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ABSTRACTS FROM THESES AND DISSERTATIONS, UNIVERSITY OF OTAGO, 2008

IAN SMITH AND JESSIE GARLAND
ANTHROPOLOGY DEPARTMENT,
UNIVERSITY OF OTAGO

Abstracts from theses and dissertations in topics related to archaeology during the year 2008 are presented below. These include one PhD and seven MA theses, along with 13 BA(Hons) dissertations. The theses are held in both the University of Otago Central Library and the Anthropology Department Library, while the dissertations are held only in the Anthropology Department Library. Requests to consult any of these items should be directed towards the library concerned.

Bell, Alex, 2008. Field Systems at Pouerua: An Archaeological Survey and Interpretation. BA(Hons) dissertation, Anthropology, University of Otago.

This dissertation research project examines the extensive prehistoric and early historic horticultural remains that surround Pouerua pā in the inland Bay of Islands, Northland. While the central Pouerua pā and surrounding settlements have been the focus of much study in the past, the horticultural remains which dominate the Pouerua archaeological landscape have received little attention. This dissertation project aims to help address this imbalance by examining the horticultural remains at Pouerua. Field survey data gathered in 2008, and a detailed topographic map of the Pouerua landscape produced in the 1980s as part of the Pouerua Project, provided a starting point for understanding the nature, distribution and relationship of the horticultural evidence at Pouerua. This project examines the different forms of horticultural evidence at Pouerua and variation within features. It also looks at the distribution of features across the wider Pouerua area and the relationship between archaeological features, and archaeological features and the Pouerua landscape. The second half of the project then applies this information to the concept of temporal change, and

investigates whether temporal change is evident in the Pouerua field systems and how it presents itself.

Beu, Katerina, 2008. Towards Explaining the Long Pause in the Prehistoric Colonisation of Polynesia. MA thesis, Anthropology, University of Otago.

The Lapita people, the ancestors of the Polynesians, first appeared in the Bismarck Archipelago north of New Guinea in about 3300 BP. They migrated east and colonised the islands of the Solomons, Reef and Santa Cruz, Vanuatu, New Caledonia, Fiji, Tonga and Samoa. This migration occurred relatively rapidly, but upon reaching West Polynesia in about 2900 BP their eastward migration ceased. This cessation in migration is known as the long pause, and it lasted until the Polynesians, the descendants of the Lapita people, reached East Polynesia in c.1200-1000 BP.

There are several theories that attempt to explain the reasons for the long pause. This thesis proposes that a combination of constraining factors, including markedly decreased island accessibility east of the Andesite Line (Di Piazza *et al.*, 2006), an undeveloped sailing technology (Anderson, 2000), climatic constraints imposed by the need to wait for El Niño periods and their concomitant westerly winds in order to sail eastwards (Anderson *et al.*, 2006), and social factors, provides an adequate explanation for the Polynesian pause.

This thesis is based on a review of the literature, and critically analyses the various models of Polynesian prehistory by comparing them against the established archaeology.

Bull, Simon, 2008. Investigating the Shellfish Assemblage from Purakaunui (I44/21). BA(Hons) dissertation, Anthropology, University of Otago.

Shellfish evidence from the site of Purakaunui (I44/21) has previously been seen to change over time. This research examines a different sample from the same site for evidence of continuation of this pattern. The results of this research indicate that the assemblage is dominated by a single species over time. This evidence is compared to the shellfish data from a set of North Otago sites that are positioned near a range of shellfish habitats. These comparisons show that Purakaunui fits into a regional pattern of shell fishing. This pattern is focused on prominent shellfish species in close proximity to the site. This focus changes little over time. An issue of site stratigraphy for the site this assemblage is from is also addressed. It is found that there is little evidence in the shellfish midden to support previous assertions made about stratigraphic relations.

Butcher, Maria, 2008. Fish and Shellfish in the Colonial New Zealand Food System. MA thesis, Anthropology, University of Otago.

Colonial New Zealand society can be accessed through historical archaeology. However, the full potential of the discipline in this country has yet to be realised. To date, historical archaeology in New Zealand has suffered from a lack of overviews, syntheses, or even of arguments. This thesis is about a particular class of food – fish, shellfish and crustaceans – in the colonial New Zealand food system. Eating is understood as part of a process that begins when the food item is planted, gathered, bred or caught, and ends when the leftovers are thrown away. Evidence is drawn from a range of sources to trace the process by which a living animal is transformed into a commodity, to food, to waste, and finally, to a representation of itself in an archaeological report. A re-analysis of published and unpublished faunal data from relevant archaeological sites was undertaken, to determine what the archaeological evidence reveals about eating fish and shellfish in 19th century New Zealand. The remains of sheep, pigs and cows very much dominated the assemblages that were considered. However, these assemblages cannot be considered directly reflective of the diet. Based upon historical evidence, fish and shellfish remains are underrepresented in historic period assemblages. Historical research focused upon three areas: supply, distribution and consumption. The historical evidence shows that fish and oysters were available to the pākehā colonists, from Māori suppliers in the early days, and later via the burgeoning colonial fishing industry. Cookery writing of the time shows that the readers of recipe books and newspaper cooking columns *wanted* to eat New Zealand fish, oysters and crustaceans.

Cawte, Hayden, 2008. Smith and Society in Bronze Age Thailand. PhD thesis, Anthropology, University of Otago.

A metalsmith's ability to turn stone into metal and mould metal into useable objects is one of the most valuable production industries in any society. The conception of this metallurgical knowledge has been the major catalyst in the development of increasing socio-political complexity since the beginning of the Bronze Age (Childe 1930).

However, when considering the prehistory of Southeast Asia, especially Thailand, it is noted that the introduction of metallurgical activity, namely copper and bronze technology, did not engender the increase in social complexity witnessed in other regions. It is suggested that the region is anomalous in that terms and concepts developed to describe and define bronze ages by scholars working in other regions lack strict analogues within Southeast Asia. Muhly (1988) has famously noted the non-compliance of Southeast Asia to previous models, "In all other corners of the Bronze Age world – China, Mesopotamia,

Anatolia, the Aegean and central Europe – we find the introduction of bronze technology associated with a complex of social, political and economic developments that mark the rise of the state. Only in Southeast Asia, especially in Thailand and Vietnam, do these developments seem to be missing” (Muhly, 1988:16).

This “rise of the state” is associated with the development of hierarchy, inequality, and status differentiation, evidence for which, it is argued, is most explicitly articulated in mortuary contexts (Bacus 2006). Evidence would include an intra-site restriction in access to resources, including prestige goods, and ranking, a vertical differentiation, often related to interment wealth. Thus the introduction of metallurgical technology saw copper and other prestige goods used to entrench authority and advertise status (Coles and Harding 1979). Such evidence has so far been absent in Bronze Age Southeast Asian contexts. Accordingly, the usefulness of the term ‘Bronze Age’ for describing and defining Southeast Asian assemblages has been questioned (White 2002). However, the Ban Non Wat discovery of wealthy Bronze Age interments, with bronze grave goods restricted to the wealthiest, has furrowed the brow of many working in the region, providing evidence to at least reconsider this stance.

Despite its obvious importance in shaping Bronze Age societies around the globe, and now, significance in Northeast Thailand, very little is known of the acceptance, development, and spread of tin-bronze metallurgical techniques during the prehistory of Southeast Asia. Only a handful of investigations of archaeological sites in the region have investigated the use of metals beyond macroscopic cataloguing.

Utilising an agential framework, the Ban Non Wat bronze metallurgical evidence has been investigated as an entire assemblage, from the perspective of the individual metalsmith, in order to greater understand the industry and its impact upon the society incorporating the new technology.

Furthermore, mortuary data is investigated by means of wealth assessment, as an insight into social form throughout the corresponding period of adoptions, development and spread of metallurgy.

The bivalent study of society and technology has shed light on the development of socio-political and economic complexity during Bronze Age Southeast Asia, and in doing so, has outlined the direct impact the metalsmiths themselves had on the supply, spread and functioning of their important industry.

Variabilities in grave ‘wealth’ have been identified as Ban Non Wat. A further situation not previously encountered in Bronze Age Southeast Asia is the restriction of bronze goods, in death, to differentiated, wealthy individuals. The existence of such individuals suggests that society during this period was

rather more complex than regional precedents would suggest. I contend that it is the introduction of metallurgy and, in particular, the nature in which it was conducted that engendered these developments.

Therefore, when considering the traditional course of developing social-political complexity during the Bronze Age, it now seems that Thailand, at least, is potentially not that anomalous.

Clifford, Emma, 2008. 'A Meaningless Beauty Contest Between Nations?' Geographical Representivity on UNESCO's World Heritage List with a Focus on the Under-representation of Pacific Cultural Heritage. BA(Hons) dissertation, Anthropology, University of Otago.

The cultural heritage in the Pacific region is a major problem area in UNESCO's endeavours for a representative and credible World Heritage List (WHL). The region has a total of nine cultural and mixed (cultural and natural) sites on the WHL. This represents 1% of the total cultural and mixed sites listed on the WHL. Through an investigation of both UNESCO and ICOMOS documents and the scholarly literature on the topic of representivity, a number of reasons for these disparities became evident. These reasons are highlighted as either arising from the ineffective function and structure of world heritage or stemming from the ambiguity of concepts of heritage at an international level.

Once these general reasons are applied to the Pacific cultural heritage and the current Pacific social and political situation, the reasons for the lack of the Pacific cultural heritage on the WHL becomes clear. The major issues lie in the lack of effective management strategies and the conflict between the Pacific definition of cultural heritage and the definitions of UNESCO. Finally, an assessment of the strategies for increasing representivity by both UNESCO and ICOMOS was undertaken. It was concluded that the strategies were relatively limited in their effect.

Culley, James, 2008. An Archaeological Education: A Study of Anthropology 103. BA(Hons) dissertation, Anthropology, University of Otago.

This is a qualitative investigation of why students in the undergraduate Anthropology 103 class choose to study archaeology and how their perception and understanding of archaeology changes after taking part in this class. This research is then examined under the broader idea of understanding archaeology's role in contemporary society in conjunction with a review of the relevant published literature. This research aims to increase knowledge around archaeology as a socially constituted discipline and the role that higher education has in changing people's understanding of archaeology.

Edwards, William, 2008. Technological Change at Hayes Engineering Works, Oturehua, New Zealand. MA thesis, Anthropology, University of Otago.

How does innovation in material culture occur? In this thesis, I critically examine the role of the individual in this process and contrast it against a wider background of political, economic and technological change.

The case study selected is Hayes Engineering Works, Oturehua, Central Otago, New Zealand. Hayes Engineering manufactured durable products for the agricultural industry. The period selected for this thesis is 1895 to 1926, which coincides with the founders', Ernest and Hannah Hayes, active involvement in the business.

The theoretical position of this thesis is that change in material culture is not the result of individuals, but builds upon the efforts of many. I examine and demonstrate the connections between the artefacts at Hayes Engineering Works and the wider world.

This is in contrast to a widely held myth that material culture associated with agriculture in New Zealand developed because of isolation. I argue the opposite and conclude that this material culture developed because of a myriad of connections, personal, professional and technological. An economic and political framework, combined with the skills of the individual, led to changes in material culture.

Harris, Nathaniel, 2008. The Protection of New Zealand's Movable Cultural Heritage: An Overview and Critique. BA(Hons) dissertation, Anthropology, University of Otago.

This investigation assesses the way that New Zealand safeguards its movable cultural heritage. The focus is on archaeological material, both its protection *in situ* and after excavation. An appraisal of the New Zealand system was conducted through the examination of international conventions, past and present national legislation, domestic case studies, the New Zealand market, and two global case studies (Italy and Australia). The most imperative findings were that New Zealand needs to increase public awareness of the issue, enhance the protection afforded to non-Māori archaeological objects to the same level bestowed upon taonga tūturu, and revise the protection of its underwater cultural heritage.

McPherson, Sheryl. 2008. Bone Awls in Prehistoric New Zealand. MA thesis, Anthropology, University of Otago.

Bone awls are a class of worked bone points that are poorly understood in New Zealand prehistory. With the exception of a dissertation on bone awls

from the Chatham Island (Cave 1976), there has been no specialist study into bone awls from mainland New Zealand. The aim of this thesis is to compile the published literature available on bone awls from prehistoric New Zealand sites and produce a standardised methodology to analyse these implements. This research also examines what is published in the literature, and how this relates to what is present in museum collections.

Bone points from Little Papanui (J44/1) are selected to test the awl typology developed by Cave and to clearly define these artefacts based on morphological characteristics.

Furthermore, this research determines if her typology is applicable for use on another awl sample and how the results from both sites compare.

The result of this exercise was the development of a new method for awl analysis that incorporates the strengths of Cave's typology and the research that has been conducted in the last 30 years. Additionally, this thesis identifies the issues that are faced when studying a difficult and poorly understood artefact class.

Potts, Kirsty, 2008. Symbols of Power in the New Zealand Archaeological Record. BA(Hons) dissertation, Anthropology, University of Otago.

This dissertation is an examination of symbols of power in the New Zealand archaeological record. There has been little research done in New Zealand specifically on social power. The aim was to examine power in a relevant way to allow identification of symbols of power of the prehistoric Māori.

A review of the international literature and reconsideration of the New Zealand published literature allowed a select number of sources of power, and three examples of symbols of power, to be identified. The whale tooth pendent and Māori comb are identified and justified as symbols of power. These first two symbols of power were primarily associated with ideological sources of power and were personal adornments. The pā is reviewed in terms of power as a theoretical case study. It is concluded that there is a potential for theories of social power to be applied to the New Zealand archaeological record, but further research is required.

Sarjeant, Carmen, 2008. Form-Plus-Fabric: Northeast Thailand Ceramic Technology from the Bronze to Iron Ages. MA thesis, Anthropology, University of Otago.

This study traced changes in the form and fabric of ceramic vessels from the Bronze to Iron Age at Ban Non Wat, Khorat Plateau, Northeast Thailand. A complementary ethnoarchaeological component assessed modern ceramic

fabrics and manufacturing techniques from the nearby potting village, Ban Thakok, in order to infer behaviours of prehistoric potters.

Mortuary ceramics were sampled from the cultural phases, Bronze Age 1 to 4 and Iron Age 1 to 2, for form-plus-fabric analysis. 'Form-plus-fabric' brings together stylistic studies (*form*) and scientific research strategies (*fabric* or *paste*). The aim was to *characterise* vessel form and fabric changes through time. The notable difference between Bronze and Iron Age pot forms was the foundation for an investigation of whether there was a sudden or gradual change in ceramic technology as these forms modified. Both cultural (*form*) and technological (*fabric*) attribute analyses were required to place ceramic traditions within the changing socio-political environment into the Iron Age.

Ceramic vessels were stylistically analysed by recording form, size and surface treatment in the field and from photographs. Eighteen vessel form groups were identified. Ceramic fabric analysis utilised the electron microprobe Energy Dispersive Spectrometer and microscopic imaging to identify temper choices, natural non-plastic inclusions of the potting clay and the clay matrix composition, followed by a Principal Component Analysis. Untempered and quartz sand, rice husk, grog and shell tempered wares made from chemically similar local clays were identified. The local clays were subdivided into 10 groups. Analysis of upper and lower portions of the same vessel revealed that some comprised multiple fabrics, inclusive of different tempering methods. This discovery justifies the collection and recording of multiple diagnostic sherds from a single vessel.

Local raw clay sources were sampled and comparisons between clay matrix compositions within prehistoric ceramics and clay sources revealed they were chemically similar. Observations at Ban Thakok revealed that rice chaff tempers and local clays were applied in both prehistoric and modern potting fabrics. Greater processing of the temper was evident in modern ceramic manufacture. These similar practices for clay and temper selection suggest continuity in ceramic technology from the past to the present.

A ceramic technology sequence based on form and fabric findings was established for the Bronze and Iron ages at Ban Non Wat. Rice temper introductions mark the earliest change in ceramic technology at the advent of Bronze Age 3, around 790 BC. This is the earliest postulated date for rice tempering on the Khorat Plateau and was simultaneous with fewer exotic goods and a shift in mortuary treatments. Vessel forms associated with the Iron Age were present from Bronze Age 4. Clay selection was local throughout the sequence, however some diversification in sourcing from Iron Age 1 suggests there was a greater demand for clay in craft industries from this time. Mortuary practices continued to change from Bronze Age 4. The results demonstrated that there

was a gradual transition from Bronze to Iron Age ceramic traditions, and certain prehistoric traditions persist to the present in Northeast Thailand.

Slater, James, 2008. A Cutting Analysis: A Study of Obsidian Resource Maximisation from a Lapita assemblage on Watom Island. BA(Hons) dissertation, Anthropology, University of Otago.

This dissertation presents the results of a sourcing and technological analysis of obsidian artefacts from a Late-Post Lapita site, Kainapirina (SAC), located on Watom Island, East New Britain Province, Papua New Guinea. This dissertation involved two major goals. The first was to undertake a technological study of obsidian to determine whether or not a model of resource maximisation was applicable to explain the behaviour behind the reduction. The second goal involved a sourcing study of obsidian which was compared with other Lapita sites from a regional perspective in order to identify connections through time. Comparing the study of obsidian technology and sourcing analysis provides a powerful tool to assess models of interaction between Late-Post Lapita communities. Through the use of a technological analysis and obsidian sourcing study using PIXE-PIGME, this research argues that resource maximisation was not taking place at Kainapirina (SAC) and that there was no significant change over time in the proportion of obsidian from the different source regions.

Teele, Ben, 2008. Symmetry Analysis on New Zealand Stone Adzes. BA(Hons) dissertation, Anthropology, University of Otago.

Symmetry is an important trait in New Zealand stone adzes. However, it is only sporadically mentioned in the New Zealand literature. It is important to determine what level of influence symmetry has on final adze form and function. This study examines a range of adze types sampled from a museum collection. Asymmetry values were produced using an automated software program, which were compared against other recorded adze variables. The results show variable symmetry levels across a range of different adze characteristics, notably the state of an adze, its blank type, and its form. Symmetry was actively sought by the tool worker, having an important effect on determining the functional use of an adze, and was constrained to some degree by material form and manufacturing technology. Measuring symmetry provides a quantitative value to a qualitative description, which can be used to reinforce existing lithic research, highlighting an important variable in New Zealand adze form.

Turner, Rachel, 2008. Cultural Heritage and Identity of Two South Island Iwi Groups: An Archaeological Ethnography. MA thesis, Anthropology, University of Otago.

Scholarly debate and anthropological research involving the resurgence of indigenous political power and cultural heritage in New Zealand tends to focus on the relationship of Māori to places of significance from the past. Few studies have considered the unique political strategies that individual tribes employ to regain control of their cultural heritage in modern and post-modern times. This thesis presents new ethnographic data derived from the case studies of two separate South Island iwi authorities: Ngāti Kuri of Kaikōura and Manawhenua ki Mōhua in Golden and Tasman Bays. Additionally, a reflexive archaeological literature review of archaeological practices and management in New Zealand is presented in a historical context. The interface of the data gathered from these two disciplines constitutes a hybrid anthropological approach that reveals significant differences between the two iwi groups in regard to their political and cultural heritage efforts and their relationship to archaeology. Ngāti Kuri, by taking full advantage of existing legislation, have settled their Treaty claims. The data suggest that the choice of political strategy employed significantly affects the outcomes of heritage protection. One iwi authority finds that it is advantageous to utilise Crown legislation while the other considers this a compromise of their cultural identity and maintains a sceptical approach. Though strategies vary, the data identify the relationship between important places and taonga of the past, and the contemporary cultural identity and well-being of both iwi groups.

Tyrell, Elizabeth, 2008. Modern Contexts: How Reconstructions of Archaeological Sites Across the World are Influenced by Contemporary Issues. BA(Hons) dissertation, Anthropology, University of Otago.

Reconstruction as a method of preservation for archaeological sites and features is often disputed within the archaeological community and several guidelines have been issued advising its use only under exceptional circumstances. Despite this, it has continued to be funded in many countries across the world and its use has increased over the last three decades, with millions of people choosing to visit reconstructed sites every year. The reasons as to why these sites have been chosen for reconstruction are discussed through the use of six case studies from England, Japan, Egypt, the United States, Easter Island and Crete. These include Stonehenge, Yoshinogari Historical Park, the North Palace at Amarna, the Alamo, Ahu Tongariki and the Palace of Minos respectively. Several political and social motives are shown to drive these reconstructions, with each example exhibiting several interconnected underlying-

ing factors. These include nationalist, capitalist, cultural, social and educational influences. The need for archaeologists to actively take more control over this type of preservation method to prevent the unethical use of archaeology is also discussed. This research demonstrates that reconstructed interpretations of the past are usually created for the benefit of the general public and that as the contemporary politics behind them change, so do the pasts they represent.

van Halderen, Karen, 2008. The Absence of Ceremonial Monumental Architecture in New Zealand. BA(Hons) dissertation, Anthropology, University of Otago.

The absence of ceremonial monumental architecture in New Zealand is of interest to archaeologists as it contrasts with the rest of the island societies of Polynesia in that it is the only island archipelago in the region that lacks this form of architecture. This study identified possible reasons for the lack of ceremonial monumental architecture in New Zealand by reviewing three models in light of case studies from Polynesia, and then applied them to the situation in New Zealand. The key concepts of resource availability, productivity, environmental conditions and surplus energy were found to be the most influential factors. Surplus energy in particular, was a common theme in all three models and is considered to be the major reason for the absence of ceremonial monumental architecture in New Zealand.

van Sant, Lillian, 2008. The Spatial and Temporal Distribution of Pre-historic Burial Practices in Oceania. BA(Hons) dissertation, Anthropology, University of Otago.

Secondary burial practices are associated with ritual beliefs that impact on a community's life far more than what is revealed in the archaeological record. The widespread presence of this burial ritual in Oceania signifies a continuity of spiritual belief and indicates interaction among communities. This study investigates the spatial and temporal distribution of burial practices in Oceania, considering Robert Hertz's study, *The Collective Representation of Death*. This study focuses on the ritual meaning behind secondary burial, particularly concerning the soul. The transition made from death to the land of the ancestors can be observed in the archaeological record, given knowledge about death rituals is known. Therefore, Hertz's theories on secondary burial can be directly applied to the interpretation of archaeological data of burial practices. This study examines the distribution patterns of burial practices and what they reveal about past societies. These patterns are further examined as an investigation into the origins of the Lapita Cultural Complex. The Lapita site, Teouma in Vanuatu, has yielded a burial ground which exhibits specific

burial ritual. All the burials were found without articulated skulls, several were in flexed positions, while one burial was found with three skulls placed on its chest. This site presents a basis for comparison with burial practices elsewhere in Oceania. By examining the spatial and temporal distribution of various burial practices, interpretation is provided on the origins of the Lapita Cultural Complex.

Vanstone, Jessica, 2008. Nephrite Working at Buller River Mouth (K29/8). BA(Hons) dissertation, Anthropology, University of Otago.

An assemblage of nephrite fragments and tools from Buller River Mouth (K29/8) were analysed to contribute to an understanding of how nephrite was worked in the early period of Māori prehistory. Nephrite is generally understood to be associated with the Classic period of Māori culture, **however its presence** at Buller River Mouth means that it was utilised from not long after the colonisation of New Zealand. Nephrite working in the Classic period of Māori culture was done by sawing and grinding, and nephrite flaking has generally been considered to be associated with poor quality stone and due to a lack of understanding of the sawing process. The evidence from Buller River Mouth indicates that flaking was the prominent method of working nephrite and evidence of flaking occurred on many different grades of stone. The method of sawing also occurred at Buller River Mouth, indicating that the flaking method was used for reasons other than lack of understanding of the sawing process. This research contributes to our understanding of nephrite use at the early colonisation period of Māori culture.

Wadsworth, Tristan, 2008. Warfare, Symbolism, and Settlement: a Critical Review of Pā Literature. BA(Hons) dissertation, Anthropology, University of Otago.

Pā are complex aspects of prehistoric Māori culture that have been the subject of many significant archaeological studies. Pā are fortifications, and though a concern for defence is evident in their construction, the exact level of their association with warfare is not evident. A substantial survey of individual pā is necessary to investigate this association among pā. The defensive function of pā does not necessarily preclude alternate functions, and a symbolic function, compatible with the defensive function, is highly plausible. In addition to acting as fortifications, pā are examples of monumental architecture that act as symbolic and ideological portrayers of community identity and influence. Interpretations of pā vary, and it is likely that their role in settlement patterns does as well. Occupation of pā likely varies regionally and individually, with varying seasonal and fluctuating occupation. The distribution and use of space

within pā has not been a major focus of pā studies, and further comparative work is required in this field. It is obvious that pā are highly important actors in settlement patterns, and both political and economic factors are evident in their situation and spatial distribution. Pā remain an important focus of archaeological studies in New Zealand, but many research questions remain available for scrutiny, and the variable nature of pā should be considered before generalisations are made regarding their use.

Williams, Erin, 2008. Fire Use and Fire Risk in Pre-European New Zealand. MA thesis, Anthropology, University of Otago.

Excepting those from wet and heavily forested areas of the western districts, nearly every pollen diagram in New Zealand indicates a substantial transformation in vegetation composition at around 750-550 BP. Southern New Zealand, in particular, has been subject to especially dramatic vegetation changes. So, how and why was so much of the southern landscape burnt at around the time of early Māori settlement? This research used a multidisciplinary approach to offer an explanation for the complicated sequence of events which led to that end result.

An examination of Polynesian fire practices established the perceptions and uses of fire that Māori may have brought with them to New Zealand. A full examination of Māori fire practices, using traditional, historical and archaeological information, built an understanding of how pre-European Māori used fire in New Zealand, and disclosed many similarities with Polynesian fire uses.

A review of major climate and vegetation changes in southern New Zealand, the study area, has revealed an infrequent and patchy natural fire regime with virtually no natural fire in wetter regions. Case studies from four areas of southern New Zealand demonstrated the influence of Māori and their fires in varying climate and vegetation conditions.

Māori settled in New Zealand during a period of increased El Niño Southern Oscillation activity, which increased fire risk in central and eastern areas of the South Island. During early settlement, southern Māori maintained a fairly settled lifestyle close to resource clusters of moa and seal. With big game numbers dwindling, and due to the impossibility of reliably growing traditional Polynesian cultigens in areas south of Banks Peninsula, southern Māori adopted a subsistence strategy based around the exploitation of seasonally abundant indigenous resources. It is proposed that this subsistence strategy favoured the opening up of closed forest through fire use to create a more diverse set of ecological communities, resulting in a richer and more varied set of subsistence resources. Regular movement of southern Māori into the dry interior to fire bracken (*Pteridium esculentum*) stands further exacerbated

the fire risk. Anthropogenic pre-European fire had a profound effect on dry areas of southern New Zealand, while damper areas such as Fiordland and the Catlins remained largely forested.