

Diet in urban and rural nineteenth-century New South Wales: The evidence from the faunal remains

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This paper explores the results of a comparative analysis of four cesspit assemblages from mid nineteenth-century urban and rural New South Wales, with an aim of promoting discussion of the possible range of dietary sources and procurement strategies used by these populations. Analysis of faunal assemblages from adjoining cesspits at Cumberland Street, Sydney city, Hassall House in Parramatta and the Woolpack Inn, Old Marulan showed a significant difference in the dietary sources and procurement strategies between rural and urban populations in nineteenth-century New South Wales. The rural population consumed a wider variety of introduced domesticates with evidence of some home butchering, as well as some limited exploitation of native mammals. In contrast, the urban assemblages revealed a narrower range of species, along with evidence that suggests an increased use of lesser quality cuts (including the extremities of both sheep and cattle) than is generally suggested in the historic record. The urban sites also showed extensive use of pre-butchered cuts of meat. These case studies suggest meat choices, while governed by dietary preference, were also influenced by the geographical setting and have a visible impact in the archaeological record.

INTRODUCTION

Food procurement, dietary choices and food preparation are subject to enormous variability based on a number of factors such as a household's social and economic status, cultural values and geographic location. Analysis of faunal remains recovered through archaeological excavations is particularly suited to addressing these themes. However, critical analysis of this material within historical assemblages and especially comparative analyses between assemblages investigating these broader patterns has been surprisingly limited in Australia.

This paper presents an exploration of some of the themes and questions that relate to dietary choice and access in urban and rural settings in mid-nineteenth-century New South Wales. A major focus that resulted from this investigation is the marked differences between mid-nineteenth-century urban and rural diets and the possibility that this could be evidence for tenuous transport links to the rural outliers. Gibbs (2005) and Lawrence and Tucker (2002) have looked at Australian nineteenth-century whaling stations and found evidence of self-provisioning in these isolated settings, primarily using the presence and relative abundance of native and introduced species. My research investigated the possibility of identifying self-provisioning in developing rural areas in NSW. To do this, four cesspit assemblages representing archaeologically secure contexts originally excavated and catalogued by Sydney based consultancies (noted in acknowledgements) were selected for the comparative analysis. The assemblages came from two adjoining houses in Cumberland Street (Sydney city), Hassall House in Parramatta (urban fringe) and the Woolpack Inn, Old Marulan (rural).

An important secondary aim of this research was the use of analytical techniques that managed the problems associated with comparing archaeological assemblages. The techniques used here have been used in other comparative studies and were found to be useful when considering the slightly different parameters used by each specialist to catalogue, as was the case in these assemblages. A brief summary of the methodological issues related to an analysis such as this will be given here, however a detailed outline can be found in Blake (2009).

HISTORICAL BACKGROUND

Mid-nineteenth-century transport and supply in New South Wales

An understanding of the nature of transport systems for the period represented is important as much of the archaeological discussion addresses the nature of supply and dietary choice in urban and rural NSW. In a wider context, social, economic and political changes during this time included the end of convict transportation on the east coast in 1850 and the advent of the gold rush (Berg and Hudson 1992: 44; Boehm 1993; Greenwood 1977: 46). By 1850 the population of Australia had increased to over 400,000 and over half of those numbers were concentrated in NSW (Australia 1973). In NSW, pastoralists contributed to economic growth and were responsible for wool production that was worth over £3.8 million in the export market to Great Britain (Davidson 1981; Greenwood 1977: 46-47).

With the economic progress and population expansion that characterises this phase in Australia's colonial history came problems with the infrastructure that supported it. The poor condition of the roads was often reported, especially the major arterial Great North, South and Western roads (*Maitland Mercury*: 27 December 1851; 21 May 1853; 1 July 1854). Problems were linked to the cost of building and maintaining the roads that extended to the growing pastoral areas. The transport of grain was an economic burden due to the poor quality of the road networks and the time it took to reach urban areas (Greenwood 1977: 66). These issues were the subject of much discussion due to the growing dependence Great Britain had on the export of Australian wool and wheat (Henzell 2007; Greenwood 1977: 51-57).

One of the solutions to the above-mentioned problems was the introduction of the railway. In 1855 there was a little over 25 km of rail and tramways in the colony, but by 1895 there were over 4100 km (Warburton 1932: 117). This rapid expansion was not without its difficulties. The memoirs of John Whitton, Engineer-in-Chief of the railways from 1854-1885, chronicle the many disputes and problems the engineers and the government had with the huge cost and difficulty associated with traversing the highly varied landscape (Rae 1898).

Despite the problems with this developing infrastructure, people were still moving away from urban areas to more remote parts of New South Wales. Many accounts chronicle their experience of the rural Australian landscape. Louisa Meredith, a British woman who visited the colony with her husband from 1839-1844, writes of the varying standards of living and the poor quality of some housing in Parramatta and the rural areas. From Meredith's perspective there was a resonance of familiar British culture. She noted that 'English customs and fashion are carefully followed' (Meredith 1844: 52), however these customs, while aligned with current trends in Great Britain, were executed poorly with many errors an English born man or woman would notice.

Food is also the subject of much of Meredith's writing and as an amateur naturalist her journal provides many descriptions of the gardens and abundance of fruit and vegetables present in the colony (Meredith 1844: 34, 38, 43, 56). She often describes the ham, eggs and mutton chops seemingly on offer at every inn throughout her journey to south western NSW (Meredith 1844: 66, 76, 78). At this time prices ranged from 1½ to 4 pence for a pound of mutton, 2½ to 6 pence for beef, 4 to 8 pence for veal and 7 to 9 pence for pork (Symons 1982: 65). A pig's trotter could also be bought in the street for 2 pence in Sydney in 1869, and 'mutton was cheaper than cat' according to Clarke (quoted by Beckett 1982: 69). However, as Meredith moved away from Sydney proper she also noted a decrease in general standards of living (1844: 57, 67) and the poor road conditions (1844: 70-71). Her perspective of the colony in general seems to describe a dual existence: one extremely foreign in environment though with particular British idiosyncrasies that to her seemed out of context and often conducted with limited success.

The infrastructure required to support the pastoralists and other settlers who had moved away from more established centres took considerable time to be established. In the two years prior to Meredith's arrival the colony had suffered a severe drought. When she travelled to Bathurst (approximately 200km north of Old Marulan and southwest from Sydney) she described increased food prices and poor quality produce, a consequence of these poor conditions:

We found Bathurst still suffering severely from the devastating and ruinous consequences of the terrible drought. Every article of food was extremely dear, and nothing good could be procured at any price. Meat was lean to starvation, and flour liberally adulterated with various cheaper ingredients; vegetables there were none, butter and milk had long been but a name; and all horse corn, hay, &c., so extremely scarce, and exorbitantly dear, that the neighbouring families had for some time ceased to use their carriage-horses ... (Meredith 1844: 85).

Drought clearly had a significant impact on Bathurst, a community that had a reasonable road link to Sydney. This has particular relevance to Old Marulan, one of the sites analysed in this study, which was established during the peak of this drought and had a less established transport link to Sydney. An interesting question which emerges concerns procurement strategies in light of this significant threat of drought and associated hardship. Did the people living in these affected regions attempt to provision for these periods of potential food stress?

Nineteenth-century cookbooks are another historical source that provide a window into what foods were popular. They set out numerous recipes for native animals including kangaroo, many fish species (both native and imported), wombat, emu, wallaby and wild duck (Abbot 1864; Anonymous 1895; Maculurcan 1898). Meat substitution also occurred as

shown in the culinary deceit cheerfully given in the recipe below:

Roast Wallaby 'Most people, even Australians, are prejudiced against the wallaby, after all they are one of Australia's natural foods, and feed just the same as hare, in fact I have often served it for hare and no one has been any the wiser' (Maculurcan 1898).

Despite the numerous recipes for native Australian animals, very few remains have been found in archaeological food waste deposits. The cookbooks reviewed were written in Australia and published in the mid- to late-nineteenth-century. These recipes could have been included as novelty items and the lack of evidence in the archaeological record seems to support this interpretation to some extent. It is also possible that these were attempts at encouraging the population to utilise native resources that were locally available and did not require expensive transport. However, the limited number of analyses which include identification of native species possibly used for consumption, precludes discussion of this aspect of the colony's subsistence strategies and tastes through time.

ARCHAEOLOGICAL SITES

Four sites from the greater Sydney area were selected for this research (Table 1). Numbers 124 and 126 Cumberland Street (CUGL124 and CUGL126) are located in the Sydney Rocks area, to the west of Sydney Cove. These adjoining terrace houses were built in 1836 and occupied until the early twentieth century (Karskens 1999). Documentary sources record a variety of people, including a seaman, waterman, grocer and carpenter, occupying these houses through time (Crook et al. 2005). A well-documented butcher, George Cribb, also lived in this immediate vicinity. It should be noted that these terraces post-date Cribb's occupation of the site by almost a decade (Wilson 1999).

Hassall House (coded PM) is located in the historic centre of Parramatta. Parramatta was an integral part of the development of the colony and its growth followed a different trajectory from nineteenth-century urban Sydney. Its natural resources attracted European settlers, while the Parramatta River provided a practical solution for transport back to the main settlement. While Parramatta was on the periphery of the initial settlement at Sydney Cove, it quickly became essential for the colony's subsistence and growth. Due to its location near good arable land, much of the colony's food was sourced from this area (Kass et al. 1996).

Hassall House was occupied by Rowland Hassall and his family until 1882 (Casey & Lowe 2006). Hassall was a missionary who came to Parramatta in the early 1800s. He had an entrepreneurial focus, operating a printing press from his property and possibly also a dairy in the early phases, while in the initial phases of ownership he ran a small store which sold a number of basic household needs, including food (Casey & Lowe 2006).

The third location is the Woolpack Inn (coded OM), located in Old Marulan approximately 160km south west of Sydney and a day's travel away from the larger town of Goulburn. Marulan was settled slowly after government survey in 1835 to assist in servicing the nearby sheep stations and to act as a waypoint for travellers to Goulburn. Joseph Peters, a publican, was the first recorded landowner and licensee of the Woolpack Inn (Gojak 2007). The evidence from the extant accounts ledger indicates it also sold basic necessities to the small community and to travellers (Peters 1837). Marulan's lifespan was brief, with the town being abandoned over a 20-year period after being replaced by a new township established closer to the railhead in 1862.

Table 1: Site summaries

Site	Deposit type	Deposit description	Total no. of bones and fragments	Units	Deposit date
124 Cumberland St, Sydney city, code CUGL 124	Cesspit and refuse deposit	Pit feature constructed using sandstone rubble with ashlar bricks bonded with a yellow shell mortar (Wilson 1999)	1770	A310 A315 A322	Based on ceramic finds, pre 1860 (Crook et al. 2005:81)
126 Cumberland St, Sydney city, code CUGL126	Cesspit deposit	Pit feature constructed using sandstone rubble with ashlar bricks bonded with a yellow shell mortar (Wilson 1999)	380	A140 A149	Based on ceramic finds, pre 1860 (Crook et al. 2005: 92)
Hassall House, Parramatta, code PM	Series of pit deposits	Series of truncated pits, some with evidence of wood lining	404	4815 4818 4819 4843 4844 5000 5040 5062 5074	Based on ceramics primarily: c1830 (Casey & Lowe 2006: 81) c1865 (Casey & Lowe 2006: 89) 1850s (Casey & Lowe 2006: 91-92) c1870 (Casey & Lowe 2006: 85-86) c1860 (Casey & Lowe 2006: 885) Pre 1940 (Casey & Lowe 2006: 85) c1860 (Casey & Lowe 2006: 94-95)
The Woolpack Inn, Old Marulan, code OM	Cesspit deposit	Large cesspit constructed using local stone to face with locally made bricks forming the upper courses. A drain was included as part of the base course of stone (Denis Gojak: pers. comm.)	2217	OM41	Based on ceramic, glass and metal finds, c1830 to c1880 (Harris 2009)

Faunal analysis

Methodology

A total of 4,749 fragments of bone were used in this analysis. The analytical techniques used are briefly mentioned below, while more detail is provided elsewhere (Blake 2009). The inclusion of assemblages from pit deposits was an essential first criterion because of their potential to minimise the number and range of possible taphonomic factors (Crook et al. 2005, Crook and Murray 2004; Wong 1999).

While the catalogues originally prepared for the material under investigation had considered taphonomic issues, including weathering, bone modification from commensal animals, and degradation due to soil matrix and bioturbation, the recording detail was variable between assemblages. In view of these differences bones were visually inspected and recording detail was compared to ensure consistency.

Another control utilised was the exclusion of the unidentified faunal remains in the inter-assemblage analysis. Identifiable bones were classified conservatively based on morphological features from all of the contexts under investigation (Casey and Lowe 2003; Steele 1999; Wilby 2009). Since the term 'unidentified' had been recorded with a different level of detail in the original catalogues, a conservative approach was taken, including unidentified fragments in the discussion of site taphonomy only.

The relative abundance of species was evaluated using percentages based on uncorrected counts of bones (Number of Identified Specimens (NISP)). This technique is not without its weaknesses, and these weaknesses are especially related to NISP being used in isolation (Casteel 1977; Grayson 1979; Lyman 1994). This problem was mitigated by the use of comparative percentages, which balances differences in the relative proportion of species between sites. This method is very useful for inter-site comparison as it assists in controlling issues with sample size (Reitz 2008). These techniques have also been used successfully in other comparative analyses (Badenhorst and Driver 2009; Bowen 1992; Landon 1996; Reitz 1986).

Butchery mark analysis has the potential to contribute to assemblage interpretation, although the presence and type of

butchering marks and their interpretative value are still under discussion (English 1990; Lampard 2006). The sheep and cattle in each assemblage showed signs of butchering. In this context, skeletal disarticulation and butchering techniques were considered in two ways. Individual elements of sheep and cow (i.e. humerus, radius, ulna) were grouped into skeletal regions using groupings defined by Colley (2006a, b). These five groups are trunk, forequarter, hindquarter, extremity and cranial (Figure 1). Identified elements were grouped into region and relative percentage was used to enable quantitative comparison, a technique utilised by Landon (1996) in his landmark study of urban and rural diets in colonial Boston.

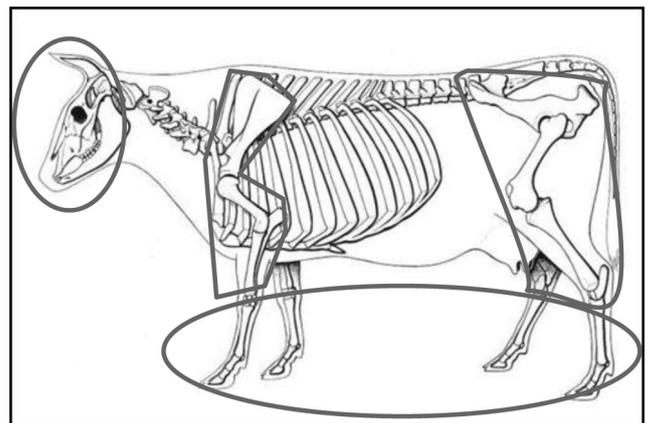


Figure 1: Skeletal regions as characterised by Colley (2006). The spine and ribs (not circled) form the trunk region.

Data comparison

Site taphonomy

The amount of weathering, disturbance from bioturbation, or animal gnawing on each bone was considered insignificant on nearly all the bones catalogued by the original analysts. This might be expected given the sealed context of the selected deposits. Deposition into features that have been sealed and

thus protected from weather, trampling and scavenger activity, contribute significantly towards decreasing the alteration or destruction of the bone after deposition and thus increases the likelihood of having a better representative sample of bone recovered (Landon 1996: 33).

Animals represented

Initial examination of species identified (Table 2 and Figure 2) shows an obvious difference in rural Old Marulan when compared to the generally more homogenous urban and fringe sites. Fifteen different species were identified in the Old Marulan assemblage compared to an average of eight different species in the other three assemblages, although some of the fifteen species identified in Old Marulan were non-dietary animals (cat, dog, horse and rodent). The clearest commonality between all assemblages was the high frequency of sheep which were the dominant species at all sites.

The frequency of cattle bones appears to vary the most between all sites. In Parramatta and 126 Cumberland Street, cattle were the second most common species. In Old Marulan, cattle formed only 5 per cent of the total assemblage. However, these bones are difficult to directly compare due to the significant difference in size between a cow and sheep, therefore the variations in taxonomic abundance may not translate to a real divergence. The potential meat weight of a cow could be as much as 220 kg, compared to a lamb which could be anywhere from 10–25 kg (Wilby 2009: 35). Lampard (2006) also discusses a range of issues associated with measuring meat weight and potential dietary contribution.

The urban-based assemblages and the urban fringe Parramatta were consistently more homogenous overall with evidence of use of local resources. Fish had a dominant representation at 124 Cumberland Street where this species was the next common after sheep (at 26 per cent). Other species like rabbit and chicken were present at 124 and 126 Cumberland Street and in Parramatta, but in limited numbers overall, especially when compared to the rural Old Marulan.

Old Marulan was markedly different from the other assemblages. While it was expected there would be a dominance of sheep due to its frequent mention in the historical record, it was also anticipated that cattle would be the next most frequent species (following 126 Cumberland Street and Parramatta). This was not the case. Old Marulan had a much higher representation of smaller species and was the only site where native animals were represented. Cattle were one of the least represented species at only 5 per cent of this large assemblage.

Dietary contribution

For all sites the animal's trunk region formed the largest proportion of the assemblage in both sheep and cattle (Figures 3 and 4), although it is important to note that the trunk region is comprised of many more bones than, for example, the forequarter. With this factor considered, the differences were still of interest. The trunk offers meat-dense cuts that include sirloin, rump, rib and loin (McVicar 1993). The desirability of these cuts was stressed by Abbot in his 1864 cookbook and their dominance indicates the popularity of this part of the

Table 2: Taxonomic representation of all faunal remains used for analysis.

Species Identified	Site							
	CUGL124		CUGL126		OM		PM	
	NISP	%	NISP	%	NISP	%	NISP	%
Artiodactyla sp.	--	--	--	--	23	1.5	--	--
Bird sp.	10	1	--	--	17	0.8	--	--
Bream	7	0.7	--	--	--	--	--	--
Cat	1	+	--	--	86	3.9	3	0.75
Cattle	171	16.5	51	23.1	98	4.5	128	32.8
Chicken	42	4	9	4	157	7.1	13	3.2
Cow/pig	--	--	--	--	--	--	2	0.5
Deer	--	--	1	0.5	--	--	--	--
Dog	--	--	--	--	3	0.1	5	1.5
Duck	--	--	--	--	--	--	2	0.5
Fish	269	26	6	2.7	--	--	5	1.3
Goat	--	--	--	--	47	2.1	--	--
Hare	--	--	--	--	13	0.6	--	--
Horse	--	--	--	--	2	0.1	--	--
Kangaroo/wallaby	--	--	--	--	16	0.7	--	--
Koala	--	--	--	--	38	1.7	--	--
Morwong	1	+	--	--	--	--	--	--
Pig	22	2.1	3	1.4	22	1	4	1
Rabbit	--	--	--	--	171	8	--	--
Rodent	--	--	--	--	4	0.2	--	--
Sheep	498	48.3	150	68.1	1425	67.1	233	59.7
Snapper	10	+	--	--	--	--	--	--
Total Identified	1031	100	220	100	2122	100	290	100
Species Unidentified	--	--	--	--	45	2.1	--	--
Small carnivore	--	--	--	--	28	1.2	--	--
Small mammal	--	--	--	--	--	--	9	3
Unidentifiable mammal	--	--	--	--	--	--	--	--
Unidentified	739	41.8	161	42.4	--	--	--	--
Total unidentified	739		161		73		14	
Total each site	1770		380		2217		404	
Grand Total		4749						

--No bones in this category
+ less than 0.05%

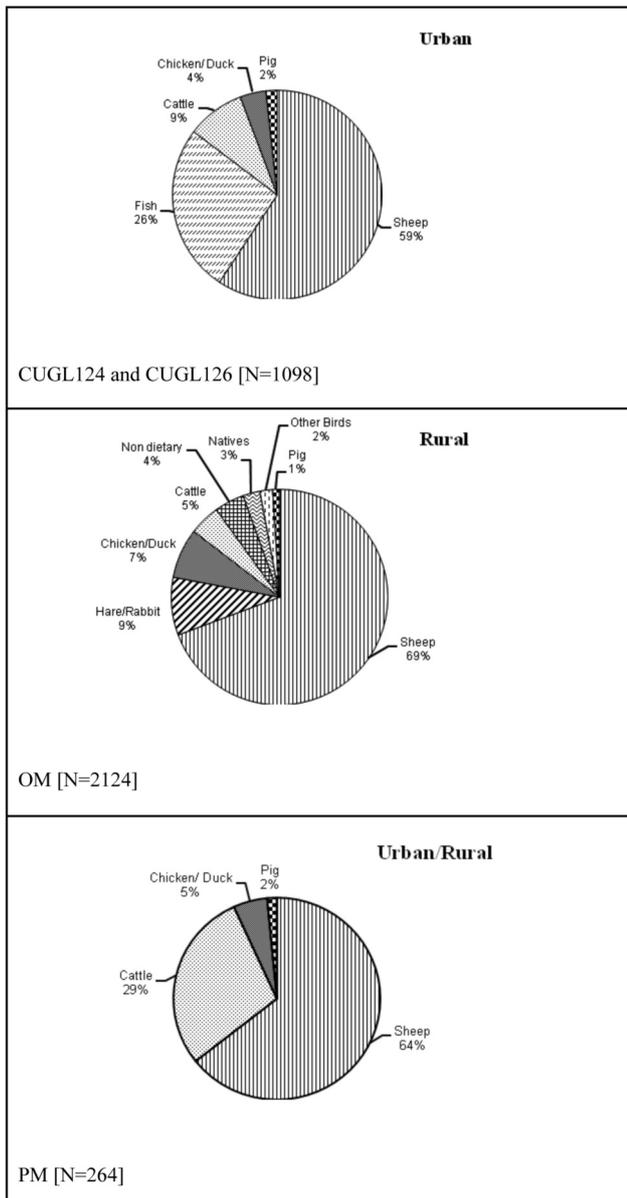


Figure 2. Taxonomic group representation by percentage of NISP.

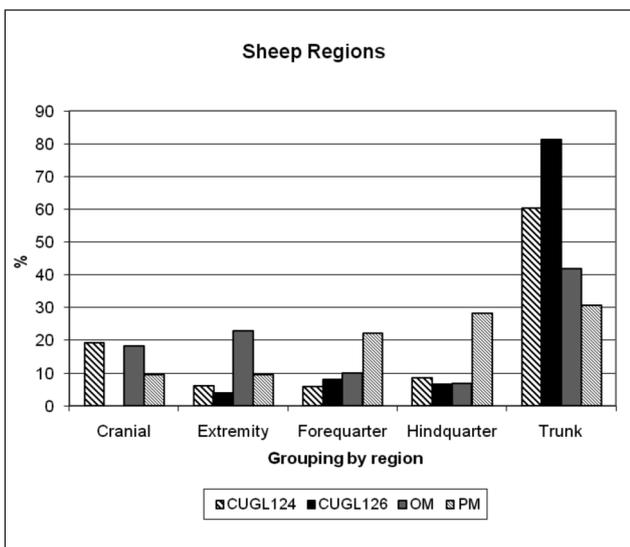


Figure 3: The relative percentages of identified sheep regions, grouped by region and site. CUGL124 [N=499]; CUGL126 [N=150]; OM [N=1246]; PM [N=237].

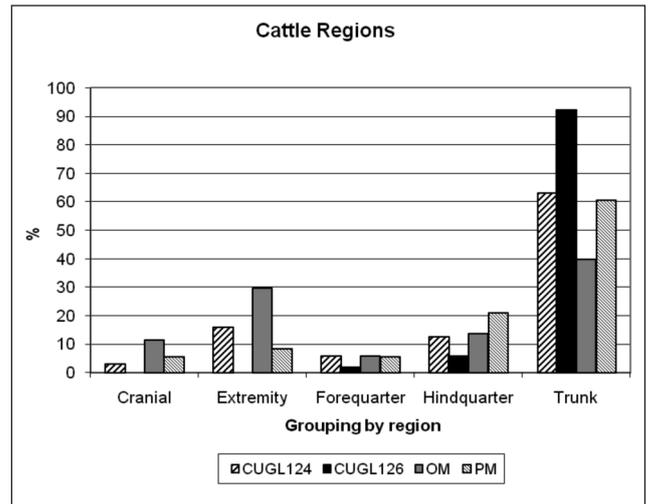


Figure 4: The relative percentages of identified cattle regions grouped by region and site. CUGL124 [N=176], CUGL 126 [N=51], OM [N=88]; PM [N=111].

sheep and cow, especially at 126 Cumberland Street and Parramatta.

At 124 Cumberland Street the trunk formed 63% of cattle and 60 per cent of sheep bones identified. The extremity and hindquarter were the next most frequent, followed by forequarter (6 per cent) and cranial (3 per cent) remains. The main difference when comparing the beef with the sheep from this assemblage, is the relatively higher number of beef bones from the extremity region. Abbot (1864:212) described bones from this region as a nutritious source of food for the poor. As the price of beef was much higher generally when compared to lamb or mutton their presence in this assemblage could indicate an economic need to source meat from this region of the animal. These findings are in direct contrast to next door at 126 Cumberland Street. Here the trunk region forms 92 per cent of this assemblage and the remainder are small proportions of the forequarter and hindquarter regions. No bones from the cranial or extremity areas were identified.

In Parramatta, the highest frequency of cattle elements were from the trunk (60 per cent), followed by the hindquarter; these regions were also the most common in sheep. Again, all body regions were represented, however the forequarter, extremity and cranial regions were a minority compared to the more dominant trunk and hindquarter regions in both sheep and cattle. These results are again similar to 126 Cumberland Street.

The body regions of cattle identified in Old Marulan are proportionally similar to the sheep. The cattle formed only a small portion of this assemblage, though the same parts of both sheep and cattle were being sourced. This is the only site that had evidence of native animals and of a relatively large proportion of small animals, such as rabbit and chicken, being consumed. Kangaroo and koala were also identified here and all body regions except the forequarter were represented for these animals (Figure 5).

Butchery

Butchery evidence, in both presence and technique, showed some significant differences in these urban and rural assemblages, and this was especially noticeable in the sheep (Table 3 and Figure 6). In the Cumberland Street and Parramatta assemblages, sheep showed evidence of butchery marks on all body regions, except the cranium (no butchery marking was noted on the crania in any of the assemblages

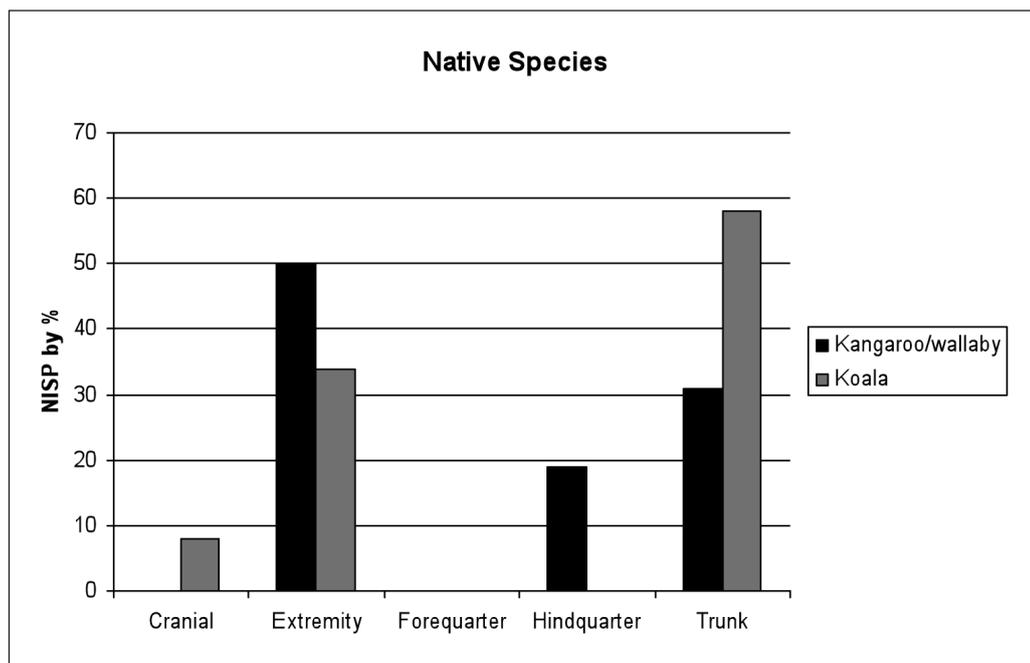


Figure 5: Native animals identified at Old Marulan; body regions by percentage Kangaroo/wallaby [N=16], Koala [N=38].

studied). Evidence from the cattle indicated that specific regions were generally targeted and these regions were dominated by the trunk. Frequency and type of butchery marking decreased closer to the extremity of the animal, not surprising as these are not prime meat-bearing bones and are smaller, thus requiring less modification for consumption.

In Old Marulan there was markedly limited evidence of butchering on the faunal remains studied. There was a total of three elements from the sheep with evidence of butchering, two innominates and one metacarpal. There was an increase in number and variety in the cattle, showing a pattern more reminiscent of the other three assemblages in this instance only, although considering the size of the Old Marulan faunal assemblage, comparatively few overall.

DISCUSSION

This research has shown that urban diet in nineteenth-century NSW had a number of characteristics that made it distinguishable from a rural diet of the same period. The dominance of sheep bones in all assemblages was not unexpected given that the documentary sources consistently reinforced their abundance and low relative cost in the nineteenth century. Sheep suited the Australian landscape, were easy to rear, and grew to maturity relatively quickly. Sheep were also important secondary producers of wool, an essential export commodity from nineteenth-century Australia, that continues today. This result is consistent with other research conducted in the few examples published in Australia (Gibbs 2005; Howell-Muers 2000; Lampard 2006;

Table 3: Butchery mark frequency by element and site for sheep and cattle.

Body Region	Element	CUGL124		CUGL126		PM		OM							
		Cattle NISP*	Sheep NISP*	Cattle %BT*	Sheep %BT*	Cattle NISP*	Sheep NISP*	Cattle %BT*	Sheep %BT*						
Trunk	Atlas			1	100%	1	100%	1	100%						
	Axis							1	100%						
	Vertebrae	60	60	100%	100%	20	50	95%	85%	22	18%				
	Rib	46	136	89%	98%	26	70	92%	100%	7	14	50%			
	Sacrum		10		80%				100%	1	2	100%			
Hind Quarter	Tibia	6	18	50%	88%	1	1	100%	100%	9	33	30%	5	60%	
	Femur	7	15	100%	67%		5		100%	2	1	100%	3	66%	
	Pelvis	8	10	75%	80%	2	4	100%	100%	5	6	100%	4	75%	59
Fore Quarter	Humerus	4	10	75%	70%		5		100%	1	5	100%			
	Radius	1	20	100%	50%		4		100%	1	5	100%	1	100%	
	Scapulae	1	15	100%	26%		1		100%				1	100%	
	Ulna		1		100%	1	2	100%	100%				1	100%	
Extremity	Metacarpal	9	17	78%	29%					1					
	Astragalus													72	100%
	Calcaneous									1					

*NISP is the number of identified specimens %BT is the percentage with butchery marks

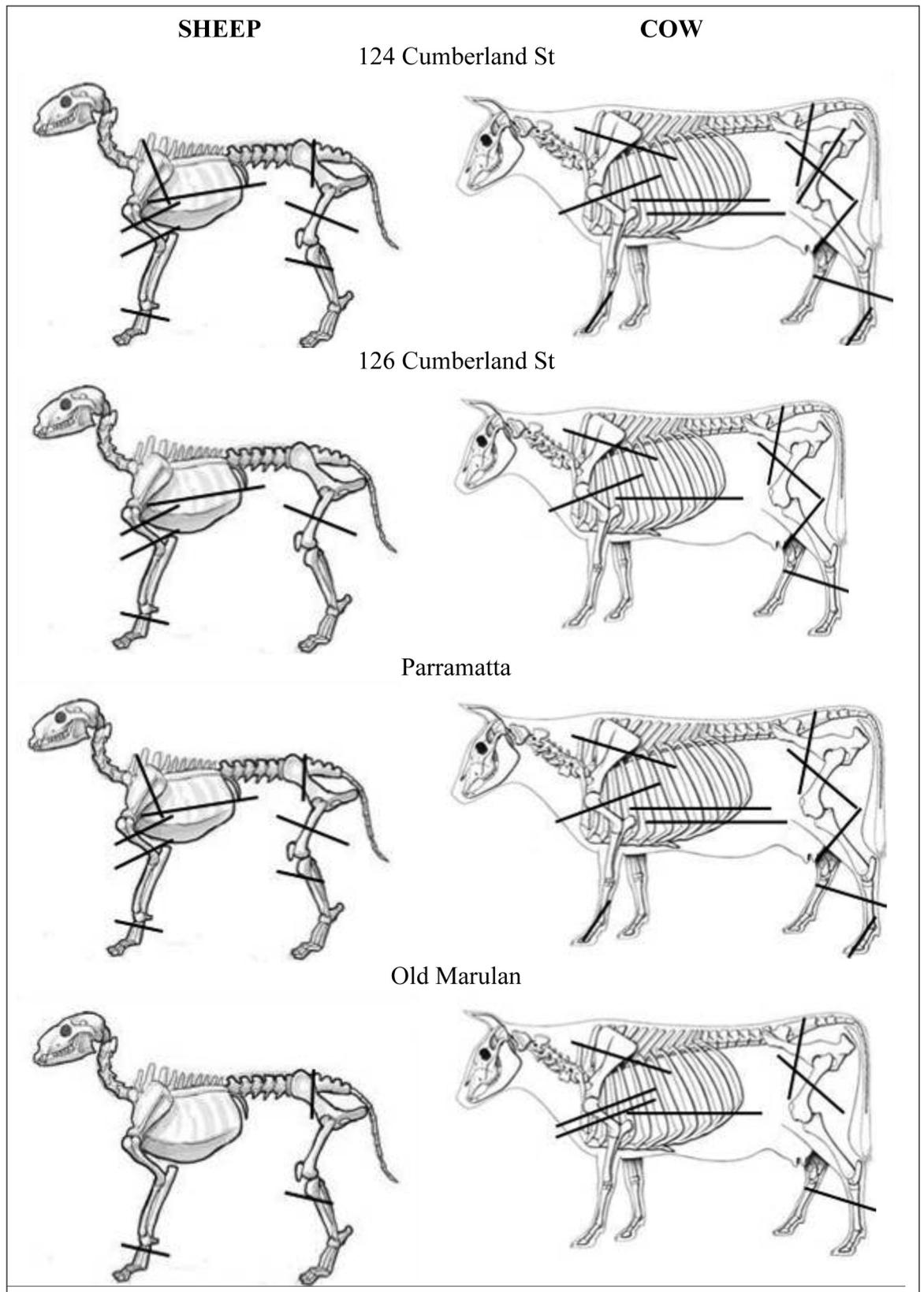


Figure 6: Butchery orientation at all sites for sheep and cow. Vertebral marks were consistently in a cranial caudal direction at all sites and not represented here.

Lawrence and Tucker 2002; Simons and Maitri 2006).

There was a more dominant presence of cattle in the Sydney city and Parramatta assemblages compared to Old Marulan, where the occurrence was minor compared to other species identified. This poor representation is an influence of the sheep pastoralists that established Old Marulan. According to the Woolpack Inn ledger, beef was being sold, albeit at a high relative price compared to other meat. The price of beef, coupled with tenuous transport links, drought

and the decline of the town due to a re-directed railway link may have precluded frequent purchasing. Another possible reason is due to the disease (a particularly virulent pneumonia) that greatly affected cattle in NSW in 1861. At its peak it was estimated that over 5 million cattle died and the infection was not eradicated until 1958 (Parsonson 1998: 100). The assemblage could be indicative of the decline of the area and problems with supply connections through time. Sheep would provide an easier and cheaper option to their customers with

these contributing issues. No evidence of fish remains were found in the cesspit at Old Marulan and none were expected due to its inland location.

The trunk region, which forms the meat dense-cuts from sheep and cattle were the most common cuts found on all sites. However, variations were present in the number of bones from the extremities of animals and nuanced deviations were observed in the urban sites. 124 Cumberland Street had evidence of all parts of the animal present, while 126 Cumberland Street and the Parramatta site assemblages were dominated by the trunk region of both sheep and cattle, with very little to no evidence of use of the cheaper cuts. This evidence is well suited to discussion of socioeconomic relationships and also indicates the desire to continue familiar dietary options despite possible issues with access. A similar pattern is seen in the rural assemblage at Viewbank, a rural Victorian site described by Howell-Muers (2000) as dedicated to continuing the practices familiar to them from their British heritage.

A limited amount of work has been conducted on butchery pattern analysis in Australian historical archaeology. Some butchery patterns seen here may be explained by English's (1990) research which showed that bones were cut in ways that enabled a secure fit in a barrel and then salted. Placement and size of the meat being salted in the barrel was important as the salt needed to permeate through all areas to enable long-term preservation (English 1990). Figure 6 shows the repeated methods used to reduce bones into usable portions at all four locations, this pattern is especially consistent on the cattle at all sites investigated. This suggests that the urban environments accessed particular cuts of meat and it also raises the possibility of the use of salted meat in Old Marulan, especially as there are far fewer butchery marks on the sheep at this site. This could also be indicative of the difference in site function and the use of larger cuts of meat to cater for large groups of people. In either case, the evidence shows a cultural preference for these parts of the animal.

In Old Marulan, where the rural environment was hypothesised to show evidence of self-provisioning, this result is of real interest. There was a negligible amount of evidence of sheep showing indications of butchering. This could be for a couple of reasons. In the first place, the sheep were being reared in close proximity to the people of the Woolpack Inn, enabling them to source and kill when required ('on the hoof') and therefore there was no need to preserve the meat. The lack of butchering evidence could be due to the much easier method of disarticulating the skeleton at the joint rather than sawing through bone, which is a labour- and time-intensive technique.

CONCLUSION

Results from this research show that dietary preference was the most consistent feature between urban and rural contexts. The dominance of sheep and the type of meat cuts commonly sourced were very similar across all four sites. The ribs and vertebrae were the most frequently represented and these bones correspond to meat-dense cuts including rump and ribs, which are strong evidence for a cultural preference for these cuts.

The first divergence noted between the urban and rural assemblages was related to dietary options beyond sheep. The urban sites, and in particular 126 Cumberland Street and Hassall House in Parramatta, had a narrow range of species with a dominance of sheep and cattle. Evidence from the faunal record showed a preference for traditional, high-quality meat cuts and there was limited representation of bones from the less desired parts of the animal. Butchery evidence

indicated regular, repeated cuts and type of meat choice. Documentary sources show evidence of a desire to continue British cultural traditions in this early post-convict period. This could also be representative of differences in social status, especially the differences noted between neighbours at 124 and 126 Cumberland Street. In Old Marulan however, a wide variation of species, including a combination of wild and domesticated species, and the frequent use of small animals like rabbit, has been suggested as evidence of opportunistic hunting and self-provisioning. The clear differences in butchery evidence could also be indicative of this, though more work is required to investigate this more comprehensively.

The geographical setting has been considered a strong contributing factor for the differences noted in dietary options. As the regions of Australia were exposed to differing environmental influences during the colonial period, they would have logically developed localised strategies to continue their existence, and these strategies would be dependent on their access to a broader infrastructure. These changes are visible in the archaeological record in urban and rural environments as this preliminary research shows and the use of comparative data greatly assists in documenting these nuances.

Suggestions made by Gibbs (2005) and Lawrence and Tucker (2003) implied that 'need versus access' determined procurement strategies in these distinct cultural environments. In this comparative study, the regional differences identified in the faunal remains reinforce the challenges faced by populations as they moved away from the established cultural environment that the urban areas provided. While the rural regions of Australia are now known as strong primary producers of meat, their establishment and development would not have moved along a streamlined trajectory. There is evidence for problematic access to resources in the comparison of the faunal assemblages studied in this context.

The methodologies used to test these ideas were drawn from a number of sources due to the need to manage the many variables stemming from comparative research. The use of NISP and the relative percentages derived from this count proved to be the most assumption-free technique to manage and compare these large data sets. The use of pit assemblages and a limited use of unidentified bones were also very important to enforce standardisation in this particular context. Species identified and relative body regions provided a substantial number of results that enabled discussion. The butchery evidence showed some interesting findings, although it is clear that the conclusions stemming from this branch of the analysis were necessarily cautious due to the limited attention this form of evidence has received in the Australian literature.

This research contributes to our knowledge about the challenges faced by rural populations moving away from established cultural norms into an inhospitable environment. Appreciation of past lifestyles and further investigation of the characteristics of urban and rural assemblages in their historical context will greatly assist in clarifying the concepts raised here.

ACKNOWLEDGEMENTS

Thank you to Casey & Lowe, Banksia Heritage and Archaeology and the Sydney Harbour Foreshore Authority for making the faunal collections available. Many thanks to my University of Sydney supervisors Martin Gibbs, Melanie Fillios and Sarah Colley for their assistance and guidance during the completion of this research, and thank you to Susan Lawrence for reviewing an earlier version of this paper.

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