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## ARCHAEOLOGY IN NEW ZEALAND



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# ABSTRACTS FROM THESES AND DISSERTATIONS, UNIVERSITY OF OTAGO, 2012

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Abstracts from theses and dissertations on topics related to archaeology completed during 2012 are presented below. These include one PhD and four MA theses, along with thirteen BA(Hons) dissertations. The dissertations are held in the Anthropology & Archaeology Department's Library, while the theses are held both there and in the University of Otago Central Library and many can be accessed via the Otago University Research archive ([www.otago.ourarchive.ac.nz](http://www.otago.ourarchive.ac.nz)). Requests to consult any of these items should be directed towards the library concerned.

**Anderson, Teri. 2012. Moriori Fishing on North-Eastern Rekohu: An Archaeological Investigation.** BA (Hons) dissertation, Anthropology, University of Otago.

Archaeozoological fish bone assemblages from midden deposits located within Kaingaroa Station Covenant and Taia Bush Historic Reserve, two Kopi (*Corynocarpus laevigatus*) groves along the north-eastern coast of Rekohu (Chatham Island), are analysed to investigate whether pre-contact Moriori relied upon local versus non-local finfish resources. The findings of the analysis were used to test previous interpretations of Moriori regional resource distribution and contrasts to fishing behaviours of east Polynesian migrants to mainland New Zealand. The results show Moriori were primarily targeting *Parapercis colias*, a non-local hard shore species, even when *Rhombosolea* spp., a locally available soft shore species were available. Moriori fishing strategies on north-eastern Rekohu demonstrate a significant resource exploitation zone highly targeted on non-local hard shore finfish species and transportation over significant distances to kopi forest localities behind the extensive soft shore coastline of Hanson Bay.

**Arun, Lana. 2012. Opium Pipe Bowls from the Lawrence Chinese Camps (H44/1012).** BA (Hons) dissertation, Anthropology, University of Otago.

This dissertation focuses on one aspect of Chinese material culture, opium from the Lawrence Chinese Camp. Opium was used for a number of reasons and was embedded within the social, physical, and psychological aspects of Chinese culture. Opium smoking was a complex process, which required specialised smoking paraphernalia, importation of opium, and was sold by Chinese merchants in Chinese communities and work camps (Wylie and Higgins 1987:317). This dissertation had three main aims including examining the role of opium in the LCC, classification of the pipe bowls and comparison of the LCC assemblage to other sites in New Zealand, Australia, and America. Similar patterns were found in Chinese sites in Australia and America. For example, New Zealand and Australia had similar pipe bowls types, suggesting similar trade and exchange movements. America slightly differed in pipe bowl types, but basically opium was important in Chinese sites, regardless of country. The opium pipe bowls in the Lawrence Chinese Camps played an important role within the social community of the Chinese sojourners.

**Bone, Kimberley. 2012. The Archaeology of Early Post-Colonial Settlements: A Re-evaluation of the William Cook Shipbuilding Site.** BA (Hons) dissertation, Anthropology, University of Otago.

Investigations on early post-contact sites have, until recently, been a largely neglected area of research in New Zealand archaeology. The William Cook Shipbuilding site, occupied between 1826 and 1833, provides one of the most unique opportunities for understanding this period. Despite its importance, investigations of the site are almost absent from the archaeological literature. This study reanalysed the William Cook assemblage and discovered that it represented a distinct cultural tradition which reflected the integrated nature of the community. Interpretation of the assemblage recorded a hybrid identity adopted by the settlers with the incorporation of European and Maori architecture and traditional Maori subsistence strategies. The artefacts demonstrated that a failing economy of the site eventually led to its abandonment in 1833. The investigations of two comparative case studies revealed several distinct cultural patterns during this period, identifying a marked contrast between European mission settlements in the north and the integrated communities of the south. These contrasts were identified in architecture, fauna and material culture.

**Davis, Laura. 2012. Ceramic from Lawrence Chinese Camp: Preliminary Study of Ceramic Remains Excavated from the House Lot of Sam Chew Lain.** BA (Hons) dissertation, Anthropology, University of Otago.

This dissertation focuses on the ceramic remains from the house of Sam Chew Lain, and his European wife, once located at The Lawrence Chinese Camp. The site dates from the late 1860s to the early twentieth century and provides a unique study for the overseas Chinese. A comprehensive descriptive study was undertaken of the 2,346 sherds of ceramics to understand the dynamics within the house lot and to produce a set of testable hypotheses to create investigative directions for the study of Chinese in New Zealand. The hypotheses proposed involve the potential presence of a distinctive New Zealand Chinese assemblage, the reiteration of Chinese New Zealand trade networks and the difficulties around identifying gender and ethnicity at Chinese sites.

**Cook, Letitia. 2012. The Study of a Regional Collection of Archaeological Kō and Teka.** BA (Hons) dissertation, Anthropology, University of Otago.

The pre-contact Maori people of New Zealand were well practiced in the art of agriculture, cultivating several tropical crops brought by their Polynesian ancestors. They cultivated the crops with well established production systems and a small collection of wooden agricultural implements. A primary agricultural implement, the kō or digging stick, and its corresponding teka or footrest has, until now, had little attention paid to it.

This dissertation focuses on the kō and teka that were utilised in a number of ways to work the soil for cultivation or other purposes. Little is known about the quantitative and qualitative properties of kō and teka. This research aims to contribute to a greater knowledge of kō and teka, as these artefacts have not previously been critically analysed.

To achieve these aims this study gathers and analyses quantitative and qualitative data for the kō and teka collection at Puke Ariki museum in New Plymouth. The results of this study reveal patterns and anomalies that have not been previously seen in the literature pertaining to the kō and teka.

**Ford, Anne. 2012. Learning the Lithic Landscape in the Ivane Valley, Papua New Guinea: Modelling Colonisation and Occupation using Lithic Sources and Stone Tool Technology.** PhD Thesis, Anthropology, University of Otago.

Modern humans first moved into the Ivane valley between 43,000 - 49,000 years cal BP, placing it within the initial colonisation stage of Papua New Guinea. At 2000 metres above sea level, this montane valley also marks

the first time that modern humans move into a high altitude area in the Sahul region. This study addresses the question of how modern humans colonised and occupied new landscapes in the Sahul region by using the Ivane valley as a case study.

To investigate this question, a landscape learning framework was employed to demonstrate how people learnt and familiarised themselves with the lithic landscape. Lithic source use and stone tool technological organisation were expected to change due to two factors linked to landscape learning: (1) as people became more familiar with the properties of the specific lithic landscape itself; and (2) as a result of the particular technological responses utilised by people in exploiting their local environment.

The results of this study demonstrated both changes and continuities in raw material selection and stone tool technology in the Ivane valley over time. These were attributed to both the nature of the lithic landscape available and accumulations in landscape learning. Importantly, this study noted that while there was no evidence for risk minimisation in the initial stages of colonisation, overall raw material selection and technological organisation trend towards resource maximisation.

All periods of occupation were characterised by three factors: (1) only locally available raw materials were used; (2) specific raw materials were used for particular technological trajectories; and (3) technology was organised expediently, where sourcing, manufacture, use and discard of tools occurred on site, with no apparent evidence for curation. The overall structure of the technology was considered to be a result of the nature of the lithic landscape, where the availability of abundant high quality raw materials negated the need to carry or curate mobile tool kits. A fundamental result of this thesis has therefore been the identification of the influence that the local lithic landscape has on shaping how technology is organised.

Changes in raw material selection and technology over time point to increases in landscape learning of both lithic and non-lithic resources. Right from initial colonisation, only local raw materials were used and these were used selectively, being associated with particular technological trajectories. Over time, raw material selection changes, developing towards an optimal use of the lithic landscape, where high quality raw materials were selected over others. At the same time, an increase in diversity of tool types suggests new familiarity with non-lithic resources in the Ivane valley.

In terms of stone technology, this thesis challenges the usual depiction of Pleistocene Sahul stone technology as a static amorphous tradition, with few defined tool types. Instead, it demonstrates that a dynamic technology existed in the Ivane valley, with formally modified tools present during all

periods of occupation, as well as changes in raw material selection, technological trajectories and tool types occurring over time.

**Garland, Jessie. 2012. Medicating Miners: The Historical Archaeology of the St Bathans Cottage Hospital.** MA Thesis, Anthropology, University of Otago.

This thesis examines the nature of health care provision in Central Otago during the late nineteenth and early twentieth century through an archaeological and historical investigation of the St Bathans cottage hospital. Material excavated from a cesspit on the hospital site has provided the basis for a detailed investigation of the practice and provision of medical care in the settlement and surrounding district from the early 1890s until the 1920s. The information derived from analysis of the archaeological assemblage has been combined with documentary sources to provide a comprehensive illustration of medical and domestic life at the cottage hospital, with an emphasis on the relationship between the dual function of the building as both a domestic residence and medical institution. This has, in turn, been used to explore the way in which the cottage hospital interacted with its wider social and geographical context on a local, national and international scale, including how that context influenced and was adapted to the day to day operation of a small health care institution in rural New Zealand.

**Hauman, Cathleen. 2012. What's Cooking? An archaeological residue analysis of ceramics from Thailand.** MA Thesis, Anthropology, University of Otago.

Residue analysis is a relatively new method of investigating the past, and an analysis of ceramic residues has never been undertaken in Southeast Asia. The purpose of this study was to determine whether this type of analysis could successfully be carried out in the Southeast Asian context. Following this, the aim was to, as accurately as possible, identify the sources of the ceramic residues.

Sherds were collected from four sites in Thailand, Ban Non Wat, Ban Salao, Khok Phanom Di and Nong Nor. Residues were extracted from these sherds using a solvent in a Soxhlet apparatus. The extracted fatty acids were analysed using gas chromatography mass spectrometry in the Departments of Chemistry and Human Nutrition at the University of Otago. Carbon isotopic signatures were also obtained using gas chromatography isotope ratio mass spectrometry in the Department of Chemistry. The fatty acid results suggested an organic source for the residues from all the pots. The most likely food sources were plant, fish or mammal, or a combination of these. The  $^{13}\text{C}$  iso-

topic results showed that the most likely source was a C3 plant, or an animal feeding on these plants. The faunal data from the archaeological sites support these conclusions. In conclusion this study showed that residue analysis is a viable avenue of archaeological enquiry in Southeast Asia.

**Hickey, Megan. 2012. Kahukura: The Archaeology of a Late Archaic Fish Hook Assemblage.** BA (Hons) dissertation, Anthropology, University of Otago.

The excavation of Kahukura in 2009 uncovered a significant Māori fish hook assemblage. This study has used standardised methods to produce an analysis of the assemblage which characterises the quantitative, technological and taphonomic aspects of fish hook use at the site. The classification and comparison of the assemblage with other fish hook collections from sites around New Zealand has highlighted the unique position of Kahukura as a Late Archaic site with a fish hook assemblage dominated by two-piece fish hook points. Radiocarbon methods have placed the occupation of Kahukura in the Late Archaic phase (1450-1550AD). This demonstrates that the change in dominance from a one-piece hooks to two-piece hooks occurred earlier than the Classic phase. The reasons for this change are ambiguous. The Kahukura assemblage holds evidence for explanation of this change as the result of chronological continuity of two-piece forms from Eastern Polynesia, the regional development of two-piece dominated assemblages in the Catlin's sites, and technological adaptation in response to the depletion of moa resources.

**Kurmman, Samantha. 2012. The Regulation of South Island Archaeological Practice under the Historic Places Act 1993.** BA (Hons) dissertation, Anthropology, University of Otago.

New Zealand's interesting and diverse cultural history covers the last 800 years. The Historic Places Act 1993 is the primary piece of legislation used in New Zealand to not only protect our past, but to regulate archaeological practice. The framework of this legislation provides archaeological provisions. These contain guidelines about how to approach applying for an archaeological authority and regulations about altering an archaeological site. Concerns outlined in the literature reveal issues with the legislative framework, such as the lack of real protection for all archaeological sites compared with that of rescuing knowledge (preservation by record). Seven practicing South Island archaeologists were interviewed in order to assess opinions about the effects of the current legislation on archaeological practice. All par-

ticipants expressed satisfaction with the archaeological provisions of the HPA 1993. The opinions of the participants about the regulation of the HPA 1993 by the NZHPT were also outlined, with a resultant combination of satisfaction and dissatisfaction. Major concerns included the default setting of site destruction, as opposed to preservation, the 1900 cut-off date for the definition of an archaeological site, and the lack of proper excavation of archaeological sites. The difficulty that the Trust faces due to lack of resources was also widely recognised by the archaeologists. The participants offered insights into possible ways that legislation could change in order to improve archaeological practice. The opinions of the participants on the proposed Heritage New Zealand Bill suggest that the planned changes will produce an even more meaningless archaeology; however it does introduce some important changes, such as the streamlining of the HPA 1993 with the Resource Management Act 1991. This research demonstrates that South Island archaeologists consider that current legislation is adequate for regulating archaeology in New Zealand, but that changes are needed at bureaucratic level.

**Lawrence, Megan. 2012. *The Dynamics of Stone Procurement and Exchange in New Zealand's Archaic Period: A pXRF Analysis of Obsidian Artefacts from the Purakaunui site (144/21), South Island, New Zealand.* BA (Hons) dissertation, Anthropology, University of Otago.**

Portable energy dispersive X-ray fluorescence spectrometry is used here to geochemically characterise 198 obsidian artefacts from the Purakaunui site (144/21) on the South Island of New Zealand. During the site's two main phases of occupation, between A.D. 1300 and A.D.1500, we would expect the assemblage to reflect a decline of a 'Coloniser Mode' marked by a shift away from long-distance interactions crucial for the first generations to settle New Zealand. Geochemical sourcing clearly shows that Mayor Island obsidian, directly accessed in early Archaic Period sites, has been replaced by Taupo obsidian as the primary source at Purakaunui. Technological analysis of the Purakaunui artefacts displays little evidence for direct access, instead down-the-line exchange is likely occurring. A comparison with obsidian from other South Island Archaic Period sites displays a sharp decline in the presence of Mayor Island obsidian relative to other obsidian sources. This illustrates a rapid decline from a 'Coloniser Mode' around A.D. 1350, which occurs long before an emergence of a 'Trader Mode' after A.D. 1500. This distinct and protracted period of regionalisation is defined here as an 'Established Settlement Mode.'

**Mitchell, Peter. 2012. Tracks and Traces: An Archaeological Survey of Railway Construction Related Sites on the Otago Central Railway.** MA Thesis, Anthropology, University of Otago.

The focus of this thesis is the archaeology of workers' camps associated with the Otago Central Railway. The railway was begun in 1880 and completed in 1920. Using the historical record in conjunction with remote sensing and site survey, this thesis separates site related to the construction of the Otago Central Railway from those involved with the everyday operation and maintenance of the line. Eight sites are investigated using a two site type model to determine whether a site was a Public Works Department site or that of a private contractor. The research has shown that Public Works Department camps were situated in the most favourable locations while those of the private contractors' were located as near to the work at hand as possible.

**Moyle, Jeremy. 2012. An Exploration of the EAMC Database: The Assessment of a Potential Tool for Developing the Practice of Historical Archaeology within New Zealand.** BA (Hons) dissertation, Anthropology, University of Otago.

As it stands, the practice of historical archaeology in New Zealand is less than desirable. Much legislatively mandated investigation in historic sites has the potential to produce only a description of a site and its artefacts. A widely used historical archaeology database has the potential to help remedy this situation through the ability to make historical archaeological information widely accessible and facilitate large scale artefact comparisons between multiple sites. The EAMC Database exemplifies a program designed to achieve such a goal, and is explored and assessed through a case study artefact comparison in order to gain practical insight into the actual potential of a database. From this study five key aspects were identified as influencing the functionality of the database, and these were able to inform suggestions for the design of a similar type of program for New Zealand.

**Russell, Keir. 2012. Transition: Rim Form and Modification from three Localities at Reber-Rakival Watom Island, Papua New Guinea.** BA (Hons) dissertation, Anthropology, University of Otago.

The research presented here involved the characterisation study of ceramics from three late transitional Lapita sites: Kainapirina [SAC], Vunaburigai [SAB] and Vunavaung[SDI], on Watom Island, the Bismarck Archipelago, Papua New Guinea. This research had two major goals. The first was to undertake a characterisation study on rim sherds derived from the three late-transitional Lapita localities discussed above, in order to add to

the current research that is being done to understand the nature of late-transitional ceramic assemblages. The assemblage was analysed using a range of attributes of rim form as well as decorative technique and rim modification, and applied multivariate statistics to classify the data sets into recognizable groups. The second goal was to report on any temporal changes that were observed in the characterisation results of rim sherds in order to provide insights into what was occurring at Watom Island at the end of the Lapita sequence. The results of the characterisation study have identified ten groups in the ceramic assemblage. Some of the rim groups were present throughout the archaeological sequence, starting in low numbers, when in the same horizons as Lapita pottery, but becoming dominant as Lapita-ware dropped out of the sequence. It is argued, therefore, that the results support arguments for the Lapita cultural complex going through a period of transition during the first millennium AD.

**Russell, Tristan. 2012. Long Distance Interaction in the Hawaiian Islands: A Case Study from Kaua'i.** BA (Hons) dissertation, Anthropology, University of Otago.

The KAL-4 rockshelter site is located on the Na Pali coast of Kaua'i, in the Hawaiian Islands. During the 1982 excavation of this site, 735 volcanic glass artefacts were recovered. But, as there are no geological examples of volcanic glass from Kaua'i, or geological evidence to suggest that there is a volcanic glass source on Kaua'i, the source of these artefacts has remained a matter of speculation. There could be an as yet undiscovered source on Kaua'i, or sources on the smaller islands of Necker, Nihoa or Ni'ihau to the west. Alternatively, there may have been interaction with the islands to the east with known sources of volcanic glass.

The present study aims to investigate volcanic glass on Kaua'i as a measure of long distance interaction. Non-destructive energy-dispersive X-ray fluorescence analysis (pXRF) was used to geochemically examine the elemental composition of artefacts in an attempt to identify the source of the volcanic glass found at KAL-4. Lithic technological analysis was carried out to identify the key features of artefacts and general patterns through time. Geochemical analysis highlighted the presence of three distinct groups; 1) Hawaiian Basaltic Glass (HBG), 2) Oahu Basaltic Glass (OA-BG) and 3) a number of natural stones and other material mistaken for volcanic glass. The presence of OA-BG indicates interaction between Kaua'i and other islands, but the limited quantity (n=3) suggests this was restricted. Technological analysis highlighted three distinct stages of lithic development; a period when raw material use appears typical of other sites with volcanic glass, a more 'waste-

ful' period when people are discarding more and larger pieces and a conservative period where little volcanic glass is wasted or unused. These stages, in combination with the three volcanic glass groups, suggest that inter-island travel and communication occurred, and changed, through time.

**Sutherland, Virginia. 2012. Archaeological Approaches to Māori Identity.** BA (Hons) dissertation, Anthropology, University of Otago.

This dissertation explores how concepts of Māori identity have been drawn from and influenced methods and terms of archaeological interpretation. It illustrates some of the colonial concepts framing what is interpreted from the archaeological record, including traditional Western ideas of progress, 'civilisation' and racial superiority, and attempts to identify their effects on narratives of the past in Aotearoa New Zealand. A special focus is terminology and definition, including how we approach the relationship between tangible material evidence and intangible ideas of cultural or ethnic identity. Topics explored include material culture, with emphasis on the adze as a foundational symbol of Māori identity in archaeology, and land use, specifically the concept and treatment of pā as they interlock with dominant narratives.

**Teele, Ben. 2012. Style vs. Substance Understanding Prehistoric Samoan Pottery Production on the Island of 'Upolu using Stylistic and Chemical Techniques.** MA thesis, Anthropology, University of Otago.

This study focused on prehistoric pottery production patterns in the Lapita and plainware periods from the islands of 'Upolu and Manono, Samoa. Incorporating a holistic approach to excavated pottery assemblages, stylistic, temper and clay analysis was undertaken to identify whether initial production technology matched a larger regional signature and to test how production strategies changed through the plainware phase.

Ceramics were sampled from Auckland War Memorial museum collections of five previously excavated sites. This encompassed the only known Lapita site of Mulifanua, as well as a range of temporally and geographically distinct plainware sites located along the north coast of Manono and 'Upolu. A combination of stylistic and physico-chemical techniques were undertaken to determine the full range of production variation present in Samoan ceramics. Stylistic analysis is a common method on Lapita assemblages, providing insight into distinctive cultural markers and regional cultural suites. This technique is, however, limited on plainware assemblages due to restricted vessel forms and an almost complete absence of decoration. Therefore, chemical analysis was undertaken using an electron microprobe on the temper and

clay components of 149 sherds to produce data on production patterns associated with the plainware and Lapita phases.

The results of the stylistic analysis confirm a lack of distinctive features on plainware pottery, and argue against the thin/thick ware division established for pottery assemblages in the archipelago. Two of the plainware sites, Falemoa and Jane's Camp show strong similarities in forms of decoration to the only known Samoan Lapita site of Mulifanua. A red decorative slip is recorded from these three sites, matching similar descriptions from assemblages on other islands within the archipelago and further afield. The presence of a carinated vessel from Jane's Camp suggests continuity in vessel forms between Lapita and early plainware sites. Early or transitional plainware sites might therefore be characterised by more diverse vessel forms than is currently established. The results of the chemical analysis indicate that almost all pottery was produced locally, with the number of resource procurement zones declining over time and a change in production techniques. Initial production utilised a variety of sources, most centred on the coast. Through the plainware period the focus shifts towards inland sources, with pottery produced at the end of the sequence from Saso'a showing a marked change to local trachytic tempers. The homogeneous nature of 'Upolu makes differentiating clay sources difficult, but they appear to match a pattern of local production. This research shows how production patterns for initial 'Upolu settlement were established, including the plainware period, an area currently understudied in Pacific archaeology. Initial colonisation by a Lapita people at Mulifanua was shown to be reflective of a larger regional colonising strategy, utilising the same production technologies and stylistic elements. There appears to be strong continuity in pottery production between the Lapita colonisers and the subsequent plainware settlements. Pottery production is local, with vessels becoming thicker and more heavily tempered over time, suggesting either changes to resource access or the exhaustion of quality clays. Overall production patterns for the two islands match previous work undertaken from other islands in the archipelago. This research provided a key quantifiable dataset and offers the opportunity to further expand prehistoric ceramic studies from Samoa. This thesis has shown continuity in pottery production between Lapita and plainware phases, and suggests the Samoan identity is descendant from the first people to colonise its islands.

**Waterworth, Jess. 2012. Lawrence Chinese Camp: A Taphonomic Analysis of the Phase One Sample Assemblage.** BA (Hons) dissertation, Anthropology, University of Otago.

This is a study of a sample of the faunal assemblage from the Lawrence Chinese Camp, the only solely-Chinese community within the pioneer era of New Zealand settler society. By looking at the proportions of butchery practices and range of taxa present in the Lawrence Chinese Camp Phase One sample assemblage, in comparison to three other sites -Baird's Hotel (a rural, New Zealand-European site located in Central Otago), Carlaw Park (a suburban, overseas Chinese site located in the North Island of New Zealand), and Pierce (a mining camp occupied by both Euroamerican and overseas Chinese settlers in North-Western America) -we can see that there are differences in culture between the overseas Chinese and the European settlers in both North America and New Zealand, which are evident through the diet and the butchery practices used.