

## **CHAPTER 2.**

# **REVIEW OF RELEVANT ARCHAEOLOGICAL RESEARCH, THEORIES AND MODELS**

*‘the past is meaningfully constituted from different perspectives’*

*(Preucel & Hodder 1996:7)*

### **2.1 INTRODUCTION**

This chapter places research on mounds in Australia within a contextual framework by reviewing relevant previous studies and examining the theoretical approaches and modelling they have employed. Mounds have been regarded as significant and unusual archaeological features since the first European contact with the Hay Plain in 1836 (Mitchell Vol II 1839), and continue to be considered by various sections of the community as landscape features of major cultural importance. Previous research on mounds is considered in this chapter as a source of information about the attributes and distribution of mounds. Of equal importance, however, is the review of the theory and models that have been applied, and areas where new approaches may be useful. This is followed by a discussion of existing, new or expanded theoretical perspectives and models that can assist in unravelling the complex social strategies that I propose resulted in the Hay Plain mounds.

### **2.2 PREVIOUS ARCHAEOLOGICAL RESEARCH ON MOUNDS IN AUSTRALIA**

Mounds have been the focus of several archaeological research projects in Southwest Victoria, the Murray Riverine Plain and the Macquarie Marshes, and also freshwater swamps located on the Arnhem Land coastal plain (Figure 1.3). Interest in mounds has a long history, with articles on the subject published from the 1860s onwards (Beveridge 1865, 1869), including reports of ‘excavations’ (Cameron 1886, Spencer 1918:117-118). Mounds continue to fascinate and perplex archaeologists as they

did the antiquarians of the previous two centuries. The assumption has always been that they represent something special or unusual in Aboriginal society, and parallels have been variously drawn with barrows in England (Beveridge 1883) to New Guinean sweet potato farms (Balme & Beck 1996).

Beveridge stated;

Blackfellow's ovens... have been a fertile source of argument for many years, some holding that they are not cooking-places after all, but tumuli or burrows [sic] left by some race long forgotten... none of the writers or discussers of the point have had sufficient curiosity to dig into the mounds, and so set the vexed question at rest once and for all (Beveridge 1883:37).

One hundred years later the situation improved significantly as a result of a sudden focus on mounds in South Western Victoria; Lourandos began examining the place mounds held in the economy and social systems (Lourandos 1980, 1983), Williams undertook detailed archaeological work in the same area (Williams 1985, 1988), and the Victorian Archaeological Survey (VAS) investigated various aspects (Coutts et al. 1976, 1977). VAS then moved focus to the mounds on both the Victorian and New South Wales side of the Murray River (Coutts et al. 1979). This was followed by archaeological survey on the mounds of the Murray Riverine Plain by Bonhomme (1990a), Berryman & Frankel (1984a & 1984b), Craib (1991) and Edmonds & Long (1998). More recently mounds have also been examined in other areas including the Central Murrumbidgee River (Klaver 1998), the Macquarie Marshes (Balme & Beck 1996), a single mound at Narran Lake excavated by Judith Field (Solomon 1998), and on the Adelaide Plains (James Knight pers. comm. 2000, Woods 1995). The ethnographic and archaeological literature on mounds in South Eastern Australia has been reviewed in detail by various authors (Balme & Beck 1996, Berryman & Frankel 1984b, Coutts et al. 1976, Edmonds and Long 1998, Klaver 1998, Lourandos 1980, 1983, 1997, Martin 1996c, and Williams 1988).

Lourandos and Williams used the Historical Materialism theoretical approach to explain the mounds and eel farms recorded on the basalt plains in South Western Victoria (Lourandos 1997, Williams 1988). Lourandos explained the archaeology of the area by his 'intensification' model that proposed that there was a Mid to Late Holocene evolution of social relations leading to intensification of resource extraction, a more exclusive social system, and a greater degree of sedentism. This model was

influenced by the unusually detailed early post-contact ethnography for the area that enabled a reconstruction of the population distribution, social organization and social relations, as well as technology and subsistence behaviour, all of which resulted in the remarkable constructed landscapes of mounds, stone hut circles, drains, managed swamps and eel farms, and fish traps or weirs (Lourandos 1997:62-67, 220-221 & Williams 1988). Lourandos demonstrated that the excavated drain systems at Toolondo and Lake Condah were more than eel-harvesting devices, they enabled the people to manage the swamps to counteract water variability and maximise eel production. They actually enabled an extension of eel range by linking the coastal and inland waterways, thus providing access for the eels to more swamps. These labour intensive systems are seen as involving climatic desiccation over the last 3,000 years, competition for resources, and possibly demographic change. Intensification of eel harvesting and management in these areas is seen as an extension of the eel harvesting to the south that formed the economic base for the autumn ceremonial gatherings (Lourandos 1997:220-221).

Williams gave a similar interpretation for the mounds of South Western Victoria. She concluded from her detailed research that mounds begin to appear around 2,500 BP in conjunction with a 'dramatic increase in the number of sites occupied' and reflect 'changes in alliance networks...which triggered increases in production, to satisfy the need for an expanding redistribution network and alterations in social relations.' She suggested mounds are linked to a more sedentary occupation of sites and aggregation of sites, but differed from Lourandos in stating that mounds are Late Holocene and post-date the introduction of the 'small tool tradition' (Williams 1988:220).

Williams examined mounds from 3 areas in detail, including their distribution and location, their chronology, structure, stratigraphy, soil properties, features such as ovens, pits, post-holes, and contents including stone artefacts. She also attempted to tie in the location of mounds with ethnographically observed eel traps and eel 'farms', but found it difficult to unambiguously identify traps from archaeological data. She concluded that the mounds are 'associated with poorly-drained sediments and excavated samples seem to have been used as ovens and general camping areas' (Williams 1988:206). Williams suggested that mounds are not found on sandy lunettes because mounds function as platforms on poorly draining soils such as the basalt soils of Western Victoria. However, my research indicates that on the Hay Plain, large sandy lunettes are found around the few large open water lakes that in winter are twenty

feet deep (Robinson in Clark 2000) and for this reason are unsuitable habitats for dense root crops such as *Typha*. Thus at Mt William swamp and The Morass, Williams found mounds only on the western side of the swamps and along creeks and creek deltas (Williams 1988:174-175). However, the lack of mounds on the eastern side lunettes may reflect the habitat rather than any specific factor for mound location such as platforms to keep people above the mud. In fact Williams described the soil at one mound location as 'light coloured sandy loam' (Williams 1988:180) and a second location as 'dark brown sandy loam' (Williams 1988:152), and stated that 'Most mounds were located on the top of natural rises.' (Williams 1988:127). Williams' statement that 'Mounds make a more intensive settlement of the region possible because settlements need no longer be restricted to well-drained sediments such as the lunettes' (Williams 1988:216) was contradicted by her own data, and I suggest that the reason for mounds is more complicated than providing a dry place to camp.

Archaeological research on the Central Murray River and its anabranches the Wakool and Edwards Rivers, immediately to the south of the Hay Plain, consists mostly of surveys in State Forests (Bonhomme 1990a, Buchan 1980, Craib 1991, Coutts et al. 1979, Elliot 1980, Lane 1980, Simmons 1980, Sullivan 1980, Sullivan & Buchan 1980). Coutts et al. (1979) excavated two mounds and obtained dates, they also undertook large-scale open excavation near mounds and analysed a range of material from them. The DP/1 mound in the Nyah Forest, to the south of the Hay Plain, was excavated to reveal burnt clay pellets (heat retainers), charcoal and fragments of shell and bone, as well as *in situ* hearths and a 'burial horizon', or intrusive burials in a section of the top layer. Dates ranged from  $1,375 \pm 30$  BP near the bottom to  $960 \pm 80$  BP in the middle, the top layers being too disturbed for dating. Coutts et al. (1979) concluded that most mounds in the Nyah Forest are near anabranches of the Murray or 'ponds' left by floods, and that the floodplain was rich in food resources and 'enriched by the hydrological peculiarities'. It was suggested that the mounds belong to two types: Type A sites are smaller and have less variety of fauna material, Type B sites tend to be located on higher ground, are larger and may have more variety of material including burials. This study concludes with a list of outstanding problems and the suggestion that the mounds were evidence of increased efficiency in hunting and gathering strategies (Coutts et al. 1979).

Edmonds and Long undertook a study of a small area at Balpool on the Edwards River (Figure 1.2), just south-west of the Hay Plain, and provided some raw data such as

location, length and width, but not height, of the 87 mounds and heat retainer hearths they recorded. A series of sub-surface test pits were examined, and initial ground clearance was monitored for archaeological material, without any definitive results. However, a 30 metre buffer zone placed around all recorded sites meant that sub-surface testing was not immediately adjacent to any sites (Edmonds & Long 1998). Berryman and Frankel excavated 3 mounds on the Wakool River (Figure 1.2), and published some summary results on survey and excavation, however the report to NSW NPWS does not contain the raw data such as mound size to use in a comparative analysis (Berryman & Frankel 1984a, 1984b). They attempted to determine the environmental factors influencing the location and size patterning of mounds. The 250 ha study area included a section of the Wakool River and a range of smaller channels, waterholes and depressions. A total of 95 mounds were recorded, ranging in size from 8-48 metres diameter and .05-1.5 metres in height. There was a tendency for mounds adjacent to the river to be bigger than mounds further from the river. The excavated mounds were composed of sediment with baked clay heat retainers, charcoal and rare, minute, fragments of bone and shell. Basal dates ranged from 2990  $\pm$ 100 BP to 2250  $\pm$ 105 BP (Berryman & Frankel 1984b:25-28, Downey & Frankel 1992). There is strong tendency for mounds to be located on the highest ground, with about 30% of mounds on the highest 8% of the study area, and an additional 50% on the next highest 40% of ground (Frankel 1991:81).

Balme and Beck investigated a concentration of mounds in the Macquarie Marshes, a tributary of the Darling River to the north of the Hay Plain (Figure 1.3). They pointed out that mounds vary from place to place, but that they also have similarities such as charcoal, which have not been explained 'as a consequence of a single original purpose' (Balme & Beck 1996:39). They compared the Macquarie Marsh mounds to others and concluded that they are similar enough for a single function to be considered. After reviewing models proposed for mound function, they reviewed the historical data that most of the models were based on. Balme and Beck concluded that although most historical evidence suggests mounds were ovens and/or various kinds of campsite, much of it is second hand or derives from interpretation of contents rather than primary observations. They show that the evidence of mounds being used as ovens or camping places is problematic, and suggested the possibility that mounds were in fact garden mounds used for growing crops such as *Microseris* or *Portulaca* (Balme & Beck 1996:43-45). They then attempted to test for this by looking for starch grains, pollen or phytoliths in the mound sediment. Although these tests were

inconclusive, this paper was seminal in the methods and objectives it explored, as it went further than descriptive research and tried to correlate data with major questions about the dynamics of human behaviour. It concluded that three issues need to be addressed; the role of plant propagation in South East Australia, the disjunct distribution of mounds and questions of regional diversity in resource use, and the use of analogy in archaeology. The use of analogy had led to researchers concentrating on differences in mounds, rather than the similarities, and none had previously considered an overall model to explain the existence of mounds in specific areas of South Eastern Australia (Balme & Beck 1996:48). Following this direction, the search for attributes common to all or most mounds in Australia that may be evidence of an overall explanatory model became a major goal of this study

Recent research at Lake Boort in the Loddon River Valley, to the south of the Central Murray River, described mounds located along the inlet creek on the formerly seasonally dry lakebed. One mound was excavated and dated from  $2059 \pm 46$  BP to  $775 \pm 47$  BP (Johnston 2004:51). The stone artefact assemblage was characterised by an abundance of small and unmodified flaking debris dominated by local white quartz with evidence of bipolar percussion, and small amounts of silcrete and crystal quartz. Johnston concluded that 'it is difficult to isolate single events or a single function of a mound' and that 'mounds should be approached as a complex of palimpsests from which a number of different behavioural activities have contributed' (Johnston 2004:55-57). This conclusion appears to negate the previously stated goal of searching for one explanatory model for mounds, however, keeping the bigger picture in mind does not disallow a range of activities taking place on individual mounds.

## **2.3 PREVIOUS RESEARCH ON THE ARCHAEOLOGY OF THE HAY PLAIN**

### ***2.3.1 Klaver's Work on the Archaeology of the Hay Plain Mounds***

Substantial archaeological work on the eastern edge of the Hay Plain has been carried out by Jan Klaver (1987, 1995, 1998), whose work has focused on the eastern section of the Central Murrumbidgee from Narrandera to Hay and along Yanco Creek to the south, as well as a section east of Narrandera that is not on the Riverine Plain. Her fieldwork overlaps with this project in the area along the Murrumbidgee River from

Hay to Carrathool. In 1987 she completed a survey along the eastern section of the Murrumbidgee River and located 112 mounds, interpreted from surface evidence including clay heat retainers, as oven mounds (Klaver 1987). In 1998 Klaver completed a PhD on the same part of the Murrumbidgee and the Yanco Creek and Lake Urana areas on the far eastern edge of the Riverine Plain (Klaver 1998). This study incorporated a large-scale survey where she sampled areas over the eastern section of the Murrumbidgee Riverine Plain and recorded all the archaeological material in the sample areas across the region. This enabled her to begin to see patterns in archaeology across regional landforms as well as on the scale of minor landforms. No other survey had attempted this on the Riverine Plain, most surveys were confined to a specific area, such as a paddock (Berryman & Frankel 1984) or sections of a State Forest (Bonhomme 1990a). The detailed recording of mounds, chronology and stone tool technology in Klaver (1995 & 1998) is used throughout this thesis as comparative material.

Klaver noted caution is required in interpreting mound 'surficial groupings, and relationship to proximate artefact scatters and other sites, as contemporaneous settlement patterns. Their formation, even in large groupings, is argued to be well within the capability of a population of modest densities within a regime of seasonal or semi-sedentary usage' (Klaver1998:4). She found that there is no evidence of 'intensification' on the eastern Murrumbidgee, despite the fact that the large complexes of mounds she recorded (103 mounds at Coeey Point Lagoon alone) and dated to the Late Holocene suddenly appear on a landscape that has no recorded evidence of prior archaeological activity (Klaver 1998:298).

Klaver tested Lourandos' intensification model with the data obtained from a range of mound, oven, open and scarred tree sites along the Murrumbidgee to the east of Hay and the South Eastern tributary creeks (to the east of the Hay Plain). However, she took a simplistic view of the model, calling it the 'unilinear development model' or 'unilineal population-sedentism' model. She argued that Holocene environments underwent punctuated localised change that was managed through complex and flexible subsistence patterns, and elaborate technology and socioeconomic organisation, that characterised the hunter gatherer societies of Aboriginal Australia from the mid Holocene to the 19th century. Klaver concluded that for the Eastern Murrumbidgee Riverine Plain, this process did not necessarily 'involve dramatic population increases, demographic pressures, or a substantial adoption of the

strictures of sedentism' (Klaver 1998:4). Despite the enormous amount of work carried out by Klaver there remain questions that need to be answered. For example, she interpreted Lourandos' theory as a 'unilinear' model that necessitates the same outcome of increased population and sedentism regardless of regional environmental and cultural factors, which was not the intention of Lourandos.

This interpretation of Lourandos' intensification model presupposed that population increased unilinearly throughout the Holocene in all areas of Australia, and that it was necessarily accompanied by sedentism. While this follows Lourandos intensification model for South West Victoria and some other parts of Australia, he does not propose that all people did the same thing at the same time all over Australia. This would deny his theoretical approach, which allows for socio-cultural factors to take a primary role, and that these would vary depending on individual socio-cultural responses and local constraining factors. For example, in a joint paper on Cape York, David and Lourandos (1998:211-12) propose that the drier mid to late Holocene climate produced options of lowering population, or maintaining or increasing population by following a strategy of regionalisation, increased diet breadth, and focus on restricted ranges of resource extraction. Lourandos states that any evolutionary cline of hunter-gatherer society consists of differential development that 'should not be seen as either unilinear or deterministic, but instead as incorporating a large number of *possibilities* and *relationships*, which may have appeared in different ways at different times' (Lourandos 1997:4).

A significant aspect of Klaver's (1998:191-208) research is the excavation and dating of mounds, oven complexes and a midden at Coeey Point Lagoon on the Murrumbidgee East. The excavations identified the mounds and ovens as resulting from the in-situ use of baked clay heat retainer ovens. Pits and truncated pits with charcoal lenses at the base were recorded throughout. The midden also incorporated minor amounts of baked clay heat retainer, indicating some overlap with mounds.

Klaver obtained 27 dates from Coeey Point Lagoon and Columbo Creek (South Eastern Slopes, to the east of the Hay Plain), for a series of mounds, ovens and a midden (Appendix 4). Coeey Point Lagoon is a cut-off meander on the Murrumbidgee River on the eastern edge of the Hay Plain, and the mounds and ovens are situated around the lagoon or nearby floodplain, with a midden on the riverbank. Coeey Point Lagoon 82 mound has a series of 10 dates ranging from about 400 BP to 2,660 BP. However, the

early date must be treated with caution. Klaver indicated that there is a hiatus of about 2,000 years between the earlier 'core' of the mound and the overlying mound material. She described the overlying layer as typical mound material of soft ashy silt with some faunal material and heat retainers. However, the feature that the old date comes from was only present in one excavation pit (1 x .5 metres) out of four, and even this small exposure was cut into by a later oven. This older feature was described as a 'core' similar to that noted for some of the Murray Valley mounds, an 'extremely compact' layer with a low concentration of dense worn heat retainers and nothing else to indicate it was mound. Klaver noted there was a clear break between the two layers and 'the overlying deposit appeared quiet alien to the latter', and mentions several times that the heat retainers in the 'core' were rounded and water-worn. This layer was directly overlying the clay subsoil and contained calcareous inclusions. The area was prone to flooding and the mound had been scoured by previous flooding. Given the description and the location, it is difficult to accept that this small basal feature is definitely in-situ mound deposit directly related to mound above. Without some supporting evidence the date of approximately 2,660 BP for the beginning of the Coeey Point Lagoon 82 mound will have to be a question mark, although it is a heat retainer feature. Thus it appears that the Coeey Point Lagoon sites, including 4 mounds and the midden all range from about 1,000BP to 400 BP, except for the one older date that may be an oven or disturbed mound material. The Colombo Creek mound and two ovens, located to the south-east of the Hay Plain, are all dated at approximately 2,500 BP, indicating that this is an older site complex.

Klaver used the single date for the small, disturbed feature below the mound Coeey Point Lagoon 82/3, to propose that mounds were re-used after lengthy periods of abandonment. This led to her conclusion that mounds were built by small groups over long periods of time, indicating that there was no evidence of 'intensification' of resource use, increased sedentism, or population change. Instead she concluded that while increasing Holocene aridity resulted in a trend to more focussed occupation, the intensity of expression that produced mounds resulted from small-scale environmental conditions. She also stated that the chronology of mounds is a reflection of geomorphic processes (Klaver 1998:328-330). Thus Klaver concluded that the archaeological record is a result of people's direct response to environmental change. Her whole argument falls apart if the small, disturbed feature at the base of part of the Coeey Point Lagoon 82 mound is not part of the mound, but an earlier unrelated feature. All dates from Coeey Point (apart from the small feature dated

at 2660 BP), including CP 82, 3 other mounds and a midden, fall within the date range of 1000 BP to 400 BP, which suggests very focussed activity within a small time frame. The section of CP 82 that does not have the older basal feature was built up in around 600 years, and the other three mounds were built up in 500, 200 and 70 years respectively (Table 4.1), which does not support Klaver's conclusions of slow, episodic build-up over thousands of years.

Klaver appears to be following the Cultural Ecology theory, rather than the Cultural Materialism theory essential to Lourandos. Klaver clearly believes that environment and demographic pressures are the controlling factors, and are not manipulated in a major way by cultural processes. Because of this she finds she cannot ask questions such as 'why did people start making mounds'. While rejecting Lourandos' model, she does not replace it with any other explanation for the appearance of mounds, and she does not consider other aspects of the model such as enlarged diet breadth and focus on particular resource ranges.

Klaver documented that mounds are largely composed of heat retainer cooking discard, but she does not reflect on why people used this technology or why they mounded up material in some places but not in others, or why mounds occur as clusters of shaped mounds (small, round, mounds at Coeey Point) instead of less tightly bounded deposits. The questions Klaver did not ask became the focus of my study.

### ***2.3.2 Previous Research on Burial Distribution and Patterning on the Hay Plain***

The Hay Plain has become a focus of bioanthropological research over the last decade. The study of the larger burial sites of the Hay Plain, including Jeraly, Nap Nap and Toogimbie, are an exception to this and were examined by a number of archaeologists over a longer period of time (Bonhomme 1990 b). Information on the distribution of burials on the Riverine Plain (including the Hay Plain), and the Murray Mallee Sandplain, was collated by Bonhomme between 1987 and 1990. This included a literature search, analysis of the NSW NPWS AHIMS Register and additional survey work. Burials were categorised in this study as:

- i. Isolated, individual burials that occur randomly

- ii. Location with large number of burials unrelated in time and space
- iii. Cemeteries in which a large number of burials are associated in time and space (Bonhomme 1990b :147-8).

Bonhomme showed that burial distribution was related to geomorphology both on a regional scale and landscape feature scale. Cemeteries were not found on the eastern section of the Riverine Plain, and they increased in number towards the Mallee Sandplain in the west and southwest of the study area. Overall more burials were found in the west of the Riverine Plain than in the east (Bonhomme 1990b :146). A wide range of sand bodies was found to contain burials including: lunettes and lunette fragments, source bordering dunes, modern river bank levees, prior stream levees and channels, alluvial fan remnants, sandplain remnants, and reworked dune sets. Bonhomme looked at a number of burial sites already recorded in the Hay Plain, including Jeraly and Nap Nap, but also recorded burials in new landforms. She recorded burials on 'prior stream' sediments (called palaeochannel sediments in this study) including two areas in the Lowbidgee that were a substantial distance from the modern river channel (Bonhomme 1990b:148).

In 1992-4 interest began to focus on the Hay Plain Southwest. The Hay LALC members were concerned about the number of burials exposed and then became interested in the mounds that were often associated with them. Bio-anthropologist Colin Pardoe and NSW NPWS archaeologists Harvey Johnston and Dan Witter were requested by the LALC to investigate the some of the sites they had located, and this resulted in the first recording of burials and mounds in the area referred to in this report as the Hay Plain South-West. In this area Pardoe dated a burial from Jeraly Station and obtained what was then a somewhat unexpected date of around 5,000 BP (Pardoe 1995, Pardoe et al. 1993). Fifty four burials in seven localities were recorded, including burials in 'cemeteries' associated with mounds at Jeraly and Toocimbie, and burials in mounds near Dry Lake (Pardoe et al. 1993). I continued this recording work and site protection (Martin 1996b, 1996c) with bio-anthropologist Judith Littleton, Hay LALC members Ian Woods, Terry Baulch and Gubba Woods, and NSW NPWS Sites Officers Steve Meredith, Badger Bates and Randelle Blair.

Judith Littleton's ongoing research has concentrated on burials in part of the Hay Plain Southwest, the focus of the Hay LALC's own burial protection programme (Littleton 1993 a & 1993b, 1995 a, 1995b & 1995c, 1996, 1999, 2002). An

overview of her work discussed broad scale trends along the Murray River and adjacent landscapes including the Hay Plain. This article described distinct formal differences between the Riverine Plain (including the Upper Murray and the Murrumbidgee/Lachlan), and the Murray Valley to the west (also called the Murray Mallee or Mallee Sandplain) in both the form and placement of burial sites. Littleton argued that there is a distinct change in burial patterns at the junction of the riverine plain and the mallee landform to the west, and that differences include site location, density of burials, total numbers of burials, burial position, orientation of bodies and age-sex representation. She argues that the Murray-Murrumbidgee Riverine Plain has a greater heterogeneity of burial practices than the Murray to the West, and that this reflects different population distribution and a difference in the size of burying groups (Littleton 1999:1). Littleton (1999:4) uses data from her work on the Hay Plain, including Dry Lake, Jeraly, Kerri East, Baldon, Tchelery, and Lintotts Swamp sites located on the Hay Plain Southwest, and Nap Nap, Toocimbie, Waimea sites from the Lowbidgee (Figure 5.1).

In a more recent article Littleton undertook a detailed analysis of her data on the Hay Plain Southwest burial sites to ask the question : do cemeteries exist on the Hay Plain? The answer is that although burial practices on the Hay Plain are highly variable, there was a tendency to maintain and prefer specific locations for burials. Her data included 76 isolated single events, 89 multiple events, and only 17 places that reflect a deliberate maintenance of an area for burials, and of these only 4 fulfil the criteria developed to define cemeteries (Littleton 2002: 105).

Groups of burials on the Hay Plain display variable characteristics and some regularities suggesting more than just repeated occupation of the area. Many places used for burial cease to be used for occupation, and a number of burial places are tightly bounded, formally patterned, and dense to the point of cross cutting. Thus areas such as Jeraly and Toocimbie, originally recorded as 'cemeteries', display patterned behaviour reflecting preference and/or maintenance, including single isolated events, multiple dispersed events over time, and multiple clustered events over time. Clustered events may form small, highly patterned and dense groups of burials, which conform to the definition of cemetery except for the smaller numbers (usually no more than 20 exposed individuals). The smaller numbers also suggest that they were used for a much shorter period of time than the large Murray River cemeteries. The Central Murray cemeteries and clustered burials on the Hay Plain

also differ in location, while both areas favour high ground near water, here the similarity ends. The Central Murray cemeteries were placed on prominent landmarks visible from a distance and/or strategic places such as inlet/outlet channels, and this is what prompted Pardoe (1988) to suggest that they were territorial symbols. On the Hay Plain clustered burials are (usually) located in less prominent positions, even when (rare) prominent locations are available. Littleton (2002) thus makes the point that any function they serve as symbols may be quite different to that displayed by Central Murray cemeteries.

Littleton's work is relevant as it provides an independent set of data to test some of the ideas discussed in this thesis. Chapter 7 shows that burials and mounds have a similar distribution on the parts of the Hay Plain discussed by Littleton, with burials either in mounds or in tightly bounded clusters placed strategically about 100 metres from mounds. Thus the burials described by Littleton for the Hay Plain are predominantly burials that relate to mounds. I employ the patterning of burials, such as cluster size and boundedness, to test some of the proposed models of change in human behaviour on the Hay Plain. Littleton's work is also significant in that it details differences in human behaviour over small distances, such as between the Hay Plain Southwest and the adjacent Central Murray and Wakool Rivers. The large-scale difference in burial distribution between the Hay Plain east and west, originally noted by Bonhomme (1990b), is corroborated in Chapter 7 and expanded to include mounds.

## **2.4 REVIEW OF RELEVANT THEORETICAL CONCEPTS**

### ***2.4.1 Theoretical Concepts and Macro-scalar Models***

Archaeological work on mounds in Australia, with the exception of the initial work by Lourandos (1977, 1985), Williams (1988) and later by Balme and Beck (1996) and Klaver (1998), tends to lack explicit models or theoretical basis. The following examination of theory and models initiates the process of developing a fresh way of looking at mounds. Australian archaeological theory has adopted aspects of both European and North American generated theory to provide an explanation of the archaeological record. These theories have been adapted to suit Australian needs and expanded over time, often closely following the trends in the northern hemisphere. The present time is an extremely exciting period in archaeology, partly because of

new scientific methods used to identify, quantify and date archaeological material, but also because of the dynamic state of archaeological theory. Battles have been fought over different theoretical approaches during the recent decades, most notably between the processualists and post-processualists. Recently, however, there has been an acceptance that a range of different theoretical and methodological approaches can be used to interpret the archaeological record (Hegmon 2003), and that multiple interpretations are a positive outcome: 'Archaeology has a new maturity ...[that] seems to involve accepting diversity and difference of perspective within the discipline' (Hodder, 2001:3).

Historical Materialism has provided a theoretical framework for Australian archaeologists to study the dynamic relationships between socio-cultural factors and environment, technology, and demography. Historical Materialism recognises that the beliefs of a society play a primary role, thus society does not passively adapt to environmental and/or technological changes. Archaeology is seen as the study of the conflicting needs and strategies of groups within societies and the relations between groups (Huchet 1991:45-6, after Kohl 1981:109-10). This theoretical approach has been used to great effect by Lourandos and others throughout the 1980s and 1990s (David & Lourandos 1998, Lourandos 1980, 1983, 1997, Ross 1985 & Williams 1988). Lourandos assigns a primary role to social influences; while environment and biology are viewed as constraining or limiting factors, with all decision-making passed through a cultural filter. Society can influence natural constraints through deliberate manipulation of the environment and demography (Lourandos 1997:11). Demography is seen as being dynamic rather than static or homeostatic, and influenced by both environment and socio-cultural factors. Thus demography 'should not be considered a lone card when evaluating explanations of causality and change in the history of Hunter-Gatherers' (Lourandos 1997:17). This theoretical perspective led to Lourandos' 'intensification' model for the mid to late Holocene, also discussed in 2.2.

On a larger spatio-temporal scale, Lourandos and David (1998:105) agree that major environmental changes such as the Last Glacial Maximum had enormous effect on the way people lived. By modelling the regional archaeological trends using the temporal distribution of radiocarbon dates from rockshelter sites in three major environmental zones (tropical, arid and semi-arid) they conclude that on a broad scale:

- i. from at least 25,000 years BP until about the Mid Holocene, archaeological trends follow environmental trends closely
- ii. during the last 4,000 years archaeological and environmental trends diverge significantly, with an increase in site use at a time of the drier and more stressful climate of the last few thousand years.

Thus both correlations and differences between long-term environmental and archaeological trends can be identified. In another paper relevant to the discussion of 'intensification', David and Lourandos (1998:194) used spatio-temporal trends in rock art and other archaeological material in Cape York to explore changes in socio-demographic dynamics during the late Holocene. They assumed that 'it is the sociocultural context that primarily influences and shapes decisions taken, and therefore sets the historical trajectory'. The late Holocene of Cape York saw a range of new developments including regionalisation of rock art styles, increased use of sites and the region, new standardised stone artefact types, systematic use of new plant food staples, and establishment of large base camps indicating a 'unified system of territoriality, land use and information exchange'. The main indications are:

- i. new territorial systems that may be exemplified by smaller territories, and by well managed crops such as the yams grounds in South West Western Australia, or Pandanus or cycad groves criss-crossed by well-defined paths in Queensland
- ii. enlarged diet breadth, incorporating new staple foods capable of being collected in large quantities over extended periods of time, also resulting in risk minimisation and resources for ceremonies
- iii. restricted ranges of resource extraction and settlement to short-spaced and/or more commonly reused areas, thus residential bases became more marked and overall mobility reduced (David & Lourandos 1998:210-212).

A study by Schroeder (2004) employing similar scales of analysis to David & Lourandos (1998), shows how the three imperatives of ecology, agency and historical processes can be intertwined to provide an exploration of the complex processes that created the North American Mississippian mound and non-mound archaeology. Schroeder's research began by examining the location of small and large mounded and non-mounded settlements in relation to a range of environments, concluding

that larger, long-lived mound settlements were located in areas of highest ecological diversity and potential for production from a variety of resources. He concluded that people modified the landscape of these key long-lived places by creating enduring assets for a range of social reasons; to assert claim to the land, to create spaces for elites and unequal relationships, or just because they became accustomed to such places and the social networks that grew around them. The resulting analysis disclosed the ‘intertwining of ecology, agency and history’ (Schroeder 2004:820-3). An examination of similar macroscale processes on the Hay Plain is one imperative of the study.

One of the most common criticisms of the ‘intensification’ model is based on the idea that the perceived increase in number and size of sites in the later Holocene resulted from better preservation of sites from this period (Beaton 1983, Bird & Frankel 1991a & 1991b). Debate over this question and various permutations of it dominated archaeological work in South-Eastern Australia in the decade after Lourandos’ model was published, and still continues. In summary, the debate considers whether there are more sites belonging to the mid to late Holocene periods because of:

- i. increased overall population
- ii. increased group size
- iii. increased repeat use of sites, that may be linked to increased mobility/sedentism (see Balme 1995)
- iv. changing technology or exchange networks leading to more obvious archaeological material
- v. better preservation of younger sites due to less time for taphonomic, or geomorphic processes to take effect
- vi. or a combination of some or all of the above.

Rowland (1999) made the point that the implications of new data on global Holocene climate oscillations has not yet been fully explored in the Australian archaeological context. Although he does not discuss mounds in particular, it is important to consider his critique of Lourandos’ use of theory and the intensification model. He stated that:

environmental factors are not proposed as a *primary* cause of change, although in some cases, depending on the scale and duration of the change, they may be...The effects of environmental change on populations will also depend as much on population size, distribution and density and on a range of other historical, social, economic and political factors, as on the magnitude of the environmental change itself. (Rowland 1999:11)

Rowland detailed Holocene climatic variations that should be factored in to archaeological modelling, in the same manner as the Pleistocene changes are included in Lourandos and David (1998). He also made the point (following Allen 1979) that these oscillations may have been more significant in marginal areas (Rowland 1999:29). Evidence is presented for climatic variability increasing over the last 3-4,000 years, with a drier, cooler Late Holocene, although some areas show a slight warming over the last 1,000 years (Rowland 1999:25). Recent evidence for oscillating Holocene sea levels also needs to be considered (Baker et al. 2005).

Pardoe presented a bio-anthropological model of change to explain Murray River archaeology (encompassing both the Riverine Plain (including the Hay Plain) and the Murray Mallee Sandplain sections) in Pardoe and Martin (2001: 43-440). This model combined aspects of the work of Lourandos (1980, 1983, 1985a) with biological models based on Pardoe (1988) and Webb (1984, 1989), and the idea of ecological change:

i. The cultural model (Pardoe 1988) of social and territorial organization is centred on exclusion. Murray River Aboriginal groups would have been strikingly different from groups in the rest of the country. Their societies were based on strict territorial boundaries, with a social organization characterised by descent groups that were corporate, localised and unilineal. Warfare and vigorous boundary maintenance were probably common, as judged by trauma of skeletal remains (Webb 1989). Cemeteries and other burials were a visible element of this social behaviour, with corporate groups documenting their ownership through the visible evidence of cemeteries as territorial markers (Pardoe 1988).

ii. The demographic model (Pardoe 1990) relates observed levels of biological difference between groups to variation in population numbers and density between groups living on the River and those living away from it. The

arrangement of large populations with high densities in relatively small territories along the major river channel, like pearls on a string, is shown to give rise to extreme diversification.

iii. The chronological model is applied to a landscape changing over time as the rivers of the Riverine Plain in particular evolve into the smaller channels of the modern era (Pardoe 1995). Populations along the river were changing in many ways. These changes include bodily size decrease, the beginnings of population differentiation and increased violence. Coupled with these is the development of cemeteries, denoting not only a shift in territorial behaviour, but also, no doubt, a significant development in religion. The early Holocene is identified as a time of great change in environment as well as in the biology and culture of Aboriginal people of the region.

Following Pardoe's model, I interpreted the mounds of the Hay Plain as markers for small, exclusive territories on the Hay Plain (Martin 1996c), analogous to the visible cemeteries of the Murray River. The application of the models discussed above to the Hay Plain is critically examined in later chapters.

#### ***2.4.2 Interpretive Archaeology and Micro-scalar Processes***

The lack of perspectives involving the actual mound builders themselves is a critical shortcoming of the models and concepts discussed above. Post-processual or interpretative archaeology states that:

the past is meaningfully constituted from different perspectives, that the role of agents actively using material culture needs to be considered, that there is a relationship between structure and practise, and that social change is historical and contingent. (Preucel & Hodder 1996:7).

To put the mound builders back onto the mounds, the role of human agency needs to be considered from new perspectives. There is a need to link observable material patterning, such as mounds, to the agency of social reproduction and understand the role of material culture in dynamic social processes (Dobres & Robb 2005:159). Thus agency encompasses two fundamental and inseparable phenomena : materiality and social reproduction, and it is within the web of material, symbolic and social engagement that agency reproduces and transforms society (Dobres & Robb 2005:162). Did people deliberately shape mounds, if so why did they shape

mounds, who shaped mounds, did shaped mounds reflect aspects of social organisation, and/or did mounds have agency and alter the society? Material culture can also have agency and 'act back' on its makers and users (Dobres & Robb 2005:161, Gosden 2005:194) thus opening up the possibility that ovens and mounds themselves affect social relations, for example by altering aspects of food preparation and distribution. These new perspectives invoke fine-scale explanatory models of social dynamics that are complementary to the broader or macro-scalar models such as 'intensification'. In Chapter 8 I thus attempt to 'shift [my] "object" of study away from ... macroscale "processes" and towards a more subject-centred interest in meaningful social and material praxis.' (Dobres 1995:53-4). Such a change in scale enables the complexity, disjunctions and tensions of social dynamics to be considered as well as the general macro-scalar processes of behaviour.

Subject-centred archaeology has become one focus of research in Europe and North America over the last 10-20 years. A recent review of issues and theory in North American archaeology asserts that most North American archaeologists regard themselves as 'generally processual' but are interested in other perspectives that may be labelled post-processual. Hegmon redefines this eclectic approach as 'processual-plus' (Hegmon 2003:217), but such renaming is rejected by Moss (2005:582) because it does not acknowledge the intellectual contributions of the various streams of post-processual researchers. In a considered review of 'gender-informed' archaeology, Hill illustrates that existing mainstream theoretical frameworks - such as evolutionary, Marxist, processual, or post-processual- can be applied to the study of gender and other subject-centred issues if explicit and appropriate methodologies are selected. The macroscale preoccupation of systems or processual archaeology often precludes inclusion of gender and other subject-centred research. However, while gender for example can be reconceptualized as a large-scale organising principle as opposed to a small-scale internal variable, there is significant potential for the study of gender at the microscale, for example the social relations of food production. Thus gender and other subject-centred research has flexibility in terms of scale, and scale can be manipulated in order to address a given research question (Hill 1998:104-6).

Dobres and Robb (2005:159) discuss how 'agency provides an attractive framework for understanding how material culture relates to everyday social action, to longstanding cultural institutions, and to wholesale culture change'. The problem is 'how to proceed in linking observable material patterning to the agency of ancient

social reproduction and how to understand the role of material culture in this dynamic process'. The answer is in explicit 'middle range interpretive methodologies capable of interdigitating theory and method in ways that are suitable to sorting out the abundance of meanings in human action' (Dobres & Robb 2005:164).

Such 'middle range interpretive methodologies' used in subject-centred research commonly involve ethnographic analogy. Common methodological problems with the use of ethnographic or ethnohistoric analogy for subject-centred research include neglect of analogical context and implicit uniformitarian assumptions. Firstly, the context must be appropriate, that is the analogy should relate to the same area, group of people, and the inherent biases in the recorded information must be evaluated. Analogy used to interpret archaeology belonging to a different timeframe denies change through time, thus allowing a uniformitarian concept to over-ride the reconstruction of social change (Hill 1998:106-107). Thus analogy should be used in proper context and used to generate hypotheses that can then be independently tested (Hill 1998:109). Hill suggests a multivariate approach using multiple lines of evidence to formulate hypotheses, which can then be tested using archaeological evidence (Hill 1998:118-119).

Various writers have commented on the role of interpretive archaeology in making archaeology more relevant and accessible to various stakeholders including indigenous people (Anschuetz et al. 2001:163, Hegmon 2003:225, Moss 2005:584), but Watkins (2003) is unconvinced that it has made archaeology relevant to Native Americans to any great extent. However, there is a significant opportunity to write a more detailed and personalized history by using methods developed for interpretive archaeology.

Interpretive approaches using the concepts of 'style', landscape archaeology and gender, discussed in more detail below, can be applied to frame new questions and analyse the data from the Hay Plain from differing perspectives. These concepts can be considered as aspects of the archaeology of agency, and can be interlinked with macro-scalar theoretical perspectives, such as 'intensification' models discussed in the previous section.

### 2.4.3 'Style' in Archaeology

A concept that has been used by archaeologists over a range of theoretical perspectives is 'style'. Style is used as an analytical tool by culture historians to determine formal variation and typologies of artefacts that were then used to write time-sensitive culture history. However, the concept of style has evolved into something quite different in more recent archaeological interpretation. Style is embedded in the social contexts that give cultural materials their social values and is central in research and interpretation of archaeology (Conkey & Hastorf 1990:1). Style is elusive, implicit and ambiguous, but it is unavoidable in all archaeological interpretation, and covertly or overtly generates interpretations in archaeology. In a seminal article from 1953, Shapiro suggests there are three dimensions of style:

- form elements or motifs
- form relationships
- qualities.

The first relates to the materials and their attributes, the other two dimensions derive from and produce context and cultural meaning through use (in Conkey & Hastorf 1990:2). Objects and materials involve elements, shapes and distributions; but style also encompasses ideas, intentions and perceptions. Uses of style in more recent archaeology can be seen to fall into two categories; the outsider's view, where style is defined and used as an analytical tool by archaeologists; or the insider's view, which tries to capture the 'styles of making, of using, of knowing, and ever-changing contexts that these styles derived from and defined' from the perspective of the human actors. There is usually a 'slippage' between these two 'faces' of style, and this tension between the meaning of materials in the past and what we have made them out to be in the present can be mediated by a more self-aware archaeological practice (Conkey & Hastorf 1990:3). Style has been used by researchers to explore temporal and spatial boundaries, social interaction and exchange, social boundaries, information exchange, social process such as political manipulation, or just 'style as a way of doing' (Conkey & Hastorf 1990:3-4). Style can be used to define stylistic universes, which affect both producers and users of material culture. Forms of objects, the historical 'genealogies' of object classes, and perceived sources of objects, combine to have agency and social effects on people (Gosden 2005:193).

Claire Smith's thesis chapter on 'Style, Semiotics and Social Strategy', written from the perspective of art systems, explores the notion of style within an Australian Hunter-Gatherer context. Style is a way of encoding and communicating information, but can also reinforce or negotiate social strategies (Smith 1994:7). Smith defines style as used in her analysis as 'the personal and/or group expression of visual communication through created forms' (Smith 1994:34). She finds that style is encoded by the artist and decoded by the interpreter, and that there will be an interpretive overlap depending on the degree of familiarity between the two. If both belong to the same system of knowledge there will be a large overlap and so on, thus the interpretation by people from different groups will lead to a 'plurality of style' (Smith 1994:242-4).

If 'observable technical attributes' form 'redundant patterns' from a technological aspect, they must reflect socio-cultural processes. Thus the 'empirical structure of technical attributes can be employed to infer the structure of the intangible dimensions of prehistoric technology' (Dobres 1995:55). Neiman uses neo-Darwinian evolutionary theory in his analysis of Illinois woodland ceramic assemblages and defines style as 'nonadaptive aspects of phenotypic variation' or 'selectively neutral variation' as opposed to functional variation. Style requires social learning and the translation of this requires energy investment that is not available for other pursuits, hence it is part of the overall selective process. Stylistic variation is influenced by drift, innovation and transmission (Neiman 1995:7-12).

The mounds of the Hay Plain will be considered as elements with attributes to determine if they have style or 'redundant patterns', if they are part of a larger composition of varying elements, and if any relationships between these elements and social strategies can be defined.

#### **2.4.4 Landscape Archaeology**

Developments in Landscape Archaeology demonstrate how different approaches can provide stimulating new interpretations that extend beyond the spatial and temporal patterning of natural and cultural elements. Landscape is considered as 'an entity that exists by virtue of its being perceived, experienced, and contextualised by people'; as an active and complex entity in relation to people it goes far beyond the hot spots or sites of previous settlement archaeology (Ashmore & Knapp 1999:1). Landscape can be defined as:

the entire surface over which people moved and within which they congregated. The surface was given meaning as people acted upon the world within the context of the various demands and obligations which acted upon them. Such actions took place within a certain *tempo* and at certain *locales*. Thus landscape, its form constructed from natural and artificial features, became a culturally meaningful resource through its routine occupancy. (Barrett 1991:8 quoted in Ashmore & Knapp 1999: 6-7).

Landscape can be seen as having a continuum of conceptual, constructed and ideational qualities, and can be 'all of these things at all times: it is the arena in which and through which memory, identity, social order and transformation are constructed, played out, re-invented, and changed' (Ashmore & Knapp 1999:10). Constructed landscapes are usually seen as relating to sedentary, farming or industrial people. In the Australian context of Hunter-Gatherer societies, the earth mounds of South Eastern Australia, and the earth or shell mounds of the northern tropical coastline, as well as the eel farm drainage systems of Southwestern Victoria, provide examples of constructed landscapes. Conceptualised landscapes are ones that are interpreted and given meaning through social practice and experience. They are characterised by religious, artistic or other cultural meanings invested in natural features rather than in material culture or monuments (Ashmore & Knapp 1999:11). In the Australian context natural features and pathways conceptualised through mythology, law and tradition provide examples.

Ideational landscapes involve ideas or mental images about things not physically present, and elicit some spiritual value or ideal (Ashmore & Knapp 1999:12). Examples include landscapes that elicit histories, laws and customs, genealogies, as well as 'sacred' or ideological landscapes. Langton goes beyond the mark on the ground and shows how the Cape York Lamalama people's sense of place can be read not through material evidence, but through 'engagement and an inscription of the senses', the landscape 'populated and given shape by the ancestors and *Story Beings*' is 'apprehended, marked, and memorialised through the senses, by seeing, feeling, smelling, and hearing' (Langton 2002:254 & 265).

In addition, landscape archaeology encompasses a number of important themes:

- landscape as memory; memory stresses continuity in the landscape, often through re-use, reinterpretation or restoration, and reconstruction

- landscape as identity, where people use it as a focus by which they engage in the world and create and sustain their social identity
- landscape as social order, where the land itself plays a fundamental role in the ordering of cultural relations (Ashmore & Knapp 1999:13-19).

A review of the history of landscape archaeology, the ‘terminological imprecision and multiplicity of approaches’, as well as new perspectives and directions is given by Anschuetz et al. (2001). They suggest that a landscape paradigm, or set of ‘working assumptions, procedures and findings that define a pattern of enquiry’, includes the following premises;

- Landscapes are synthetic with cultural systems structuring and organising people’s interactions with the natural environment.
- Landscapes are cultural, as people transform physical space through activities, beliefs and values, into meaningful places.
- Landscapes are the arena for all the community’s activities, and consist of patterns of material traces and empty spaces.
- Landscapes are dynamic constructions, with each community and each generation imposing a cognitive map, a material construct, and a ‘historical’ text (Anschuetz et al. 2001:160-161).

Anschuetz et al. (2001:157) also suggest that three ‘emergent’ approaches to landscape archaeology can create an encompassing paradigm, which will also facilitate dialogue between archaeologists and traditional communities. They label these approaches as settlement ecology, ritual landscapes, and ethnic landscapes. In this schema, settlement ecology is similar to the macro-scalar approach of Schroeder (2004) or David & Lourandos (1998), discussed in 2.4.1. Ritual landscapes is similar to the approach of Bender (1992) and Tilley (1996) discussed below. Landscape archaeology in both America and Europe has focussed on landscapes with monuments such as the megalithic tombs in Britain (Barrett 1999), the Neolithic and Bronze age landscapes of Stonehenge (Benda 1992) or Bodmin Moor (Tilley 1996), earth mounds in North America (Buikstra & Charles 1999) and the complex Mesoamerican landscapes (Brady & Ashmore 1999). Blitz and Livingood (2004:291) discuss two competing possible reasons why some Mississippian mounds are bigger than others;

namely bigger mounds reflect a longer duration of mound use or that the size relates to the size of the labour force recruited by the leaders for mound construction, which in turn reflects the power base of the chief. Their tests indicate that between 10 and 40 percent of the variation in mound volume can be explained by duration. The unexplained remainder could therefore be explained by chiefly power, or other unknown variables (Blitz & Livingood 2004:299). On the Hay Plain a dating program can delineate the part the duration factor plays in producing different sized mounds, as opposed to cultural factors such as 'style'.

Bender discusses the construction and appropriation of landscapes using Stonehenge as an example of the many different ways in which people engaged with and experienced their world. Landscapes are 'multi-vocal', they are 'created by and creative of specific cultural, social, political and economic configurations', and they are also 'tensioned by the contradictory claims and counterclaims made upon them' (Bender 1992:735). Bender discusses the Neolithic to Bronze Age Stonehenge landscape using the following themes:

- the indivisibility of nature and culture
- conceptual boundaries
- differential experience of landscape
- contested and appropriated landscapes (Bender 1992:742).

Of relevance to the Hay Plain are the aspects of earth and chalk mounds being sited where they could be 'viewed' from significant positions, and that shapes such as long mounds and circular enclosures were repeated over time, magnified, and often built from different materials. Relationships with long mounds changed over time as evidenced by changing, more exclusive, burial patterns. Boundedness also grew over time, and enclosed spaces defined and differentiated people's respective places in the world (Bender 1992:745-749). Tilley (1996) explored the landscape of Bodmin Moor, Cornwall, as a relationship between topographic features, agency and power in small-scale Neolithic to Bronze Age communities. As in Bender's study, monuments were increasingly placed, over time, so their visibility was maximised. Knowledge essential to the reproduction and well-being of the social group was embodied in the cultural significance of the landscape and mediated through monuments. Landscape provided a primary medium through which power was reproduced and entailed an ever-

increasing emphasis on creating, maintaining, working and re-working relationships between monuments and the topography. The Neolithic landscape was transformed and appropriated in the Bronze Age, undergoing a constant process of structuration in relation to the monuments imposed on it. In the late Bronze Age boundaries and enclosures were delineated, thus formalising access to monuments and significant natural features, and the positioning of circles and rows indicates concern with specific paths of movement, of ordering and arranging activities (Tilley 1996:172-175).

The category labelled ethnic landscapes by Anschuetz et al. (2001) are spatial and temporal constructs where material culture and symbols are created and manipulated by communities to mark or re-create socio-cultural boundaries or identities. This is a 'challenging' approach but promises to be a 'highly productive interpretive tool' (Anschuetz et al. 2001:179). Elements of this approach has been used in Australian archaeology by a number of researchers including the already cited work of David & Lourandos (1998), and by Paul Taçon who notes landscape is socialised and conceived in the mind of the beholder and by using engraved cupules as an example he attempts to define the structure and organising principles of Aboriginal rock art, which is in turn linked to the early perceptions of landscape (Taçon 1994:34). Taçon suggests the cupules may be the oldest symbolic marking in Australia, and their occurrence is structured by natural landscape features rather than random distribution or an organising principle that overrides the nature of the place or the art space. This occurs on a macro (landscape) and micro (art panel) scale. More recent art is arranged differently but retains a landscape focus in terms of marking and signifying important places and landscapes (Taçon 1994:48). As discussed in Chapter 8 the Hay Plain provides the dilemma of a landscape that has no rock art or unusual type of landscape feature such as hills or rock outcrops that can be used to mark spatial or temporal boundaries and identities. It does however have the constructed landscape of the 'monumental' mounds and other constructed and conceptualised features.

#### ***2.4.5 Gender-Relations in Archaeology***

Understanding the role of gender in society has become another focus of research, examined both from a feminist perspective and a more pluralistic perspective (Balme & Beck 1995, Conkey 2003, Dobres 1995, Hill 1998). Feminist studies of archaeology include a wide range of topics and have the potential to ask new questions of the data,

to identify gaps in established theories, to question assumptions particularly about the nature of science and gender bias (Preucel & Hodder 1996:417). Feminist archaeology recognises the ambiguity of the archaeological record and the existence of socio-political factors, but is also respects empirical constraints (Conkey 2003:874). One of the major contributions of feminist-inspired archaeology has been the attention to the micro-scale (such as analysis of house floor deposits, building histories etc.), leading to emphasis on multi-scalar archaeology (Conkey 2003:870-871). Hill demonstrates how scale determines the types of questions asked and that gender can be conceptualised at a range of macro and micro-scales, each generating qualitatively different kinds of information (Hill 1998:119-120).

Gender can be viewed as a fluid category always in the process of being contested and negotiated (Conkey & Gero 1991:8), not a fixed biological male/female dichotomy. Gender can have different meanings at different ages and in different social contexts (Preucel & Hodder 1996 :418). Visual representations (art, imagery, iconography) can be used to define gender-related roles, relationships, status, sexuality and symbolic capital (Conkey 2003:871). For example images of human figures on a large sample of Classic period Mimbres ceramics illustrates differences between the activities and status of men and women, and between women of different families (Munson 2000:127). However, the alluvial Hay Plain is without such images and other avenues must be pursued. Hastorf (1991:132) has shown how changes in material culture over time, in this example food remains in pre-Hispanic Peru, can provide a picture of changing gender roles and social relations. Food systems 'are the basis of societies, essential to sustenance, division of labor, control, and social symbolism' and can be used to investigate broader social and political relationships (Hastorf 1991:153). Women are often documented as being in charge of the preparation and serving of food and power can revolve around the distribution of food. Because of this women are associated with hearths, grinding equipment, cooking pots, and processing food, and also refuse from processing, cooking, hearth ash and food rubbish (Hastorf 1991:134). Hastorf documents other countries where the degree of economic dependence and power of women is linked to spatially discrete storage of foods and goods, and ability to exchange foods and goods: 'spatial distribution of objects ... is the product of as well as constitutes gender relations' (Hastorf 1991:135). Gender and food are also linked through the meanings and uses of foods: food symbolism and meaning depend on the cultural system, and thus act as signs or messages about that cultural system (Hastorf 1991:135). Hastorf's paper indicates that increased labour

by women enabled ritual consumption by men of corn-based beer at feasts as markers of the Inca political control. This leads to a critical rethinking of the Hay Plain mounds, revolving around the cooking of food by women, but also including the harvesting and distribution of food and related products such as fibre by women. Any change in these processes is likely to support a change in gender roles, which itself would create new social relations. In this study I examine the Hay Plain mounds from this perspective, asking **who** built mounds and what do mounds say about changes in gender relations? The relationship between gender and mounds may reflect the negotiation of gender relations and changes in cultural behaviour.

#### **2.4.6 Conclusion**

Previous work on mounds in Australia has utilised a variety of theoretical perspectives and macro-scalar models, basically allowing ecology and agency different degrees of significance. General models such as the ‘intensification’ model (Lourandos 1983, 1985a & 1985b) provide an explanatory framework for change in the mid to late Holocene of Australia that has been applied to research on mounds (Williams 1988, Klaver 1998). This model has also been applied to Northeast Queensland archaeology, integrating both environmental conditions and social-historical foundations to model changes after about 2,000 BP (David & Lourandos 1998). A similar study by Schroeder (2004) shows how the three imperatives of ecology, agency and historical processes can be intertwined to provide an exploration of the complex processes that created the North American Mississippian mound and non-mound archaeology. The resulting analysis disclosed the ‘intertwining of ecology, agency and history’ (Schroeder 2004:820-3). An examination of similar macro-scalar processes on the Hay Plain is one imperative of the study.

However, Balme & Beck (1996) have discussed the need for a single generalised model to explain the appearance and distribution of mounds in Australia. Most archaeological studies on mounds in Australia note the presence of heat retainers in mounds as well as pits, charcoal, ash, burnt faunal material (Berryman & Frankel 1984, Coutts et al. 1979, Klaver 1998, Martin 1996a, 1996b, 1996c). Heat retainers are often mentioned in passing (Bonhomme 1990a), or sometimes discussed in more detail (Coutts et al. 1979, Klaver 1998). Significantly, early historical eye-witness accounts particularise the many elements and purposes of heat retainer cooking in ovens and mounds, thus leaving an invaluable record (Chapter 4). Several early

antiquarians also reflect on the need to explain the ‘innovation’ of mound building, and discuss the ‘limited area in which they are found’ (MacPherson 1885:59), as well as similarities and differences in attributes of heat retainers and mounds in South Eastern Australia (Etheridge 1893, MacPherson 1885, Spencer 1918). However, heat retainer technology has not been considered by archaeologists as a key factor in a causal relationship, that is researchers have not investigated the fundamental reasons why people use heat retainers and have therefore been unable to explain why they intensified this use thus creating mounds. The idea, derived from the literature review and my own work on the Hay Plain, that mounds in Australia have the universal attribute of heat retainers, leads this study to an examination of the world-wide role of cooking and heat retainer technology, and its role in mid to late Holocene focus on maximising energy returns from carbohydrate rich foods.

On another level, Conkey (2003) and Dobres (1995) have shown that a downsizing in analytical scale is necessary to examine the complexity of social processes that may have occurred on the Hay Plain and been affected by or affected the building of mounds. Therefore, a successful approach for this study should include multiple analytical scales and the inter-linking of Historical Materialism and Interpretive Archaeology.

In summary, this review indicates that three main themes, each with a different approach and analytical scale, must be incorporated into this study. Firstly the search for a single fundamental explanatory model for mounds (Balme & Beck 1996) requires a global analysis of heat retainer technology, and a detailed examination of the material and structure of Hay Plain mounds to validate the use of heat retainers. Secondly, at a scale similar to that of David and Lourandos (1998) and Schroeder (2004), the study aims to provide evidence of the intertwining of environment, human agency and historical processes, which may lead to generalised models of social-cultural change. Thirdly, at a micro-scale envisaged by Conkey (2003) and Dobres (1995), concepts of interpretive archaeology such as landscape archaeology, style and gender can be used as tools to tease out finer details of human agency and historical processes on the Hay Plain. The success of this multi-scalar research framework will be demonstrated if the explanations derived from the study mesh together to form a coherent story.

## CHAPTER 3

# RESEARCH OBJECTIVES AND METHODS

*We shall have to regard ... the accumulation of the mounds of ashes as comparatively modern innovations...what reason can be discovered to explain why the innovation sprang up in that part of Australia in which it is found to prevail? (MacPherson 1885:59)*

### 3.1 RESEARCH OBJECTIVES

#### 3.1.1 Research Goals and Questions

Following Balme & Beck (1996), a major goal of this research is to determine if a 'single role' or a fundamental factor could be found to explain the apparent emergence of mounds on the Hay Plain, and by extrapolation, in other areas of Australia. This requires a detailed examination of the role of heat retainer technology that appears to be a common factor linking occurrences of mounds in Australia and globally. A second goal is to examine the dynamics of behavioural change on the Hay Plain and propose generalised models to explain such change. The theoretical perspective taken in this study follows the integrated approach combining the ecological and 'agency' perspectives applied to a recent analysis of the American Bottom Mississippian mound building societies (Schroeder 2004). The third goal is to examine at finer analytical detail (Dobres 1995) the interaction of human agency and historical processes on the natural and cultural landscape of the Hay Plain.

The major research questions are;

#### A. HEAT RETAINER TECHNOLOGY

1. Why do people use heat retainer ovens?
2. How does the use of heat retainer ovens and mound building in

Australia relate to the global picture?

3. Are mounds on the Hay Plain largely composed of material resulting from using heat retainer ovens for cooking?
4. What is the chronology of heat retainer use and mound building on the Hay Plain and elsewhere?

#### B. DYNAMICS OF HUMAN BEHAVIOUR

1. What does the distribution of archaeological material on the Hay Plain tell us about the relationship between mounds and particular environments, and what does it tell us about the relationships between the various types of material present?
2. What does the distribution of ovens and mounds on the Hay Plain and elsewhere tell us about why people used heat retainer in specific regions and why mounds are only found in specific locations?
3. What does all of the above tell us about the dynamics of human behaviour in the mid to late Holocene of the Hay Plain?
4. Can this be related to South Eastern Australia, Australia and the global picture?

#### C. CONSTRUCTED OR CONCEPTUALISED CULTURAL LANDSCAPES

1. Are mounds deliberately shaped ?
2. How do mounds relate to other aspects of the constructed, conceptualised and socialised landscape?
3. How do people perceive mounds, and what sort of messages do they communicate?
4. Why do people shape mounds ?
5. Who shapes mounds and what does this say about changing gender relations

### 3.1.2 Testing Models

The concepts discussed in Chapter 2 enabled new models about the role of mounds to be created and tested, in addition to models utilised in previous research. Testing of these models against the data may provide causal relationships to help explain the development of mounds. The final Chapter tests the application of these models against the results of the research. Models already mentioned in the literature include;

#### 1. Ethnographic Models

Models used to interpret aspects of mounds have been developed from the ethnographic literature or mound location patterns. These models may explain aspects such as function or some functions of mounds, but have to be linked to other models and theoretical perspectives to produce a causal relationship. These models include;

- use of mounds as ovens for cooking, (G.A. Robinson in Clarke 2000, Curr 1883 & 1886-7, Dawson 1881, Kenyon 1912, Krefft 1866a, Beveridge 1883, Williams 1988 )
- hut platforms (Williams 1988)
- campsites on poorly draining soils (Williams 1988)
- vegetable farming (Balme & Beck 1996)

#### 2. Variations of Mid to Late Holocene 'Intensification' Model

2a). Mid Holocene intensification or socio-economic model proposed by Lourandos and developed by Williams as an explanation for mounds particularly in South West Victoria; that is, evolution of social relations leading to intensification of resource extraction (Lourandos 1980, 1983, 1997 & Williams 1988).

2b). Pardoe's cultural adaptation 'inclusion/exclusion' model. The development of large cemeteries and skeletal indicators on the nearby Murray Riverine Plain are explained as dense populations owning and defending small resource-rich group territories and excluding other groups (Pardoe 1988, 1995). This model is a development of Lourandos' 'intensification' model (see above) and also Webb's

model for the Central Murray in which patterns and frequencies of stress and disease is seen to indicate a sedentary or semi-sedentary people living in close proximity and heavily exploiting usually abundant foods but with periodic serious hardship (Webb 1984:169-170).

2c). An adaptation of Pardoe's model (above) proposes that the large mounds and small burial clusters on the Hay Plain South West may be a unique response to inclusion/exclusion factors. In this case large mounds and burial clusters would act as 'sign-posts' or territorial markers and may be stamp of ownership of important resources such as swamps (Martin 1996c).

### 3. Spatial Patterning of Mounds Reflects Social Organisation

3a). Craib proposed that big mounds were base camps and the small mounds were satellite specialist sites (Craib 1991).

3b). Witter (pers. comm. 1996) proposed that mounds were central cooking places surrounded by huts, the arrangement a reflection of the social structure and sharing of activities.

I am considering additional models as a result of the literature review, including;

### 4. Environmental Change Models

4a). Mounds may be linked to the Holocene evolution of the riverine system. Following Pardoe's (1995) model, Hay Plain mounds may be a response to evolution of swamps, billabongs and other resource rich environments during the mid to late Holocene evolution of the modern Murrumbidgee and Lachlan.

4b). Mounds may be linked to Mid to Late Holocene climatic variability. Mid to Late Holocene climatic changes include a possible wetter period around 4-5,000 BP (Kershaw 1995), climatic variability increasing over the last 3-4,000 years, and a drier, cooler Late Holocene, although some areas show a slight warming over the last 1,000 years (Rowland 1999 : 25). This leads to a model of mounds being a response to wetter period and more widespread and predictable swamp and plant food resources that gradually diminished over the last 2,000 years. This model allows for a change in temporal and spatial distribution of mounds, as well as change in mound size, shape and contents as climatic variability influences the distribution of resources.

5. Mid to Late Holocene Focus on Plant Foods that Need Prolonged Heat Retainer Oven Cooking

An examination of the global and Australian use of heat retainers (Chapter 4) leads to a model of mid to late Holocene intensified exploitation of plant resources that were previously under-exploited. This is directly related to the physical and/or chemical alteration of foods and/or fibres through the use of heat retainer baking or steaming processes

6. Mound Size and Shape are Influenced by 'Style'.

This model proposes that different sizes and shapes of mounds are influenced by people's perceptions of correct mound template rather than environmental conditions or a direct result of function. By looking at the concept of style we can discuss possibilities of what the ideas, intentions and perceptions (Conkey & Hastorf 1990:2) of the mound builders might have been.

7. Mounds are an Element of a Cultural Landscape.

This uses landscape archaeology concepts to model how constructed, conceptualised and ideational landscapes may be created on a flat plain with no rocks to paint, trees to carve or outstanding natural features. Evidence such as ancestral stories explaining landscape features, the relationship between the range of constructed landscape features, evidence of how people viewed and view their landscape, and evidence of landscape management, can be combined to give insights into the landscape as an inscribed, living, breathing aspect of social organization and communication. Differing and parallel interpretations of ancestral and current Aboriginal people, and non-Aboriginal people, may provide evidence of longer-term cultural processes.

8. Mounds relate to Changing Gender Roles on the Hay Plain.

Ethnography and archaeology from regions of the world indicate that women dominated the collection, cooking and distribution of plant foods and controlled the discard relating to these activities (Hastorf 1996). If a link between women and cooking of plant foods in mounds can be demonstrated, this leads to a model of change in gender relations and social organization, evidenced by the mounds.

### 3. 2 RESEARCH FRAMEWORK

The basic research questions and models outlined above form the framework for the study (Table 3.1). The questions and chapters are organised to flow into three main thematic areas of data collection and discussion, (i) the role of heat retainer technology (ii) spatial and temporal distribution of archaeological material as evidence of macro-scalar changes in behaviour, and (iii) subject-centred interpretation of constructed, conceptualised and socialised landscapes. Each area of discussion links into and builds on the other areas, creating a multi-scalar explanatory framework. Appropriate data is collected for each question, described and associations and relationships established. In the final chapter models are then tested and either rejected or used to explain why such relationships, associations or events occur.

Table 3.1 : Research Framework

<u>Research Questions</u>	<u>Collection, Description &amp; Correlation of data</u>	<u>Possible Explanatory models</u>
Why use heat retainer? (Chapter 4)	Ethnographic, archaeological ,experimental use of ovens, archaeobotany, phytochemistry	Baking & steaming increases food value especially of carbohydrate rich plant food.
Do Hay Plain mounds relate to repetitive use of heat retainer ovens? (Chapters 5 & 6)	Field survey, excavation and sediment, charcoal, pollen analysis	Focus on dense predictable carbohydrate rich plant foods
Chronology of Hay Plain mounds (Chapter 5)	Excavation & dating	Change in cultural behaviour and/or social organization
Distribution of archaeological material (Chapter 7)	Field survey & mapping	May correlate with current or prior environments, or show associations of material types
Distribution of mounds (Chapter 7)	Field survey & mapping	May correlate with dense, predictable plant food
Is there evidence of change in archaeological patterns over time? (Chapter 7)	Field survey & mapping	Evidence of macro-scalar behavioural dynamics such as intensification of resource extraction, evolution of cooking technology or social structure
Are mounds deliberately shaped ? (Chapter 8)	Field survey, excavation	Mounds may have 'style' attributes.
How do mounds relate to other aspects of the constructed landscape? (Chapter 8)	Ethnography, field survey	Mounds are part of a complex socialised landscape
Who shapes mounds? (Chapter 8)	Ethnography, excavation, social anthropology	'Staple' plant food production may alter gender relations
Why do people shape mounds? (Chapter 8)	Ethnography, social anthropology	Mound shape inscribes and communicates information, and orders space
Changes in behaviour in mid to late Holocene of the Hay Plain (Chapter 9)	All of the above	Concluding discussion of results and models
Relate changes in behaviour on the Hay Plain to Australia and the global picture (Chapter 9)	All of the above	Relate to generalised models of change in social organization during the mid to late Holocene

## 3.3 METHODS

### *3.3.1 Theory Levels and Data Collection*

The multi-scalar approach to the three main themes, each using different methods and analytical scales, has been discussed above. From a methodological perspective, the study essentially breaks down theory into low, middle and high level theory. Low level theory examines the archaeological record through empirical typologies and classifications, chronologies and seriations, and spatial distributions. It also includes the study of site-formation processes, recognising that sites are subject to processes that obscure the record of past behaviours. Middle range theory links the archaeological record to behavioural dynamics, through the use of ethnographic studies or historical records, or experimental archaeology. High level theories are general theories that integrate behavioural dynamics into coherent explanatory frameworks (Preucel & Hodder 1996:8-9).

The study involves data collecting and analysis, or Low Level Theory, from the Hay Plain and other areas such as the Menindee Lakes for comparison. This then is taken another step and questions or models applied that involve Middle Range theory, such as ethnographic data, and experimental data. The final conclusions attempt to link the results to broader research questions about the dynamics of human behaviour, such as the evolution of cooking technology, the 'intensification' of resource exploitation, or changes in social structure.

The study relies on the examination of the archaeology at different spatial and temporal scales. The challenge is to use these different scales to ask appropriate questions. This became a methodological issue very early in the project during the literature review when it became clear that some projects had been limited by their spatial scale, for example looking at the distribution of mounds in a very small area limited the questions that could be asked and tested. Some questions could only be answered by looking at data on at a larger spatial scale, other questions could only be considered at a regional or local scale. Some aspects, such as the use of heat retainer for cooking, are considered on a global scale. Finally, some questions looked at individual mounds or mounds complexes at the macroscopic and microscopic scale of faunal analysis, sediment or pollen analysis. To keep the project within reasonable limits I proposed to compile data to compare sections within the Hay Plain, and compare the Hay Plain to other areas including the Macquarie Marshes and

Menindee Lakes (Figure 1.3), and the Edwards and Wakool Rivers on the Murray River system and adjacent to the south-west of the Hay Plain (Figure 1.2). Models are tested by comparing the sizes, shapes, contents, spatial patterning and minor and major landform locational data of mounds and other archaeological material in these areas, and ethnographic data. This enables me to demonstrate if there are discrete populations of mounds on the Hay Plain, and how these vary from mounds elsewhere, and how they relate to other archaeological material.

Different temporal scales are considered, from the long term viewpoint of the effects of cooking and cooking styles on the history of *Homo sapiens*, to the medium term view of the Holocene in south-east Australia and the Hay Plain, to a short term view including ethnohistory and the current viewpoint of oral history for the study area and adjacent areas.

### **3.3.2 A Stable Holocene Landscape**

The Hay Plain has features that make it well suited to an examination of the mid to late Holocene archaeology. It is substantially an aggrading landscape, and the surface is tectonically stable. It is in direct contrast to much of semi-arid South-Eastern Australia where the surface is constantly being eroded down and layers of archaeological material end up as characteristic lag deposits consisting of erosion resistant material of mixed age, predominantly stone artefacts. On the Hay Plain there is less mixing of material of different ages and features such as Mounded Cultural Deposits can remain relatively stable for long periods of time. This makes the Hay Plain an excellent landscape for examining the mid to late Holocene archaeology, bearing in mind that the possibilities for researching the Pleistocene archaeology appear to be limited or need a different approach (although see Edmonds & Long [1998] and Bowler & Kotsonis [1997] who determined that some landscape features with archaeology on the Edwards River system near Deniliquin just to the south of the Hay Plain are late Pleistocene in age).

### **3.3.3 A Simple Landscape**

The Hay Plain also has the advantage that at a broad level it is a simple landscape, basically one large plain. The main source of water is the externally originating rainfall and spring melt from the eastern highlands, which ran east to west across the entire plain prior to water storage and management. Stone material has to be

brought in from outside the plain. This makes it possible to examine the archaeology over a large area without having to take into account the possible effects of major changes in topography, climate, or local stone tool sources. Other factors can be focussed on and examined more easily. However, even this simple landscape has variables that influence the distribution of archaeological material.

### **3.3.4 Constraints and Research Ethics**

The following methodological and ethical constraints on the project were recognised from the early stages:

- i. The large size of the Hay Plain introduced difficulties to the distribution sampling. This was partially overcome by using a combined database from various projects resulting in better coverage and larger 'site' numbers.
- ii. During the fieldwork period the relevant Aboriginal communities did not have the necessary Government support to prevent the high destruction rate of archaeological material mainly due to irrigation farming, dry land farming and pastoral practises. I was therefore asked by communities to record endangered cultural material, particularly burials, or give advice that was not be part of my intended work. This extra work slowed down my progress, but was the most satisfying part of the project. Three examples of this type of community work I was able to carry out include the recording and organization of community involvement in conservation of burials at Maude (Martin 2000c); writing the background report for the Conservation Agreement covering the Ravensworth 1-12 'sites' (Martin 1999b), and a report for the Menindee community on the large burial site in ashy deposit that was exposed in 2003 when the Menindee Lakes were emptied for the first time in 40 years (Martin 2003).
- iii. The high numbers of burials on the Hay Plain introduced a methodological constraint and all excavation and data collection was designed to avoid damage to burials and ensure reporting of burials
- iv. This study was aimed at providing information and explanation, but not exact details of the location of archaeological material. All grid references are deleted from tables, however, grid references for serious research can be obtained from DEC in consultation with the Hay, Balranald and Menindee LALCs.