The *Journal of the Anthropological Society of South Australia* is the official publication of the Anthropological Society of South Australia. It is a refereed journal that has been published since 1963. A list of recent peer reviewers can be found on the Society’s website [http://www.anthropologysocietyasa.com](http://www.anthropologysocietyasa.com). The journal primarily provides a forum for researchers of Indigenous Australian anthropology, archaeology, history and linguistics although broader topics related to all of these disciplines may also be included.

Contributions accepted include: articles (5000-8000 words), short reports (1000-3000 words), obituaries (500-2000 words), thesis abstracts (200-500 words) and book reviews (500-2000 words). Notes to contributors are available through the Society's website.

Should you wish to submit a paper to the journal please direct your enquiries to the secretary of the Anthropological Society of South Australia (current contact details can be found on the Society's website).

The journal is free for current members of the Anthropological Society of South Australia. Subscription application/renewal forms are also available through the Society’s website.

**Anthropological Society of South Australia Committee**

President: Dr Keryn Walshe (South Australian Museum)
Secretary (Webmaster/Listserve Manager): Dr Amy Roberts (Flinders University)
Treasurer: Mr Tom Gara (Native Title Section – Crown Solicitor’s Office – South Australia)
Councillor: Professor Peter Sutton (University of Adelaide/South Australian Museum)
Councillor: Dr Alice Gorman (Flinders University)
Councillor: Mr Kim McCaul
Councillor: Mr Chris Nobbs (South Australian Museum)
Councillor: Ms Caroline Rola

The views expressed in this journal are not necessarily those of the Anthropological Society of South Australia or the Editors.

© Anthropological Society of South Australia 2012

ISSN1034-4438
# TABLE OF CONTENTS

**Editorial**  
*Amy Roberts & F. Donald Pate*  
ii

**ARTICLES**

Stable Isotopes and Dietary Composition in the Mid-Late 19th Century Anglican Population, Adelaide, South Australia  
*F. Donald Pate and Timothy J. Anson*  
1

New Approaches to the Archaeological Investigation of Culturally Modified Trees: A Case Study from Western Cape York Peninsula  
*Michael Morrison, Emily Shepard, Darlene McNaughton and Kathryn Allen*  
17

Stable Carbon and Nitrogen Isotopic Analysis of Skeletal Remains from Azapa 71 and Pica-8, Northern Chile: An Assessment of Human Diet and Landscape use in the Late Holocene  
*Bianca Petruzzelli, Amy Roberts, F. Donald Pate, Calogero M. Santoro, Todd Maddern, Chris Carter and Michael C. Westaway*  
52

**SHORT REPORTS**

Characterisation of Ochre Sources in South Australia by Neutron Activation Analysis (NAA)  
*Rachel S. Popelka-Filcoff, Claire E. Lenehan, Keryn Walshe, John W. Bennett, Attila Stopic, Philip Jones, Allan Pring, Jamie S. Quinton and Andrew Durham*  
81

Geophysical Investigations of the Tabernacle (Yilki) Cemetery, Encounter Bay, South Australia  
*Jon Marshallsay, Ian Moffat and Alice Beale*  
91

**ABSTRACTS**  
104
EDITORIAL

Welcome to this special edition of the *Journal of the Anthropological Society of South Australia*. In this issue we aim to focus our attention on recent archaeological science projects that have either been conducted in South Australia or carried out by South Australian researchers. In publishing these papers we demonstrate the extraordinary diversity of research that is conducted in the State. We also aim to show how such research can be of value to community groups in the ongoing management of their heritage.

The edition begins with a paper by Pate and Anson which investigates early colonial South Australian diets by employing a stable carbon and nitrogen isotope analysis. A subject that has received little attention from archaeological scientists.

Morrison *et al.* report on the unique techniques they have been applying in their comprehensive efforts to further understand culturally modified trees in western Cape York Peninsula.

Petruzzelli *et al.* then highlight the diversity of projects currently undertaken by South Australian researchers (and their interstate and international collaborators) in their paper which assesses the diet of past Chilean populations – also through the employment of a stable carbon and nitrogen isotope analysis.

Following the major articles we have also included a number of short reports and abstracts that further serve to illustrate the range of archaeological science projects currently being undertaken by South Australian researchers. These projects employ techniques such as Neutron Activation Analysis (NAA) to pyrolysis gas chromatography mass spectrometry and Ground Penetrating Radar (GPR) just to name a few!

We hope that the publication of all of these papers provide researchers with new information and inspiration to continue their archaeological science efforts in South Australia.

*Amy Roberts and F. Donald Pate*
STABLE ISOTOPES AND DIETARY COMPOSITION IN THE MID-LATE 19TH CENTURY ANGLICAN POPULATION, ADELAIDE, SOUTH AUSTRALIA

F. Donald Pate¹ and Timothy J. Anson¹,²

¹ Department of Archaeology, Flinders University, Adelaide, SA 5001, Australia
² Department of Anatomical Sciences, University of Adelaide, Adelaide, SA 5005, Australia

Abstract

Analyses of faunal remains from archaeological excavations and historical documents indicate that the protein component of colonial South Australian diets was dominated by meat (beef and mutton) and marine foods (fish and shellfish). Stable carbon and nitrogen isotope analysis of human bone collagen is employed to determine the relative proportions of terrestrial versus marine protein in the diets of a mid-late 19th century working class Anglican community in Adelaide, South Australia. The bone collagen isotope values for St Mary's cemetery population indicate that the average protein component of the adult diet consisted of approximately 60% terrestrial meat (e.g., beef, mutton), 32% seafood (e.g., fish, shellfish), and 8% terrestrial vegetation (e.g., wheat, barley). On average, adults in the sample had similar diets in relation to protein composition. More positive stable carbon (+ 0.3‰) and nitrogen (+ 0.5‰) isotope values in males suggest that they ingested greater quantities of seafood than did females, but the difference was small, i.e., only 3-5% more seafood. Elevated nitrogen isotope values (+ 1.7‰) in infants relative to adult females suggest that breast milk was a principal component of infant diets.

Introduction

Most stable isotope research addressing past dietary composition has focused on prehistoric populations (Budd et al. 2003; Katzenberg 2000; Pate 1994, 2008; Schoeninger and Moore 1992; Sealy et al. 1995). However, stable isotope analysis of skeletal remains has the potential to make significant contributions to studies addressing dietary variability and behaviour in historical populations (Cox et al. 2001; Cox and Sealy 1997; Schurr 1998; Sparkes 2009; Vanderpool 2011; Varney 2007). Isotopic data provide quantitative information regarding individual dietary composition that is difficult to
obtain from conventional archaeological methods. Consequently, the combination of data derived from stable isotope research and historical documents should improve archaeological inferences concerning past diet and subsistence behaviour.

The plant and animal foods consumed by humans are digested and the amino acids released from dietary proteins are used to construct new proteins in order to maintain various tissues in the human body, e.g., skin, fingernails and bones. Consequently, these human body tissues have a similar chemical composition to the foods consumed. Archaeologists and physical anthropologists have employed chemical analyses of ancient human bones and teeth to reconstruct past human diets (Pate 1994; Katzenberg 2000; Schoeninger and Moore 1992; Sealy et al. 1995). As teeth are chemically inert after initial formation, they provide an indication of average dietary patterns during childhood. In contrast, bones are continuously remodelled during the lifetime of an individual and their chemical composition is generally used to address long-term dietary averages or adult dietary patterns. The stable carbon and nitrogen isotope composition of the bone protein collagen may provide information about the consumption of marine versus terrestrial foods, the use of different types of plant foods, and the ingestion of foods from different trophic levels (e.g., plant foods versus animal foods or herbivory versus carnivory).

This paper employs stable carbon and nitrogen isotope analysis of bone collagen to examine dietary composition in a mid-late 19th century colonial South Australian population. Inferences about past human dietary composition are made by comparing isotope results for faunal bone with isotopic data for skeletal remains recovered from the ‘pauper’ or ‘free-ground’ section of the St Mary’s Anglican cemetery in Adelaide (for location see Figure 1). Because there is limited information recorded in historical documents about the diet of the poorer classes of society in colonial South Australia, stable isotope data provide an important method to investigate dietary composition and variability in these social groups. In addition, stable isotopes complement historical documents and archaeological faunal studies by providing quantitative data regarding the relative proportions of terrestrial versus marine protein in colonial diets.
European Settlement of South Australia
The establishment of the colony of South Australia was seen as an experimental opportunity to create a society unaffected by the social problems experienced in Britain via the promotion and encouragement of civil and religious liberties. Strict emigration policies were implemented with the intention of attracting segments of the English population who had the funds to invest and the will to work (Linn 1993).
Edward Gibbon Wakefield (born in London in 1796) proposed a system of assisted migration as an answer to the increasing rates of poverty experienced in England. Problems associated with the poor and the implementation of the 'pauper policy' in England had a major influence on plans associated with the establishment of the colony of South Australia. In order to prevent the colony from becoming a dumping ground for England's poor and destitute, South Australian colonists would be restricted to the labouring class and wealthy capitalists, each reliant on the other for further prosperity. Furthermore, the British government was explicitly denied access to the colony for the purpose of transportation of convicts (Dickey 1986).

The *South Australian Act of 1834* implemented Wakefield's plan and emigration of colonists to South Australia commenced in 1836. By 1840 the South Australian population had reached 14,630 and it climbed to 109,917 by 1857 (Pike 1967; Richards 1989). In an attempt to attract members of the English working class, numerous publications painted a rosy picture of life in the colony. The following excerpt from a book by Henry Capper (1838:72), senior clerk to the Colonisation Commissioner, provides an example of the promotion of life in South Australia:

> Numerous labourers, who are suffering from cold and hunger, should be informed that instead of being looked upon as a burden on their respective parishes, they may secure a free passage to another land peopled by their own countrymen, where their value would be appreciated; where they may be certain of high wages; in a salubrious climate, that will require so little fuel and clothing as to leave their earnings as almost clear gain, and which will enable them to secure their own independence, and the prosperity of their children's children.

Despite the optimistic goals of the Wakefield plan, soon after the proclamation of the colony in 1836, the Emigration Agent, responsible for the welfare of assisted migrants, reported the expenditure of large sums of money to provide rations and work for destitute people who had recently arrived at the colony. By the late 1840s the situation had deteriorated to such a point that a Destitute Board was appointed to process applications for assistance and to monitor the conduct of the Destitute Asylum, which was established in 1852. In addition, a system of relief for
the poor, covering the whole colony, was implemented at this time (Dickey 1986). It is clear that despite best intentions, a social underclass dependent on the state for survival, developed from the very beginnings of the South Australian colony.

Government assistance also extended to those who could not afford to bury their dead. Clearly, those who were unable to buy themselves food or provide themselves with shelter were even less likely to be able to pay for a funeral for a deceased family member. As a result, colonial authorities provided access to a government burial service for the destitute (Nicol 1985, 1994). In 1839, Charles Balfour Elphinston won one of the earliest tenders provided by the government for “undertaking the interment of deceased pauper emigrants” (Nicol 1985:5).

**The Anglican Church of St Mary**

Some of the first colonists to be granted land in the St Mary’s area were John Wickham Daw (October 1838), Alfred Weaver and Henry Watts (June 1839) as well as Frederick Mitchell for Colonel George Wyndham (December 1839). John Wickham Daw donated the land for the establishment of the church, two one acre bequests, by means of conveyances to the Bishop of Australia and successors (Dolling 1981). The church was named after Daw’s parish church in England, the 12th century church foundation of St Mary Abbots, Kensington, London.

The Anglican Church of St Mary is located at 1167 Main South Road in the suburb of St Marys, 8km south of the city of Adelaide. The original church was an iron-bark timber building and was established in 1841. It seated 100 people and was also used for a day school and Sunday school. An indication of the population level for the surrounding countryside is derived from the fact that the Sunday school commenced with 27 children and reached 60 a year later.

Due to flooding associated with the low-lying area of the church, it was relocated 200m to the south at its present location in 1846. The burial of parishioners in the new church grounds commenced almost immediately following the relocation of the church.
The first burial at St Mary’s took place on 19 November 1847 before the cemetery had been consecrated. The construction of the new church building commenced on 27 October 1846 and was not completed until 1848. Bishop Short consecrated the church grounds on 11 March 1849. The original church building was used as the schoolroom for the local district, but was eventually demolished in 1928 (Anson 2004; Jose 1937; Pate 2006).

Church records provide details regarding who was buried, their age at death and when they died, but do not include information about the location of individual burial pits within the ‘free ground’ (Anson 2004; Edwards 1954). Oral evidence provided by Mr Gordon Ragless (born 1909), interviewed on the 30th of March 2000, a parishioner at St Mary’s during his entire life, indicates that there was no evidence of burial markers of any kind in the study area approximately 80 years ago. Indeed, Mr Ragless expressed surprise when informed of the possibility of burials in this part of the churchyard.

At its foundation, St Mary’s church was located in a quiet and remote rural setting established to service the village of Marion. The church would have been the largest feature on the landscape and a centre of focus for most of the village residents (see Figure 2). Indeed, one visitor to the church in its early days described it as “a lonely building in the centre of a large but thinly populated district” (Jose 1937). With the advance of time, the surrounding paddocks and eventually the village itself were engulfed by the suburban sprawl of the city of Adelaide. The extensive grounds surrounding the church provided ample space for the burial of parishioners. In death as in life, however, all people were not treated equally resulting in a distinct physical separation between the various social classes within the church burial ground.
Dietary Composition in Colonial South Australia

According to Santich (1995) eating habits are the last to be dropped or modified when people immigrate to a new country. English emigrants to Australia were no exception and 19th century Australians continued to follow the English style of cooking, meal structure and prejudice against other forms of food use and preparation.

Historical descriptions and reviews of 19th century colonial Australian dietary composition document the presence of considerable amounts of animal protein in the average diet. In fact the amount of meat eaten by Australians in 1853 led one observer to comment that “the quantity of animal food consumed in this country is extraordinary; almost everyone eats meat three times a day” (Mossman and Butler 1974:104). The typical inclusion of meat in the three main meals of the day was
made possible by the flourishing sheep and cattle industries. Documents indicate that as soon as a child was able eat meat, it became a staple part of the diet resulting in greater rates of growth and development (Barker et al. 1966; Mossman and Butler 1974; Santich 1995; Symons 1982; Watson and Hack 1962).

The location of Adelaide in close proximity to the relatively untouched fishing grounds of the Gulf of St Vincent meant that European colonists also had access to another plentiful food supply. Furthermore, fish, shellfish and other products of the sea were a resource that the Europeans were familiar with and knew how to exploit (Wallace-Carter 1987). One reporter of the time recorded that:

The inlets, bays and waters of South Australia abound in excellent fish. It is not uncommon to take three to four hundredweight at one cast; snappers, rock cod, bream, mullet, whiting, rock and bed oysters and prawns, also mackerel, and silver fish and small white-fleshed fish like salmon-trout. The River Torrens abounds in crawfish and another delicate fish. (Stephens 1839:61)

Seafood in the early decades of the colony was readily available at reasonable prices. Consequently, all members of the colony had access to another rich and beneficial source of protein. Although commenting on the situation in Sydney, Meredith (1844), was impressed by the fish available at the market, particularly the plentiful and cheap rock oysters, crayfish and whiting. Oysters (also known as ‘poor-man’s food’) had traditionally been cheap in England and were within reach of the poorest (Symons 1982).

In South Australia, plentiful supplies of oysters were shipped to Glenelg after their collection from natural beds along the surrounding coastlines. The fishery was exploited to the extent that the first fisheries legislation was the Oyster Fisheries Act of 1853, designed to encourage the formation of artificial beds in places where no natural beds existed. Most of the native oyster beds were over exploited and by the early 20th century had been virtually wiped out (Wallace-Carter 1987).

Archaeological studies of faunal remains excavated from sites in various regions of Adelaide confirm the inclusion of significant quantities of beef, lamb, oysters and fish in colonial
South Australian diets (Anson and Matic 2002; Briggs 2000, 2002; Jones et al. 1997). Pig bones were also present but in significantly lower quantities in comparison to cattle and sheep bones. Similar diets were inferred from analyses of archaeological faunal remains in colonial Sydney (Colley 1987; Steele 1999).

Methods

The St Mary’s Burial Population
The sample from the St Mary’s Anglican cemetery employed in the stable isotope analysis consisted of 54 individuals: 20 adults (13 males and 7 females), 4 children (6-13 years old) and 30 infants (<3 years old). This sample was derived from a total of 70 skeletons that were excavated from the unmarked section of the cemetery at the rear of the church. Individual burial sites were identified employing ground penetrating radar and the exposure of burial pit outlines in the soil following removal of top soil using a mechanical earth mover (backhoe with a ‘trimming’ bucket) and refinement of pit boundaries with flat edged shovels and brushes. The fieldwork and excavations were carried out from September 1999 to December 2000 at the request of St Mary’s Parish Priest, the Venerable Father John Stephenson. The church requested location, exhumation and reburial of the unmarked human graves at the rear of the church so that the land could be used for future interments of its parishioners.

Church records indicated that this ‘free ground’ section of the cemetery was reserved for those who could not afford a standard burial including a marked grave site and headstone. In addition to the poorer members of the St Mary’s Anglican community, a large number of still and newborn babies were buried in the ‘free ground’. The term ‘free ground’ as employed in this research project refers to the interments that are listed in the burial records as ‘free ground’, ‘common ground’, ‘un-leased ground’ or ‘paupers’ grave’. According to the church burial records, a total of 197 individuals were interred outside of the areas for marked graves between 1847 and 1927. These include 76 individuals in the free ground and a further 121 listed without any location of burial. A majority of these 197 burials
(110 or 56%) occurred during the 1850 – 1869 period and 84% during the 1847 – 1899 period (Anson 2004; Taylor 2001).

The occupations of adults buried in the study area as listed on death certificates included: Labourer (23), Farmer (17), Gardener (5), Blacksmith (3), Mason (3), Bootmaker (2), Brickmaker (2), Cabinetmaker (2), Contractor (2), Dairymen (2), Gentleman (2), Publican (2), Teacher (2), Accountant (1), Baker (1), Bricklayer (1), Builder (1), Butcher (1), Caretaker (1), Carter (1), Chairmaker (1), Clerk (1), Coachbuilder (1), Errand boy (1), H.M. Navy (1), Laundress (1), Machinist fitter (1), Miller (1), Painter (1), Plumber (1), Quarry overseer (1), Schoolmaster (1), Servant (1), Spinster (1), Storekeeper (1), Wood machinist (1) and Wheelwright (1). Of the 89 adult males listed, 45% were labourers or farmers. Only two females had occupations listed, one laundress and one spinster. Thus, the burial population included in this study represents the working class level of the colonial South Australian society.

**Stable Carbon and Nitrogen Isotope Analysis**

In relation to the stable isotope analytical methods, small 1-2g pieces of cortical bone were obtained from phalanges and long bone fragments from individuals buried in the free ground area behind the church. The protein component of the human bone (collagen) was extracted and analysed by mass spectrometry for stable carbon and nitrogen isotope composition. The stable isotope compositions of foods consumed by humans are recorded in their body tissues and allow archaeologists to reconstruct past diets. Only general dietary categories are recorded, e.g., marine protein vs terrestrial animal protein vs terrestrial plant protein. Nitrogen also provides an indicator of trophic level, e.g., herbivore vs omnivore vs carnivore. Elevated stable nitrogen isotope values in infants may be related to the trophic effect associated with breast-feeding (Schurr 1997, 1998; Tuross and Fogel 1994). Stable isotope values in the bone collagen of the St Mary’s burial population were employed to infer long-term or lifetime dietary averages.

Modern mammals from marine and terrestrial habitats in the Adelaide region of South Australia were used as standards to calculate past human diets. For example, sea lions (*Arctocephalus cinereus*), which exist on a 100% seafood diet,
provide a mean $\delta^{15}\text{N}$ value of 17.5‰ and a mean $\delta^{13}\text{C}$ value of \(-12.9\)‰, whereas koalas, (*Phascolarctus cinereus*), which exist purely on a terrestrial diet of vegetation provide a mean $\delta^{15}\text{N}$ value of 5.5‰ and a mean $\delta^{13}\text{C}$ value of \(-22.5\)‰ (Pate and Schoeninger 1993). By placing mean St Mary’s stable isotope values on a scale delimited by the above comparative values, it is possible to begin to infer the relative proportions of various dietary components.

The 1-2g whole bone chunks were scraped clean with a scalpel and demineralised in a dilute 2% HCl solution (Sealy 1986). Extracts were soaked and washed thoroughly in distilled water following treatment. The remaining organic component was oven dried at 35°C and ground in a Retsch mixer mill. Stable carbon and nitrogen isotope values were determined by mass spectrometry using a Europa Scientific ANCA-SL system. Isotope ratios are expressed as delta (δ) values in parts per thousand (‰) relative to the PDB and atmospheric nitrogen (AIR) standards. Analytical precision was better than ± 0.1‰ for carbon and ± 0.3‰ for nitrogen. Atomic C:N ratios in modern collagen were employed to determine the presence of acceptable collagen in archaeological extracts in relation to stable isotope analysis. These acceptable atomic C:N ratios were developed by extracting collagen from large samples of modern mammals and measuring their C:N ratios. Results include atomic C:N ranges of 2.9 – 3.6 for 172 mammals (DeNiro 1985), 2.8 – 3.5 for 79 mammals (Ambrose 1990) and 2.7 – 3.6 for 164 mammals (Anson 1997).

Following the completion of all studies associated with the exhumed skeletal remains, individuals were reburied in a mass grave on the border of the free ground as requested by the church (Anson and Henneberg 2004).

**Results**

The stable carbon and nitrogen isotope values for St Mary's (Table 1) indicate that on average adults buried in this section of the cemetery had similar diets. The average protein component of the adult diet would have consisted of approximately 60% terrestrial meat (e.g., cattle, sheep), 32% seafood (e.g., fish, shellfish) and 8% terrestrial vegetation (e.g., wheat, barley). On
average, more positive stable carbon (+0.3‰) and nitrogen (+0.5‰) isotope values in males suggest that they ingested greater quantities of seafood than did females, but the difference was small, i.e., only 3–5% more seafood. Elevated nitrogen isotope values (+1.7‰) in infants relative to adult females suggest that breast milk was a principal component of the infant diets. Due to the slow turnover of bone collagen, a portion of this δ¹⁵N enrichment is retained in children of age 6-13 years (+0.8‰).

Table 1 Bone collagen stable carbon and nitrogen isotope results for human skeletal remains excavated from St Mary's Anglican cemetery, Adelaide, South Australia.

<table>
<thead>
<tr>
<th>Sample</th>
<th>δ¹³C</th>
<th>δ¹⁵N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>X ± SD</td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
<td>-18.2 ± 1.0</td>
</tr>
<tr>
<td>Adults</td>
<td>20</td>
<td>-18.6 ± 0.8</td>
</tr>
<tr>
<td>*Adult Male</td>
<td>13</td>
<td>-18.5 ± 0.9</td>
</tr>
<tr>
<td>*Adult Female</td>
<td>7</td>
<td>-18.8 ± 0.7</td>
</tr>
<tr>
<td>Children (6-13 yrs)</td>
<td>4</td>
<td>-18.2 ± 0.4</td>
</tr>
<tr>
<td>Infants (&lt;3 yrs)</td>
<td>30</td>
<td>-17.9 ± 1.0</td>
</tr>
</tbody>
</table>

Discussion

The reconstructed diet for adults is consistent with: 1) The expected diet in relation to the coastal location of colonial Adelaide; 2) Archaeological food remains recovered from early Adelaide sites; and 3) Information concerning diet and subsistence activities recorded in various historical documents. Access to seafood and domesticated animals and plants is expected and is reflected in faunal remains recovered from archaeological sites and historical documents. Farming was a dominant profession in the St Mary area and these farmers provided domesticated meat and grains to the general population. The similarity in diet for all adults in this working class population provides additional evidence for the existence of a close-knit egalitarian community as indicated in the historical documents concerning the St Mary community.
Elevated stable nitrogen isotope values in the infant sample that would be associated with breast-feeding suggests that breast-feeding and a close relationship between mother and infant existed throughout the community. As indicated in the death certificates, most women were not employed but remained within the domestic setting, providing support to their children, family and church community.

Unlike conventional archaeological remains (tools, fauna, flora etc.), stable isotope analyses provide quantitative information regarding past dietary components in individuals and populations. Information regarding dietary differences between working classes and upper classes in colonial Adelaide awaits further isotopic research involving human remains representing the upper classes.

**Acknowledgments**

We thank The Venerable Rev. Fr. John Stephenson, the Parishioners of St Mary's Church and the Anglican Church of Australia for recognising the potential for this project and its contribution to the community. The stable isotope analyses were associated with an Honours thesis in Forensic and Analytical Chemistry by Duncan Taylor at Flinders University. Mass spectrometry services were provided by Dr Maurice Amato, CSIRO Land and Water, Adelaide, South Australia. The St Mary's excavations were coordinated by Dr William H. Adams, Department of Archaeology, Flinders University and analyses of the human skeletal remains were directed by Professor Maciej Henneberg, Department of Anatomical Sciences, University of Adelaide. Finally, we thank the large number of students and volunteers who contributed to the excavations and post-exavcation analyses.
References


Anson, T.J. and M. Henneberg 2004 A solution for the permanent storage of historical skeletal remains for research purposes: A South Australian precedent that keeps scientists and the church community happy. *Australian Archaeology* 58: 15-18.


Linn, R. 1993 Frail Flesh and Blood: The Health of South Australians since Earliest Times. Adelaide: The Queen Elizabeth Hospital Research Foundation Inc.

Meredith, L.A. 1844 Notes and Sketches of New South Wales during a Residence in the Colony. London: Publisher Unknown.


Sealy, J.C. 1986 Stable carbon isotopes and prehistoric diets in the Southwestern Cape Province, South Africa. *British Archaeological Reports International Series* 293.


Vanderpool, E.R. 2011 Bioarchaeological Investigations of Community and Identity at the Avondale Burial Place (McArthur Cemetery), Bibb County, Georgia. Unpublished MA thesis, Department of Anthropology, Georgia State University, Atlanta, Georgia, U.S.A.

