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## ARCHAEOLOGY IN NEW ZEALAND



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# ABSTRACTS FROM THESES AND DISSERTATIONS, ANTHROPOLOGY DEPARTMENT, UNIVERSITY OF OTAGO, 2001–2002

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Abstracts of 8 MA theses, 16 BA(Hons) dissertations and one Postgraduate Diploma Research Essay completed in 2001 and 2002 are presented below. Copies of 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 latter. Requests for copies of the higher degree theses should be directed to the Central Library, and for honours dissertations to the Anthropology Department.

Beckwith, J.A. 2002. **Pre-Angkor Cambodia: The Transition from Prehistory to History**. MA thesis, Anthropology Department, University of Otago.

This study documents the archaeological data, epigraphical evidence and Chinese historical records for the development of the early states of Cambodia. Prior to the first century AD, significant information about Cambodia and Northeast Thailand is based upon inferences from archaeology. Most archaeological work has been undertaken in central and Northeast Thailand, central and southern Vietnam, while very little work has been done within Cambodia itself (Vickery 1998: 18). Observations recorded by the Chinese appear from the first century, where visiting embassies and reports from Southeast Asia to the Chinese court were incorporated into official histories of succeeding Chinese dynasties. Chinese travelers visiting Cambodia in the third century also made accounts of their stay (Yung, 2000). Cambodian kings and dignitaries began to set up inscriptions to record their religious foundations towards the end of the 5<sup>th</sup> century AD (Higham, 2000: 32). The inscriptions were written in Sanskrit, and in Old Khmer from 611 AD, and were for the most part engraved on monuments, door frames and walls associated with religious foundations. These records provide us with insight

into the nature of kingship, political organization and socio-economic life of the Khmer in pre-Angkor times.

Bilton, M. 2001. **Taphonomic Bias in Pacific Ichthyoarchaeological Assemblages: A Marshall Islands Example**. MA thesis, Anthropology Department, University of Otago.

This thesis examines the influence of taphonomy on archaeological fish bone from the Pacific islands. Taphonomic studies investigate the effects of various agencies that can alter faunal remains from the point of an animals capture and death, dismemberment, cooking and disposal, to the subsequent post-depositional alterations, to archaeological analysis, and how these agencies and conditions influence the information used to make inferences of prehistoric human behaviour. Taphonomic research is well developed in the analysis of archaeological mammalian faunas, but not ichthyofaunas, particularly those related to the Pacific islands regions. As the inclusion of taphonomy in archaeological faunal analysis is critical to the integrity of interpretations made about prehistoric human behaviour, it is consequently vital to apply these principals to the interpretation of archaeological ichthyofauna.

The literature regarding ichthyofaunal taphonomy is reviewed and examples of taphonomic analysis are gleaned from the Pacific islands archaeological literature. A systematic methodology of breakage pattern analysis is devised that tests and evaluates the effects of taphonomic bias. This methodology is then applied to archaeological assemblages from Ebon Atoll, Marshall Islands, that contain in excess of 26,000 fish bones, of which approximately 3500 were identified to family. The specimens in this sample are well preserved, and due to the large diversity of taxa (47), are seen as being broadly representative of many Pacific islands ichthyofaunal assemblages. As such, it is proposed that taphonomic implication made about this sample will hold true for other Pacific islands assemblages.

The analysis of the Ebon assemblage confirmed that it is highly desirable to ascertain the extent of taphonomic loss from an ichthyofaunal assemblage prior to making any interpretations about prehistoric fishing, diet, or economy. The reliance on a small number of elements for identification to family limits the number of taxa identified and influences the relative abundance of taxa. With this in mind it is suggested that a number of elements that are not traditionally used to identify Pacific islands ichthyofauna be utilised. Those elements that cause abundance misrepresentation are identified, and the extent of this bias is

assessed. It is determined that element shape is integral to subfamilial identification of the ‘five-paired mouthparts’, particularly the non-dentigerous elements. The bias of differential preservation is illustrated by the greater occurrence of durable than fragile elements, and it is proposed that the absence of certain taxa is not sufficient evidence of their nonexistence.

Brooks, E. 2002. **Selectivity Versus Availability. Patterns of Prehistoric Fish and Shellfish Exploitation at Triangle Flat, Western Golden Bay.** MA thesis, Anthropology Department, University of Otago.

This thesis sets out to examine issues of selectivity and availability in fishing and shellfish gathering by pre-European Maori at Triangle Flat in western Golden Bay. Faunal remains from four archaeological sites have revealed new and valuable information about economic subsistence practices in this region.

It is proposed that exploitation of these important coastal resources was based on factors other than the availability of, or proximity to resource patches. Evidence from the Triangle Flat sites is compared to that from Tasman Bay and the southern North Island to gain a regional perspective on fishing and shellfish gathering strategies.

The most definitive evidence for selective targeting is provided by tuatua, an open beach species that has been found to dominate in sites based adjacent to tidal mud and sand flats. Also of interest is the dominance of mud snail in a site that is adjacent to large cockle and pipi beds. When regional sites were examined it was found that this pattern was also recorded for the site of Appleby in Tasman Bay.

Selectivity in fishing strategies is also apparent with red cod and barracouta dominating the Triangle Flat assemblages. This pattern conforms to evidence from both eastern Golden Bay and Tasman Bay but does not reflect evidence from the southern North Island. Of particular interest is the apparent dearth of snapper in the sites of Triangle Flat, since snapper abounds in the area today. An explanation based on climatic change is considered to be the most feasible. This indicates that environmental availability was at least in part responsible for the archaeological evidence of fishing. The consistency of the catch of red cod and barracouta in Golden Bay, and the pattern of shell fishing preferentially for tuatua suggests that cultural choice was also a significant selective factor.

Cawte, H. 2002. **Was There a Bronze Age in Southeast Asia?** BA (Hons) Dissertation, Anthropology Department, University of Otago.

In recent years archaeologists working in Southeast Asia have adopted the relativist approach and denied the presence of a Bronze Age. It is suggested that various terms and concepts developed to describe and define Bronze Ages by scholars investigating around the world lack strict analogues within this area. Muhly (1988) has 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). More recently White (2002) has noted that the terms Neolithic and Bronze Age do not connote "discrete region wide time periods, discrete sets of sites, or easily identifiable sets of societies exhibiting a clearly definable stage of social and technological development" (White, 2002: xvi). Using evidence from the recently excavated site of Ban Non Wat in Thailand, and others throughout Southeast Asia it is possible to establish a discrete time period for which sets of sites throughout the region, display a well established bronze industry from 1500BC therefore offering a definable stage of technological development satisfying by most accounts the criteria of a Metal and Bronze Age.

Chetwin, J.N. 2001. **War Before Angkor: The Evidential and Theoretical Context of Warfare in Prehistoric Thailand.** MA thesis, Anthropology Department, University of Otago.

The role of warfare in prehistoric Thai life ways has been a topic of debate, although no studies have specifically sought to investigate and explain prehistoric warfare in Thailand. Recent advocacy of the heterarchic paradigm has sought to de-emphasise the role of warfare in sociopolitical change. This thesis seeks to develop a regional understanding of structured violence in Thai prehistory by developing a specific preliminary model for military behaviour in a heterarchic milieu.

An overview of definitions and anthropological theory on war is offered, as these issues are crucial to the debate over warfare in prehistoric Thailand. A methodology of military archaeology is developed and utilised to assess the evidence for warfare in the Thai Bronze and Iron Ages. Direct evidence for

warfare in the Bronze Age is lacking, while the transition to the Iron Age is concomitant with a variety of changes in military technology and behaviour. There is evidence that warfare was a factor in the social environment of prehistoric

Thailand, though comparative data show that it was not as intense or specialised as that practised by the Dian and Dong Son cultures of northern Southeast Asia.

A nonlinear model is proposed to account for the role of warfare in regionally specific historical hypotheses. The model is designed specifically to allow the construction of testable hypotheses in a heterarchic paradigm.

Cox, K. 2002. **Skeletal indicators of ancestry in New Zealand**. BA (Hons) Dissertation, Anthropology Department, University of Otago.

This pilot study had two distinct aims. First, it outlined forensic research into ancestry identification both in New Zealand and internationally. This was achieved through an extensive literature search that highlighted many traits that are used by forensic investigators both here and overseas. This review found that the traits used internationally are not necessarily those used here, and that similarly many of the indicators that are used in New Zealand are debated as effective indicators of ancestry internationally. Secondly, these traits were assessed for their efficacy as indicators of Polynesian and European ancestry, through the investigation of six skeletons of presumed ancestry. A data collection scheme was created, and a scoring system that helped remove some of the ambiguity inherent in the investigation of non-metric traits. The problems with each indicator were also discussed. While not an explicit aim of this dissertation, future areas of research in New Zealand have been created as a result of these studies that would be both interesting and important in modern New Zealand.

Dodd, A. 2001. **Processes and Strategies for 'Urban Historical' Archaeological Resource Management in New Zealand**. MA thesis, Anthropology Department, University of Otago.

Urban archaeological sites, and especially those of non-Maori origin, are constantly under threat of being destroyed or damaged as development pressures continue to increase in New Zealand. Previous reviews of the present system of ARM in New Zealand have found it to be ineffective and significant numbers of archaeological sites continue to be destroyed. New Zealand already has the legislative capacity for a comprehensive and effective system of archaeological resource management, but it is a general lack of public awareness, and often the

reluctance of Local Authorities to apply available mechanisms, that let that system down. Five case studies have been selected from the Otago region that illustrate the issues involved in urban historic ARM on privately owned land. Under the current political climate the central government is increasingly devolving its responsibilities onto Local Governments, and recent reviews have suggested this may be appropriate for New Zealand's ARM. The legislative systems in place in Australia and the United Kingdom can provide an indication of the effects of such a course of decentralization on archaeological site protection processes, as well as some useful insights into how New Zealand's system might be made more effective.

Gilmore, H.F. 2003. **Southeast Asia, Maritime Trade and State Development: A Braudelian Perspective**. BA (Hons) Dissertation, Anthropology Department, University of Otago.

This study sets out to investigate the relationship between the participation of Southeast Asia in the trade of the maritime silk route in the first millennium A.D. and the state development in the region. In this period there was significant intensification of international maritime trade, and the archaeological record shows a corresponding major cultural change in the Mekong Delta region, and evidence of the emergence of trade-oriented polities. The aim of this research has been to consider the continuity between the long-established exchange patterns of prehistory and those of the early historic era, and the contribution of long-term environmental variables and evolving social structures to the eventual emergence of the states of Southeast Asia.

In order to do so, I have drawn upon the work of Fernand Braudel, an historian of the French *Annales* school of historiography, whose model of time for the analysis of history consists of three temporal scales, the interaction and dynamics of which form the background to historical changes and events. It was Braudel's contention that the history of short-term events could be better understood by incorporating elements of the medium and long-term into the analysis when addressing an historical question. The Braudelian time scales offer a method for organising archaeological evidence in a comprehensive way, providing deeper levels of explanation when addressing complex questions about past societies, and uniting processual and post-processual approaches to the data.

I begin by considering the long-term features of the environment, climate and resources, the constraints they imposed and the opportunities they afforded for exchange-related activities. Secondly, I proceed to consider the social and

economic structures which developed within the environmental framework, showing the extent to which developing social complexity coincided with increasing levels of exchange interaction, and the extent to which the state formation of the first century was built on the foundations of trade and society in prehistory. The third part of the model considers the contribution of external events, ideas and political forces to the functioning of the maritime silk route and the development of the Southeast Asian state.

Archaeological, textual, epigraphic and iconographic data are ordered and examined within the context of a Braudelian perspective in order to produce a synthesis of the continuity of Southeast Asian trade, the influences that shaped it, its implications for social change, and how this culminated in participation in international maritime trade and contributed to state development.

**Halcrow, S. 2001. Health from a Biocultural Perspective: Mortality and Morbidity of the Subadults of the Prehistoric Settlement of Khok Phanom Di.** BA (Hons) Dissertation, Anthropology Department, University of Otago.

This study investigates the mortuary remains of the infants and children from Khok Phanom Di. Many infants at the site died at or soon after birth. A biocultural approach is used to investigate why there was such a high mortality rate and whether there was a change in morbidity and mortality over time. Comparing the data between the early and late phases showed that there was a higher rate of neonatal and infant death, higher frequencies of severe cribra orbitalia, as well as more intra-uterine growth retardation in the early phases. These differences correspond to the proposed environmental changes occurring part way through the mortuary sequence. The formation of defects in deciduous teeth and intra-uterine growth retardation indicates that maternal health, as opposed to sampling effects, was a factor associated in the high neonate and infant mortality in the early phases. Malaria is proposed as a likely contributing factor in the mortality and morbidity of the subadults.

**Hudson, B. 2002. Ancient Young: The mortuary treatment of infants and children in prehistoric Thailand.** BA (Hons) Dissertation, Anthropology Department, University of Otago.

The archaeology of childhood is a topic that has been steadily growing over the last decade as the importance of including children in understandings of past societies is increasingly recognized. This dissertation discusses some of the approaches taken to studies of children in the archaeological record, and with



such a perspective examines the mortuary remains of sub adults in prehistoric Thailand. Three sites, each from different periods of Thailand's prehistory, are examined for information regarding children from mortuary data. Of particular interest are differential mortuary practices for sub adults that indicate the conceptual boundary between a young age group and other members of the society. The possibility of identifying gender recognition and activities of children is also discussed. Findings from the sites are discussed with reference to cross cultural examples and a variety of interpretations of differential mortuary practice for children.

Hurren, K. 2002. **Lapita: An Overview**. BA (Hons) Dissertation, Anthropology Department, University of Otago.

This thesis provides an overview of issues and debates concerning the study of Lapita. The Lapita peoples were a prehistoric population in the Southwest Pacific who colonized the area 3500BP. They settled the Bismarck Archipelago in Fiji, Tonga and Samoa, a distance of 4500 km over a period of about 1000 years. They are widely known for their dentate-stamped ceramics, which has become their cultural marker, and are the ancestors of the Polynesians. The outline of the thesis is as follows: firstly, a general introduction is provided; the second chapter concerns the history and development of ideas in the study of Lapita from its initial discovery to the present and beyond; the third chapter provides a generalization of the Lapita cultural complex and debates surrounding it by reviewing who the Lapita peoples were, their origins, material culture, subsistence, settlement patterns and interaction. Chapter four review the evidence and debates of the Lapita expansion and the decline of their dentate-stamped ceramics as well as the evidence and debates for the Lapita peoples being the Polynesian ancestors by reviewing biological, linguistic and archaeological evidence. The thesis concludes with a general conclusion on the above material and indicates possible future directions.

Inglis, R. 2002. **Recipes as Material Culture**. BA (Hons) Dissertation, Anthropology Department, University of Otago.

Patterns of food-related activity in New Zealand communities between 1920 and 1950, experienced change as the effects of the Depression and the Second World War imposed constraints on household food availability. Participation in community events, particularly those focused around food, codifies inclusion into that particular society and constitutes normalizing behaviour. One technique

of engaging with a community and its food-related activities is through contribution to community-based cookery books.

Cookery books and recipes are a very recent source of research information already of proven worth in studies of gender and identity. Treated as valuable sources of social history, recipes also can be treated as ‘proto-material culture’ and subjected to similar analytical methods of investigation. Using detailed recipe-by-recipe comparative analysis of ingredients and ingredient proportions, recipes can be analysed and their results interpreted to study the dynamics of social change. Recipes can be considered as a form of material culture that like ceramics respond to external events and socio-economic trends.

A pilot study encompassing three decades of selected New Zealand community and comparable cookery books from 1920 to 1950, examined 4069 recipes with 1280 recipes analysed. Results displayed significant substitutions and modification in response to the Depression and the onset of the Second World War, as well as retaining the essence of recipe ingredients in traditional recipes. Thus recipe books can show both innovation and conservatism, and in these respects are fully comparable to artefact assemblages

Jansen, R. 2002. **Deciduous Dental Enamel Defects as Indicators of Growth Disruption in a Prehistoric Sample**. BA (Hons) Dissertation, Anthropology Department, University of Otago.

Pale pathological studies of hypo calcification in deciduous dentition are relatively few. The aim of this study was to assess evidence of growth disruption in the deciduous dentition. A sample of deciduous dentition from 35 sub adults from Taumako, Southeast Solomon Islands was examined. The majority of enamel defects observed were hypocalcifications indicating that the sub adults were under considerable stress. The stress was both chronic and acute starting before birth and in the first months after birth. This study found hypocalcifications predominantly correlates with circular caries contrary to previous studies where hypoplasia was considered the underlying lesion for circular caries. Assessing the prevalence of hypocalcification may be an important area of future research.

Kendrick, R.J. 2002. **Taphonomy of Avian Skeletal Remains from an Archaeological Site in North Otago (Shag Point 143/11)**. BA (Hons) Dissertation, Anthropology Department, University of Otago.

Faunal remains within an archaeological context are subject to both pre-deposition and post-deposition processes. Understanding these events will ultimately provide a better view of how and why these remains became incorporated into the archaeological matrix of a site. It will also allow judgment of any potential deposition or natural bias that will influence the manner in which a faunal sample is evaluated. This study looks at the taphonomy of avian skeletal remains from Shag Point (J43/11), a coastal Otago site. Avian skeletal remains are notoriously difficult to assess archaeologically, given both their small size and fragility. Taphonomy hence plays a vital role in understanding why certain avian skeletal elements may be more prevalent in faunal assemblages than others.

Latham, P.S.M. 2002. **Interpretations of the Purakaunui fish bone assemblage**. BA (Hons) Dissertation, Anthropology Department, University of Otago.

Fish bone analysis provides archaeologists with a means to examine prehistoric changes in subsistence strategies. This research looks at a number of issues related to the fish bone assemblage from the Purakaunui Site 144/21 in coastal Otago. As well as providing a brief review of the history of fish bone analysis in New Zealand, including some current methodological debates, this essay examines a selected sample of the Purakaunui fish bone assemblage, with a specific focus on investigating fish taxa relative abundances and change over time. It also compares the results to past studies at this site and those at nearby Mapoutahi Pa and Long Beach. The evidence supports earlier studies that show red cod and barracouta to be the dominant species in southern South Island prehistoric fish catches. However, it also shows that there may have been change over time with a greater emphasis given to targeting red cod relative to barracouta in the Classic period. This is certainly the case in the Purakaunui sample and there is evidence that this may have been the case at Mapoutahi and Long Beach. An hypothesis is advanced that this may be indicative of an increased focus on bait hook fishing in the transition from the Archaic to Classic.

This essay also investigates the benefits of incorporating otoliths, epiphyseals, palatines and hyomandibulars into fish bone studies. It is shown that while the five-paired mouthparts usually provide the highest MNI counts, the additional elements are useful because in some species they produce the highest MNI. A taphonomic issue relating to otoliths is also raised. Evidence has shown that while red cod otoliths are extremely durable elements they may also be a taphonomic oddity in that their size, shape and weight can result in some

stratigraphic movement. When investigating change over time in fish taxa relative abundances, therefore, the incorporation of otoliths in the generation of MNI should be treated with some caution. Finally, this study shows that 3.2 mm screens are important for the accurate recovery of fractured but diagnostic red cod elements, a high percentage of which would have been lost through 6.4 mm sieves.

Purdue, C. 2002. **What is a Fern-Root Beater? The correlation of museum artifacts and ethno-historical descriptions.** MA thesis, Anthropology Department, University of Otago.

The rhizome of the bracken fern was an important part of the subsistence base of the pre-contact Maori of Aotearoa. It provided an essential source of starch - especially to the Southern Maori, who relied mainly upon wild resources for the vegetable component of their diet. The preparation of the rhizome (or fern-root) for consumption necessitated the beating of the cooked root upon a smooth stone anvil. The implement that was used to beat the fern-root is an important Maori tool which, until now, has had little detailed attention paid to it. Therefore, the aim of this research was to characterize the form of the fern-root beater using morphological attributes. Through the combination of a comprehensive literature review of ethnographic-historical accounts and more contemporary documentary research, along with a nationwide survey of implements labeled as “fern-root beaters” in museum collections, this thesis identifies a number of critical and common attributes that are inherent in a beating implement. It was found that wooden and stone beaters/pounders were dissimilar in size and proportions, with the majority of wooden implements of appropriate form to have been used for beating fern-root. The stone implements displayed larger circumference dimensions, were shorter and considerably heavier, thus casting some doubt on their practicality as a beating implement. Four distinct morphological forms were identified for both the wooden and stone items surveyed, and it was found that metric variables were more significant in suggesting function than non-metric. Regional distribution analysis of the survey implements highlighted a northern North Island predominance, particularly in the Northland, Auckland, Taranaki and Waikato regions. A tenuous comparison with Simpson’s distribution of prehistoric dental attrition known as the “fern-root plane” showed a loose regional correlation, however; the actual cause of this tooth wear is still a hotly contested issue.

Scott, A.R. 2002. **An Investigation of Archaeological Site 144/2 1 at Purakaunui for evidence of Historic Era Occupation.** BA (Hons) Dissertation, Anthropology Department, University of Otago.

Excavation of site 144/21 at Purakaunui during 2002 disclosed a collection of historic era artifacts. Analysis of stratigraphy determined that the artefacts all belonged to the uppermost cultural layer (2 a); this layer is distinct and caps all but one of the features excavated. Comparative dating of the historic artifacts recovered from layer 2a provided a date for the manufacture of the artifacts between 1810 and 1900. Interpretation of stratigraphy and the overlap in artefact dates suggests that the artifacts were deposited during the period directly following European contact in southern New Zealand. Historic research of Purakaunui supports this; a documented visit to the site in 1844 recalls a Maori settlement with the adoption of European habits. Recognition of a historically documented site in the archaeology provides physical evidence for the study of nineteenth century Maori life, rare in southern New Zealand archaeology.

Smith, K. 2002. **Distinguishing New Zealand Prehistoric from Historic Worked Nephrite by Microanalysis and Experimental Archaeology.** BA (Hons) Dissertation, Anthropology Department, University of Otago.

The research presented in this paper is intended as a plot study into the investigation of whether nephrite worked by prehistoric Maori techniques of pounamu manufacture can be distinguished from those created in the historic period. The experimental recreation of techniques and the use of microscopic analysis are employed to this aim.

The study of manufacturing techniques of ground stone at a microscopic level is a highly over looked area of archaeology, since the use of a grinding technique is clearly visible on an objects external surface. For this reason when analysis of ground stone artifacts occurs it directed to use rather than manufacture.

However, being able to identify the abrasive and the technique used to grind a stone can, within New Zealand, provide important information. A distinction between prehistoric and historic ground stone items can provide:

A chronological division between that of prehistory and that of the historic period. A simple division, yet an important distinction that can affect research practice, by providing a broad temporal distinction to a site.

The distinction and discrimination of genuine Maori *taonga*, as opposed to those created to fulfill the antiquity trade. This trade was supplied with fraudulent ‘artefacts’ in the years post-contact.

The research presented summaries the characteristic features that can indicate the probable grinding medium, and the technology used. It is concluded that the grinding agent used, and in some cases the technology that has been used can be identified. Where polishing has obliterated traces of grinding, different patterns appear on the surface of the stone, however the analysis of this is problematic at low powered magnification with a small sample size. However results suggest that further analysis, with larger sample sizes, would be fruitful to better understand the research aim to a level beyond a pilot study.

Spark, J. 2001. **Otago Archaeology: Purakaunui 2001 A Socially Engaged Video Documentary**. BA (Hons) Dissertation, Anthropology Department, University of Otago.

A video documentary was produced as a visual account of the February-March 2001 field school excavation at Purakaunui, conducted by the Anthropology Department of Otago University as paper ANTH 405. Drs Richard Walter and Ian Barber conducted the work and field technician Rex Thorley filmed most of the footage. This was then converted to digital format and edited and produced into a complete documentary. The video focuses on the process of the archaeological excavation from a post-processual theoretical perspective investigating the role of subjectivity in archaeology, the hypothetical and evolving nature of archaeological knowledge and the relation between past and the present, and was created with a view to addressing certain issues surrounding the public representation of archaeology. The video also provides an opportunity to highlight the issue of archaeological resource management in a publicly accessible manner.

Stuart, C. 2001. **What in the World do Fish Scales Contribute to Archaeological Interpretation? A literature review of methods and applications**. Postgraduate Diploma Research Essay, Anthropology Department, University of Otago.

Fish scales offer another avenue of archaeological investigation that can contribute to individual site interpretation, intersite comparisons, regional patterns and environmental reconstruction. The application of information gleaned from fish scale analysis is not limited only to hypotheses on fishing, dietary contributions and marine environments, but may also be used in conjunction

with other information to pursue research relating to human impacts on pristine environments, regional climate changes, seasonal site occupation, preservation and storage of fish and variation in human food preference.

In the South Pacific (particularly in New Zealand) very little work has been done using scales. However, information drawn from around the world suggests that scale analysis could play a useful role in Pacific faunal research. Fisheries scientists in New Zealand and the Pacific have been making use of scale information for over fifty years and such data can be applied in archaeology. This dissertation discusses the human use of fish and zooarchaeological studies of scales to date, before examining ichthyology (especially the classification of fish scales) and lepidoarchaeology as a subsection of zooarchaeology and providing an assessment of analytical value.

Tanner, V. 2002 **An Analysis of Local Authority Implementation of Legislative Provisions for the Management and Protection of Archaeological Sites**. MA thesis, Anthropology Department, University of Otago.

Local authorities are identified as playing a significant role in historic heritage management at the local level. The aim of this thesis was to determine whether local authorities are in a position to be given greater responsibility for historic heritage and particularly archaeological resource management. This thesis presents a discussion of the historical development of legislative provisions for the management and protection of historic heritage. Archaeological information is considered imperative for appropriate local authority management of archaeological resources; this thesis assesses the current state of archaeological information available to local authorities. In order to determine the role local authorities currently play, a questionnaire survey was designed to procure an understanding of what planners perceived their councils responsibility was and how they were actively managing historic heritage. To acquire an appreciation of the actual practice of historic heritage management two case studies were conducted. Case studies involved interviewing planners, members of the two communities and individuals who had first hand experience of the archaeological authority process.

Taylor, A. 2001. **An Interpretation of the Historical Landscape of Triangle Flat Farm and Greater Area**. BA (Hons) Dissertation, Anthropology Department, University of Otago.

The results of a resource management archaeology project at Puponga Farm Park, Golden Bay, are applied to interpret the historical rural landscape of Triangle Flat Farm in its cultural and natural environmental context. This study considers archaeological excavation and site survey data as well as oral history and archival research. These results are compared and analysed in a multi-disciplinary interpretation. The strength of each data set and approach is considered in a cultural landscape synthesis of the historical development of the Triangle Flat Farm.

Vogel, Y. 2002. **Prehistoric Archaeological Features in Otago: A Classificatory Study (2 volumes)**. BA (Hons) Dissertation, Anthropology Department, University of Otago.

This study examines the treatment of archaeological features from prehistoric Otago. An historical review of archaeology in Otago is presented in order to place the study within its context. An analysis of the available data on features reveals that a wide range of terms has been used to describe a relatively simple set of features. It is argued that this number of terms is unnecessary, and inhibits the incorporation of the evidence provided by features into wider interpretations of prehistory. The descriptive information on features is used in the development of a systematic classification system, which is then presented along with a discussion of the range and variation encompassed within each class. Finally, the implications of this work for the archaeology and prehistory of Otago are considered.

Wheaton, C. 2002. **A Systemic Approach to Understanding Prehistoric Shell-Bearing Deposits in New Zealand: A Case Study from Shag Point, North Otago**. MA thesis, Anthropology Department, University of Otago.

This thesis describes a systemic approach to the study of shell remains, using material from the site of Shag Point (J43 / 11), in North Otago. This approach analyses the relationship between sampling, identification, quantification, and site formation processes. An historical and methodological framework is used to assess the analysis of shell-bearing deposits in New Zealand, and provide innovative solutions to bias. Historical research outlines the common research methods in New Zealand, which are relevant to Shag Point. Methodological research outlines the range of potential research methods used in the study of shell-bearing deposits. Reviewing the data from Shag Point, sampling, identification, quantification, and site formation processes are used to assess the quality of data from the site. Data from coastal sites are commonly used to



generate regional level syntheses. These syntheses do not deal with all of the possible sources of bias in shell-bearing deposits. Cumulative sampling is used to assess representativeness. The data from Shag Point are indicative of a representative sample. The site is compared to three other coastal southern South Island assemblages: the nearby Shag River Mouth, Pleasant River, and Pounaweia. The data from Shag River Mouth may be representative; the same cannot be said for the Pleasant River and Pounaweia archaeological assemblages, thus hampering regional-level syntheses.

Wylie, J. 2001. **Cross-cultural Use and Significance of Tutu (*Coriaria spp.*) in Aotearoa New Zealand**. BA (Hons) Dissertation, Anthropology Department, University of Otago.

In this dissertation, ethnographic and historic resources were used in conjunction with limited archaeological data to determine the cross-cultural use and significance of tutu (*Coriaria spp.*) in prehistoric, protohistoric and historic New Zealand. It was revealed that tutu was predominately used both by Maori and Europeans to make a popular beverage known as *waitutu* or tutu juice, which was extracted from the ripe berries in summer and early autumn. Maori were also found to have used the juice as a flavouring for other wild plant foods such as fern root and bull kelp, and it was additionally utilised for medicinal purposes, as were the young shoots and leaves of the plant. Ethnographic and historic sources further revealed however that tutu was renowned for its potentially lethal toxicity to both humans and animals, which consequently raised the paradox of why both Maori and Europeans bothered to prepare tutu juice given the severe toxicity of the species. This dissertation argues that Maori went to the effort of processing the juice because it supplied much needed energy in the form of fructose and glucose (natural sugars), whilst Europeans most probably processed the juice because of its highly favourable taste, although their decision may also be tied to a colonial 'risk-taker mentality' of the protohistoric and early historic periods.

Drawing upon the findings from archaeological excavations at the Bronze Age site of Ban Lum Khao, the Iron Age sites of Non Muang Kao, Noen U-Loke and Phum Snay, and the early historic site of Oc Eo, together with information offered by ancient Chinese Annals and an analysis of pre-Angkor inscriptions, it is contended that insight will be gained into the nature of society of pre-Angkor Cambodia, from the 1<sup>st</sup> to the early 9<sup>th</sup> centuries AD. Archaeological and historical data are synthesized for better comprehension of the Khmer cultural, religious, social and political life as the first states developed.