M old adult  | MNI based on assorted elements |
| 57763   | F 25–35 years | Innominates and skull |
| 57764a  | M 25+ years  | Long bones plus some vertebrae, r. clavicle |
| 57764b  | M 35–45 years | Femoral head, innominate, r. clavicle |
| 57764c  | M 35–50 years | Cranium |
| 57765   | F? 20–30 years | Near complete |
| 57766   | ? 15–18 years | Jaws and long bones |

Table 2 Summary of the Gillman Mound burials and the Wingfield series.
and their spacing suggests that, even at a family level, members of that group must have been buried elsewhere at the same time the mound was in use. The lack of occupation during the burial phase of the site, however, suggests exclusivity of use for burials during those 300–500 years. So, at any one time multiple places were being used for burial. But, if this site is only one of many, then what factors caused particular bodies to have been buried here? This question can be analysed further by examining the particular modes of burial in use at the site.

Continuity and Discontinuity

Site Continuity but Local Diversity in Position?
There is a degree of continuity shown in the burials from Gillman. Common to all is an inclination to a range of flexed positions and a tendency to place the bodies partially prone. Often the body had been turned so that it lay chest down, with the head similarly oriented downwards either into the earth or towards the lower body—no individual was buried supine and face up. The distinctiveness of what may appear to be minor changes in bodily position should be noted. The comparison of burials in the central Murray River and Riverine Plain pointed to how burials located close to each other shared similarities in hand placement, contrasting to those at greater distances (Blackwood and Simpson 1973; Littleton and Allen 2007). Many burial analyses elsewhere have also pointed to the significance of what may seem to be minor details in position (e.g. Pader 1982; Roksandic 2002).

In the Adelaide region there are relatively few detailed records of excavated burials thus far (though publication of the Seaford burials will extend this considerably) and the historic accounts tend not to refer in detail to bodily positions (e.g. Gara 1989). However, descriptions by Hale (1926) and Tindale (1926) showed that a face down tendency was not observed in all burials on the Adelaide Plains, suggesting a particular connection (whether temporal, spatial or social) between the burials at Gillman.

Local Continuity: Burials and Delay
This analysis suggests that many of the Gillman burials were wrapped prior to burial. This is apparent in the movement of elements within the body cavity prior to sand infiltration, rather than simply the tightness of any flexion (Duday 2006; Nelson 1998; Roksandic 2002). The finding corresponds to the historic accounts of burials from the Adelaide area, which detail the wrapping of bodies in skins, clothing and nets (Cawthorne 1844 as reprinted in Foster 1991:45; Gara 1989, 1998; Moorhouse 1843; Stephens 1889; Wyatt 1879), as well as archaeological finds, such as the burial at Kongarati Cave (Hale and Tindale 1930).

Most historic and ethnographic accounts of burials emphasised the importance of an inquest within Aboriginal society, where sudden death is almost always attributed to sorcery (Berndt and Berndt 1964:406–409; Teichelmann and Schurmann 1840:51; Wyatt 1879), as the reason for a delay between death and final burial (Cawthorne 1844 in Foster 1991:50; Moorhouse 1843). The periods of time mentioned vary, from a period of several days (Moorhouse 1843:58) to months (McPherson as cited in Garra 1989:47). Around Encounter Bay, 100 km to the south, these longer periods of time were associated with desiccation through exposure to the sun or smoking or middle-aged or important individuals (e.g. Gill 1908; Moorhouse 1843). Gara (1998) has published a detailed account of the burial in 1845 of Mullawirraburka (King John) at Noarlunga which involved desiccation.

Most of the burials at Gillman show no signs that burial had been substantially delayed after death. The exceptions to this were Burials 1 and 10, which appear to have been interred after partial skeletonisation had occurred. The articulation of the hands and feet indicate the bodies of these two women were

<table>
<thead>
<tr>
<th>Age</th>
<th>Years</th>
<th>Number</th>
<th>Male</th>
<th>Female</th>
<th>Number</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant</td>
<td>0–1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Young child</td>
<td>2–5</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child</td>
<td>6–10</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adolescent</td>
<td>11–17</td>
<td>2</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
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<td>18–30</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>7</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Middle adult</td>
<td>30–50</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Old adult</td>
<td>50+</td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Adult</td>
<td>unknown</td>
<td>7</td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>22</td>
<td>4</td>
<td>4</td>
<td>16</td>
<td>11</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 3 Age and sex distribution of the Wingfield series and Gillman Mound remains.

<table>
<thead>
<tr>
<th>Age</th>
<th>Years</th>
<th>%</th>
<th>Male</th>
<th>Female</th>
<th>%</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant</td>
<td>0–1</td>
<td>9.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Young child</td>
<td>2–5</td>
<td>9.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child</td>
<td>6–10</td>
<td>9.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adolescent</td>
<td>11–17</td>
<td>9.1</td>
<td></td>
<td></td>
<td>6.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Young adult</td>
<td>18–30</td>
<td>13.6</td>
<td>25</td>
<td>50</td>
<td>43.7</td>
<td>36.4</td>
<td>75</td>
</tr>
<tr>
<td>Middle adult</td>
<td>30–50</td>
<td>13.6</td>
<td>50</td>
<td>25</td>
<td>37.5</td>
<td>45.5</td>
<td>25</td>
</tr>
<tr>
<td>Old adult</td>
<td>50+</td>
<td>4.5</td>
<td></td>
<td>25</td>
<td>6.3</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td>Adult</td>
<td>unknown</td>
<td>31.8</td>
<td>25</td>
<td></td>
<td>6.3</td>
<td>9.1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100.0</td>
<td>100</td>
<td>100</td>
<td>16.0</td>
<td>100.0</td>
<td>100</td>
</tr>
</tbody>
</table>
tightened wrapped, but, in each, one femora was disarticulated and lying in a position not able to be accounted for by in situ decomposition. In the case of Burial 1 somebody placed the displaced femur tightly in with the bundle, suggesting rewrapping prior to the final burial. These two women share a pattern of disarticulation (although this is more advanced in Burial 1 than Burial 10); the vertebrae have broken into segments and the ribs are displaced from the vertebrae. These are joints which tend to be among the first to disintegrate, suggesting only a moderate degree of disarticulation (and hence time) (Duday 2006). The disarticulated proximal femora seems inconsistent with this, since the ligament attaching femora to hip is tough and the whole joint is surrounded by muscle tissue. There are no signs on either of the remains having been exposed to the sun or cracking due to heat, nor of cut-marks or other evidence of defleshing which might explain the position of the femora. However, the displacement in these individuals corresponds to Nelson's (1998:206) account of a Peruvian burial, where the 'right leg had been rotated laterally popping the femoral head out of the acetabulum'. This is possible when there has been sufficient decomposition so that pressure on the femur (a long strong bone) can result in levering it out of the hip socket despite the presence of connective tissue.

Determining the delay between death and burial is difficult, particularly where smoking or desiccation causing partial mummification may have been involved. Galloway et al. (1989) reported that, in the arid environment of the Sonora Desert, mummies can form within 11 days, but a more common estimate is between a month and a year (e.g. Nelson 1998). The degree of disarticulation in Burials 1 and 10 therefore suggests a delay before inhumation between 11 days post-mortem to months. Colin Pardoe (pers. comm. 2011) has suggested that this delay could reflect a pattern of female exogamy where, in death, women are brought back to their Country. However, this clearly does not apply to all women, since one of the earliest burials on the site is a female primary burial. On the other hand, there is a parallel in this with the burial of a woman at Kongarati Cave (Hale and Tindale 1930) and Adam's (1902:9) description of people carrying Mullawirraburka's wife for a fortnight before burial. Bringing bodies back to Gillman Mound would suggest the importance of an association with this location, but again the question of importance to whom arises, since it is clearly not the only place in use.

Continuity for Children?

Children at Gillman were treated distinctly from adults. Moorhouse’s (1843:57) account of Kaurna burials was explicit that the burials of young children were delayed:

Children under four years old are not buried for some months after death; they are carefully wrapped up and carried upon the back of the mother in the day and at night serve as a pillow, until they become quite dry and mummy like. They are then buried, but with what ceremony, I don’t know, as I have not witnessed it.

Neither Moorhouse, nor other writers of the time, provided information on the significance of the places where children were buried (e.g. Cawthorne 1864 in Foster 1991:87).

It is hard to determine whether any time delay occurred prior to the burials of children at Gillman, as their remains are more poorly preserved than those of the adults. It does appear possible that Burial 7 was delayed relative to Burial 6 (suggested by possible disarticulation of the feet and around the hip) and, just possibly, Burial 4 was delayed relative to Burial 3 (based on poorer preservation of the smaller bones). In both of these pairs there was evidently only a small time delay between the two deaths. There is also very little evidence of disarticulation. One of the characteristics noted when corpses are transported is a pattern of mixing of the thoracic elements (Brothwell 1987; Fawcitt et al. 1984; Nelson 1998). Among the children at Gillman there is no such evidence, thereby suggesting that a period of days to months, rather than years, occurred between death and burial, in contrast to the historical accounts provided by Moorhouse and others.

At Gillman, children aged up to 12 years of age were buried with another child and, at least for the two instances here, the bodies were laid at roughly 90° to each other, lying on opposite sides. The other published account of a child burial from the Adelaide Plains is of an infant buried with an adult (Hale 1926).

Accounts of Kaurna life emphasised the role of circumcision in the development of boys to men around this age, so age-related changes in role involved more than that one ceremonial sphere (e.g. Cawthorne 1864 in Foster 1991:80; Gara 1989; Moorhouse 1843). However, it is not clear if, like the children under four years of age (Moorhouse 1843:58), they were carried by the mother, or left somewhere until they could be buried with the appropriate person; at Gillman this person could be another child. These paired burials of children may be part of a larger, more widespread practice, or much more constrained in time and place. More analyses of burials are needed before that possibility will be able to be determined.

The Local Picture: Continuity and Discontinuity

This is a preliminary attempt at examining local continuities and discontinuities and is limited by the lack of comparative data, which will come with the publication of other sites in the region, such as the Greenfields site (Wood et al. n.d.). Broadly, the pattern of burials at Gillman is consistent with other sites or accounts from the Adelaide Plains: wrapping of burials, bundled burials of some women and differential treatment for children. But there are also apparent discontinuities: the very specific positioning of the bodies at Gillman, the age specific patterns for children and the opposing positioning of children. At this stage the discontinuities could be the result of local contingencies associated with the use of the Gillman Mound or a more patterned spatial diversity. In comparison, the differences with the neighbouring areas of the Coorong and Murray River are much more apparent.

Regional Discontinuity

The record of burials at Gillman differs in several significant ways from burials excavated along the Murray River (which are not monolithic) and the Coorong. In contrast to the Murray, there is clear evidence of occupation at the Gillman site which post-dates its use for burial. It is further argued that those occupying Gillman were aware of the human remains, suggesting a different attitude to the dead, or at least the long dead. Also suggestive
of a different attitude toward death is the burial of the children. The burial of a child with another child, and the deliberately opposing orientations, may be a practice that was confined to a short timeframe or a particular place, but the Gillman record stands in contrast to the Murray records. Along the Murray and further up into the Lachlan River Valley, the delayed burial of children, which may have involved prolonged periods of time, was a process of waiting until an appropriate adult had died with whom they could be buried (Musgrave 1930). There is a notion here of burying a child with someone who has power—not necessarily ultimate or even specialised power (see Hope 1998; Witter et al. 1993) but, at the very least, the power of an adult. At Gillman children were buried with another child, perhaps suggesting company, not protection, may have been the aim. Power does not seem to have been in play here.

Another contrast with the Murray River is in what aspects of burial were significant. It has been pointed out elsewhere how direction of the corpse matters among many Aboriginal groups (e.g. Littleton 2007b; Pardoe 1988, 1995). Along the Murray, bodies buried close to each other mimic direction (and position) to the extent that it has been suggested that place plays a role in determining that relationship (Littleton 2007b). At Gillman the opposite occurs: diversity is not of position but of direction, sometimes in the form of binary oppositions (seen so clearly in the children). Gillman as a place for burial was inclusive of that difference, but does this mean that direction was not significant, or that people who should be buried facing different directions were placed in the same place?

The idea that people of multiple social categories were buried at Gillman is suggested by the discovery among the Wingfield remains of a young male with an avulsed upper incisor—an initiation practice recorded along the Murray River but not for the Adelaide Plains, where circumcision was recorded (Barker 1975; Brown 1978; Campbell 1981; Davidson 1928). Further analysis of these burials in relation to their osteobiographical details may help clarify how much variation in terms of lifestyle these people encompassed (Hoare 2012; Littleton and Scott in press).

Such contrasts with the Murray should be expected given ethnohistoric accounts detailing differences in cultural practices and beliefs between the two areas. The burial record for Gillman serves to suggest that some of those differences are, unsurprisingly, to do with conceptions of death and the dead.

While there is evidence amongst at least some of the individuals at Gillman for secondary burial, there is no evidence of the very elaborate set of circumstances surrounding death recorded among people from Encounter Bay and the Coorong (Angas 1847; Meyer 1879; Moorhouse 1843; Taplin 1879). This too would be consistent with the ethnohistoric record, but the difficulty is the extent to which ethnohistoric accounts are reflective of the entire range of burial practices in use at any one time, and how representative the archaeological record is of that range. Nevertheless, as Moorhouse (1843:57) noted, ‘Each tribe has its own method of disposing of the dead. It can be assumed as a corollary that each tribe had its own set of ideas about what death meant.

Conclusion

This analysis throws light on relationships between the individual circumstances surrounding burials and the longer-term patterning they represent in the archaeological record. The Gillman Mound contained bodies buried in accordance with a series of regular practices but included diversity: primary and secondary burials, multiple burial orientations and possibly individuals from elsewhere. The use of the site was episodic but not casual. It points to spatial or temporal discontinuities across the Adelaide Plains, though the sample is not sufficiently large, nor is there enough comparative material, to answer those questions. At the moment it stands as a notice that we must, in our excavations, pay careful attention to the dead not just as a matter of respect, but also because it is in the small details (such as burial position or orientation) that answers to important questions might be found.

Acknowledgements

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References


Burials and time at Gillman Mound, northern Adelaide, South Australia


Hale, H. 1926 Some Aboriginal graves at Adelaide, South Australia. South Australian Naturalist 8:11.


Taplin, G. 1879 The Folklore, Manners, Customs, and Languages of the South Australian Aborigines: Gathered from Inquiries made by Authority of South Australian Government. Adelaide: E. Spiller, Acting Government Printer.

Teichelman, C. and C. Schurrmann 1840 Outlines of a Grammar, Vocabulary and Phraseology of the Aboriginal Language of South Australia Spoken by the Natives in, and for Some Distance around Adelaide. Adelaide: Robert Thomas and Co.

Tindale, N. 1926 Native burial at Pedler’s Creek, South Australia. South Australian Naturalist 8:10.


Witter, D., R. Fullagar and C. Pardoe 1993 The Terramungamine Incident: A...

