

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

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NZAA Conference 2016 Wairau Bar, Blenheim 22-25 June

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Wairau Bar from the Wairau Bluffs Te Taumata o Te Matahourua. Photo courtesy of Richard Bradley, Rangitane

Venue: Ukaipo Rangitane Conference Centre, Fell Street, Grovetown, Blenheim

Wednesday 22 Jun	e	
Morning	11.00am 11.30am – 12.30pm	Registration opens Mihi Whakatau and Conference Opening
Lunch	12.30pm – 1.30pm	_
Afternoon	1.30pm – 5.00pm 5.30pm – 7.30pm	Papers Welcome Event
Thursday 23 June		
Morning	8.30am – 10.00 10.30am – 11.30 11.30-12.30	Papers Student Papers Posters
Lunch	12.30pm – 1.30pm	Lunch Student and Consultant Luncheon
Afternoon	1.30pm – 5.20pm	Papers
Friday 24 June		
Day	8.30am – 4.00pm Approximately	Field Trip
Saturday 25 June		
Morning	8.30am – 12.30pm	Papers
Lunch	12.30pm – 1.30pm	Lunch
Afternoon	1.30pm – 3.00pm 3.00pm – 4.30pm	Papers AGM
Evening	7.00pm – late	Gala Dinner

Field Trip

The field trip this year will be to Wairau Bar with our hosts Rangitane and Dr. Richard Walter. The trip will focus on the national importance of the site, the korero and recent archaeological works. This event was sponsored by Heritage New Zealand Pouhere Taonga with lunch provided by Rangitane.

Gala Dinner

The gala dinner will be held at the Marlborough Vintners Hotel, 190 Renwick Road, Renwick. Bus transport will be provided to and from the venue, leaving and returning from Seymour Square, Seymour Street, Blenheim. Departure is at 6.15pm.

Sponsored Paper Sessions

This year two of the paper sessions have been sponsored by external organisations. The Auckland Council have sponsored Session 3, Heritage Management and SPAR have sponsored Session 1, Pacific Archaeology. NZAA would like to thank both sponsors for their generous contribution to this year's conference and their support of New Zealand's archaeological community.

Tikanga

The Conference will be opened at the Ukaipo Rangitane Conference Centre by mihi whakatau from the tangata whenua from Rangitane at 11.30am. This will commence with a karanga from the tangata whenua with a reply from our side. We will enter the conference space and be seated. The first speeches are given by tangata whenua, followed by a waiata. This is then passed over to our side to be given in Maori or English, followed by a waiata. During the waiata everyone should stand to sing in support of our speaker. The koha is then handed over by the last speaker on our side. The tangata whenua will finish with a karakia and the hongi will take place to conclude the mihi whakatau.

Please ensure you are there on time. Below are the waiata that will be sung after each speech from our side.

Waiata

Ehara i te mea Ehara i te mea Nō nāianei te aroha Nō nga tūpuna Tuko iho, tuku iho

Te whenua, te whenua Te orange o te iwi Nō nga tūpuna Tuko iho, tuku iho Mai wai ra Ma wai ra e taurima Te marae i waho nei? Ma te pono, ma te tika me te aroha e E toru nga mea E toru nga mea (repeat) Nga mea nunui (repeat) E ki ana (repeat) Te paipera (repeat) Whakapono (repeat) Tumanako (repeat) Ko te mea nui (repeat) Ko te aroha (sing all together)

Acknowledgements

We would like to acknowledge the following people who assisted with the organisation of this year's conference: Liz McElhinney and Richard Bradley (Rangitane), Susie Witehira (MDC), Tony Crapper, Linda Grace (Quest Catering), Travis Moriaty (Marlborough Vintners Hotel), Ritchies Buses / Blenheim Deport, Janice Adamson, Richard Walter, Danielle Trilford, Gary Law, Matthew Campbell, Rick McGovern-Wilson, Amanda Young and Wesley Maguire.

Papers Timetable

Wednesday 22 June			
1.30 - 3.00	Session 1: Pacific Archaeology		
	Sponsored by SPAR		
	Session Chair: Dylan Gaffney and Karen Greig		
	1.30 – 1.50	Nicholas Sutton et al	Pots on the Move? Re-evaluating
			Early Papuan Pottery interaction by
			looking at pottery production
			patterns at Oposisi, Papua New
			Guinea
	1.50 – 2.10	Dylan Gaffney	Process archaeology and Pacific
			pasts
	2.10 - 2.30	Geoff Irwin et al	Sailing canoe performance and the
			settlement of Aotearoa/New
			Zealand: An experimental approach
	2.30 - 2.50	Lisa Matisoo-Smith	From Africa to Aotearoa:
			Mitochondrial DNA and Y
			chromosome diversity of New
			Zealanders
	2.50 - 3.00	Questions	
3.00 – 3.30	Afternoon Tea		
3.30 – 5.00	Session 2: Wairau Bar		
	Session Chair: Lisa Matisoo-Smith		
	3.30 – 3.50	Catherine Collins,	A genomic study of the people of
		Craig Millar, Dave	Wairau Bar
		Lambert, Lisa	
		Matisoo-Smith	
	3.50 – 4.10	Louise Furey	Ornaments of Wairau Bar revisited
	4.10 – 4.30	Hallie Buckley et al	An osteobiography of a middle aged
			male from Wairau Bar: Exploring
			metabolic and infectious disease in
			prehistoric Polynesians.
	4.30 – 4.50	Peter Adds and Bruce	Haere Ra Wairau Bar?
		McFadgen	
	4.50 - 5.00	Questions	
1	530-730	Welcome Event	

Thursday 23 June			
8.30 – 10.00	Session 3: He	ritage Management	
	Sponsored by Auckland Council		
	Session Chair:	Robert Brassey	
	8.30 - 8.50	Matthew Schmidt	A retired gold miners residence
			and a fish hatchery
	8.50 – 9.10	Kirsty Potts	Digging Across the Ditch:
			Lessons from Consulting
			Archaeology in Western Australia
	9.10 – 9.30	Jamin Moon	Trends in Indigenous cultural
			heritage legislation in Australia,
			Canada and Aotearoa/New
	0.00 0.50		Zealand
	9.30 – 9.50	Ian Lawlor, Bev	Back to Basics: Recording and
		Parslow and Greg	use of ArchSite records pitfalls
	0.50 40.00	Walter	and remedies
40.00 40.00	9.50 - 10.00	Questions	
10.00 - 10.30	Morning Lea		
10.30 – 11.30	Session 4: Sti	Udent session	
	Session Unair.	Repecca Phillips	Challenging the agricultural model of
	10.30 -	Baylee Smith	Dā distribution: A population
	10.40		adjusted spatial applysis
	10.40	Lucy Northwood	Pots on the inland shore:
	10.40 -		Investigating the nature of
	10.50		Austronesian interaction in the
			Senik-Ramu basin, Panua New
			Guinea
	10.50 -	Lisa McKendry	Archaeological Textiles
	11.00		
	11.00 -	Josh Emmitt	The sourcing of ceramics from the
	11.10		Egyptian Neolithic
	11.10 –	Monica Tromp et	Not just roots and tubers: Pacific
	11.20	al.	peoples and plants according to
			dental calculus
	11.20-11.30	Questions	
11.30 – 12.30	Session 5: Po	sters session	
40.00 4.00			
12.30 – 1.30	Lunch		
1 20 2 00	Secolar 6. To	abaalaay and analys	is of archaeological materials
1.30 - 3.00	Session Chair:		as of archaeological materials
			The story of three stores:
	1.50 - 1.50		Evidence of paint manufacture
			from sites on Great Mercury
			Island
	1.50 - 2.10	James Robinson	An unknown source of obsidian
			has been identified in the Poor
			Knights Islands material culture
	2.10 - 2.30	Warren Gumblev	Using curve matching to achieve
			a precise calendrical date for
			Otaahu Paa
	2.30 - 2.50	Gillian Turner et al.	Hangi-Magnetism:

			Archaeomagnetic Dating of Hangi Stones and other Fired Materials
	2.50 - 3.00	Questions	
3.00 - 3.30	Afternoon tea		
3.30 - 5.20	Session 7: Are Session Chair:	chaeology + History Angela Middleton	
	3.30 – 3.50	Jessie Garland	Truth, justice and the archaeological way: material culture from the site of the Christchurch Justice and Emergency Services Precinct.
	3.50 – 4.10	Kevin Jones and Steve Bagley	Yards on the Acheron, south Marlborough
	4.10 - 4.30	Kurt Bennett	Lyttelton Port: Archaeology of growth and expansion
	4.30 – 4.50	Bill Edwards	A chronological sequence to the flags of Aotearoa New Zealand
	4.50 – 5.10	Matt Carter	3D recording in the field: visualisations from the 2016 Horeke shipbuilding yard excavation, New Zealand
	5.10 – 5.20	Questions	

Saturday 25 June			
8.30 - 10.00	Session 8: The archaeology of built structures		
	Session Chair: Matt Carter		
	8.30 - 8.50	Megan Hickey	When walls come tumbling down:
			insights into Lyttelton's volcanic
			rock walls
	8.50 – 9.10	Katharine Watson	Linwood House
	9.10 - 9.30	Peter Petchey	Identity and Meaning in New
		-	Zealand Buildings Archaeology:
			The Example of Parihaka House
	9.30 - 9.50	Jitlada Innanchai	Archaeology, Anastylosis and the
			Reconstruction of Masonry
			Structures in Thailand
	9.50 – 10.00	Questions	
10.00 – 10.30	Morning Tea		
10.30 – 12.30	Session 9: Ho	orticulture and landso	cape archaeology
	Session Chair: Hans Bader		
	10.30 –	John Coster	Gardening up the Motu
	10.50		
	10.50 –	Warren Gumbley	A year of fieldwork at Taupiri; some
	11.10		gardens; some middens; some
			preliminary results.
	11.10 –	Caroline Phillips	Joining the dots: Discovering Maori
	11.30		gardens in the Bay of Plenty
	11.30 –	Bill Edwards	Early settlement sites south of the
	11.50		Wairau Bar- an interconnected
			landscape?
	11.50 –	Rebecca Phillips et	Understanding formation processes
	12.10	al	in NZ landscapes: A case study from

			Ahuahu Great Mercury Island
	12.10 –	Questions	
	12.30		
12.30 – 1.30	Lunch		
1.30 - 3.00	Session 10: E	nvironment and eco	logy in archaeology
	Session Chair:	Matt Campbell	
	1.30 – 1.50	lan Barber	Investigating proposed climate change proxies in New Zealand archaeology
	1.50 – 2.10	Phil Ross et al	Ahumoana tawhito (ancient aquaculture) and the influence of early-Māori on the distribution and dynamics of toheroa
	2.10 – 2.30	Dan Witter	Feasts in the Dunes: Midden Site M35/1111, North Canterbury
	2.30 – 2.50	John Booth	Ecological consequences of pre- Contact harvesting of Bay of Islands' fish and shellfish based on midden evidence
	2.50 -3.00	Questions	
3.00-4.30	Afternoon tea,	AGM, and conference	e closing
7.00	Gala dinner		

Peter Adds and Bruce McFadgen Te Kawa a Māui, Victoria University of Wellington

Department of Anthropology

and Archaeology, University of

Ian Barber

Otago

Haere Ra Wairau Bar?

The 1848 Marlborough earthquake highlighted the impact of natural events on Wairau Bar. In this paper we use images from various sources including drone flights, and geological data from cores and excavations, to document the history of the Bar, to predict the effects of global warming and future earthquakes on the archaeologcal site, and to try and understand what is known about the site's stratigraphic context.

Investigating proposed climate change proxies in New Zealand archaeology

The proposed effects of climate change on early Polynesian settlers in New Zealand have been debated for a number of decades. Since the 1970s, New Zealand archeologists have variously argued for or rejected the notion that the southern hemisphere advent of the global Little Ice Age (LIA) affected Maori settlement and economy in several regions.

This paper considers two proposed LIA climate change proxies that have been identified from the pre-1800 Maori archaeological record. One of these is the paucity of the warm water finfish snapper *Chrysophrys auratus* (Forster, 1801) in post-1450 archaeological midden sites of central New Zealand where this species breeds today. The other proposed effect is the abandonment of cultivation fields in areas considered marginal for the successful field production of specific, introduced Polynesian crops. This paper considers extant and new research to assess whether these proposed effects represent plausible LIA climate change proxies.

Kurt Bennett Underground Overground Archaeology

Lyttelton Port: Archaeology of growth and expansion

In 1849, the European port of Lyttelton was established to accommodate the influx of immigrants planned for the settlement of Christchurch. As more ships arrived and the community of Canterbury established itself, there was greater demand for warehouse space and wharf areas for importing and exporting goods. Further, technological advances in shipping meant, vessels were constructed larger—carrying more people and cargo. Throughout the later half of the nineteenth century, Lyttelton Port underwent rapid expansion to service the growing economic environment of Canterbury while keeping up with the technological advances in shipping. Since 2014, LPC has started to upgrade its infrastructure for the future needs of global shipping and New Zealand's global trade. This paper will present on recent archaeological monitoring at Lyttelton Port and the archaeological sites that helped establish Lyttelton Port as the "throat of the province" (Rice 2004:29).

Rice, G. 2004 *Lyttelton: Port and Town—An Illustrated History*. Canterbury University Press, Christchurch.

Ecological consequences of pre-Contact harvesting of Bay of Islands' fish and shellfish based on midden evidence

It appears 500 years of pre-Contact Māori harvesting pressure left no lasting legacy on Bay of Islands' shellfish and fish resources—with the probable exception of the fishing-out of local populations of the Cook Strait limpet, and possibly initiating confinement of hapuku largely to deep waters. As it turned out, the later, indirect effects of poor forestry and farming practice, in particular, had much greater long-term effects on the kai moana of the Bay than Māori ever had, soon to be compounded by the intense commercial fishing of the mid- to late-1900s.

An osteobiography of a middle aged male from Wairau Bar: Exploring metabolic and infectious disease in prehistoric Polynesians.

The site of Wairau Bar holds a special place in the prehistory of New Zealand and in the history of archaeology as a discipline. A great deal of research has been conducted on the archaeology of this site and the tūpuna who were buried there. The field of bioarchaeology can inform us on patterns of population diet, health and disease but in doing so the individual voice can be lost. The aim of this paper is to present an osteobiography of the person represented by the skeletal remains of 'Burial 3' from Wairau Bar. His mode of burial was interesting with the removal of the head after burial and rich grave offerings. He was a male of middle years (35-49 years of age) who was 5ft 7inches tall and engaged in high levels of manual labour as evidenced by osteoarthritis in his neck and limb joints. He also had skeletal evidence of an erosive arthropathy that may be gout and lesions of the spine and rib suggestive of tuberculosis. The life history of this person will be discussed within the context of the wider population of Wairau Bar and research on other prehistoric Polynesian communities. Ongoing research being conducted to try and gain a better understanding of the implications of his health problems for modern Polynesians will also be discussed.

John Booth

Hallie R Buckley, Rebecca Kinaston, Michael Knapp; Greg Cook, Catherine Collins, Richard Walter, Sian Halcrow, and Lisa Matisoo-Smith University of Otago Matt Carter La Trobe University

Catherine Collins¹, Craig Millar², Dave Lambert³, Lisa Matisoo-Smith¹

 ¹ Department of Anatomy, University of Otago
² School of Biological Sciences, University of Auckland
³ School of Environment, Griffith University

John Coster Heritage Works Tauranga

3D recording in the field: visualisations from the 2016 Horeke shipbuilding yard excavation, New Zealand

The 2016 field season of the First Ships Project involved the excavation of the pre-colonial shipbuilding yard of Horeke in the Hokianga Harbour, New Zealand. This excavation utilised a range of different electronic survey methods to record the excavation in unprecedented detail. In order to display and interpret the vast amounts of information generated in the field, a range of visualisation programs are now being used for this research. This presentation will discuss some of the methods utilised for this project, and also show the potential for such methods to analyse and display detailed archaeological information to specialists and the general public alike.

A genomic study of the people of Wairau Bar

As one of New Zealand's oldest and well-studied archaeological sites, Wairau Bar presents an ideal site to study the founding population of New Zealanders. Archaeological excavations in the 1940s and 1950s revealed human burials (koiwi tangata) from 42 individuals. These remains were repatriated in 2009, however prior to their reburials bone and/or teeth were sampled from each individual and stored at the University of Otago for future analyses. Our work focuses on the genetic analyses of these individuals, using ancient DNA (aDNA) techniques. In 2012 the first complete or near complete mitochondrial genomes were published from four individuals from the Wairau Bar population. Recent improvements in sample preparation and sequencing technologies are allowing us to yield more data than previously possible. We have begun to apply these techniques to increasing the number of individuals for which we have mitochondrial genome sequences for, to ultimately allow further investigation into the likely origins of this population. Additionally, we aim to process some of the more well preserved samples to sequence regions of the nuclear genome and Ychromosome, with the aim to estimate the founding population size of New Zealand Maori, and determine whether this founding population had the same genetic markers that are linked to increased susceptibility to diseases such as gout and diabetes which are prevalent in Maori and Pacific Islanders today.

Gardening up the Motu

Cooperation between NZAA, Heritage New Zealand, archaeologists, forest managers, logging crews and Whanau-a-Apanui landowners has enabled the recording, protection and limited investigation of the pre-Colonial archaeology of a remote landscape in the eastern Bay of Plenty. Pines planted in an inland area between the Hawai and Motu Rivers in the early 1980s have been progressively harvested over the last 15 years, and the consequent monitoring of sites first recorded in the late 1970s has revealed a pattern of occupation based on riverine gardening and bush foraging, with a wide range of site types, including rounded boulders, but a puzzling absence of middens. Mixed soils up to a metre deep testify to prolonged gardening on a range of soil types.

A chronological sequence to the flags of Aotearoa New Zealand

Recently there had been a debate about a proposed new national flag for New Zealand. In order to have an informed opinion on the flag debate, I used archaeological methods to examine the chronology of New Zealand's national flags. Archaeology as a discipline examines change over time. This approach was applied to explore the origins of the multiple national flags of New Zealand that have been flown since the early 19th century. National flags of New Zealand have been associated with maritime trade. However, the entanglement of Maori and Pākehā and their relationship with the Crown underpins the story. This paper explores the people and events behind our national flags and how these have contributed to the heritage of New Zealand.

Early settlement sites south of the Wairau Bar- an interconnected landscape?

The Wairau Bar site is seen as the apex site in New Zealand archaeology because of its early age, wealth of material culture and archaeological research. However, this site should not be viewed in isolation. There are sites south of the Wairua Bar: Wharenui, Waipapa, Avoca and probably Oaro that all share some attributes that suggest these are analogous with the Wairau Bar. These sites are less well known, but they contribute to our knowledge of early Maori settlement of the region.

The purpose of this paper is to explore these sites through multiple sources that include archaeological investigations, oral and recorded history and the material culture from museum collections. I will present evidence for each of these sites which illustrates that there was a series of early sites south of the Wairau Bar.

If there is to be further research at Wairau Bar then I suggest that these sites and others should be explored as part of an interconnected landscape of early Maori settlement.

The sourcing of ceramics from the Egyptian Neolithic

In the past movement and connections between populations in Neolithic Egypt was assumed based on

Bill Edwards Heritage New Zealand

Bill Edwards Heritage New Zealand

Josh Emmitt University of Auckland similarities in material culture assemblages. These typological similarities were based on artefacts considered as diagnostically significant. In the case of pottery this meant that large quantities of un-diagnostic body sherds were in included in analyses. Raw material sourcing provides an alternative to examining movement during the Neolithic. The use of portable x-ray fluorescence allows for the non-destructive large-scale analysis of archaeological assemblages, including un-diagnostic ceramics not previously considered. This allows for a more detailed understanding of ceramic use and population movement, even in poor preservation contexts. Results show variability in the different materials used in pottery production and may suggest connections between different parts of Neolithic Egypt.

Ornaments of Wairau Bar revisited

In 1950 Roger Duff of Canterbury Museum described the range and variation of ornaments from Wairau Bar in *The Moa Hunter Period of Maori Culture*. Wairau Bar became the type site for Maori-Polynesian material culture. Largely obtained through the activities of Jim Eyles from 1939-1960s, the ornaments, along with the wide range of other material from the site, are in Canterbury Museum. With the exception of those ornaments from a burial context, the majority of the ornaments were found by ploughing and have, at best, a generalized paddock location.

New and more comprehensive analysis of the Wairau Bar ornaments has been carried out and is reported here. New observations are offered about the context of some of the ornaments. The research into Wairau Bar ornaments is part of a wider project cataloguing early Maori ornaments.

Process archaeology and Pacific pasts

Recent theoretical shifts in archaeology have emphasized processes of 'becoming' rather than states of 'being.' This is particularly encapsulated in Gosden and Malafouris' 2015 paper Process Archaeology (P-Arch), which promotes a new way of thinking about people and things. But how are these theoretical shifts useful to the study of archaeological material culture? Here, the theoretical postulates of this Process Archaeology will be assessed for their relevance to Pacific material culture studies (including New Zealand). Particularly, methodological approaches linking this higher-order theory and lower-level observations on artefacts will be discussed. Case studies from recent research into prehistoric and pre-colonial New Guinea will illustrate how particular methodologies investigating particular kinds of material culture are able to more clearly tease apart the interplay between people and things and build upon the postulates of Process Archaeology.

Louise Furey Auckland War Memorial Museum, Auckland

Dylan Gaffney Department of Anthropology and Archaeology University of Otago

Jessie Garland Underground Overground Archaeology	Truth, justice and the archaeological way: material culture from the site of the Christchurch Justice and Emergency Services Precinct.
	The site of the new Christchurch Justice and Emergency Services Precinct in inner city Christchurch was excavated in 2014, revealing almost 200 archaeological features and tens of thousands of fragments of material culture. Historically, the site was home to domestic residences, industrial complexes and commercial operations, in addition to incorporating part of a natural gully infilled during the 1870s. As such, the site is a microcosm of 19 th century Christchurch, showcasing the development of a half-city block (12 town sections) from the beginnings of the settlement in 1850 to the hustle and bustle of an urban environment at the turn of the century.
	Analysis of the archaeological features and artefacts discovered has not only provided us with an understanding of phases of activity on the site itself, but allowed us to investigate the use and meaning of material culture in several different social, commercial and industrial contexts. Patterns of consumption, use and deposition on this site can be compared to other large scale archaeological urban investigations, such as those in Melbourne, Sydney, Wanganui and Dunedin, to better understand the development and negotiation of urban life both here in Christchurch and throughout the colonial world.
Warren Gumbley	A year of fieldwork at Taupiri; some gardens; some middens; some preliminary results. Over the course of 2015 and early 2016 seven archaeological sites were investigated as part of the mitigation works for the Waikato Expressway. Four of these were a series of horticulture sites focused on the Kamakorau River system, two were lakeside middens and one the remains of part of a mid-19th century farmstead. This paper offers a brief overview of the field results and early results of the preliminary analyses.
Warren Gumbley, Alan Hogg, Gretel Boswijk, Tom Roa	Using curve matching to achieve a precise calendrical date for Otaahu Paa. The well known inaccuracies with radiocarbon dating have proved to be a significant obstacle for understand the development of paa and the understanding of settlement patterns for the later part of New Zealand pre-European history. A research project involving Taupiri Marae, <i>Waikato University (Carbon Dating Lab and Maori Department)</i> and the Auckland University Tree-Ring Laboratory is testing a technique that can address this problem. Samples of recovered from palisade posts found at Otaahu Paa (Taupiri, Waikato) are being analysed using the curve matching technique to development precise calendar ages for the establishment of the paa.

Megan Hickey Underground Overground Archaeology.

When walls come tumbling down: insights into Lyttelton's volcanic rock walls.

Lyttelton's volcanic rock retaining walls have been identified as a key element of the Lyttelton Township Historic Area (Burgess 2009: 52). Since their construction in the 19th and early 20th century, most notably by the Hard Labour Gang from the Lyttelton Gaol and Depression-era relief workers, they have been recognised as an aesthetically significant part of the townscape. In the wake of the 2010 and 2011 Canterbury earthquakes, over 100 walls have been identified as sustaining significant damage and collapse. Extensive SCIRT projects are underway to repair and replace many of these walls. The involvement of archaeologists from Underground Overground Archaeology in these projects has shed light on the archaeology of these historic structures. As the walls come down, construction techniques used over a century ago are slowly revealed. From a functional perspective, the need to rebuild sound replacements for the damaged walls is paramount. These works are a key area of progress in Lyttelton's recovery plan. However, this work unavoidably adds to the long list of lost heritage sites in the Canterbury area. Further to this, the often long and disruptive works required to complete this task have significantly impacted the Lyttelton community. Within the current narratives of regeneration surrounding post-earthquake Lyttelton, solutions to balance the old and new within the context of community identity and heritage must be carefully navigated. This paper will explore the history and archaeology of the retaining walls, and the post-earthquake state of these significant structures within the context of Lyttelton's townscape.

Archaeology, Anastylosis and the Reconstruction of Masonry Structures in Thailand

In the aftermath of the Christchurch earthquakes and the damage that was suffered by significant masonry structures such as the Timeball Station and the Provincial Council Chambers, it is potentially useful to examine how other countries have tackled the restoration of historic masonry structures. In Thailand and Cambodia numerous examples of Khmer stone structures dating to the 11th and 12th centuries exist, of which the best known is the Angkor Wat complex. In Northeast Thailand the hospital of Prang Ku was built by in the 12th century by King Jayavarman VII, the most prolific builder of the Khmer rulers. The structure was excavated and restored in 1991, but annual flooding during the wet season caused deterioration in the structure and by the early 2000s it was at risk of collapse. In 2011-2012 the Thai Fine Arts Department contracted the Priva Durakij Company to re-excavate the site and rebuild the structure using the anastylosis method of disassembly and reconstruction. This paper describes the archaeological

Jitlada Innanchai

excavations and the structural repairs that were carried out.

Geoff Irwin, Richard Flay and Dilys Johns	Sailing canoe performance and the settlement of Aotearoa/New Zealand: An experimental approach		
University of Auckland	We report on a collaboration between Archaeology, the Conservation Laboratory and the Yacht Research Unit at the University of Auckland to investigate the sailing characteristics of Pacific canoes, both ancient and modern. Archaeology provides a chronology for the early settlement of East Polynesia, but one mystery that remains is how well the canoes could sail. We describe the testing of selected model sails in a wind tunnel and hulls in a towing tank. By combining aerodynamic and hydrodynamic information it was possible to compare the performance of different kinds of canoe representing simple and more developed forms. Preliminary results suggest that canoes involved in the colonisation of East Polynesia and New Zealand were able to make return voyages between islands on passages that encountered adverse winds as well as fair ones.		
Kevin Jones and Steve Bagley	Yards on the Acheron, south Marlborough		
	During a flight in 2009 over the Kaikoura Peninsula and the Clarence, Acheron and Awatere River catchments, KJ noted a ditch and bank fence near the Acheron Accommodation House at the confluence of the Acheron and Clarence. Ground survey shows this to have been a substantial yards (N31/2) enclosing some 4 ha on a high terrace of the Clarence. It may be either a 'home paddock' for the farm land attached to the Acheron Accommodation House or a holding area for sheep driven in the 1850s from Nelson or Marlborough to found the stocking of the Canterbury runs. (In 1862 the Nelson Province had granted Thomas Carter £300 cash and grazing rights for a 'House of Accommodation, Acheron Valley'.) We discuss these yards and some other early yards on the Acheron, and take a drover's journey from the Canterbury Spur in Marlborough to Hanmer and the Amuri.		
Ian Lawlor, Bev Parslow and Greg Walter Heritage New Zealand	Back to Basics: Recording and use of ArchSite records pitfalls and remedies.		
	Over the last two years, some uncertain ArchSite recording practices have been noted while reviewing archaeological assessments, site instructions or management plans, and completing compliance monitoring of interim and final reports for HNZPT authorities. These have included: taking old site numbers and assigning them to new sites - sometimes within 100m of original locations and across property boundaries; using single GPS points to 'more accurately' locate previously recorded site areas; and the apparently unquestioning presentation of old grid coordinate plots, particularly those associated with sites recorded on Imperial maps, and not checking these against		

primary sources. We would like to raise the issue and promote some remedies to improve recording practices and the use of primary data where possible to inform the locations of sites recorded prior to the general advent of GPS.

From Africa to Aotearoa: Mitochondrial DNA and Y chromosome diversity of New Zealanders

As part of National Geographic's Genographic Project and a Royal Society of New Zealand James Cook Fellowship I have collected DNA samples from over 2000 New Zealanders (including about 60 NZAA members attending the 2014 conference) to study the deep ancestry and diversity of the current New Zealand population. The diversity of mtDNA lineages in particular has been most surprising. I will present the preliminary results of the study and discuss the implications not only for understanding New Zealand's settlement history but for discussing important social issues facing an increasingly multicultural New Zealand population.

Archaeological Textiles

The term 'archaeological textiles' encompasses all fibre remains recovered from archaeological sites (Cameron 2012). Archaeological textiles are the product of diverse industries utilising a range of knotting, netting, twisting, plaiting, twining, weaving and sewing techniques. Māori wove a broad and complex range of textiles using these techniques, including lashing cords, lines and fishing nets, bags, belts, mats and cloaks. Yet there has been little examination of Māori archaeological textiles, in particular, those in the weaving technique Māori call rāranga. This paper reports on the woven bags and baskets from Te Wao Nui A Tiriwa (Waitakere Ranges), West Auckland, held at Tāmaki Paenga Auckland Museum. The raw material and the key structural attributes of *rāranga* textiles; the weave form (open/close), strand width, pattern and edge types were investigated along with the type of commencement and finishing structures. This was a rare opportunity to study raw material use, fibre processing techniques and construction methods, and to provide descriptive data for future comparative work.

Trends in Indigenous cultural heritage legislation in Australia, Canada and Aotearoa/New Zealand

This paper presents research investigating the evolution of Australian and Canadian Indigenous cultural heritage legislation through time using analytical techniques borrowed largely from comparative law. The analysis highlights similar patterns and trends in the evolution of this legislation in both countries and charts the gradual decolonisation of Indigenous cultural heritage protection in

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Jamin Moon La Trobe University Australia and Canada. Preliminary analysis of heritage legislation in Aotearoa/New Zealand shows similar trends from initial dedicated legislation protecting cultural heritage in 1954 through to the recent *Heritage New Zealand Pouhere Taonga Act 2014.*

The findings of analyses of Australian and Canadian legislation are discussed along with preliminary findings from the Aotearoa/New Zealand data, placing the evolution of heritage legislation in an international context and making some general predictions about future directions.

Pots on the inland shore: Investigating the nature of Austronesian interaction in the Sepik-Ramu basin, Papua New Guinea

On the basis of linguistics and the presence of Austronesian loan words, it has been suggested that there was an Austronesian presence in the Sepik-Ramu basin approximately 3000 years ago (Foley 1986). However, up until now, these claims have been based on conjecture and were not supported by archaeological evidence. This study assesses the nature of an Austronesian presence on mainland Papua New Guinea by the geochemical examination of potsherds found in a 3000-year-old context from the Kowekau rockshelter site. For the first time, the ceramic wares from the Kowekau rockshelter are able to give credence to these claims and have the potential to place Papuan ceramic technologies in the context of their Austronesian origins. This paper will place the Kowekau ceramic assemblage in a specific archaeological context, and will outline its suitability for addressing changes in production over time, as well as the nature of Austronesian interaction in the Sepik-Ramu basin.

Meaning & Identity in Buildings Archaeology : The Example of Parihaka House

In the past decade the practice of buildings archaeology has grown enormously in New Zealand, but out of necessity in the heritage-resource-management driven environment most work has been descriptive, focussing on the construction methods, architectural form and decorative detailing of buildings, often with a consideration of how a structure has changed over time (analogous to the interpretation of stratigraphic sequence in conventional archaeology).

In 2015 a small 1880s villa on Queen Street in Dunedin was demolished. Outwardly it exhibited many standard features of the period, but with an unusual adaptation to the exposed hillside site whereby it had two 'public' facades and no rear 'service' elevation. While this might be interpreted to be an attempt to emphasise the conventional respectability of the house and occupants, the discovery of

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Peter Petchey University of Otago the original front door fanlight bearing the name for the house chosen by the first occupants, 'Parihaka,' challenges this interpretation. This window publicly stated their solidarity with the Taranaki land alienation issues and the Taranaki Maori concurrently imprisoned in Dunedin, and was therefore anti-establishment in its tone.

This paper considers the different interpretations, and the tensions between those interpretations, that are possible with regard to one building, in an attempt to examine how meaning and identity can be considered in buildings archaeology. In particular it considers how ephemeral and fragile evidence can significantly change the interpretation of a building, highlighting the dangers in simple interpretations of architectural style and detailing.

Joining the dots: Discovering Maori gardens in the Bay of Plenty

In the early 1980s, archaeological surveys and excavations at Kawerau discovered a series of small sloping gardens, based around the use of Kaharoa ash (Lawlor 1983). Twenty years later, Higham and Gumbley (2001) found the distinctive garden plots, commonly known as puke. Currently, over 7900 sites have been recorded in the Bay of Plenty, of which nearly 1500 are pit sites (Law 2008). So where were the gardens that supplied the crops to fill these pits? Excavations at a property along Maniatutu Road, inland from Te Puke, aimed to investigate the total landscape utilised by Maori. In this property pits had already been recorded, so one of the first questions was: where are the gardens? The search for Kaharoa led to the discovery of puke and an extensive area of garden soils between the ridges where the pits were located.

Understanding formation processes in NZ landscapes: A case study from Ahuahu Great Mercury Island

Understanding formation processes is a critical part of understanding the archaeological record and has a long history in archaeology. However, there is a tendency to focus on the identification of formation processes for the purposes of 'filtering' out the pristine archaeological record and subsequently engage in behavioural reconstructions that are more commensurate with an ethnographic time scale. We take a view that the temporal complexity of the archaeological record does not allow for such an approach. A more productive way to think about the archaeological record is one of a complex history of human environmental interaction where human action and reaction to the cumulative effect of landscape alteration and degradation can be viewed as a historical process. We use this approach to investigate the complex formation of the archaeological record in specific locations on Ahuahu Great Mercury Island.

Caroline Phillips

Rebecca Phillipps, Louise Furey, Simon Holdaway, Joshua Emmitt, and Alex Jorgensen University of Auckland **Kirsty Potts**

Digging Across the Ditch: Lessons from Consulting Archaeology in Western Australia

This paper explores the response of the Western Australian heritage industry to changing government processes and a slowing economy. Western Australia has recently undergone a mining boom that placed enormous pressure on heritage surveys to be complete prior to mining exploration. However, as the iron ore price declined so did the requirement for exploration and archaeological surveys. As this occurred, changes to government regulations also began. This paper outlines some of the responses by the archaeologists and Aboriginal people to this often challenging environment. In particular, the case study of investigations at Ngurin #1 is explored as an example of a community driven project. The investigation of Ngurin #1 was a not-for-profit project that considered an open-air stratified artefact deposit, a site type that is rarely excavated in Western Australia. The project not only allowed the two involved Aboriginal groups to take ownership of their heritage but also confirmed the importance of excavating this type of site.

An unknown source of obsidian has been identified in the Poor Knights Islands material culture

Lithic sourcing studies using XRF analysis were carried out by Auckland University on representative samples of archaeologically recovered obsidian from the Poor Knights Islands. This showed that 90% of the obsidian assemblage comes from a single source. Specifically it identified a unique zirconium element count (PPM) that does not match any other New Zealand source and therefore this must be considered an unknown source.

Using the Auckland University study as a control, a larger net energy study was made from the University of Otago's comparative lithic collection. A modified Kahurangi table was used to measure the similarity of New Zealand sources to this newly discovered unknown source. This table shows that aside from the zirconium variable the Poor Knights obsidian originates somewhere in the geographic mid-north region that stretches from the Whangarei Harbour eastwards out to Aotea (Great Barrier Island) and includes the known obsidian sources of Whakapara, Huruiki, Fanal, Awana and Te Ahumata.

A physical characteristics study by Dr Phil Moore, showed that the Poor Knights obsidian arrived on the island as slightly water rolled cobbles. This suggests that they had originated from an active aquatic environments such beaches or stream mouths. In addition obsidian sources such as Fanal Island can be excluded due to their

James Robinson Heritage New Zealand crystalline inclusion that does not occur in the Poor Knights assemblage. Finally some predictive arguments based on closest 'near miss' zirconium counts to the Awana source, and our existing archaeological knowledge of obsidian on Aotea Island, suggests that this unknown source might be found on the beaches or stream mouths of the archaeologically uninvestigated islands on the western or northern sides of Aotea Island.

Ahumoana tawhito (ancient aquaculture) and the influence of early-Māori on the distribution and dynamics of toheroa.

The impacts of modern human society on marine ecosystems are both significant and well understood. In contrast, the influence of early humans on marine ecosystems is virtually unknown. New Zealand, the last major landmass settled by humans, provides an unparalleled opportunity to determine the significance of early human-ecosystem interactions. Māori settled New Zealand as late as the 14th century, meaning that evidence of early-human impacts are less obscured by time in New Zealand than in countries with more prolonged occupation. Genetic analyses (supplemented with Māori environmental knowledge) of toheroa, an endemic shellfish of cultural importance to Māori, has led us to hypothesise that the present-day distribution of this taonga (treasured) species is influenced by historical, human-mediated translocations. This hypothesis is being tested through a multidisciplinary research programme combining archaeology and molecular ecology with Mātauranga Māori (Māori knowledge). By examining Māori oral histories alongside archaeological records and toheroa population genetics, we are gaining a better understanding of the extent to which early Māori manipulated their marine environment.

A retired gold miners residence and a fish hatchery

This paper presents two heritage conservation projects being undertaken by Heritage New Zealand and various partners and volunteers.

Beattie's Cottage was built by Alexander Beattie in about 1891. Beattie was a gold miner first recorded in public records as mining at the Criffle goldfield near Wanaka in 1882. Beattie moved to Quartz Reef Point near Cromwell by September 1891 probably drawn by the discovery of gold out of the 'main creek' at Quart Reef by Tillman and Bethune in June 1891. In 1891 the Otago Daily Times noted that Beattie and Logan were recovering a "considerable amount of gold out of the creek at Quartzreef". Beattie built his schist cottage and storehouse when he began mining here on land owned by the crown who eventually granted him a long term lease of the property in 1916. After his death in 1940, the leased land and cottage

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Matthew Schmidt Heritage New Zealand stayed in his family until 1967 where the Wilson family took over the lease until 2013. Due to the run down and dangerous condition of the cottage, LINZ proposed in 2013 to demolish the structures and clear the land. However, after discussions with Heritage New Zealand, LINZ agreed that the cottage and land could be made into a heritage picnic area for the public and contributed funds to the project. This paper describes the progress of a project led by Heritage New Zealand to preserve this small piece of local goldfields heritage alongside LINZ, the Otago Polytechnic Stone Masonry Course of Cromwell, Fulton Hogan, Heritage Places Aotearoa Central Otago and archaeologists Andrew Winter, Matthew Sole and Ben Teele.

The Opoho Fish Ponds in Dunedin were built in 1868 by the Otago Acclimatisation Society. From these ponds, the first successful release of Brown Trout occurred in New Zealand and eleven other species of fish were successfully reared and released. This site was discovered by chance in 2011 during the building of a mountain bike track. This paper describes a project now completed by Heritage New Zealand, Mountain Bike Otago and Fish & Game to preserve these ponds and present them as a recreation/heritage experience as part of a mountain bike trail along Opoho Creek.

Challenging the agricultural model of Pā distribution: A population-adjusted spatial analysis.

Pā are an important archaeological site type in New Zealand prehistory. They appear in the archaeological record around AD1500 and typically have complex sequences, often beginning as undefended sites, as well as a strong association with agricultural landscapes and access to marine resources. Many researchers have noted their intrinsic link with social organisation, suggesting that population increases resulting in larger social groups in close proximity to each other may have been a trigger for the instigation of Pā building. Despite this, very few studies explore the distribution of pa on a large scale, and none examine the social implications of large scale patterns.

This study employs statistical methods in order to model the distribution and clustering of all pre-European Pā sites recorded in ArchSite across New Zealand. In contrast to previous studies, we control for overall population density through the use of density ratios. Our results reveal a Pā density pattern that cannot be accounted for in current prevailing models, with relatively low densities in areas of high agricultural potential. New models must be constructed to account for these observations.

These results also allow us to trace patterns of population distribution and interaction, serving as proxies for the

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Nicholas Sutton, Glenn Summerhayes & Anne Ford University of Otago

Pots on the Move? Re-evaluating Early Papuan Pottery interaction by looking at pottery production patterns at Oposisi, Papua New Guinea.

This paper is concerned with determining the nature of interaction between the South Papuan communities that produced and used the pottery types known as Early Papuan Pottery (EPP; c. 1200-2000 cal BP; Summerhayes & Allen 2007). Until recently, EPP was the earliest known *in-situ* evidence of ceramics on the mainland of New Guinea, and was thought to reflect a post-Lapita colonisation event. Recent discoveries of Lapita sites along the Papuan South Coast (McNiven *et al.* 2011) call for a reevaluation of the nature of late-Holocene South Papuan colonisation and interaction. To begin meeting this challenge, a combined stylistic and physicochemical analysis was undertaken on a sample of EPP ceramics excavated at the Oposisi site on Yule Island in 2007.

Our results show that a highly variable pottery production technology was in use for the first 200 years at Oposisi, suggesting that this site was part of an initially highly interactive and mobile society. This mobility appears to have then decreased over the next few hundred years, before increasing again in the late EPP phase. Interestingly, the two highest periods of mobility during the EPP phase corresponded with the occurrence of the most striking types of decoration (shell impression and etching). Extending the argument of Summerhayes and Allen (2007), the elaborate late EPP decoration might have played a role in the maintenance of social ties between settlements. Such social networks may have provided a buffer against the impact of natural disasters, such as more prevalent drought conditions brought about by increased El Niño-Southern Oscillation (ENSO) band variance. The results of the present study also support a continued argument that the beginning of the EPP phase marks a separate post-Lapita colonisation event.

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Not just roots and tubers: Pacific peoples and plants according to dental calculus

In the Pacific, archaeological human calcified plaque (dental calculus) has informed us not only on dietary plants, but also potential medicinal plants and drinking water sources on islands without freshwater. This presentation summarizes results from Vanuatu and Easter Island to examine the plants that some of the first and last settlers of the region were consuming by looking at phytoliths and starch granules extracted from human dental calculus. Phytoliths are microscopic plant skeletons produced by most plants, especially their leaves and sometimes bark and wood. Starch granules are the microscopic energy stores of plants and are found in most roots, tubers, nuts and fruits. Implications for future dental calculus studies in the Pacific, including New Zealand are also discussed.

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Hangi-Magnetism: Archaeomagnetic Dating of Hangi Stones and other Fired Materials

Archaeomagnetism is a well-established field of study in Europe and other regions of the world that have a rich archaeological history. It can provide an alternative dating tool for materials that are not amenable to more traditional methods such as radiocarbon dating. The clays and tempers used in pottery and brick-making contain small proportions of ferrimagnetic minerals which become magnetized during the final cooling process. If an artefact remains in situ until sampled, then the direction of its magnetization can provide a record of the direction of the surrounding magnetic field at the time of firing, and the strength of the magnetization gives a measure of the field intensity. Archaeomagnetic dating involves matching this thermoremanent magnetization to known master curves of the changes in the direction and/or intensity of the geomagnetic field over time for the region. In Europe for example there are recognized master curves reaching back several thousand years.

In New Zealand, Maori occupation stretches back at most 750-800 years. Furthermore, Maori did not bring with them a culture of pottery or brick-making. Instead, we have studied the archaeomagnetic records of hangi stones. Used as heat retainers for cooking, hangi stones are natural rocks that are heated, sometimes to red-hot temperatures, and, after the food has been lifted, they are often left in situ, acquiring a thermoremanent magnetization as they cool. Over the past four years we have first conducted a test-of-concept experiment, and then collected and studied oriented stones from a total of 18 archaeological hangi sites, both prehistoric and recent in age. We have obtained reliable magnetic directions from 12 and intensities from 13 of these. We will show examples illustrating the archaeomagnetic method and a range of results, including archaeomagnetic dating by correlation with a recently developed master curve for New Zealand. In some cases age estimates from archaeomagnetic and radiocarbon dating are in excellent agreement, in others archaeomagnetism helps resolve ambiguities arising from the calibration of radiocarbon age estimates, while in others archaeomagnetism provides the only basis of age estimation.

Rod Wallace University of Auckland

Katharine Watson Underground Overground Archaeology

Dan Witter

The story of three stones: Evidence of paint manufacture from sites on Great Mercury Island

In sites on excavated on GMI 3 water rolled cobbles were found with a water resistant coating of material, in one case glossy black, in another bright Kokowai red and in the third black on one end and red on the other. The coating consisted of either carbon black or red ochre held together by a semi-plastic binding agent with the consistency of tough candlewax which when the tip of a sharp probe was drawn through left behind a shiny groove. A review of the ethnographic literature suggested the binding agent was most likely to be gum obtained from various Pittosporum species; a material had a variety of uses by Maori including the manufacture of paint. Experiments to replicate paint manufacture found that combining fresh Pittosporum gum and animal fat with powdered kokowai or soot was difficult unless, as described in the ethnographic literature, the mixture was heated. The 'paint' so produced dried with a tough, shiny, waterproof finish. It is concluded that the 3 stones from the sites had been heated and added to the mixture in a container as part of the production of black and red paint.

Linwood House

A house is really just another form of material culture, and can be explored and interpreted in the same way as any other material culture, providing an insight into the lives of its occupants. Looking at Linwood House in this light reveals a number of interesting insights about the families who lived there in the 19th century. From Joseph and Sophia Brittan (a couple on the run from their past, who built the house) to Edward and Amelia Hiorns (a couple on the make, who extended the house significantly), the house said more about it occupants than perhaps they intended or realised.

Feasts in the Dunes: Midden Site M35/1111, North Canterbury

Midden deposits made up of shell which were contained in rourou eating baskets are common on the North Canterbury coast between the Waimakariri and Ashley Rivers. These baskets contained tightly packed "handfuls" of shells. Site M35/1111 (Peg 10-5) was excavated to recover these handfuls which are referred to here as shell units. Analysis of these units showed variation in average shell size and some had pairs of conjoining cockle valves. The two midden features on this site are argued to belong to an accumulation from the same shell bed, based on population, shell worm frequency and degree of wear by wave action. There were two oven features which were flat and shallow in shape. The size, percentage cortex and fracture faces for the fire-cracked rock was analysed. It is

proposed that one of the ovens had been robbed-out to contribute oven stones for the other, and these ovens were used in cooking the shellfish.

The site was not close to where the shellfish could have been gathered, and was not closely associated with a habitation. It was otherwise isolated in the dunes, but among other midden deposits and oven sites. It is interpreted as near a place of food consumption in a strategic location. There was no evidence for where the shell fish meals took place. It is concluded that the shells from the meal were cleaned up and returned to where they were cooked in rourou baskets. Tapu and noa principles are inferred to explain this behaviour. The differences of average shell size among shell units may reflect differences in status of people at the gathering.

The site has a calibrated date from cockle shell of 1402-1616 AD at the 95% level. This was at a time when coastal progradation had resulted in a rich estuarine habitat. Most of the sites I have dated in the North Canterbury dunes belong to this period. These meals, or feasts isolated in the dunes may have had a sociological function, perhaps in a regional and chronological context.

Abstracts – Posters

Blurred Lines: Searching for Separate Spheres within the Material Culture of Colonial New Zealand, 1832-1900

The early settlements of 19th century New Zealand allow archaeologists a unique opportunity to study the development of separate spheres of gendered activity. The aim of this research was to critique the application of the Separate Spheres ideology in identifying gender in the material record. Two different analyses were performed – a critical analysis of literature concerning gender in 19th century England and America, and a comparative analysis of the material culture of eight domestic sites from across New Zealand. The comparative analysis established that the material culture of domestic sites did indeed reflect the emergence of separate spheres in a new environment.

From Digging Stick to Plough: The archaeological evidence for change from traditional Maori horticulture to European market gardens

Recent development driven excavations in North Taranaki, NZ, uncovered pre-Contact and post-Contact Maori horticultural systems. A late 18th century system, pre Land Wars system and a late 19th century system show the gradual change from traditional Maori gardening to European market gardening. These three systems were

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Hans-Dieter Bader Archaeology Solutions Ltd cultivated by the same group of people, at least the two later ones, most likely by the same family group. They are all within the same environment and same soil type, therefore differences between them show social changes over time, not any environmentally driven different adaptations. The change of technology from digging stick to plough and the less labour intensive planting soil preparation is visible, but the principles of the planting soil preparation remain unchanged. The interpretation of the excavation results is only preliminary and leads to many new questions. The locations of the research are also driven by the development needs of the gas and oil industry in Taranaki rather than any archaeological research approach.

New Zealand's Frozen Past?

The focus of this poster presentation is permanent or semipermanent alpine snow and ice.

Long considered barren wastelands, recent discoveries and research have shown that alpine ice patches and small glaciers sometimes contain well-preserved cultural and biological materials in the form of artefacts, structures and faunal or floral material. In several regions, these remains and structures date back to the Early and Mid-Holocene. But Medieval and historical material also provides important new information and analytical possibilities for archaeologists and other scientists.

By examining maps and satellite images of different regions across the globe, we can identify regions where the topographic and climatic conditions for the preservation of ancient alpine ice still exist today. At this macro level of analysis, New Zealand, and especially the Southern Island stands out as one of the most exciting global candidates, in terms of faunal, environmental and cultural potential.

The aim of this poster is to highlight the scientific possibilities that these frozen alpine contexts can provide and to get in contact with colleagues in New Zealand that may be interested in exploring this exciting phenomenon.

How did they get in there? Under floor deposit formation at French Farm, Akaroa

Archaeological deposits found under the floors of nineteenth century buildings can usually be explained in one of three ways; they may predate the building, they might have fallen through gaps beneath the floorboards, or they could have entered the sub-floor space through gaps around the sides of the building. Material found during excavations of underfloor deposits at a ca. 1843 Frenchbuilt farm house near Akaroa present a conundrum. They include items too recent to predate the building and too

Martin Callanan & Jørgen Rosvold, NTNU University Museum, Norwegian University of Science and Technology, Trondheim, Norway.

Kate Eising Department of Anthropology & Archaeology University of Otago large to have slipped between floorboards, and the method of building construction precluded entry from the sides. This poster summarises a project that aims to resolve this problem through examination of under floor deposit formation processes, and analysis of the French Farm artefact assemblage for evidence of chronology and function. It will propose an alternative explanation for the formation of this sub-floor deposit.

Re-imag(in)ing the past: adding the third dimension to archaeological drawings

The excavation of the site of Kom W in the Fayum region of Egypt during the 1920's by Caton-Thompson and Gardner resulted in the loss of the original surface topography of the site. The detailed section drawings made at the site recorded surface and bottom of excavation, but was previously difficult to interpret from the published images. These images were used to create a three dimensional representation of the site as it was before and after excavation in the 1920's. This visualisation aids the interpretation of Kom W in ways that were previously unachievable due to limitations in the original data. Archaeological sites are under increasing threat of destruction, especially in the Near East. This method could be applied to legacy data in order to reconstruct the site with the data available.

The Clay Tobacco Pipe: A Chronological and Social Study of Clay Tobacco Pipes in Colonial Christchurch

New Zealand has a gap in the literature on the study of clay tobacco pipes in 19th century sites. This poster attempts to bring together the methods used to record clay tobacco pipe assemblages from international and national studies. These methods of dating clay tobacco pipes will be examined and establish whether they can be used has period markers for 19th century sites. To do this the methods will be tested on three 19th century Christchurch sites.

Bless this House: The Archaeology of 19th and Early 20th Century Domestic Dwellings in Northland and Auckland, New Zealand

Through the use of buildings archaeology it is possible to examine the ideological, social and cultural world viewpoints of people within the Auckland and Northland regions from their domestic dwellings. The Georgian Order Theory, as applied to the study of the design of domestic housing by historical archaeologists is a theoretical perspective that assumes a dominant structural order emanating from a cultural schema or ideology. However, there are many more factors arising from historical contingency and human agency, both conscious and

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unconscious, that also affect this ideology and how it is materially represented in domestic dwellings. This poster presents the comparative analysis of 10 case studies focusing on the key findings of my MA thesis.

Lithics of the Rainforest: Changes in site and resource use in late Pleistocene to early Holocene New Ireland

The recent dating of the earliest occupation of Buang Merabak to 43,000 years ago shows that the colonisation of New Ireland occurred soon after that of Sahul. This provides the opportunity to consider the early adaptation of small groups of people to a depauperate island environment. An analysis of a lithic assemblage from Buang Merabak was used to consider how the technological organisation of lithics at Buang Merabak reflects patterns of site use and subsistence strategies from the late Pleistocene to the early Holocene. This dissertation shows a strategy of small simple flake technology aimed at allowing flexibility within fluctuating patterns of faunal resource use. During the late Pleistocene a broad range of local lithic materials were targeted and used expediently. Gradual change occurred in the early Holocene to a smaller variety of materials with dominant use of local chert flakes and slight conservation of a few specific volcanic materials.

It's Your Shout! A New Way of Measuring Usewear on Glass Bottles

Is it possible to measure use-wear on glass bottles? Throughout the nineteenth century these artefacts were imported into New Zealand as there was no local manufacturing until the 1920s. This made bottles comparatively expensive and encouraged re-use, with some accounts suggesting a single bottle might be re-used 20 to 30 times. Re-use has implications for the interpretation of bottle glass assemblages, but to date there has been no systematic way of documenting it and determining whether there is variation in re-use between different bottle types and between assemblages from different sites.

This poster outlines the development of a scale for measuring the extent of use-wear on both alcohol and nonalcohol glass bottles. It is built on the presumption that continued use of a bottle will leave physical evidence in the form of scratches, pitting and wear, especially on its base. The scale is being tested using as a case study an assemblage of artefacts from a 19th Century bottle exchange in Christchurch. Preliminary results suggest that different patterns of bottle use can be detected. Once finalised these results will contribute to a broader study into the drinking culture in Victorian Christchurch.

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Georgia Kerby