



AAA / ASHA 2014 Conference

1-3 December | Cairns, Queensland

**CULTURE, CLIMATE, CHANGE
ARCHAEOLOGY IN THE TROPICS**

CONFERENCE HANDBOOK

© Australian Archaeological Association Inc. and
Australasian Society for Historical Archaeology Inc., 2014

ISBN 978-0-9589221-0-4

Published by the Australian Archaeological Association Inc. and
Australasian Society for Historical Archaeology Inc.

Printed by Conference Online.

Citation details:

S. Ulm, G. Mate and J. Jerbic (eds) 2014 *Culture, Climate, Change: Archaeology in the Tropics: Conference Handbook*. Cairns, QLD: Australian Archaeological Association Inc. and Australasian Society for Historical Archaeology Inc.

Edited by
Sean Ulm, Geraldine Mate and Julie Jerbic

Table of Contents

Welcome	2
Acknowledgement of Traditional Owners	3
Conference Organising Committee	3
Volunteers	3
Sponsors	4
Getting to Cairns	6
Getting around Cairns	6
Cairns Visitor Information and Map	7
Conference Information	8
Photo Competition	9
Social Media Guide	10
Pre-Conference Workshops	12
Conference Workshops	13
Meetings	16
Social Functions	17
Post-Conference Tours	18
Awards and Prizes	19
Sessions	23
Forums	31
Poster Presentations	33
Venue Floor Plan	37
Programme Summary	38
Detailed Programme	40
Abstracts	58



Welcome

We invite you to visit the tropics this year to participate in the joint Australian Archaeological Association/ Australasian Society for Historical Archaeology annual conference, 'Culture, Climate, Change: Archaeology in the Tropics'. This is just the third time our two associations have come together to share our annual conferences and we look forward to continuing our close collaboration into the future. The tropical zone is home to extraordinary diversity, reflected in a rich and diverse archaeological and natural heritage. In our own region, discoveries such as *Homo floresiensis*, sea-faring Lapita peoples on the south coast of Papua New Guinea and the tropics as a key zone controlling global climate have fundamentally reshaped our understandings of the long-term human histories of these vast land and seascapes. Your host James Cook University welcomes you to the tropics to engage in conversations about these issues and about many others which confront our disciplines. Our venue for 2014 is the Pullman Cairns International. We trust that delegates and other guests will enjoy their experiences in the North of Queensland.

Sean Ulm and Geraldine Mate

AAA/ASHA2014 Conference Convenors

Acknowledgement of Traditional Owners

Our conference takes place in the coastal city of Cairns, Queensland, home of the Gimuy Walubara Yidinji and Yirrganydji peoples. The Conference Organisers acknowledge them as the Traditional Owners of the land on which we are meeting. We would like to express our appreciation to the representatives of these communities for their participation in the conference.

We acknowledge Australian Aboriginal and Torres Strait Islander peoples as the first inhabitants of this country. We pay our respects to the Traditional Owners and Elders of the land both past and present on which we stand today. In the spirit of reconciliation, we also acknowledge the valuable contribution that Australian Aboriginal and Torres Strait Islander peoples continue to make to our community.

Conference Organising Committee

Conference Convenor: Sean Ulm (James Cook University)

Deputy Convenor: Geraldine Mate (Queensland Museum / James Cook University)

Conference Treasurer: Helene Tomkins (James Cook University)

Sponsorship Coordinators: Luke Godwin (James Cook University)
and Aleisha Buckler (University of Queensland)

Website Manager: Jacqueline Matthews (University of Western Australia)

AAA/ASHA Prizes and Awards Coordinators: Annie Ross (University of Queensland)
and Martin Gibbs (University of New England)

Conference Managers: Julie Jerbic and Erin Rapson (Conference Online)

Thank you also to the staff and students of James Cook University for their support and assistance.

Volunteers

The Conference Organising Committee gratefully acknowledge the time, energy and enthusiasm of the following James Cook University volunteers:

Felise Goldfinch

Anna Kreij

Catherine Livingston

Annette Millar

Texas Nagel

Annette Oertle

Sarah Slater

Karen Thornton

Sponsors

The Conference Organising Committee acknowledges with gratitude the following companies and organisations that have provided sponsorship for this conference.

Platinum Sponsors



Gold Sponsors



Silver Sponsors



Bronze Sponsors



Getting to Cairns

By Air

Cairns Airport is the main gateway to Tropical North Queensland. Cairns Airport offers both domestic and international flights.

The airport is located approximately 15 minutes by taxi from the Pullman Cairns International conference venue.

Train

Rail Australia runs rail services three times weekly from Brisbane to Cairns.

The train station is located approximately 1km from the Pullman Cairns International.

Bus

Greyhound Australia runs bus services from many cities to Cairns.

The bus station is located approximately 2km from the Pullman Cairns International.

Airport Transfers

Sun Palm Transport Group operates airport shuttle bus services to hotels and the city centre.

The pick-up point is immediately in front of the domestic arrivals area. There is an information desk within the terminal which, if not staffed, has direct-dial telephone. No pre-booking is required.

Getting around Cairns

Taxis

Taxis ranks are located immediately outside the Cairns Airport arrivals areas of both T1 (International) and T2 (Domestic) Terminals. Metered fares apply in the Cairns Taxis service area (Ellis Beach to Edmonton).

Allow 15 minutes by taxi to the Pullman Cairns International. One-way taxi fares between Cairns Airport and the hotel are approximately \$25.00.

Cairns Taxis: 13 10 08

A \$3.50 fee is added to your fare when you leave from Airport Terminals. This fee contributes to providing better infrastructure at Cairns Airport, including taxi waiting areas, monitoring equipment and kerb front facilities.

Public Transport

The public transport service, Sunbus, operates throughout the city, running from the northern beaches to the southern suburbs via the CBD. For information about zones, fares, tickets, ticket types, ticket prices and concessions, visit www.sunbus.com.au or phone 07 4057 7411.

Cairns Visitor Information

For comprehensive and up-to-date information about things to see and do in Cairns, please see:

<http://www.cairns-greatbarrierreef.org.au/>



Conference Information

Venue

The conference and all social functions and pre-conference workshops will be held at the Pullman Cairns International, 17 Abbott Street, Cairns, QLD 4870.

Pullman Cairns International is located in the CBD of Cairns and only a 10-15 minute drive from the airport. It is perfectly located in the heart of Cairns, just moments from the city's best shopping, dining and cafes.

Pullman Cairns International is one block (less than 5 minutes walk) from the Reef Fleet Terminal, Cairns Cruise Liner Terminal, the Cairns Esplanade and swimming lagoon, Pier Shopping Plaza, Cairns Central Shopping Centre and train station and an excellent selection of shops and restaurants.

Cairns is famous for the array of tours and activities for visitors, from the Great Barrier Reef to the Daintree Rainforest. We will be hosting a selection of post-conference tours for delegates.

Registration Desk Opening Times

Sunday 30 November: 10.30am – 7.30pm

Monday 1 December: 7.00am – 9.30pm

Tuesday 2 December: 7.00am – 7.30pm

Wednesday 3 December: 7.00am – 7:00pm

Conference Opening

The first session of the conference will commence at 8:00am on Monday 1 December in the Grand Ballroom. The registration desk will be open from 7:00am.

Parallel Sessions

Parallel Sessions will be held in Kuranda, Mossman, Tully, Bluewater and Rosser rooms. Kuranda, Mossman and Tully rooms are located on the Ground Floor and Bluewater and Rosser Rooms are located on Level 1.

Conference Closing

The conference will finish with the Conference Dinner and After Party commencing at 7.00pm on Wednesday 3 December in the Grand Ballroom.

Refreshments

Morning and afternoon tea and lunches are included in the conference registration fee. All catering is served in the Ground Floor Lobby and Level 1 Gallery.

Special Diets

If you have indicated a special dietary requirement on your registration form, please identify yourself to the Registration Desk and they will be pleased to assist.

Name Badges

All delegates will be provided with a name badge, which must be worn at all times within the conference venue, particularly at catering breaks.

Satchels

All delegates will receive a conference satchel upon registration. Your satchel will include materials submitted by sponsors and a book of the conference programme and abstracts.

Mobile Phones

As a courtesy to presenters and other delegates, please ensure that all mobile phones are turned off or in silent mode during all sessions and social functions.

Internet Access

Free Wi-Fi is available at the conference venue for conference delegates. Please check the notice board near the Registration Desk for login details.

Business Centre and Internet Cafes

There is a business centre on the Ground Floor Lobby with computer and internet access. Also see the noticeboard near the Registration Desk for a list of local internet cafes.

Instructions for Session Convenors

Each presentation timeslot is strictly 20 minutes, including 5 minutes for discussion.

You will be provided with 5-minute and 1-minute time cards for use during each presentation.

To facilitate movement between sessions and to ensure the programme runs to schedule, please adhere strictly to the programme as provided. If a presenter does not arrive for their slot, please do not move other presenters forward, but rather wait until the scheduled time to begin the next presentation.

Instructions for Presenters

Each presentation timeslot is strictly 20 minutes, including 5 minutes for discussion.

Please be in your session room 10 minutes prior to the start of your session to assist all sessions to run on time. Your convenor will brief you about the format of your session before the commencement of presentations.

If using a PowerPoint presentation, please bring your file on a USB stick to the room of your presentation during the break before your session, or 20 minutes before the start of the day's proceedings. A volunteer will assist with uploading your presentation.

Instructions for Poster Presenters

Posters should be a maximum of ISO A0-size in portrait format and be printed on high-quality paper.

Posters will be displayed on Tuesday 2 and Wednesday 3 December on the Level 1 Gallery.

Please hand-deliver your poster to the Registration Desk upon arrival on Sunday 30 November or Monday 1 December. The conference staff will arrange hanging of your poster.

Poster presenters are expected to be present during the Poster Session on Wednesday 3 December from 4.00pm – 6.00pm.

Posters must be dismantled on Wednesday 3 December following the Poster Session. Dismantling of posters is the responsibility of the presenter and no responsibility can be accepted by the organisers for the collection or safekeeping of posters. Posters not collected by 10.00am on Thursday will be discarded.

Best poster awards will be presented at the end of the Poster & Photo Session on Wednesday 3 December.

Photo Competition

Photos will be on display throughout the conference, on poster boards in the Ground Floor Lobby, and are submitted in the following categories:

- A. Archaeological site/landscape
- B. Archaeological fieldwork or laboratory work in progress
- C. Archaeological artefact images
- D. Manipulated or artistic images
- E. Historical images
- F. "Just for Fun"

Awards for each of the above categories will be presented at the end of the Poster & Photo Session on Wednesday 3 December (see page 22 for award details).

Social Media Guide

Wi-Fi

Complementary Wi-Fi internet is available at the conference venue for delegates. Check the notice board near the Registration Desk for login details.

Mobile Phone/Recording Devices

While we appreciate that you might want to use your phone during the conference, as a courtesy to presenters and those around you, put it on silent and do not use the flash to take photos during sessions.

For Presenters: Individuals may wish to record or photograph your presentation and/or slides on personal devices. If you have sensitive material in your presentation that you do not want recorded or you simply do not wish to be recorded or photographed, please make an announcement to this effect at the beginning of your presentation; e.g. 'Please do not record or photograph this presentation'.

For Delegates: If you are planning to record or photograph presentations and/or slides, please be respectful if a presenter requests that you do not do so. Any recordings or photographs should be for your personal use only and not for uploading to any social media or online platform without the presenter's express permission, which you must request personally.

Facebook

AAA and ASHA are both active on Facebook and will be posting updates, reminders and photos throughout the conference. The links to the respective pages are:

<https://www.facebook.com/AustralianArchaeologyAssoc>

<https://www.facebook.com/AustralasianSocietyforHistoricalArchaeology>

Twitter

The official conference hashtag¹ is #AAA37 - chosen to commemorate the fact that this is the 37th annual AAA conference. If you want to tweet about the conference please use this hashtag so that others interested in the conference can find your tweets.

If you are a Session Convenor and want to create a specific hashtag for your session please feel free to do so, and let us know by tweeting it to the AAA Twitter account via @AustArchaeology so we can help promote its use.

Live-Tweeting at AAA/ASHA2014

We encourage live-tweeting during the conference using the official hashtag, with the following caveats and suggestions for best practice:

- Respect the wishes of presenters if they do not want their paper to be tweeted and presenters please make it clear if this is your wish. Remember that many people present unpublished work at conferences and you should use your best judgement when putting other people's work into the public sphere.
- Correctly attributing information is vital. If tweeting be sure to give the name of the presenter and be clear when you are directly quoting someone. Presenters, if you are on Twitter and are happy for people to tweet about your paper put your Twitter handle² on your opening slide so the audience can accurately cite you online.
- Do your best not to misrepresent other people's views (even if you disagree with them) and post corrections if you slip up or someone misunderstands your tweet.

- You don't need to tweet everything a presenter says, a few take home messages to capture what you found interesting/significant about their presentation is generally sufficient.
- Do not post photos of people, photo competition entries or posters without the permission of the individual or author.
- Remember that Twitter is a public forum, so think twice when posting comments about the more social aspects of the conference; the general rule is to be collegial and respectful.
- Finally, enjoy it. Live-tweeting can be a great way to increase engagement and widen participation at a conference.

Important Reminder about Conference Awards

Everything you post on Twitter using the conference hashtag and on the AAA and ASHA Facebook pages during the conference is considered to be public and can get you nominated for the Small Boy/Big Man awards. You have been warned ☺

For More Information about Social Media and Live-Tweeting

AAA Website and Social Media Policies: <<http://www.australianarchaeology.com/website-and-social-media-policies/>>.

For a list of Australian archaeologists on Twitter go here: <<https://twitter.com/AAASStudents/lists/ozarch-twitterati>>.

For those new to Twitter and wanting a good introduction to its use by archaeologists, we suggest starting with Lorna Richardson's paper, 'Twitter and Archaeology: An Archaeological Network in 140 Characters or Less', available in full here: <http://www.academia.edu/2492383/Twitter_and_Archaeology_An_Archaeological_Network_in_140_Characters_or_Less>.

This blog from *The Guardian*, 'Live-Tweeting at Academic Conferences: 10 rules of thumb', has a good discussion on #twittergate and the ethics and etiquette of live-tweeting conferences, <<http://www.theguardian.com/higher-education-network/blog/2012/oct/03/ethics-live-tweeting-academic-conferences>>.

¹Hashtags are searchable terms that can be added to your tweet to make them easier to find by others. They are not case sensitive and can include numbers and letters. You don't need to be a Twitter user to view tweets using a hashtag—just go to twitter.com and search for #AAA37.

²A Twitter handle is the username a person has selected to use on Twitter. When a username is preceded by the @ sign in a tweet it becomes a link to a Twitter profile. e.g. AAA's username is AustArchaeology, you can tweet to us by putting @AustArchaeology in your tweet and our homepage is twitter.com/AustArchaeology. If you start your tweet with a handle make sure you put a "." before the "@" it so people other than that user can see it.

Pre-Conference Workshops

Geochronology Workshop

Saturday 29 November: 8.00am – 4.15pm

The Geochronology Workshop is sponsored by the Centre for Tropical Environmental and Sustainability Science, James Cook University. The workshop will cover Radiocarbon Dating (Dr Rachel Wood, *Australian National University*), U-Series Dating and Cosmogenic Dating (Dr Christa Placzek, *James Cook University*) and Luminescence Dating (Professor Richard (Bert) Roberts, *University of Wollongong*).

Registration for the Geochronology Workshop is free-of-charge and includes morning and afternoon tea and lunch, but is limited to 50 places. You must be pre-registered to attend the workshop.

Cairns Historical Society Walking Tour of Cairns CBD

Sunday 30 November: 9.00am – 11.00am

Enjoy a guided walk around the heart of Cairns, led by Dawn May of the Cairns Historical Society. The walk departs from the Ground Floor Lobby of the Pullman Cairns International at 9.00am.

The walk is available to pre-registered delegates only. A gold coin donation is suggested on the tour. It is recommended that you bring a hat and water bottle.

CV Workshop

Sunday 30 November: 11.00am – 1.00pm

The CV Workshop is jointly hosted by the Australian Archaeological Association (AAA) and the Australian Association of Consulting Archaeologists Inc. (AACAI). The workshop is being run by Dr Lynley Wallis (*Wallis Heritage Consulting*), assisted by representatives from a range of industry sponsors.

The form of the workshop will be a series of short formal presentations and opportunities for participants to revamp/prepare the particular section of their own CV that was the focus of the preceding presentation. The revamping work will be done individually or in small groups – industry professionals will be on hand throughout the workshop to assist delegates.

Participants should bring a hard copy of their own CV, along with a laptop with an electronic copy of their CV. Participants will take away a CV booklet and a revamped, professional CV to take with them to the Meet the Graduates (MTG) event the following evening.

We strongly encourage all graduate participants intending on attending the MTG event to come along to the CV Workshop, as it will provide an additional opportunity for them to meet industry professionals and will better prepare them, allowing them to make the most of the MTG event.

Registration for the CV Workshop is free-of-charge to students and recent graduates. You must be pre-registered to attend the workshop.

How to Get Published in Archaeology Workshop

Sunday 30 November: 1.00pm – 3.00pm

The How to Get Published in Archaeology Workshop is free-of-charge and open to all conference delegates, however it is specifically pitched at inexperienced publishers. You must be pre-registered to attend the workshop.

The workshop panel includes:

Tim Denham, *Australian National University*
Robin Derricourt, *University of New South Wales*
Michelle Langley, *Australian National University*

Susan Lawrence, *La Trobe University*
Robin Torrence, *Australian Museum*
Peter White, *University of Sydney*

ARC Funding in Archaeology Workshop

Sunday 30 November: 3.00pm – 5.00pm

The ARC Funding in Archaeology Workshop is free-of-charge and open to all conference delegates. You must be pre-registered to attend the workshop.

The workshop panel includes:

Michael Bird, *James Cook University*
Penny Crook, *La Trobe University*
Denise Meredyth, *Australian Research Council*
Sue O'Connor, *Australian National University*

Richard (Bert) Roberts, *University of Wollongong*
Sean Ulm, *James Cook University*
Peter Veth, *University of Western Australia*

Conference Workshops

Career Advice Workshops

Career Advice Workshops are free-of-charge for current students and recent graduates and will be held over three lunchtimes for an hour each. Lunch will be provided separately for Career Advice Workshop participants on the Level 2 Gallery. Each session is limited to six participants for each topic for delegates who have pre-registered.

The workshops will give students an opportunity to sit down with a leader in the field of each particular session, to facilitate the sharing of experience, wisdom, networks, knowledge and know-how. Topics which could be discussed include career paths, grant applications and research project development – issues not normally covered in university lectures but deeply relevant to the real world.

The workshops are the initiative of the AAA Student Representatives, Georgia Roberts and Lucia Clayton Martinez.

This year, we will be running 14 sessions over 3 days:

Monday 1 December: 12:30pm – 1:30pm

Employment in the Private Sector
Industrial Archaeology
Museum Archaeology
Rock Art

Tuesday 2 December: 12:30pm – 1:30pm

A Career as an Academic
Historical Archaeology
Maritime Archaeology
Stone Artefacts

Wednesday 3 December: 12:30pm – 1:30pm

Bioarchaeology and Physical Anthropology
Geophysics
Historical Archaeological Artefact Analysis
Public Speaking and Presentations

The following provides a basic description of what each session will involve. Individual questions from the participants during the sessions will not be limited to the descriptions, and participants will be free to ask whatever questions they wish of their session mentor.

Employment in the Private Sector (Mentor: Oona Nicholson)

Cultural heritage management in the private industry is the career path many archaeology graduates choose, particularly in comparison to previous generations. Talk to an industry employer about topics such as skill sets, specialisations, employment opportunities, legislation and consultation.

Industrial Archaeology (Mentor: Susan Lawrence)

Industrial archaeology is the systematic study of material evidence associated with the industrial past. This evidence includes buildings, machinery, sites, infrastructure and documents. This session will give students the opportunity to discuss the scope of industrial archaeology within Australia and the career paths associated with it.

Museum Archaeology (Mentor: Brit Asmussen)

The collation and display of finds from archaeological investigations is an important career path, allowing an interaction between our research and the public. This session will allow students to discuss this career path with a mentor who has worked in the field for many years. Topics for discussion may include methods of interpretation, ethical concerns and job prospects.

Rock Art (Mentors: Jo McDonald and Paul Taçon)

Australia has a unique rock art record. The study of rock art is particularly relevant to the AAA/ASHA conference topic for 2014, with many of the larger collections located in the northern tropical zone. This session will allow students to discuss the study of rock art with an expert in the field, with topics including fieldwork, funding and new analysis methods.

A Career as an Academic (Mentors: Ian McNiven and Bryce Barker)

A career in academia is the career path many archaeology graduates aspire to, perhaps less so in comparison to previous generations because of the particular challenges this career path entails. Talk to an academic archaeologist about topics such as publishing, establishing a track record, teaching, research grants and how the university academic system works.

Historical Archaeology (Mentor: Heather Burke)

This year, we have included a number of historical archaeology-specific sessions, with the first of these titled 'historical archaeology'. Focused on the archaeology of Australia after AD 1788, this session will provide the opportunity to talk to a mentor about fieldwork, choosing a career path, research specialisations and information about research grants, amongst other matters.

Maritime Archaeology (Mentor: Wendy Van Duivenvoorde)

Maritime archaeology is particularly relevant to the conference theme for this year, with key sites located along the northern coastlines of Australia. This session will present students with an opportunity to discuss the qualifications required for maritime archaeology and the career prospects of the field.

Stone Artefacts (Mentor: Peter Hiscock)

Stone artefacts, like artefacts from historic periods, have their own unique set of analyses. These analyses scale from the general to the detailed, with new technologies permitting the in-depth analysis of artefacts like never before. This session will allow students to discuss the various techniques and methods commonly used at different scales of analysis.

Bioarchaeology and Physical Anthropology (Mentor: Debbie Argue and Georgia Roberts)

The fields of bioarchaeology and physical anthropology – the scientific study of human remains from archaeological sites and modern contexts respectively – is strongly represented by Australian researchers. This research is focused both across Australia and within the tropical Southeast Asian region. This session will allow students to discuss topics such as career prospects and fieldwork logistics with an experienced researcher.

Geophysics (Mentor: Kelsey Lowe)

In an archaeological context, geophysics is a ground-based physical sensing technique used for archaeological imaging or mapping. It can be used in both a terrestrial and marine setting. This session will allow students to discuss geophysical applications to Australian contexts with a key researcher in the field.

Historical Archaeological Artefact Analysis (Mentor: Sean Winter)

The analysis of historical archaeological artefacts is a specific field utilising various techniques. This session will present students with an opportunity to learn more about these techniques and how they might be applied to historic archaeological research.

Public Speaking and Presentations (Mentor: Peter Veth)

Many students find the prospect of public speaking and presenting in a conference setting daunting. This session will give students an opportunity to gain some valuable insights into what makes a great presentation and how to go about achieving that.

Meetings

AACAI Annual General Meeting

The AACAI Annual General Meeting will be held on Monday 1 December from 6.00pm – 7.30pm in the Kuranda room. All members are requested to attend.

The Ground Floor Lobby Bar will be open for cash sales – drinks can brought to the AGM

Chair: Lynley Wallis

ASHA Annual General Meeting

The ASHA Annual General Meeting will be held on Tuesday 2 December from 12.30pm – 1.30pm in the Rosser room on Level 1. Lunch will be served on the Level 2 Gallery for AGM attendees. All members are requested to attend.

Chair: Mary Casey

AAA Annual General Meeting

The AAA Annual General Meeting will be held on Tuesday 2 December from 6.00pm – 7.30pm in the Kuranda room. All members are requested to attend.

The Ground Floor Lobby Bar will be open for cash sales – drinks can brought to the AGM

Chair: Fiona Hook

***Archaeology in Oceania* (AO) Editorial Board Meeting**

The *Archaeology in Oceania* Editorial Board Meeting will be held on Monday 1 December from 12.30pm – 1.30pm in Boardroom 1 on Level 2. Lunch will be served on the Level 2 Gallery for attendees.

Chair: Peter White

***Australasian Historical Archaeology* (AHA) Editorial Board Meeting**

The *Australasian Historical Archaeology* Editorial Board Meeting will be held on Monday 1 December from 12.30pm – 1.30pm in Boardroom 2 on Level 2. Lunch will be served on the Level 2 Gallery for attendees.

Chair: Jon Prangnell

***Australian Archaeology* (AA) Editorial Board Meeting**

The *Australian Archaeology* Editorial Board Meeting will be held on Tuesday 2 December from 12.30pm – 1.30pm in Boardroom 1 on Level 2. Lunch will be served on the Level 2 Gallery for attendees.

Chairs: Lynley Wallis and Heather Burke

Australian Indigenous Archaeologists Association (AIAA) Meeting

The Australian Indigenous Archaeologists Association Meeting will be held on Wednesday 3 December from 12.30pm – 1.30pm in Boardroom 1 on Level 2. Lunch will be served on the Level 2 Gallery for attendees.

Chair: Dave Johnston

Australian National Committee for Archaeology Teaching and Learning (ANCATL) Meeting

The Australian National Committee for Archaeology Teaching and Learning Meeting will be held on Wednesday 3 December from 12.30pm – 1.30pm in Boardroom 2 on Level 2. Lunch will be served on the Level 2 Gallery for attendees.

Chairs: Kat Szabó and Liam Brady

Social Functions

Welcome Reception

The Welcome Reception will be held on Daintree's Pooldeck at the Pullman Cairns International on Sunday 30 November from 5.30pm – 7.30pm. Canapés and beverages will be served. This is a great opportunity to catch up with old and new acquaintances. The Welcome Reception is included in your registration fee.

Following the Welcome Reception, a cash bar will be operating from 7.30pm – 9.30pm on the Daintree's Pooldeck.

Meet the Graduates

The annual Meet the Graduates (MTG) event will be held on Monday 1 December from 7.30pm – 9.30pm on the Level 1 Gallery. The event is free-of-charge for pre-registered students and recent graduates. MTG is jointly hosted by the Australian Association of Consulting Archaeologists Inc. (AACAI) and the Australian Archaeological Association (AAA). The evening is a wonderful opportunity for recent graduates to network in a relaxed environment with potential employers from the consulting industry, heritage, government and education sectors. Representatives from industry sponsors will be on hand to talk to and answer questions from graduates. Graduates should have copies of their CV to hand out to interested potential employers. We recommend participants attend the CV Workshop on Sunday 30 November to better prepare for making the most of the MTG. Canapés and drinks will be served.

Poster & Photo Session

The Poster & Photo Session will be held on Wednesday 3 December from 4.00pm – 6.00pm on the Level 1 Gallery. Poster presenters will be in attendance to discuss their posters.

Conference Dinner

The Conference Dinner will be held in the Grand Ballroom on Wednesday 3 December from 7.00pm – 11.00pm. The dinner will consist of a 3-course dinner and all beverages (beer, wine, soft drinks and juice). There will be an awards ceremony, a live band and dancing. Conference Dinner tickets must be pre-purchased at a cost of \$95.00 per person.

After-Dinner Party

For those wishing to kick on after dinner, the party continues in the Grand Ballroom from 11.00pm – 2.00am with a DJ and dancing. Entry is free to dinner attendees and a cash bar will be operating.

Post-Conference Tours

All tours take place on Thursday 4 December and must be pre-booked. Guests, including children, are welcome to attend.

Reef Magic Great Barrier Reef Day Tour to Marine World

Travel on a fast catamaran from Cairns Reef Fleet Terminal to Marine World on the Outer Great Barrier Reef. Travel time is 90 minutes each way, with 5 hours at Marine World to enjoy snorkelling, on-board marine biology presentations, semi-submersible tours with interactive commentary, glass bottom boat tours with interactive commentary, underwater observatory and sundeck. Optional extras include: scuba diving, helicopter flights and snorkelling tours with a marine biologist.

Check-in at Cairns Reef Fleet Terminal at 8.00am and return at 5.00pm.

Cost: \$188.00 per adult and \$95.00 per child (under 12 years old) – includes morning/afternoon tea, full hot and cold buffet lunch and stinger suit.

Daintree Dreaming-Ngadiku Day Tour

Be taken on a journey steeped in heritage, ancient culture and traditions. The itinerary includes a Ngadiku Indigenous guided Dreamtime Walk, where an experienced Indigenous guide will demonstrate traditional plant use, identify bush food and traditions like making bush soaps and ochre paint. The walk meanders through stunning rainforest on private walking trails and takes in traditional huts or humpies while your guide provides an enchanting narrative of the rainforest and their special relationship with this unique tropical environment. A stop at 'the Beach' gives you the opportunity for a refreshing swim. Enjoy a delicious lunch infused with local flavors at the Mossman Gorge Centre. There is also time to explore the gallery, which is filled with artworks from prominent and emerging artists of the area.

The itinerary also includes a Kuku Yalanji Cultural Habitat Tour. Travel to Cooya Beach north of Port Douglas and meet with the Kubirri Warra brothers who follow the traditions of their ancestors. This special place is a traditional fishing ground of the Kuku Yalanji. This unique coastal place has three diverse ecosystems – beach, mangroves and coastal reef – that are connected to each other by the ever-changing mudflats and tidal lagoons. The brothers teach their guests how to throw a spear and demonstrate how to search and hunt for fish, mud crabs and mussels. Learn about bush tucker and medicines before enjoying home-made damper and the catch of the day.

Departs Cairns Pullman International at 8.00am and returns at 6.00pm.

Cost: \$200.00 per person (adults and children) – includes morning tea, lunch, Ngadiku Indigenous guided Dreamtime walk at Mossman Gorge and Kuku Yalanji Cultural Habitat Tour at Cooya Beach.

Historical Archaeology Day Tour

A full day of historical archaeology including:

- Ride the Skyrail to Kuranda – a 1.5 hour cableway trip up the range with a stop above the site of an early Hydroelectric Power Station.
- Brief walk through Kuranda township with time for morning tea.
- Atherton Chinatown – Australia's only extant regional Chinese temple: visit the interpretation centre and archaeological park. Light lunch provided.
- Great Northern Mine, Herberton – first freehold mine in Queensland mining tin from alluvial and reef deposits. Visit the heritage centre and walking trail.
- Yungaburra Mill – the former major timber mill is now being redeveloped as a housing estate: extant steam boiler and furnaces.
- Lake Barrine – brief stop at one of the Atherton Tablelands crater lakes with twin kauri trees.

Departs Pullman Cairns International at 8.15am and returns at 6.30pm.

Cost: \$100.00 per adult and \$80.00 per child (under 12 years old) – includes light lunch and all entry fees.

Awards and Prizes

The following awards and prizes will be presented during the Conference Dinner on Wednesday 3 December:

Rhys Jones Medal for Outstanding Contribution to Australian Archaeology

The Rhys Jones Medal is the highest award offered by the Australian Archaeological Association Inc. It was established in honour of Rhys Jones (1941–2001) to mark his enormous contribution to the development and promotion of archaeology in Australia. The Medal is presented annually to an individual who has made an outstanding and sustained contribution to the field. Established in 2002, previous winners include Isabel McBryde (2003), John Mulvaney (2004), Sharon Sullivan (2005), Mike Smith (2006), Jeremy Green (2007), Harry Lourandos (2009), Iain Davidson (2010), Sue O'Connor (2011), Mike Morwood (2012) and Richard Wright (2013).

John Mulvaney Book Award

The Award was established in honour of John Mulvaney and his contribution and commitment to Australian archaeology over a lifetime of professional service. It acknowledges the significant contribution of individual or co-authored publications to the archaeology of the continent of Australia, the Pacific, Papua New Guinea and Southeast Asia, either as general knowledge or as specialist publications. Nominations are considered annually for books that cover both academic pursuits and public interest, reflecting the philosophy of John Mulvaney's life work. Established in 2004, previous winners include Val Attenbrow for *Sydney's Aboriginal Past* (2004), Rodney Harrison for *Shared Landscapes* (2006), Mike Morwood and Penny van Oosterzee for *The Discovery of the Hobbit* (2007), Peter Hiscock for *The Archaeology of Ancient Australia* (2008), Denis Byrne for *Surface Collection* (2007), Jane Lydon for *Fantastic Dreaming* (2010), Annie Ross *et al.* for *Indigenous Peoples and the Collaborative Stewardship of Nature* (2011), and Mike Smith for *The Archaeology of Australia's Deserts* (2013).

The Bruce Veitch Award for Excellence in Indigenous Engagement

This Award celebrates the important contribution that Bruce Veitch (1957–2005) made to the practice and ethics of archaeology in Australia. In particular, the award honours Bruce's close collaboration with Traditional Owners on whose country he worked. It is awarded annually to any individual or group who has had long-standing and sustained engagement with Indigenous communities during archaeological or cultural heritage projects which have produced significant outcomes for Indigenous interests. Established in 2005, previous winners include Richard Fullagar (2006), Bruno David (2007), Annie Ross (2008), Luke Godwin (2009), Peter Veth (2010), Ken Mulvaney (2011), Ian McNiven (2012), and Daryl Wesley (2013).

Life Membership for Outstanding Contribution to the Australian Archaeological Association Inc.

This award was established to recognise significant and sustained contribution to the objects and purposes of the Australian Archaeological Association Inc. Previous winners include John Mulvaney, Jack Golson, Betty Meehan (2002), Val Attenbrow (2002), J. Peter White (2003), Luke Kirkwood (2004), Isabel McBryde (2005), Ian Johnson (2006), Colin Pardoe (2007), Sean Ulm (2008), Annie Ross (2010), Lynley Wallis (2012) and Fiona Hook (2013).

The Ulm-Ross Prize for Best Paper in Australian Archaeology

The Ulm-Ross Prize was established to honour the outstanding editorial contributions to *Australian Archaeology* (AA) of Sean Ulm and Annie Ross (AA Editors 2006–2011). The Prize will be offered to the author(s) of the best paper published in the preceding two volumes of AA. Papers are judged by a panel of Australian and international experts based on four relatively simple criteria: (1) novelty/originality (opening new avenues for research); (2) clarity of expression; (3) contribution to substantive debate and/or the 'big picture' of the discipline; and (4) contribution to research more generally. Previous winners include Adam Brumm and Mark Moore (2012) and Ben Gunn, Ray Whear and Leigh Louglas (2013).

R. Ian Jack Award for Best Honours Thesis

The R. Ian Jack Award is presented to the author of the best Honours thesis related to historical archaeology in Australia or New Zealand. Ian was one of the first practitioners of industrial archaeology in Australia, and with Judy Birmingham and Denis Jeans published two important texts on colonial technology, *Australian Pioneer Technology* (1979) and *Industrial Archaeology in Australia* (1983). In his position of Dean of Arts at the University of Sydney in the early 1970s Ian played a further key role in the development of the field by facilitating the introduction of the first undergraduate subject in the area. This award was first presented in 2007.

Maureen Byrne Award for Best Postgraduate Thesis

In 1976 Maureen Byrne was the first doctoral student in historical archaeology at the University of Sydney. Her excavation of the first Prisoners' Barracks at Port Arthur with a large team, mainly from the University of Sydney, had a very successful first season early in 1977, but she died at the age of 24 in November that year after a severe asthma attack. Named in honour of Maureen, this award presented bi-annually recognises the best historical archaeology MA or PhD thesis in Australia and New Zealand.

Judy Birmingham Award for Best Historical Archaeology Consulting Report

This annual award recognises the best historical archaeology consulting report produced in Australia and New Zealand. It is named in honour of Judy Birmingham who after commencing at the University of Sydney in 1961 to teach Near Eastern archaeology, by the end of the decade had begun laying the foundations for the field of historical archaeology in Australia through her work on sites such as Irrawang and Wybalenna. Her intellectual leadership in developing a theoretical basis for the field has been invaluable. The Judy Birmingham award has been presented since 2007.

Martin Davies Award for Best Public Archaeology Initiative

Martin worked on the archaeological investigations of Norfolk Island and Fort Scratchley before becoming part of Brian Egloff's pioneering conservation team at Port Arthur in 1983. His work there was influential far beyond the significance of that site, as he instituted the field schools that helped train the next generation of historical archaeologists around the country. Martin then moved to Parks and Wildlife Tasmania where he was influential in the conservation and interpretation of sites such as Highfield House, Eaglehawk Neck Military Barracks and Maria Island. Martin was on secondment from Parks when he was killed in a fall in Antarctica in 1995 at the age of 37. This award, named in his honour, recognises public archaeology initiatives in historical archaeology and is awarded annually.

The Daryl West Prize

The Daryl West Prize is named in honour of Tasmanian Aboriginal man Daryl West who had a long history of working in archaeology and cultural heritage management. It is awarded annually to the best conference presentation by an Indigenous presenter. Previous winners include Sharon Hodgetts (2011), Phil Hudson and Mick McKenzie (2012) and Steve Free (2013).

The Laila Haglund Prize for Excellence in Consulting

AACAI is the major body for the accreditation and promotion of consultants who work in the allied subdisciplines of Indigenous, historic, industrial and maritime archaeology throughout Australia. It actively seeks to maintain and further develop high standards of consultancy performance. Towards this end it has contributed a prize for the best contribution on consultancy archaeology to the conference. The award is named after Laila Haglund in recognition of her considerable and ongoing contribution to AACAI and professional archaeology in Australia.

Best Paper Presented by Victorian AACAI Member

The Victorian Chapter of AACAI is announcing its inaugural prize of \$500 for the best paper presented at the 2014 joint AAA/ASHA Conference in Cairns by a Victorian AACAI Member. The paper must be presented by a current financial Victorian AACAI member, and can be on any topic of their choosing and presented in any session of the conference. Victorian AACAI members who are presenting a paper must make themselves known to AACAI via email to Andrea Murphy (andream@tardisenterprises.com.au). Announcement of the winner will be at the conclusion of the conference.

The University of Waikato Radiocarbon Dating Prize

For the best use of radiocarbon dating in a paper or poster presentation made during the conference. The prize consists of two conventional or AMS determinations. Previous winners include Patrick Faulkner (2008), Chris Wilson (2009), Sally Brockwell (2009), Sarah Martin (2010), Daryl Wesley (2011), Casey Beresford (2012) and Michael Marsh (2013).

Student Paper Prizes

Best Student Paper on Archaeological Science

Best Student Paper on Social Archaeology/CHM (Indigenous Archaeology)

Best Student Paper on Social Archaeology/CHM (Maritime/Historical Archaeology)

The following awards and prizes will be presented at the end of the Poster and Photo Session on Wednesday 3 December:

Poster Prizes

Best Overall Poster

Best Student Poster

Best Runner-Up Student Poster

Photo Prizes

Archaeological site/landscape images

Archaeological fieldwork or laboratory work in progress

Archaeological artefact images

Manipulated or artistic images

Historical images

“Just for Fun” – the lighter side of archaeology

Awards and Prizes

AWARD / PRIZE CATEGORY	PRIZE	SPONSOR
AWARD		
Rhys Jones Medal	Medal and Certificate	AAA
John Mulvaney Book Award	Certificate	AAA
Bruce Veitch Award	Certificate and Painting	AAA & Archae-aus presents painting
AAA Life Membership Award	Certificate	AAA
Ulm-Ross Prize	Certificate	AAA
R. Ian Jack Award for Best Honours Thesis	Certificate	ASHA
Maureen Byrne Award for Best Postgraduate Thesis	Certificate	ASHA
Judy Birmingham Award for Best Historical Archaeology Consulting Report	Certificate	ASHA
Martin Davies Award for Best Public Archaeology Initiative	Certificate	ASHA
Daryl West Prize	\$500	Aboriginal Archaeologists Australia and Dr Betty Meehan
The Laila Haglund Prize for Excellence in Consultancy	\$500	AACAI
Best Paper Presented by Victorian AACAI Member	\$500	AACAI (Victorian Chapter)
The University of Waikato Radiocarbon Dating Prize	2 radiocarbon determinations	University of Waikato Radiocarbon Dating Laboratory
PAPERS AND POSTERS		
Best Student Paper on Archaeological Science	\$500	AAA / ASHA
Best Student Paper on Social Archaeology/ CHM (Indigenous Archaeology)	\$500	AAA
Best Student Paper on Social Archaeology/ CHM (Maritime/Historical Archaeology)	\$500	ASHA
Best Overall Poster	\$500	AAA
Best Student Poster	\$500	AAA
Best Runner-Up Student Poster	\$250	AAA
PHOTOGRAPHIC COMPETITION		
Archaeological site/landscape images	\$200	AAA
Archaeological fieldwork or laboratory work in progress	\$200	AAA
Archaeological artefact images	\$200	AAA
Manipulated or artistic images	\$200	AAA
Historical images	\$200	AAA
"Just for Fun" – the lighter side of archaeology	A bottle of wine or equivalent	AAA

Sessions

50 Years of Tropical Archaeology in North Queensland

Convenors: Shelley Greer (*James Cook University*) and Susan McIntyre-Tamwoy (*Archaeological and Heritage Management Solutions / James Cook University*)

Many people have undertaken archaeological research in North Queensland over the last 50 years or so and today archaeologists address themes including: coastal archaeology; the archaeology and rock art of Cape York Peninsula including Pleistocene archaeology, living floors, community-based archaeology, trade and exchange and the nexus between Indigenous peoples and settlers in government outposts, missions and reserves and in World War II; the archaeology and ethnography of the Wet Tropics; and maritime and underwater archaeology. The establishment of the discipline at James Cook University has been important in relation to this, particularly through the work of foundation archaeologist, John Campbell. This session celebrates the breadth and depth of archaeological research in North Queensland, particularly in relation to John's work but also through that of his students and colleagues. Papers in this session represent research undertaken in North Queensland across these broad themes.

Archaeological Investigation of Institutional Frameworks in an Australasian Context

Convenors: Sean Winter (*University of Western Australia*) and Tom Whitley (*University of Western Australia*)

The application of institutional frameworks, as a way of organising, controlling and classifying human beings, is a phenomenon that was initially popularised in the eighteenth century and has been expressed in various ways ever since. In Australasia, a range of institutional site types, including asylums, prisons, lock hospitals, missions and other places, have used institutional strategies to manage and control people classified as criminal, insane, debilitated, suspect or intractable. Papers in this session investigate the particularly Australasian experience of institutional frameworks, across the breadth of such expressions, and since European contact. Papers use archaeological approaches to examine topics including inmate responses to

confinement, institutions associated with convict transportation, institutional strategies of control, Australasian expressions of institutional theory, the place of institutions within wider society, the exploitation of inmate skills and labour, and heritage tourism associated with institutional sites.

Archaeologies of the Unfree

Convenors: Martin Gibbs (*University of New England*) and Denis Gojak (*NSW Roads and Maritime Services*)

Australian history is littered with instances of men, women and sometimes children forced or coerced to relocate their lives and to provide labour – whether the convict system, prisoners of war, South Seas labour trade, in pastoral contexts, or in the many and various government, religious and private institutions. These systems were often part of explicit governmental policies of economic development and the control of marginal and unwanted elements of society. Whether by deliberate concealment or a desire not to know, they often fell beneath the gaze of the everyday world but deserve greater recognition and understanding as parts of our past and heritage. They are commonly subsumed to historical phenomena, such as convict transportation, World War II Prisoners of War or Queensland pastoral expansion. As archaeologists we may look at these through different lenses – such as the materiality of investment in the infrastructure of human exploitation in prisons, remote penal settlements and their works, evidence of maintenance of identity and resistance in material culture or the interplay of specific local and broader influences – all affecting how the archaeology of the unfree appears and can be read.

Archaeology and Heritage of the Recent Past

Convenors: Geraldine Mate (*Queensland Museum / James Cook University*) and Karen Murphy (*Jacobs*)

The continuing growth in historical archaeology and heritage suggests that investigations of the 'recent past' seem to be well in hand. However, what is the recent past? Today, in addition to studies of the deep past, the lifeways of Indigenous Australians and non-Indigenous settler pasts, archaeologists are bringing a focus on more contemporary settings. The boundary of the past is pushing into events in living memories and investigations of material remains of recent environmental disasters, landscapes of

modern conflict, space exploration, and 'modern ruins' (Ruin Memories, <http://ruinmemories.org/about/project-description/>, 2014) all serve to redefine what it is that archaeologists look at and how far away 'the past' is. This session presents papers that explore elements, ideas and places of the more recent past through archaeological investigations.

Archaeology and Palaeoecology of Northern Australia's Wet Tropics

Convenors: Richard Cosgrove (*La Trobe University*), Simon Haberle (*Australian National University*) and Åsa Ferrier (*La Trobe University*)

The Aboriginal occupation of Australia's Wet Tropics appears to be one of the last human acts of permanent settlement on the Australian continent. The first exploitation began c.8000 BP when full rainforest coverage returned from refugia after the end of the last Ice Age. However, permanent Aboriginal occupation appears to have only been achieved by c.2000 years ago. In this session we feature papers that examine the archaeological record and the role of fire, El Niño Southern Oscillation (ENSO) activity and shifting vegetation regimes as important catalysts in providing opportunities for permanent rainforest Aboriginal settlement.

Archaeology and the Australian Curriculum

Convenors: Stephen Nichols (*Department of Aboriginal and Torres Strait Islander and Multicultural Affairs / James Cook University*) and Louise Zarmati (*University of Western Sydney*)

The new Australian Curriculum is changing the way the next generation will understand Australia's past. For the first time on a national level, archaeology has been explicitly included in the history curriculum. Students are now required to reconceptualise Australia's past as a continuum of human occupation of the continent beginning around 60,000 years ago rather than in 1788. Yet, while these changes present an unprecedented environment for archaeological engagement with the school education system, archaeologists have been slow to comprehend and embrace the significance of the new curriculum. In this session we examine new ways teachers and students around Australia are engaging with this new narrative, and explore exciting opportunities that are now emerging for

archaeologists to connect with the cultural change taking place in Australian schools.

Archaeology of the Asian Diaspora

Convenors: Gordon Grimwade (*Flinders University*) and CHINA Inc.

Papers relating to the archaeology of migration of Chinese, Japanese, Malay and Indonesian people to Australia and New Zealand form the core thrust of this session. Papers highlight the contribution of Asian migrants to the development of life in Australasia through their material culture and archaeological footprints with particular reference to the Asian diaspora, using diverse mediums including excavation reports, artefact analysis, and comparative studies.

Archaeology of Tropical Melanesia

Convenors: Anne Ford (*University of Otago*) and Matthew Leavesley (*James Cook University*)

The island of New Guinea forms a crucial part in understanding tropical adaptations in the Australasian region. Existing as part of the Sahul continent until 8000 years ago, this area is often neglected in pan-Australian discussions of culture change. Yet the Melanesian region provides both important similarities and contrasts to Australia throughout its history, from initial colonisation in the late Pleistocene, to the independent invention of agriculture during the mid-Holocene, through to the late Holocene development of long-distance sea voyaging and trading expeditions. This session showcases current archaeological research from this region.

Archaeology, History and Cultural Heritage of the Great Barrier Reef Province

Convenors: Mike Rowland (*James Cook University*) and Sean Ulm (*James Cook University*)

The Queensland coast is dominated by the Great Barrier Reef, extending some 2000km from Papua New Guinea to the northern tip of Fraser Island. North of the Tropic of Capricorn to the tip of Cape York alone there are over 600 continental and reef islands. Archaeological research in the Great Barrier Reef Marine Province (GBRMP) only commenced in the mid-1970s. Initial research was exploratory and restricted in scope. A new phase of more focused research began in the 1990s on a limited number of island groups and adjacent mainland coasts

associated with growing palaeoecological research. This session addresses the archaeology, history and cultural heritage of the GBRMP, including the management of cultural heritage; the role and impacts of sea-level rise and climate change on use of the GBRMP; population change, chronology of island colonisation, intra- and inter-island occupation and exchange relationships and patterns, the use of watercraft, culture contact, economic adaptation, insularity, seasonality and other factors that played a part in the complex interplay of environment and human adaptation in the GBRMP.

Australian Palaeoanthropology 100 Years after Talgai

Convenors: Mark Collard (*Simon Fraser University*) and Michael Westaway (*Griffith University*)

This year is the centenary of the public unveiling of a key specimen in the history of Australian palaeoanthropology – the Talgai skull. Talgai proved that humans were present in Australia during the Pleistocene and consequently put Australian palaeoanthropology on the map. In celebration of this early landmark in the history of Australian palaeoanthropology, the session brings together Australian researchers interested in human evolution and palaeoanthropologists from other countries who work on Australian material to discuss their current research. We showcase the diversity and vibrancy of palaeoanthropological work that has Australian connections, and stimulate additional synergistic interaction among researchers.

Big Questions in Tropical Asia-Pacific Prehistory and Challenges for Archaeological Science

Convenors: Richard (Bert) Roberts (*University of Wollongong*) and Richard Fullagar (*University of Wollongong*)

Recent surveys in various disciplines (including archaeology) have identified their 50 or 100 most fundamental questions. This session addresses big questions of importance for tropical Asia-Pacific prehistory and the gaps in our knowledge, focusing on challenges and opportunities for archaeological science. We include papers on 'culture, climate, change' in the context of hominin dispersals and species interactions in this region, key methodological issues, and the development and application of new techniques. Current

approaches to archaeological science cover diverse areas of expertise, including (among others) the geological study of archaeological site formation and modification; the dating of deposits, artefacts and fossils; the analysis of artefact technology and function; the chemistry of archaeological residues, isotopes and biomarkers; the study of animal and plant remains (macrofossils to molecules); the history of past environments and ecosystems; and informatics applications in archaeology (e.g. computational modelling, spatial analysis and data visualisation techniques). This session aims to encourage and identify a broad set of grand challenges and big questions in archaeological science as a focus for future collaborations and to establish an Australian research cluster in archaeological science.

Building a Digital Ecosystem: Notes from the Field

Convenors: Shawn Ross (*University of New South Wales*), Penny Crook (*La Trobe University*) and Adela Sobotkova (*University of New South Wales*)

The Federated Archaeological Information Management Systems (FAIMS) project was established in 2012 to develop a suite of tools to capture, analyse and archive born-digital archaeological data. We recognised then that no individual archaeological project could build infrastructure at this scale, and that *ad hoc*, idiosyncratic approaches to information management hindered data sharing, reuse, reanalysis, and repurposing. Since that time FAIMS has built a generalised, customisable open-source mobile platform (an Android application and Linux server) for capturing structured, geospatial, and multimedia data (since no such system existed) and has incorporated existing web-based, open source data refinement and archiving software into its ecosystem. In 2014, the first full-scale field deployments of FAIMS software were undertaken. Reflecting on our progress, we outline accomplishments and challenges from the point of view of the project. Papers in this session allow researchers to share their experiences customising, implementing, and using our systems in the field (warts and all!). We hope to explore not only the purely technical, but also the cultural or socio-technical impediments, to the adoption of archaeological information systems.

Challenges and Opportunities in Cultural Heritage Management in the Indo-Pacific Tropics

Convenor: Luke Godwin (*Cultural Heritage Systems and Strategies / James Cook University / University of New England*)

The Indo-Pacific tropics are fast-changing from land-use shifts, growing populations, invasive species and climate change. These issues have often great impacts on the region's indigenous populations and cultural heritage. Successful heritage management is contingent on 'buy in' from local people, government agencies and industry. But questions of capacity or incentive or interest in managing cultural property also intrude. What options exist to address these problems? Local initiatives and government programmes are two possibilities. But where do the knowledge and funds come from? NGOs and IGOs are possibilities. But what are their primary interests and how well do they accord with those of: local communities, which can both benefit and be harmed by new initiatives; business and industry, whose profits can vary in response to such interventions; and governments, which protect their sovereignty and expenditure, but like to assert national pride and grow cultural tourism? What of alternative models including industry codes, stricter compliance regimes, or better education to help deliver sustainable and profitable outcomes from the presentation of cultural sites.

Culturing the Rainforest: Cultural Adaption to and Human Impact on Tropical Environments in Island and Mainland Southeast Asia

Convenors: Chris Hunt (*Queen's University Belfast / Liverpool John Moores University*) and Graeme Barker (*University of Cambridge*)

A generation ago, tropical forests were seen as virtually untouched wildernesses before Western contact, and debate raged about whether pre-agricultural people could make a living in these 'difficult' environments. New and emerging research suggests that humans dispersed successfully into tropical environments in Southeast Asia during the late Pleistocene, and that a considerable variety of cultural and resource-extraction/production strategies evolved over the next c.50,000 years. Some of these activities have in various ways impacted on, even shaped, the environments in which they occur. This session explores the variety

of past cultural engagement with and impact on tropical environments across mainland and island Southeast Asia.

Environmental Change since 1788

Convenor: Susan Lawrence (*La Trobe University*)

Some of the most rapid and profound changes to Australian environments have taken place since the arrival of non-Aboriginal people. Archaeological perspectives on this period can make a valuable contribution to current debates about the Anthropocene. This session includes contributions that address archaeological perspectives on environmental change driven by recent colonisation, encompassing both Indigenous and non-Indigenous experiences.

Environmental Isotopes in Tropical Archaeology

Convenors: Christopher Wurster (*James Cook University*) and Michael Bird (*James Cook University*)

Environmental isotopes have played a major role in interpretation of the tropical archaeological record. Reconstruction of vegetation, climate, resource utilisation, migration, and chronology rank among the most important areas to which environmental isotopes have been applied. Isotope systems that have been utilised for archaeological studies include the light stable isotopes (carbon, nitrogen, sulfur, oxygen, hydrogen) and 'heavy' isotopes (e.g. Sr), as well as radioisotopes (e.g. radiocarbon), on materials ranging from organic matter (bulk or compound-specific) to inorganic (bones, shells, speleothems). In this session, we present contributions that explore the use of isotopes to interpret past cultural behaviours or environmental settings in the tropics.

Indigenous Knowledge, Stewardship and Heritage Management

Convenors: Mick Morrison (*Flinders University*) and Annie Ross (*University of Queensland*)

Indigenous-driven land management or 'stewardship' programmes are increasingly common throughout Australia. These programmes vary considerably, but typically focus on Indigenous values, knowledge and approaches to the management of tangible and intangible heritage. They are often based on governance structures that recognise local cultural norms, work towards implementing objectives determined by local language or clan groups and typically employ community members as rangers and in other similar roles. Our contention is that these programmes represent important spaces for innovative and genuinely community-based approaches to heritage management and the stewardship of Indigenous cultural landscapes, thereby situating applied research in an 'Indigenous archaeologies' methodology. This session presents contributions from Indigenous community members, archaeologists, anthropologists and others who are working within such programmes, addressing questions such as: What are the varied approaches that Indigenous communities are developing and applying and what lessons are there in these approaches for cultural heritage management and archaeological method and theory? What are the relationships between Indigenous management programmes and the goals of an Indigenous archaeologies methodology?

Indigenous Archaeologies: Our Projects, Our People, Our Stories

Convenors: Dave Johnston (*Aboriginal Archaeologists Australia*) and Adam Magennis (*Mornington Peninsula Shire Council*)

This session presents a range of papers presented by Indigenous archaeologists, cultural heritage officers, community members and researchers with community affiliations. The papers examine a number of emerging issues in Australian Indigenous archaeology and heritage relevant to our Indigenous communities.

Landscapes of Change: Rethinking the Role of Documents in Landscape Interpretation

Convenors: Bec Parkes (*Navin Officer Heritage Consultants*) and Travis Gottschutzke (*South Australian State Records*)

The passing in 2013 of Britain's doyen of landscape archaeology, Michael Aston, gave rise to the profession reflecting on the position of landscape archaeology within the domain of archaeology amongst its historic and prehistoric counterparts. But how different are they in our own Australian landscape? Are we missing the point by talking prehistoric and historic? For instance, the Traveling Stock Routes of New South Wales are embedded in paths from the Aboriginal past, but continue to have a currency in modern contexts. Historian Michael Cathcart on ABC Radio National in April 2014 spoke about Australia as not being a country, but 'countries'. What implications might this have for interpretations of Indigenous and non-Indigenous landscapes and, in particular, the ways in which regional models interpret the segue between past and present. How do we interpret the chronology and phases of occupation through these landscapes using methodologies and resources across domains outside that of archaeology? Drones, lasers and LiDAR may be the hot topics today within landscape archaeology, but what can our traditional partners like archives reveal in a data-driven world? Are they relevant beyond the archaeology of the past two centuries and do they have applications in interpreting Indigenous landscapes in Australia?

Lifeways of the First Australians Project: Archaeological Research in the Southern Kimberley

Convenors: Dorcas Vannieuwenhuysse (*University of Western Australia*), Jane Fyfe (*University of Western Australia*), Tim Maloney (*University of Western Australia*), India Ella Dilkes-Hall (*University of Western Australia*), Sue O'Connor (*Australian National University*), Rose Whitau (*Australian National University*) and Jane Balme (*University of Western Australia*)

In this session we present preliminary results from the Lifeways of the First Australians project. The project aims to investigate the Indigenous archaeology in the semi-tropical south central Kimberley (Western Australia) to better understand the complexity of the lifeways of the people of this region during the Pleistocene and the Holocene. Previous research

by Jane Balme and Sue O'Connor in the area has revealed evidence of human presence from more than 45,000 years ago in sites such as Riwi and Carpenter's Gap. Since 2011, the Lifeways of the First Australians project has expanded this previous work through further exploration of the area in order to provide new archaeological and palaeoenvironmental datasets. The session offers detailed insights of the multidisciplinary research undertaken (lithic artefact analysis, spatial and temporal analysis of rock art, GIS modelling, geoarchaeological microstratigraphical analysis, anthracology and macrobotanical remains studies) and what it has revealed about occupation by Indigenous people and past environment in the region over the last 50,000 years.

Naïve Island Landscapes: People and Change in the Wellesley Archipelago, Southern Gulf of Carpentaria

Convenors: Sean Ulm (*James Cook University*), Lynley Wallis (*Wallis Heritage Consulting*), Patrick Moss (*University of Queensland*) and Craig Sloss (*Queensland University of Technology*)

What happens when people enter new environments? This multidisciplinary set of papers deploys linguistics, history, ethnography, material culture studies, archaeology, palaeoecology, geomorphology and palaeoclimatology to identify and measure the impacts and trajectories of human arrivals on the islands of the Wellesley archipelago in the southern Gulf of Carpentaria. The recent timing of human settlement on these islands provides a unique opportunity to investigate cultural and environmental change on undisturbed Australian ecosystems against a backdrop of natural environmental change.

North to South: Exploring Zooarchaeological Research within Australasia

Convenors: Jillian Garvey (*La Trobe University*), Georgia Roberts (*La Trobe University*), Brent Koppel (*University of Wollongong*) and Kat Szabó (*University of Wollongong*)

Vertebrate and invertebrate faunal remains in the archaeological record aid in interpreting past human behaviour via several means including: subsistence strategies; dietary preferences; hunting and butchery techniques; seasonality; and the interactions between people and animals. This can be achieved either by studying zooarchaeological

assemblages from Indigenous or historic sites, or by investigating contemporary species as an analogue to understanding the past. This session highlights the variety and innovative array of research on faunal remains being undertaken across Australia and beyond. It demonstrates that zooarchaeology has great potential to help address major research questions for the region, from initial human occupation and subsistence, to the role of climate change and human impacts on the local environment and faunal populations across the Australian continent.

Recent Advances in Pacific Archaeology

Convenors: Matthew Leavesley (*James Cook University*) and Anne Ford (*University of Otago*)

The Pacific is the scene of the largest seafaring colonisation in human history. From 3300 years ago, the Lapita culture swept across the Western Pacific, bringing with them a suite of introductions known as Lapita Cultural Complex and which included pigs, pottery and agricultural crops. Within 400 years, the Lapita people had colonised most of the island groups west of Samoa, where they paused, before their descendants subsequently colonised the Eastern Pacific as the Polynesians. This session brings together papers from Samoa, Vanuatu, Micronesia, Tonga and the Solomons to present new data and modelling on the colonisation process, as well as subsequent developments in occupation, agriculture and trade/exchange.

Recent Archaeological Research

Convenor: Carney Matheson (*Lakehead University*)

This session includes a range of papers highlighting exciting new archaeological research, focusing on theoretical contributions, material culture studies and innovative residue studies.

Recent Archaeological Research in Africa

Convenors: Alison Crowther (*University of Queensland*) and Benjamin Smith (*University of Western Australia*)

Africa has the longest and one of the most diverse archaeological records of anywhere in the world. While its importance to archaeology as the birthplace of our hominin ancestors has long been recognised, decades of dedicated research are now well and truly transforming age-old perceptions of Africa as a 'cultural backwater' to a region with a rich and

culturally complex past worthy of study in its own right. To showcase the breadth of work currently being undertaken by Australian-based researchers in Africa, we present papers on a range of aspects of recent archaeological research on the continent.

Remotely Sensed Landscapes in the Twenty-First Century

Convenors: Kelsey Lowe (*University of Queensland*) and Aaron Fogel (*Griffith University*)

Remote sensing techniques have been developing for several decades. As the rate of technological advancements in remote sensing instrumentation, data processing and visualisation has increased over the past decade, so too has their acceptance and adoption by archaeologists and heritage practitioners. The improvements in user-friendliness, cost reduction and ease of access to equipment and software has led to a more frequent use in numerous archaeological and heritage contexts. This session focuses on recent developments and applications of archaeological geophysics, terrestrial 3D laser scanning and airborne LiDAR data as applied to Indigenous and non-Indigenous archaeological research and heritage management.

Rock Art: Hot T(r)opics

Convenors: Jo McDonald (*University of Western Australia*) and Sven Ouzman (*University of Western Australia*)

Rock art is an informative medium through which people record and manage cultural and climatic change. But the way rock art research expresses this information differs under different intellectual climates. For example, empiricist New Archaeology was often hostile to rock art as an 'unscientific' artefact that could not – it was then thought – be excavated or dated. Fittingly, scientific advances in dating, pigment analysis and sourcing, visualisation technologies, DNA analysis of pigment and surfaces, and similar are now embraced and often act as independent tests of humanistic explanations. Perhaps counter-intuitively, this science is producing information of interest and use to Indigenous communities and promises a sustained conversation between 'Western' and Indigenous knowledge systems. But there are still knowledge gaps: understanding how different rock art types are made; contextualising gender, plant imagery and less obvious rock arts like stone arrangements, marked ochre and even body art;

comprehending how digital interventions influence our understandings of imagery and approaches to fieldwork; addressing often under-theorised approaches to rock art management; and routinely linking rock art and dirt archaeology. This session showcases the very latest developments in rock art research and seeks to identify productive future trajectories of work.

Sweating it Out in Consulting Archaeology: The AACAI Session

Convenor: Diana Neuweger (*Archaeo Logical Heritage*)

This session is dedicated to recent Australian archaeological consulting projects. The session presents papers that showcase innovations, current trends, and themes from the work of consultant archaeologists around Australia.

The Archaeology of Culture, Climate and Change: From Deep Prehistory to the Vietnam War in Tropical Southeast Asia

Convenors: Nigel Chang (*James Cook University*) and Kate Domett (*James Cook University*)

As the 'Asian Century' marches on, the amount of archaeological research in tropical Southeast Asia – Australia's immediate neighbourhood – continues to increase. Human engagement with the tropical environment is an ever-present backdrop to archaeological research in Southeast Asia. Investigating our species' response to, and influence on, changing climate and environment over at least the last 20,000 years in the region provides an important counterpoint to investigations in the temperate world. And, while some of the actors change, understanding the nexus of humanity and environment remains an important interest into the Southeast Asian historic period. In this session we present papers that explore the complex inter-relationships between people and their environment in tropical Southeast Asia, including considerations of prehistoric and historic examples working from a range of archaeological materials and datasets.

The Environmental Context for Human Settlement and Occupation of Australia

Convenor: Patrick Moss (*University of Queensland*)

There are a number of debates associated with the settlement and subsequent occupation of Australia by people, including when people arrived, their colonisation and their subsequent impacts (i.e. role in megafaunal extinction, vegetation alterations associated with human burning and Holocene intensification), as well as how people adapted to the significant climatic alterations that occurred over the late Quaternary period. This session provides a forum for discussion of the environmental context in which these archaeological debates are nested and features presentations that provide insight into the physical setting (i.e. climate, vegetation, geomorphological, fluvial and coastal) of Australia over the last 60,000 years.

The Ethnography of Human-Environmental Interactions

Convenors: Carly Monks (*University of Western Australia*) and Andrew Cooper (*University of Western Australia*)

Archaeologists use ethnographic observations to inform on many different aspects of hunter-gatherer life, from diet to mobility, to information exchange. This session will highlight innovative applications of different theoretical viewpoints and methodologies in the use of ethnography to understand past human-environment interactions. Recent theoretical approaches that have been applied to ethnography include Niche Construction Theory and Human Behavioural Ecology. New methodological approaches to ethnography include the use of GIS to reconstruct and investigate spatial organisation and mobility. The application of ethnography to past cultural and natural systems by archaeologists, historians and palaeoecologists influences biodiversity planning, Natural and Cultural Resource Management, and popular science. Traditional Ecological Knowledge (TEK) is becoming increasingly important in this process. This session presents papers on these themes with the common goal of improving the dialogue between practitioners in different disciplines and Indigenous people.

Towards Full Community Engagement Partnerships: Communications and Understandings

Convenor: Catherine Clarke (*University of New England*)

Aspirations of meaningful community engagement in archaeology – those that are both decolonising and empowering for communities – take a variety of forms in practice. At one end of the spectrum, projects aimed at realising a ‘shared authority’ between researchers, community members and other stakeholders are counter-pointed by those that may manage to achieve little more than post-research ‘informing the community’ sessions. Community engagement is replete with complexities – not least those arising from cultural differences, divergent social agendas and the demands of establishing understanding about research aims and practices as well as the possible community benefits of archaeological and cultural heritage projects. One aspect of Fraser’s (2001:24) concept of the ‘politics of recognition’ as an informing idea for social justice in diverse social groups is that the ‘status of group members as full partners in social interaction’ is key to successful community engagement. In this session, we showcase papers that explore how these social interactions can be established, disseminated and maintained. What are the concepts that should inform the negotiation, interaction and communication of community engagement? What media are appropriate and what are the practicalities, benefits and limitations of their use?

Visualising Archaeology: On the Use of Image and Vision in Archaeology

Convenors: Ursula Frederick (*University of Sydney*) and Sally Brockwell (*Australian National University*)

Visual media play a critical role in the construction and communication of archaeological knowledge. Whether it is the content we generate as part of our disciplinary practice (e.g. illustrations, maps, photographs) or the way in which archaeological materials are pictured in the public realm (artworks, films, exhibition displays etc) there is much to explore in how archaeology is pictured. Our three-fold approach to exploring the visual in archaeology includes research which makes a strong use of visual tools and technologies; archaeological encounters with visual media (including artworks

generated in the past and present); and what we might call, after Grasseni (*Skilled Visions: Between Apprenticeship and Standards*, Berghahn Books, 2007), the 'skilled visions' of archaeology; that is, how we learn to see archaeologically.

What do the 3 As Stand For?

Convenor: Judy Powell (*University of Queensland*)

Twenty years ago, for the first time, the AAA conference included a session 'Australian Archaeologists Working Abroad'. The session produced a stimulating series of papers by Australians working in Africa, the Near East, and the Mediterranean – but the experiment was not continued as a standard feature of AAA conferences. The archaeology of Aboriginal Australia – as in similar colonial societies like the United States – has a history grounded in anthropological work conducted by museums and universities. Ancient history and classical studies departments at universities moved into the archaeological field much later, conducting excavations in Cyprus, Greece and Jordan from the 1950s. Historical archaeology in Australia developed partly from heritage concerns in the 1970s and today's historical archaeologists are more likely to have studied in Australian archaeology streams of anthropology departments than in history departments. How these three streams of archaeology relate to each other and to their associated disciplines of anthropology, ancient history and Australian history, is the focus of this session. We review the work of Australians working outside Australia and ask the question: Is AAA the pre-eminent archaeological association for Australians, or an association of archaeologists of Australia.

Forums

Australia's Management of its Indigenous Cultural Heritage 2014 and Beyond

Convenors: Dave Johnston (*Aboriginal Archaeologists Australia*) and Adam Magennis (*Mornington Peninsula Shire Council*)

Panelists: Valerie Cooms, Dave Johnston, Adam Magennis, Sam Wickman Jupurulla, Carol Chong

This forum presents Indigenous views from different parts of the country relating to the management of Australia's Indigenous heritage. Short presentations will be made by each panel member, followed by open discussion from the floor. All welcome.

Current Issues in Historical Archaeology

Convenor: Mary Casey (*Casey & Lowe Pty Ltd*)

This forum will address concerns that members have raised with the ASHA Executive and raised generally within the discipline. The forum will address a range of issues with some brief presentations by members. Areas of discussion are to include: best practice in archaeology and the role of ASHA in promotion of best practice, the digital future(s) of historical archaeology, publications and the public, publications and the discipline, curriculum and historical archaeology and other relevant topics. The purpose of this forum is to discuss general concerns and issues which we cannot fully canvas within the AGM. Outcomes of this forum will inform the strategy of the committee in the coming years. Please bring your razor sharp wit, your ideas and your debating skills.

Challenges and Issues in Rock Art

Convenors: Jo McDonald (*University of Western Australia*) and Sven Ouzman (*University of Western Australia*)

An informal but intensive get-together of rock art specialists, students and interested parties to discuss pressing issues in the world of rock art. Such issues include: new research avenues, funding, outreach, Indigenous engagement, progressing rock art beyond a subdisciplinary niche study, and whatever other issues are offered from the floor. The Forum has no formal presentations but will be moderated.

Mineral Exploration and Cultural Heritage in Cape York Peninsula

Convenors: Katie O'Rourke (*Archaeological and Heritage Management Solutions*), Alice Buhrich (*James Cook University*) and Susan McIntyre-Tamwoy (*Archaeological and Heritage Management Solutions / James Cook University*)

Cape York Peninsula is rich in Indigenous cultural heritage. As most of the area has not been cleared or developed there remains numerous significant Indigenous archaeological and anthropological sites. Currently there are over 100 exploration permit applications in Cape York Peninsula, many with minimal effective safeguards in place to protect cultural heritage. In many cases exploration has commenced with Indigenous people in Cape York Peninsula unaware of the activities and their rights in relation to protecting their cultural heritage. Some areas covered by registered Native Title claims receive little cultural heritage assessment and Native Title Protection Conditions are rarely invoked. With regards to mineral exploration, it is arguable that Cape York Peninsula has the least protected cultural landscape in Australia. This forum invites Traditional Owners, archaeologists, government and others to examine the situation in Cape York Peninsula. We aim to identify the key factors which are preventing Indigenous Australians from actively protecting their cultural heritage and discuss ways to create mechanisms to protect cultural heritage in the future.

Screening and Discussion of *Message from Mungo*

Convenors: Ann McGrath (*Australian National University*) and Harry Allen (*University of Auckland*)

Message from Mungo (Ronin Films, 2014) is a documentary film co-directed and produced by Andrew Pike and Ann McGrath. Lake Mungo, an ancient Pleistocene lake-bed in southwestern New South Wales, is one of the world's richest archaeological sites. The film focuses on the interface between the scientists and the Indigenous communities who identify with the land and with the human remains revealed at the site. This interface has often been deeply troubled and contentious, but within the conflict and its gradual resolution, lies a moving story of the progressive empowerment of the Indigenous custodians of the area. The film tells a new story that has not been represented in print or film before, and is told entirely by actual participants from both the scientific and Indigenous perspectives. Released in September, *Message from Mungo* recently had sold-out screenings in Canberra. It has been selected as a finalist in the United Nations Association of Australia Awards and the 2014 IPAF.

DVDs will be available to order at the registration desk following the screening.

Poster Presentations

 = Student Poster

LOCATION	AUTHORS	POSTER TITLE
1 	Francesca Allen	Fuel Selection Strategies at Two Early East Otago Archaeological Sites
2	Debbie Argue	Did <i>Homo floresiensis</i> have Down Syndrome?
3 	Susan Arthure	The Occupation of Baker's Flat: A Study of Irishness and Power in a South Australian Community
4 	Adriana Basiaco, Tiina Manne, Chris Clarkson	Bone Points at Madjedbebe, Arnhem Land
5 	Rhiannon Bice, Darren Curnoe	Diagnosing our Species: How can we Identify the Skull of <i>Homo sapiens</i> ?
6	Stefani Blackmore, Holly Maclean, Tina King	1 William Street Brisbane Historical Archaeological Excavation
7 	Alex Blackwood, Angeline Leece, Tom Mallett, Giovanni Boschian, Rhiannon Stammers, Stephanie Baker, Matt Caruana, Renaud Joannes-Boyau, Robyn Pickering, Colin Menter, Andy Herries	Discovery of New Hominin Remains from the Main Quarry at the Early Hominin Bearing Drimolen Cave System by the Australian-South African Palaeoanthropological and Geoarchaeological Field School
8 	Annabelle Brealey	The Development of the Nineteenth Century Urban Meat Market in Sydney
9	Jean Brickey, Alice Buhrich	The Ewamian Cultural Landscape of Talaroo Station
10	Ben Bruschi, Rachel Bulloch	Compliance Archaeology as an Educational Medium
11	Rebecca Bryant, Val Attenbrow, Peter Grave, Lin Sutherland, Ross Pogson, Hugh Watt, Tessa Corkill, Karen Stokes	MacDonald River Hatchets: Tracking Sources in the Hawkesbury-Hunter Regions
12	Rachel Bulloch	A Scar-ry Problem: Culturally Modified Trees in the Pilbara
13 	Malcolm Connolly	Investigations of the Old Owen Springs Homestead Cellar, Northern Territory
14	Sarah Croker	The View from Within: Can CT be Used to Help Detect Differences between Human and Non-Human Bones?
15 	Benjamin Davies	Simulating Mobility, Place Use, and the Distribution of Stone Artefacts at Rutherford's Creek, Western New South Wales
16	Joe Dortch, Wayne Webb, Toni Webb, Rebecca Foote, Shannon Henderson, Carly Monks, Tash Busher	Demonstrating Niche Construction through Zooarchaeology in Southwestern Australia

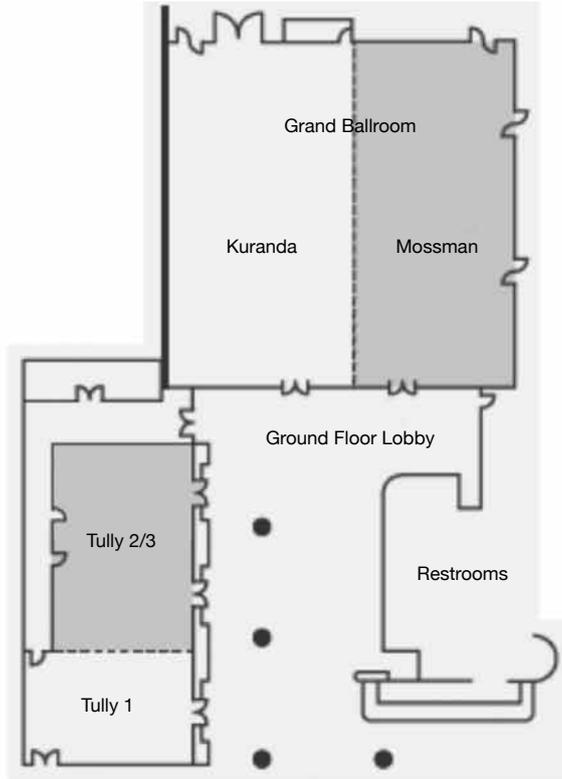
LOCATION	AUTHORS	POSTER TITLE
17	 Redbird Ferguson, Samantha Aird, Matthew Leavesley, Sean Ulm, Helene Tomkins, Bruno David, Ian McNiven, Eddie Thangavelu, Thomas Richards, Tanya Drury	Pre- to Post-Lapita Predation Patterns: Shellfish Exploitation at Tanamu 1, Caution Bay, Papua New Guinea
18	Judith Field, Adelle Coster, Simon Wyatt Spratt	A Quantitative Approach to the Analysis and Identification of Ancient Starch
19	 Damien Finch, Tristen Jones	Classification of the Rock Art of Red Lily Lagoon in Western Arnhem Land
20	 Jane Fyfe, Maxime Aubert	Overcoming the Challenges of Time Depth in Stylistic Sequences with Innovative Dating Techniques
21	Jillian Garvey, Georgia Roberts, Richard Cosgrove	Economic Utility and Nutritional Value of the Common Wombat: Evaluating Australian Aboriginal Hunting and Butchery Patterns
22	 Billy Griffiths, Cathryn Barr, Adrian Burrow	The Architecture of Contact: Unearthing a Cultural Landmark of Early Melbourne
23	 Elsbeth Hayes, Dries Cnuts, Richard Fullagar, Colin Pardoe, Chris Clarkson, Birgitta Stephenson	Experimental Replication of Australian Grinding Stone Implements
24	John Hayward	The Long-Necked Spearthrowers of Northeast Kakadu
25	Caroline Hubschmann	Archaeological Artefacts in Museums and Galleries: Aesthetic Presentation and the Compromise of Meaning
26	Jennifer Hughes	Political Correctness in Archaeology and History
27	 Philippa Hunter	Investigating the History of Bandicoot Bay through Glass Artefacts
28	 Anna Ingham, Peter Grave, Matthew Tighe	Evaluating Analytical Resolution by Non-Destructive pXRF: A Cypriot Ceramic Case Study
29	 Hannah James	In Situ $\delta^{18}\text{O}$ Analysis of Human Tooth Enamel
30	Darran Jordan	Archaeology in the Funny Pages
31	Matthew Kelly	Landscape of Colonialism and Conflict
32	Michelle Lau, Alan Williams, Fenella Atkinson	A Glacial Cryptic Refuge in Southeast Australia: Human Occupation and Mobility from 36,000 Years Ago in the Sydney Basin, New South Wales
33	Orlaith Lenihan, Joe Mattner, Tristan Bergin	A Stratified Site of Possible Pleistocene Age on the Swan Coastal Plain, Perth, Western Australia
34	 Philip Liro, Ambra Calo, Tim Denham	Radiographic Imaging in Sembiran
35	 Ashlee Litfin	Tracing Personal Ornaments in Thailand
36	Holly Maclean, Tina King	Heritage in the Hunter: Conserving Springwood Homestead

LOCATION	AUTHORS	POSTER TITLE
37 	Tim Maloney, Mervyn Street, June Davies, Rose Whitau	Bush School and Traditional Stories from Gooniyandi Country
38 	Melissa Marshall, Gabrielle O'Loughlin, Jeffrey Lee, Glen Maclaren	Kakadu National Park's Reinvigoration of Rock Art Monitoring and Maintenance as Part of a Pilot Program in 2014
39	Joe Mattner, Nicolas Grguric	Aboriginal Occupation around Tropicana in the Great Victoria Desert, Western Australia
40 	Alba Mazza	Maritime and Coastal Archaeological Landscape in Sicily-Italy: Understanding the Sea-Human-Landscape Relationship through the Study of the Ancient Maritime and Coastal Landscape
41 	Tony Miscamble, Aaron Fogel, Michael Westaway	Low-Level Aerial Reconnaissance in the Willandra Lakes World Heritage Area
42 	Adrian Mollenmans, Amy Roberts, Jeffrey Newchurch	An Analysis of Aboriginal Fish Traps on Yorke Peninsula, South Australia
43	Mark Moore, Kimberley Newman	'Basin Quarries' in the Northwest Kimberley Region, Australia
44	Patrick Moss, Sean Ulm, Daniel Rosendahl, Lynley Wallis, Craig Sloss	Pollen Analysis of a Midden Archaeological Site: Thundi, Bentinck Island, Gulf of Carpentaria, Australia
45	Kasih Norman	Modelling Sea-Level Oscillation and Landscape Transformation for the Site of Madjedbebe: An ArcGIS Approach
46	Yinika Perston, Mark Moore	Functional and Stylistic Attributes of Ethnographic Bone and Wire Pressure Flaking Tools from the Kimberley Region, Northwest Australia
47	Lynda Petherick, Craig Sloss, Patrick Moss, Lydia MacKenzie, Alison Sternes, Daniel Rosendahl, Sean Ulm, Shoshannah O'Connor	Late Holocene Environmental Variability and Sea-Level Change in the Gulf of Carpentaria, Northern Australia
48 	Elena Piotto	Technological Adaptations during Pleistocene Migrations across Wallacea
49 	Heidi Pitman	Do Roots Remain? Diet Change and Cultural Heritage in Marovo Lagoon, Solomon Islands
50 	Georgia Roberts, Colin Smith, Michael Gagan, Richard Cosgrove	The Dinner is in the Detail: Assessing Seasonality through High-Resolution Stable Isotope Analysis on Archaeological Wombat Dental Enamel
51 	Alana Rossi	Blocks of Time: Using Lego to Reconstruct Occupation and Activity Patterns at Mulka's Cave, from 8000 cal BP until the Present
52	Larissa Schneider, Simon Haberle, William Maher, Brent Alloway, Frank Krikowa	Reconstructing Historical Trends in Sediments from Lake Kutubu, Papua New Guinea

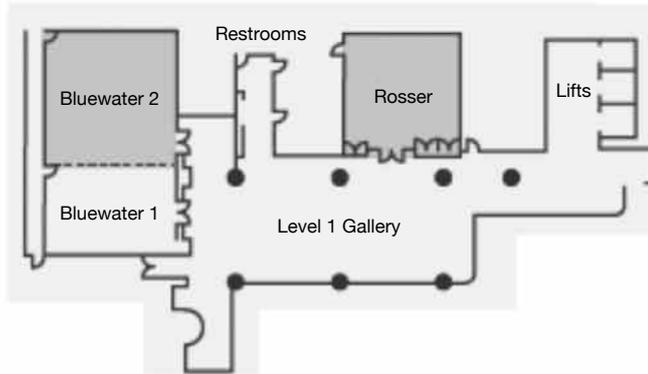
LOCATION	AUTHORS	POSTER TITLE
53	 Chris Silvester, Emily Dillon, Sara Lombardo, Adam Valka, Anthony Romano, Ada Dinckal, Alex Blackwood, Maurizio Campanelli, Jeffrey Clarke, David Clark, Anthony Dall'Oste, Darren Perry, Jillian Garvey	Identifying Aboriginal Hearths in Late Quaternary Northwest Victoria: An Experimental Study to Replicate the Production of 'Clay Ball' and Calcium Nodule Heat Retainers
54	Birgitta Stephenson	Stains, Stones and Broken Bones
55	 Mary-Jean Sutton, Lawrence Conyers, Chester P. Walker, Ian Moffat, Julian Travaglia, William Busch	Stage 2 Geophysical and Anthropological Investigations at the Mapoon Mission Cemetery, Queensland
56	 Phillip Sutton	pXRF Sourcing of Obsidian Artefacts from Apalo, Arawe Islands, Papua New Guinea
57	Paul Taçon, Sharon Sullivan, Nicholas Hull, Melissa Marshall	Valuable and Vulnerable: A Research and Awareness Strategy for the Future of Rock Art
58	Antonino Tucci, Nigel Chang, Thongsa Sayavongkhamdy, Viengkeo Souksavatdy, Samlane Luangaphay, Thonglith Luangkho	Ancient Copper Mining in Upland Laos: A Study into Iron Age Mining in a Tropical Environment
59	 David Tutchener	Labour Relations and Landscape: Slave Built Agricultural Retaining Walls on the Quill, St. Eustatius
60	 Cassandra Venn	Deeply Disturbed: An Investigation of Termite Activity in Modern Sediments
61	Victoria Wade, Michael Slack	Cultural Heritage Management at Brockman 4, Pilbara, Western Australia
62	 Jacinta Warland, Zuni Drake	Gilberton Explored and Enthralled
63	Paddy Waterson, Thomas Stieglitz, David Wachenfeld, Geoff Hewitt	Impact of Cyclone Yasi on the Wreck of the <i>SS Yongala</i> Documented by Comparative Multibeam Bathymetry Analysis
64	Rachel Wood, Zenobia Jacobs, Jane Balme, Sue O'Connor, Dorcas Vannieuwenhuysse, Rose Whitau	The Chronology of Riwi, Kimberley
65	Duncan Wright, Birgitta Stephenson	Exploring Ritual Activity across a Torres Strait 'Men's Meeting Place' through Oral Histories and Lithic Residues
66	 Andrea Yates, Andrew M. Smith, Fiona Bertuch, Anja Scheffers, Renaud Joannes-Boyau	A Preliminary Sampling Protocol for Residue Radiocarbon Dating

Venue Floor Plan

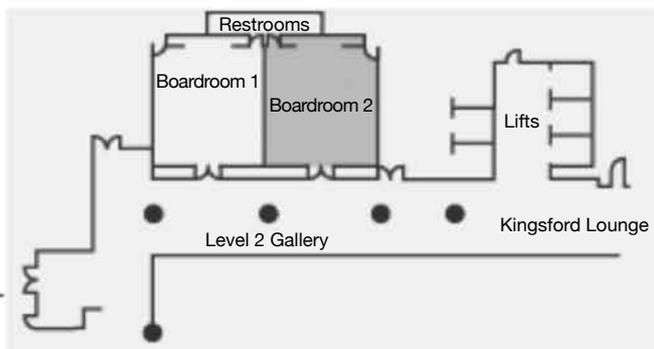
Ground Floor
 Grand Ballroom
 Kuranda
 Mossman
 Tully 1
 Tully 2/3



Level 1
 Bluewater 1
 Bluewater 2
 Rosser



Level 2
 Boardroom 1
 Boardroom 2
 Kingsford Lounge



Programme Summary

Saturday 29 November								
Room	Time	Pre-Conference Events						
Bluewater	8.00am - 4.15pm	Geochronology Workshop						
Sunday 30 November								
Room	Time	Pre-Conference Events						
Depart from Reception Lobby	9.00am - 11.00am	Cairns Historical Society Tour of Cairns CBD						
Bluewater	11.00am - 1.00pm	CV Workshop						
Bluewater	1.00pm - 3.00pm	How to Get Published in Archaeology Workshop						
Bluewater	3.00pm - 5.00pm	ARC Funding in Archaeology Workshop						
Reception Lobby	10.30am - 7.30pm	Pre-Conference Registration						
Daintree's Pooldeck	5.30pm - 7.30pm	Welcome Reception						
Monday 1 December								
	Flagship Session 1		Session 2		Session 3		Session 4	Evening Events
Room	8.00am - 10.00am	10.00am - 10.30am	10.30am - 12.30pm	12.30pm - 1.30pm	1.30pm - 3.30pm	3.30pm - 4.00pm	4.00pm - 6.00pm	6.00pm - 9.30pm
Parallel Session #1 Kuranda	Welcome Address and Welcome to Country 8.00am Flagship Session: 8.40am Australian Palaeoanthropology 100 Years after Talgai Grand Ballroom	Morning Tea	Australian Palaeoanthropology 100 Years after Talgai	Lunch AO Editorial Board Meeting (<i>Archaeology in Oceania</i>) Boardroom 1 and AHA Editorial Board Meeting (<i>Australasian Historical Archaeology</i>) Boardroom 2 and Career Advice Workshops Kingsford Lounge	Australian Palaeoanthropology 100 Years after Talgai	Afternoon Tea	Archaeology and Palaeoecology of Northern Australia's Wet Tropics	6.00pm - 7.30pm AACAI AGM Kuranda 7.30pm - 9.30pm Meet the Graduates Level 1 Gallery
Parallel Session #2 Mossman			Environmental Change since 1788		The Archaeology of Culture, Climate and Change: From Deep Prehistory to the Vietnam War in Tropical Southeast Asia		The Archaeology of Culture, Climate and Change: From Deep Prehistory to the Vietnam War in Tropical Southeast Asia	
Parallel Session #3 Tully 1			Archaeology of Tropical Melanesia		Archaeology of Tropical Melanesia		Recent Advances in Pacific Archaeology	
Parallel Session #4 Tully 2/3			50 Years of Tropical Archaeology in North Queensland		50 Years of Tropical Archaeology in North Queensland		Archaeology and Heritage of the Recent Past	
Parallel Session #5 Bluewater 1			Indigenous Archaeologies: Our Projects, Our People, Our Stories		Archaeology and the Australian Curriculum: Pedagogy and Cultural Change		Archaeology and the Australian Curriculum: Resources	
Parallel Session #6 Bluewater 2			Visualising Archaeology: On the Use of Image and Vision in Archaeology		Visualising Archaeology: On the Use of Image and Vision in Archaeology		Recent Archaeological Research	
Parallel Session #7 Rosser					Forum: Australia's Management of its Indigenous Cultural Heritage 2014 and Beyond		Forum: Mineral Exploration and Cultural Heritage in Cape York Peninsula	

Tuesday 2 December								
	Flagship Session 5		Session 6		Session 7		Session 8	Evening Events
Room	8.00am - 10.00am	10.00am - 10.30am	10.30am - 12.30pm	12.30pm - 1.30pm	1.30pm - 3.30pm	3.30pm - 4.00pm	4.00pm - 6.00pm	6.00pm - 7.30pm
Parallel Session #1 Kuranda	8.00am Flagship Session: Archaeologies of the Unfree Grand Ballroom	Morning Tea	Archaeological Investigation of Institutional Frameworks in an Australasian Context	Lunch AA Editorial Board Meeting (Australian Archaeology) Boardroom 1 and ASHA AGM Rosser and Career Advice Workshops Kingsford Lounge	Culturing the Rainforest: Cultural Adaption to and Human Impact on Tropical Environments in Island and Mainland Southeast Asia	Afternoon Tea	Culturing the Rainforest: Cultural Adaption to and Human Impact on Tropical Environments in Island and Mainland Southeast Asia	6.00pm - 7.30pm AAA AGM Kuranda
Parallel Session #2 Mossman			Rock Art: Hot T(r)opics: Identity, Landscape and Conservation		Rock Art: Hot T(r)opics: Style and Time		The Ethnography of Human-Environmental Interactions	
Parallel Session #3 Tully 1			Recent Archaeological Research in Africa		Lifeways of the First Australians Project: Archaeological Research in the Southern Kimberley		What do the 3 As Stand For?	
Parallel Session #4 Tully 2/3			Environmental Isotopes in Tropical Archaeology		Challenges and Opportunities in Cultural Heritage Management in the Indo-Pacific Tropics		Sweating it Out in Consulting Archaeology: The AACAI Session	
Parallel Session #5 Bluewater 1			Remotely Sensed Landscapes in the Twenty-First Century		Naïve Island Landscapes: People and Change in the Wellesley Archipelago, Southern Gulf of Carpentaria		Naïve Island Landscapes: People and Change in the Wellesley Archipelago, Southern Gulf of Carpentaria	
Parallel Session #6 Bluewater 2			North to South: Exploring Zooarchaeological Research within Australasia		North to South: Exploring Zooarchaeological Research within Australasia		Indigenous Knowledge, Stewardship and Heritage Management	
Parallel Session #7 Rosser			Screening and Discussion of <i>Message from Mungo</i>		Forum: Current Issues in Historical Archaeology		Forum: Challenges and Issues in Rock Art	
Wednesday 3 December								
	Flagship Session 9		Session 10		Session 11		Session 12	Evening Events
Room	8.00am - 10.00am	10.00am - 10.30am	10.30am - 12.30pm	12.30pm - 1.30pm	1.30pm - 3.30pm	3.30pm - 4.00pm	4.00pm - 6.00pm	7.00pm - 2:00am
Parallel Session #1 Kuranda	8.00am Flagship Session: Big Questions in Tropical Asia-Pacific Prehistory and Challenges for Archaeological Science Grand Ballroom	Morning Tea	Big Questions in Tropical Asia-Pacific Prehistory and Challenges for Archaeological Science	Lunch AIAA Meeting (Australian Indigenous Archaeologists Association) Boardroom 1 and ANCATL Meeting (Australian National Committee for Archaeology Teaching and Learning) Boardroom 2 and Career Advice Workshops Kingsford Lounge	Big Questions in Tropical Asia-Pacific Prehistory and Challenges for Archaeological Science	Afternoon Tea	4.00pm - 6.00pm Poster & Photo Session Level 1 Gallery	7.00pm - 11.00pm Conference Dinner & Awards Grand Ballroom 11.00pm - 2.00am After-Party with DJ Grand Ballroom
Parallel Session #2 Mossman			Archaeology of the Asian Diaspora		Landscapes of Change: Rethinking the Role of Documents in Landscape Interpretation			
Parallel Session #3 Tully 1			Archaeology, History and Cultural Heritage of the Great Barrier Reef Province		Towards Full Community Engagement Partnerships: Communications and Understandings			
Parallel Session #4 Tully 2/3			The Environmental Context for Human Settlement and Occupation of Australia		The Environmental Context for Human Settlement and Occupation of Australia			
Parallel Session #5 Bluewater 1			Building a Digital Ecosystem: Notes from the Field		Building a Digital Ecosystem: Notes from the Field			
Thursday 4 December								
Departs	Time	Post-Conference Events						
Cairns Fleet Terminal	8.00am - 5.00pm	Reef Magic Great Barrier Reef Day Tour to Marine World						
Pullman Cairns International	8.00am - 6.00pm	Daintree Dreaming-Ngadikuru Day Tour						
Pullman Cairns International	8.15am - 6.30pm	Historical Archaeology Day Tour						

Detailed Programme

Saturday 29 November 2014

Time	Venue/Room	Title
8.00am - 4.15pm	Bluewater Room	Geochronology Workshop

Sunday 30 November 2014

Time	Venue/Room	Title
9.00am - 11.00am	Depart from Reception Lobby	Cairns Historical Society Tour of Cairns CBD
11.00am - 1.00pm	Bluewater Room	CV Workshop
1.00pm - 3.00pm	Bluewater Room	How to Get Published in Archaeology Workshop
3.00pm - 5.00pm	Bluewater Room	ARC Funding in Archaeology Workshop
10.30am - 7.30pm	Reception Lobby	Pre-Conference Registration
5.30pm - 7.30pm	Daintree's Pooldeck	Welcome Reception

Monday 1 December 2014

Time	Room	Event
7.00am - 9.30pm	Ground Floor Lobby	Registration Desk Open

8.00am - 8.40am: Conference Opening

Room	Time	Speakers
Grand Ballroom	8.00am	<p>Welcome Address: Sean Ulm and Geraldine Mate, Conference Convenors</p> <p>Welcome to Country: Henrietta Marrie, Gimuy Walubara Yidinji people and Jeanette Singleton, Yirrganydji people</p> <p>Official Opening: Professor Chris Cocklin, Senior Deputy Vice Chancellor, James Cook University</p> <p>AAA Welcome Address: Fiona Hook, President</p> <p>ASHA Welcome Address: Mary Casey, President</p>

1

8.40am - 10.00am FLAGSHIP SESSION 1

Flagship Session 1: Australian Palaeoanthropology 100 Years after Talgai (Convenors: Mark Collard and Michael Westaway)

Room	Time	Author/s	Title
Grand Ballroom	8.40am	<u>Jim Allen</u>	The Talgai Skull
	9.00am	<u>Paul Dirks</u> , Christa Placzek	Hominin-Bearing Caves and Landscape Dynamics in the Cradle of Humankind, South Africa
	9.20am	<u>Angeline Leece</u> , Jacopo Moggi-Cecchi, Justin Adams, Colin Menter, Andy Herries	Palaeodemographic Studies of Early Hominins at Drimolen Palaeocave, South Africa
	9.40am	<u>Michael Westaway</u> , Mark Collard, Julien Louys, Christine Hertler, Susanne Haupt	Revising the Taxonomic Status of 'Meganthropus', Sangiran, Indonesia

MORNING TEA 10.00am - 10.30am

**Parallel Session #1****Australian Palaeoanthropology 100 Years after Talgai
(Convenors: Mark Collard and Michael Westaway)**

Room	Time	Author/s	Title
Kuranda	10.30am	<u>Mark Collard</u> , Mana Dembo	The Liang Bua Hominin Fossils Do Not Belong in Genus <i>Homo</i>
	10.50am	<u>Colin Groves</u>	Hovering on the Brink II
	11.10am	<u>Natalie Rogers</u> , Simon Killcross, Darren Curnoe	How to Make an Archaeologist Glow in the Dark: New Techniques to Shed Light on Some Old Questions in Cognitive Archaeology
	11.30am	<u>Ceridwen Boel</u> , Darren Curnoe	Hybrid Morphology in Asian Macaques, and the Implications for Detecting Hybrids in the Human Fossil Record
	11.50am	<u>Julien Louys</u> , Shimona Kealy, Sue O'Connor	Ecological Modelling as a Means of Determining the Environmental Impacts of Human Migration through Wallacea
	12.10pm	<u>Maxime Aubert</u>	Ice Age Art in the Tropics

Parallel Session #2**Environmental Change since 1788
(Convenor: Susan Lawrence)**

Room	Time	Author/s	Title
Mossman	10.30am	<u>Iain Stuart</u>	A Vast Land in Need of Improvement
	10.50am	<u>Nicolas Grguric</u>	The Forgotten Village of Byethorne
	11.10am	<u>Gretel Boswijk</u> , Duncan Munro	Making Productive Space from Sawmill Waste: A Case Study from Kohukohu, Northland, New Zealand
	11.30am	<u>Aleisha Buckler</u> , Jon Prangnell	Human-Environment Interaction in Colonial Queensland: Establishment, Use and Abandonment of the Port of St Lawrence and Implications for the Archaeological Record
	11.50am	<u>Jan Wegner</u>	Weeds and Settlement in Tropical Queensland
	12.10pm	<u>Susan Lawrence</u> , Peter Davies, Jodi Turnbull	Water, Landscape Change and the Victorian Mining Industry

Parallel Session #3**Archaeology of Tropical Melanesia
(Convenors: Anne Ford and Matthew Leavesley)**

Room	Time	Author/s	Title
Tully 1	10.30am	<u>Larissa Schneider</u> , Simon Haberle, Jan Finn, Andrew Henderson	Lake Kutubu Palaeo-Environmental Research Project
	10.50am	<u>Sindy Luu</u> , Judith Field, Glenn Summerhayes, Herman Mandui, Anne Ford, Matthew Leavesley, Michael Lovave	Investigating Plant Exploitation and Use in the PNG Highlands during the Mid-Holocene
	11.10am	<u>Caroline Spry</u> , Christina Pavlides	A Re-Evaluation of a Pitchstone Artefact Assemblage from Pamwak Rockshelter, Manus Island, Papua New Guinea: Changing Ideas about Stone Tool Technology in Melanesia
	11.30am	<u>Nina Kononenko</u> , Robin Torrence	Obsidian Chopping Tools, Woodworking and Forest Management in West New Britain, Papua New Guinea
	11.50am	<u>Jim Specht</u> , Carol Lentfer, Chris Gosden, Geraldine Jacobsen, Sue Lindsay, Peter Matthews	Possible Stilt Structures before Lapita Pottery at the Apalo Site, New Britain, Papua New Guinea
	12.10pm	<u>Dylan Gaffney</u> , Glenn Summerhayes	Archaeological Investigations along the Northeast Coast of New Guinea

Parallel Session #4

50 Years of Tropical Archaeology in North Queensland (Convenors: Shelley Greer and Susan McIntyre-Tamwoy)

Room	Time	Author/s	Title
Tully 2/3	10.30am	<u>Noelene Cole</u>	Dancing Figures, Red Hands, Boomerangs, Late Early Man Style and a Great White Phase: The Mysterious Lost Art of Cape York and Regional Archaeology
	10.50am	<u>Nicola Winn,</u> <u>Carol Chong</u>	The Rock Art of the Chillagoe-Mungana Limestone Belt North Queensland: The Wakaman Perspective
	11.10am	<u>Alice Buhrich,</u> <u>Steve Purcell</u>	Giants in Time: Rainforest Dendroglyphs of North Queensland
	11.30am	<u>Felise Goldfinch</u>	Of Bananas and Shields: Rock Art of the Townsville Region
	11.50am	<u>Catherine Hays</u>	Exchange of Items or Ideas? Implications of the Torres Strait Pottery
	12.10pm	<u>Kevin Tibbett</u>	Community Specialisation and Production at Moondarra, Northwestern Queensland

Parallel Session #5

Indigenous Archaeologies: Our Projects, Our People, Our Stories (Convenors: Dave Johnston and Adam Magennis)

Room	Time	Author/s	Title
Bluewater 1	10.30am	<u>Gordon Connelly,</u> <u>Iain Davidson</u>	Understanding Landscapes for Aboriginal Cultural Heritage: A Mitakoodi Example
	10.50am	<u>Sam Wickman Jupurulla</u>	Hopes for an Improved Ethical Archaeological Discipline and the Emergence of Effective Indigenous Heritage Protection in Australia
	11.10am	<u>Mark Dugay-Grist</u>	Can the Study of our Ancestors Enhance our Modern Societies? With an Emphasis on Australian Aboriginal Peoples
	11.30am	<u>Dave Johnston,</u> <u>Rob Williams</u>	Australia's Indigenous Heritage and its Management: Does our Past have a Future?
	11.50am	<u>Galiina (Kal) Ellwood</u>	Aboriginal Prospectors and Miners in North Queensland
	12.10pm	<u>Elizabeth Vaughan</u>	Excavating the <i>Aboriginal Heritage Act</i> : A Cross-Disciplinary Investigation of Heritage Protection in Western Australia 1972-2014

Parallel Session #6

Visualising Archaeology: On the Use of Image and Vision in Archaeology (Convenors: Ursula Frederick and Sally Brockwell)

Room	Time	Author/s	Title
Bluewater 2	10.30am	<u>Ursula Frederick</u>	Dust on the Lens: Contemporary Art Photography and Archaeology
	10.50am	<u>Sven Ouzman</u>	'I Swear I Saw This': A Genealogy of Rock Art Recording in Australia's Kimberley over the Last 176 Years
	11.10am	<u>Julie Dibden</u>	The Materiality of Rock Art: Complex Narratives between People and Stone
	11.30am	<u>Tristen Jones</u>	Picturing Pictures: Exploring Concepts of Research Methodologies, Subjectivity and Interpretation in Rock Art Studies
	11.50am	<u>Sally Brockwell,</u> <u>Ursula Frederick</u>	Illustrating Australian Archaeology
	12.10pm	<u>Robin Derricourt</u>	The Book as Artefact

LUNCH

12.30pm - 1.30pm

Time	Room	Event
12.30pm - 1.30pm	Boardroom 1	AO Editorial Meeting (Convenor: Peter White) <i>(Archaeology in Oceania)</i>
	Boardroom 2	AHA Editorial Board Meeting (Convenor: Jon Prangnell) <i>(Australasian Historical Archaeology)</i>
	Kingsford Lounge	Career Advice Workshops: * Employment in the Private Sector * Rock Art * Industrial Archaeology * Museum Archaeology

**Parallel Session #1****Australian Palaeoanthropology 100 Years after Talgai
(Convenors: Mark Collard and Michael Westaway)**

Room	Time	Author/s	Title
Kuranda	1.30pm	<u>Adam Brumm</u>	New Excavations at Leang Burung 2 in the Maros Karsts of Sulawesi, Indonesia
	1.50pm	<u>Michelle Langley,</u> <u>Sue O'Connor</u>	Nassarius Shell Beads from Jerimalai, East Timor: Use-Wear and Residue Results
	2.10pm	<u>Darren Curnoe,</u> <u>Ipoi Datan, Paul Taçon, Charles Leh Moi Ung,</u> <u>Mohammed Shermann Sauffi William</u>	New Investigations of Some Very Old Human Remains from Niah Caves, Sarawak, Malaysia
	2.30pm	<u>Tim Heupink,</u> <u>Jo Wright, Michael Westaway, David Lambert</u>	Ancient DNA and the Problem with Modern Contamination
	2.50pm	<u>Arthur Durband,</u> <u>Marcia Ponce de Leon, Keryn Walshe,</u> <u>Christoph Zollikofer</u>	The First Digital Reconstructions of Crania from Roonka, South Australia
	3.10pm	<u>Thomas Wales,</u> <u>Jo Wright, Michael Westaway, Tim Pietsch,</u> <u>Tim Heupink, Steve Nichols, David Lambert</u>	Northern Origins: Genetic and Archaeological Investigations with the Thankawith Traditional Owners

Parallel Session #2**The Archaeology of Culture, Climate and Change: From Deep Prehistory to the Vietnam War in Tropical Southeast Asia
(Convenors: Nigel Chang and Kate Domett)**

Room	Time	Author/s	Title
Mossman	1.30pm	<u>Tegan Hall,</u> <u>Daniel Penny</u>	Using Local Fire History as a Proxy for Occupation of a Khmer Industrial Outpost during the Decline of the Angkor Empire
	1.50pm	<u>Daniel Penny</u>	Feedback between Networked Infrastructure and the Impact of Climatic Variability at Angkor, Cambodia (14-15th Centuries CE)
	2.10pm	<u>Ken Ross,</u> <u>Marc Oxenham</u>	To Follow in their Footsteps: An Examination of the Burial Identity of the Elderly from Non Nok Tha
	2.30pm	<u>James Moloney,</u> <u>Netchanok Khongthong, Wassana Phanurak,</u> <u>Nigel Chang</u>	Use of Different Environmental Zones in Contemporary and Prehistoric Northeast Thailand
	2.50pm	<u>Wassana Phanurak,</u> <u>Sarochinee Kaewthane, Natenapha Rattanaphothanan</u>	The Changing Evolution of the Community Forest and the Human Settlement: A Case Study of Pholsongkram Subdistrict, Nonesoung District, Nakhonratchasima Province, Thailand
	3.10pm	<u>Puangtip Kerdsap</u>	Environmental Archaeology of Spinning, Weaving and Dyeing in Ancient Thailand

Parallel Session #3**Archaeology of Tropical Melanesia
(Convenors: Anne Ford and Matthew Leavesley)**

Room	Time	Author/s	Title
Tully 1	1.30pm	<u>Ken Aplin,</u> <u>Bruno David, Ian McNiven, Thomas Richards,</u> <u>Matthew Leavesley, Fiona Petchey</u>	New Insights into the Ecology and Palaeoecology of Pigs in New Guinea, and Precision Dating of their Time of Arrival from Sites at Caution Bay
	1.50pm	<u>Anne Ford,</u> <u>Jerome Mialanes, Ian McNiven,</u> <u>Thomas Richards, Bruno David,</u> <u>Glenn Summerhayes, Matthew Leavesley</u>	Sourcing Stone along the South Coast of Papua New Guinea: Evidence from Caution Bay
	2.10pm	<u>Nick Sutton,</u> <u>Glenn Summerhayes, Anne Ford</u>	Climate and Culture Change: ENSO Modelling of the South Papuan Cultural Sequence
	2.30pm	<u>Jim Allen</u>	Revising Sue Bulmer's Six Style Port Moresby Pottery Sequence
	2.50pm	<u>Ben Shaw</u>	Towards a Prehistory of the Louisiade Archipelago, Massim Region, Papua New Guinea
	3.10pm	<u>Karen Thornton,</u> <u>Matthew Leavesley, Sean Ulm, Geraldine Mate</u>	Gender and Agency: Organising Principles in the Interpretation of the Archaeological Record in Coastal and Island Regions of Melanesia

Parallel Session #4**50 Years of Tropical Archaeology in North Queensland
(Convenors: Shelley Greer and Susan McIntyre-Tamwoy)**

Room	Time	Author/s	Title
Tully 2/3	1.30pm	Ian Atkinson, Dianna Hardy	eResearch and Archaeological Datasets: A Semantic Web Approach
	1.50pm	Ashley O'Sullivan	European Explorers and the Australians: Observations and Interaction with People along the Northeast Coast of Queensland during the Eighteenth and Nineteenth Centuries
	2.10pm	John Edgar	'Not the Worst Goldfield in Queensland': Archaeological Landscapes of Mobility at the Cape River Gold Field
	2.30pm	Marianne Clarkson	Adapting the Methodology to Overcome Some Tropical Complications
	2.50pm	Shelley Greer, Michele Bird	Garabarra: A Community-Based Heritage Project in Townsville, North Queensland
	3.10pm	Susan McIntyre-Tamwoy	Cultural Heritage Issues, Archaeological Research and Heritage Challenges in Cape York Peninsula

Parallel Session #5**Archaeology and the Australian Curriculum: Pedagogy and Cultural Change
(Convenors: Stephen Nichols and Louise Zarmati)**

Room	Time	Author/s	Title
Bluewater 1	1.30pm	Louise Zarmati	The New Australian History Curriculum: Reconceptualising Australia's Ancient Past
	1.50pm	Stephen Nichols, Daniel Rosendahl	Reconfiguring the Past: Engaging with an Archaeology-Friendly Curriculum in the Twenty-First Century
	2.10pm	Shirley Gilbert	Shells, Fur, Fibre and Feathers: How do we Teach Aboriginal Archaeology to History Students?
	2.30pm	Helen Nicholson	Narrative, Archaeology and the Australian Curriculum
	2.50pm	Kelsey Baker	Archaeology in the Australian National Curriculum: A View from the Trenches
	3.10pm	Stephen Nichols	Curriculum Discussion 1 - Australian Archaeology: Curriculum and Pedagogy

Parallel Session #6**Visualising Archaeology: On the Use of Image and Vision in Archaeology
(Convenors: Ursula Frederick and Sally Brockwell)**

Room	Time	Author/s	Title
Bluewater 2	1.30pm	Peter Hiscock	Gothic Themes and Pseudo-Science Content in Cinema
	1.50pm	Denis Gojak	The Old Marulan 2007 Archaeological Project: Exploring Alternatives to how the Public Sees Archaeology
	2.10pm	Charlotte Feakins	There for All to See: Using Video to Communicate Archaeology
	2.30pm	Darran Jordan, Rocco Bosco	Strange Adventures in Ficto-Archaeology: Narrative Forms, Academic Intentions and Fictocritical Outcomes
	2.50pm	Rhiannon Stammers, Andy Herries, Justin Adams, Colin Menter	3D Scanning as a Tool to Quantify Use-Wear on the World's Oldest Bone Tools from the Early Hominin Bearing Cave Site of Drimolen, South Africa
	3.10pm	Sarah Colley, Sally Brockwell	Envisioning Digital Research Data

Parallel Session #7**Forum: Australia's Management of its Indigenous Cultural Heritage 2014 and Beyond
(Convenors: Dave Johnston and Adam Magennis)**

Room	Time	Panelists:
Rosser	1.30pm - 3.30pm	Valerie Cooms, Dave Johnston, Adam Magennis, Sam Wickman Jupurulla and Carol Chong

AFTERNOON TEA 3.30pm - 4.00pm





Parallel Session #1

Archaeology and Palaeoecology of Northern Australia's Wet Tropics (Convenors: Richard Cosgrove, Simon Haberle and Åsa Ferrier)

Room	Time	Author/s	Title
Kuranda	4.00pm	<u>Peter Kershaw</u> , Simon Haberle, Phil Roberts, Mark Burrows, Susan Rule	New Evidence of Last Glacial Environments and Expansion of Rainforest during Termination 1 on the Atherton Tableland, Northeast Queensland
	4.20pm	<u>Simon Haberle</u> , Phil Roberts, Mark Burrows	Fire as a Tool for Change: New Fire Histories from the Wet Tropics Reveal the Role of Humans and Climate in Transforming Landscapes
	4.40pm	<u>Åsa Ferrier</u> , Richard Cosgrove, Judith Field	The Wet and the Dry: Aboriginal Responses to Northern Australian Tropical Rainforest Environments and Savannah Woodland
	5.00pm	<u>Anna Tuechler</u> , Åsa Ferrier, Richard Cosgrove	Exploitation of Noxious Tree Nuts as an Aboriginal Subsistence Strategy in Queensland's Wet Tropics
	5.20pm	<u>Judith Field</u> , Lisa Kealhofer, Adelle Coster	Microfossil Evidence for Plant Use and Environmental Change from Koombaloomba Dam, Wet Tropics, North Queensland
	5.40pm	<u>Richard Cosgrove</u>	Ground-Edge Stone Technology of Australia's Wet Tropics

Parallel Session #2

The Archaeology of Culture, Climate and Change: From Deep Prehistory to the Vietnam War in Tropical Southeast Asia (Convenors: Nigel Chang and Kate Domett)

Room	Time	Author/s	Title
Mossman	4.00pm	<u>Netchanok Khongthon</u>	Folk Healers' Local Knowledge Transfer before Angkor in the Upper Mun River Catchment: A Case Study of the Pholsongkram Community, None Soung District, Nakhon Ratchasima Province, Thailand
	4.20pm	<u>Belinda Duke</u>	Reflected in the Soil: Site Formation Processes as an Index of Social and Environmental Change at the Mound Site Ban Non Wat, Northeast Thailand
	4.40pm	<u>Viengke Souksavatdy</u> , Samlane Luangaphay, Thonglith Luangkhot	A Changing Landscape: Current Challenges in Heritage and Archaeology in the Lao PDR and the Role of the Department of National Heritage
	5.00pm	<u>Nicholas Roberts</u>	Continuity and Change in the Use and Value of Caves in Tropical Lao PDR
	5.20pm	<u>Catherine Livingston</u>	Impacts of Prehistoric Copper Mining in Laos: A Case Study of the Vilabouly Ge
	5.40pm	<u>Nigel Chang</u> , William Boyd	Tackling Global Climate Change: A Contribution from the Prehistoric Archaeology of Northeast Thailand

Parallel Session #3

Recent Advances in Pacific Archaeology (Convenors: Matthew Leavesley and Anne Ford)

Room	Time	Author/s	Title
Tully 1	4.00pm	<u>Christian Reepmeyer</u> , Geoffrey Clark	The Importance of Freshwater Access in Successful Island Colonisation: New Results from Excavations in Palau
	4.20pm	<u>Eddie Thangavelu</u> , Bryce Barker, Bruno David, Ian McNiven, Helene Tomkins, Sean Ulm, Brit Asmussen, Patrick Faulkner	Understanding Shellfish Exploitation at Lapita Sites from Caution Bay, Papua New Guinea: Wider Implications and a Model for Change
	4.40pm	<u>Natalie Blake</u>	The Archaeology of the Late Prehistoric Southeast Solomon Islands: The Last 1000 Years of Mwanihuki, Makira
	5.00pm	<u>Fiona Petchey</u> , Matthew Spriggs, Stuart Bedford, Frederique Valentin, Hallie Buckley	Radiocarbon Dating the Teouma Lapita Cemetery, Efate, Vanuatu
	5.20pm	<u>Ethan Cochrane</u> , Alexander Morrison, Charles Fletcher	The History of Human Occupation on Upolu's (Samoa) East Coast: Implications for Lapita Settlement
	5.40pm	<u>Tom Sapienza</u>	The Western Polynesia 'Long Pause' and the Ideal Free Distribution

Parallel Session #4

Archaeology and Heritage of the Recent Past (Convenors: Geraldine Mate and Karen Murphy)

Room	Time	Author/s	Title
Tully 2/3	4.00pm	<u>Alice Gorman</u>	Space Archaeology: The Next Decade
	4.20pm	<u>Neil Price</u> , <u>Rick Knecht</u>	War of the Worlds: The Present Past on the Island Battlefields of the Pacific, 1941-1945
	4.40pm	<u>Christopher Egan</u>	Sport and War in North Queensland: How does the Archaeological Record Expose the Inter-Connection between Sport and War?
	5.00pm	<u>Jonathan Prangnell</u> , <u>Geraldine Mate</u>	More than a Landscape of Labour: The Role of Documents in the Interpretation of the Social Landscape of the Ipswich Railway Workshops
	5.20pm	<u>Maxine Boyd</u>	What's in a Name?
	5.40pm	<u>Brad Duncan</u> , <u>Martin Gibbs</u>	Dark Tourism, Archaeology and the Spectacle of Shipwreck

Parallel Session #5

Archaeology and the Australian Curriculum: Resources (Convenors: Stephen Nichols and Louise Zarmati)

Room	Time	Author/s	Title
Bluewater 1	4.00pm	<u>Melissa Sorial</u>	Digital Teaching and Learning in Australian Archaeology: Project Archaeohub
	4.20pm	<u>Alethea Kinsela</u>	Ancient Australia Unearthed: A New Resource for Schools
	4.40pm	<u>Andrew Stocker</u> , <u>Susan Lawrence</u> , <u>Thea Kinsela</u>	Young Archaeologists' Program: A School Engagement Initiative at La Trobe University
	5.00pm	<u>Dale F. Simpson Jr.</u> , <u>Chris Clarkson</u> , <u>Andy Fairbairn</u> , <u>Tiina Manne</u> , <u>Rohan Fenwick</u> , <u>Heather Dixon</u> , <u>Emilija Nicolosi</u>	Archaeological Outreach and Cross-Curriculum Learning at The University of Queensland's Archaeological Teaching and Research Centre (ATARC)
	5.20pm	<u>Laura Campbell</u>	Doing History: Public Archaeology and Engaging with the New Australian Curriculum
	5.40pm	<u>Stephen Nichols</u>	Curriculum Discussion 2 - Archaeology Resources for the Australian Curriculum

Parallel Session #6

Recent Archaeological Research (Convenor: Carney Matheson)

Room	Time	Author/s	Title
Bluewater 2	4.00pm	<u>Martin Porr</u>	Degrees of Decontextualisation: On the (Im)possibility of Representing Rock Art
	4.20pm	<u>Jacqueline Matthews</u>	Seer Seen, Maker Made: A Relational Perspective on the Archaeological Manufacturing of Deep Time Knappers
	4.40pm	<u>Carney Matheson</u>	The Application of Archaeological Chemistry to Residue Studies and the Study of Change
	5.00pm	<u>Karleah Bonk</u> , <u>Matthew Boyd</u>	Letting the Smoke Clear: Exploring the Potential of Microfossils Residue Analysis in North American Smoking Pipes
	5.20pm	<u>Abby Capel</u>	Naming the Mask: A Contextualisation of the RD Milns Mummy Mask
	5.40pm	Discussion Chaired by Carney Matheson	

Parallel Session #7

Forum: Mineral Exploration and Cultural Heritage in Cape York Peninsula (Convenors: Katie O'Rourke, Alice Buhrich and Susan McIntyre-Tamwoy)

Room	Time	Author/s
Rosser	4.00pm - 6.00pm	Panelists: Katie O'Rourke, Alice Buhrich and Susan McIntyre-Tamwoy

EVENTS: AACAI AGM and MEET THE GRADUATES

Time	Room	Event
6.00pm - 7.30pm	Kuranda	AACAI AGM (Australian Association of Consulting Archaeologists Inc)

Time	Room	Event
7.30pm - 9.30pm	Level 1 Gallery	Meet the Graduates Event

Time	Room	Event
7.00am - 7.30pm	Ground Floor Lobby	Registration Desk Open

5

8.00am - 10.00am FLAGSHIP SESSION 5

Flagship Session 5: Archaeologies of Unfree (Convenors: Martin Gibbs and Denis Gojak)

Room	Time	Author/s	Title
Grand Ballroom	8.00am	<u>Thomas Whitley</u>	Archaeology, Coerced Labour Control, and the Invisible Institution
	8.20am	<u>Kevin Rains</u>	Journeys to Sugaropolis: The Australian South Sea Islander Story of the Gold Coast Region
	8.40am	<u>Cherrie De Leiuen</u>	'Corporal Punishment and the Grace of God': The Archaeology of a Nineteenth Century Girls' Reformatory
	9.00am	<u>Caitlin Dircks,</u> <u>Martin Gibbs, David Roe, Chloe Hamilton</u>	Beyond Subsistence of the Unfree: Nineteenth Century Artefacts at the Prisoner Barracks, Port Arthur
	9.20am	<u>Hannah James,</u> <u>Malte Willmes</u>	Slavery in the Caribbean: Isotopic Evidence of Forced Migration
	9.40am	<u>B'geella Romano</u>	What you lookin' at? An Archaeological Analysis of Graffiti and Inscription at Fremantle Prison Western Australia

MORNING TEA 10.00am - 10.30am

6

10.30am - 12.30pm SESSION 6

Parallel Session #1 Archaeological Investigation of Institutional Frameworks in an Australasian Context (Convenors: Sean Winter and Tom Whitley)

Room	Time	Author/s	Title
Kuranda	10.30am	<u>Anne Clarke,</u> <u>Ursula Frederick</u>	'Born to be a Stowaway': Inscriptions, Graffiti and the Rupture of Space at the North Head Quarantine Station, Sydney
	10.50am	<u>Peta Longhurst</u>	North Head Quarantine Station and the Institutionalisation of Infection
	11.10am	<u>David Marcus,</u> <u>Kieren Watson</u>	Losing your Marbles: The Archaeological Investigation of Domain House and the Hobart High School
	11.30am	<u>Edwina Kay</u>	The Containment of Wayward Females: The Buildings of Abbotsford Convent
	11.50am	<u>Sean Winter</u>	The Two Tiered Institution: Reform and Labour in Convict Western Australia
	12.10pm	<u>Alyce Haast</u>	The Economic Value of Convict Transportation: An Archaeological Study

Parallel Session #2 Rock Art: Hot T(r)opics: Identity, Landscape and Conservation (Convenors: Jo McDonald and Sven Ouzman)

Room	Time	Author/s	Title
Mossman	10.30am	<u>Leslie Zubieta Calvert</u>	Women's Presence: Perceptions of Gender in Rock Art Research
	10.50am	<u>Paul Taçon</u> <u>Ronald Lamilami</u>	Changing Depictions of Women and Power in Arnhem Land Rock Art
	11.10am	<u>Meg Travers,</u> <u>June Ross</u>	Is that a New Headdress you're Wearing? Exploring Stylistic Transitions in the Rock Art Assemblage of the Northwest Kimberley and the Varying Contexts of Rock Art Production
	11.30am	<u>Daryl Wesley</u>	Potency of Firearms: Visual Displays of Power and Technology in Western Arnhem Land
	11.50am	<u>Annieka Skinner,</u> <u>Martin Porr</u>	Exploring Visual Organisation of Rock Art at Oombarri, Northeast Kimberley
	12.10pm	<u>Melissa Marshall</u>	Rock Art Conservation and Management: Results of Doctoral Research into Contemporary Approaches

Parallel Session #3**Recent Archaeological Research in Africa****(Convenors: Alison Crowther and Benjamin Smith)**

Room	Time	Author/s	Title
Tully 1	10.30am	<u>Benjamin Smith</u>	African Archaeology Today
	10.50am	<u>Alex Blackwood</u> , Rhiannon Stammers, Tom Mallett, Brian Armstrong, Douglass Rovinsky, Giovanni Boschian, Philip Hopley, Randy Parrish, James Donlon, Joseph Bevitt, Paul Penzo-Kalewski, Stephanie Baker, Justin Adams, Colin Menter, Andy Herries	Discovery of a New, Older Fossil Bearing Deposit at the Drimolen Hominin Site, South Africa
	11.10am	<u>Ceri Shipton</u> , Alison Crowther, Jimbob Blinkhorn, Richard Helm, Nicole Boivin	Panga Ya Saidi: An MIS5-3 Site on the Coast of East Africa
	11.30am	<u>Anna Kotarba-Morley</u>	Egyptian Red Sea Port of Berenike Troglodytica and its Role in the Red Sea: Indian Ocean Maritime Trade - Using Geoarchaeological and Palaeoenvironmental Proxies for Landscape and Seascapes Reconstruction
	11.50am	<u>Alison Crowther</u> , Nicole Boivin, Dorian Fuller, Leilani Lucas, Solomon Pomerantz, Henry Wright, Chantal Radimilahy, Mark Horton	Food Crops, Culinary Frontiers, and the Colonisation of Madagascar
	12.10pm	<u>Tahlia Stewart</u>	Disembodied and Displaced: Investigating the Australia-South Africa Trade in Indigenous Artefacts and Human Remains

Parallel Session #4**Environmental Isotopes in Tropical Archaeology****(Convenors: Christopher Wurster and Michael Bird)**

Room	Time	Author/s	Title
Tully 2/3	10.30am	<u>Michael Bird</u> , Chris Wurster, Philippa Ascough, Vladimir Levchenko, Anna McBeath	Isotopes in Charcoal
	10.50am	<u>Matt Cupper</u> , Jon Woodhead, Ian McIntosh, Tim Stone, Michael Owen, Michael Hermes, Matthew Maus	Age and Provenance of a Bronze Swivel Gun from Dundee Beach, Northern Australia
	11.10am	<u>Christopher Wurster</u> , Rifai Hamdi, Jordahna Haig, Michael Bird	Was there a Savanna Corridor in Southeast Asia? Evidence from the Stable Carbon Isotope Composition of Cave Guano with Implications for Early Human Dispersal
	11.30am	<u>Lauren Prossor</u> , Jack Fenner, Geoffrey Clark, Frédérique Valentin	Using Stable Isotopes to Differentiate between Lapita and Chiefdom Period Diets in Tonga
	11.50am	<u>Christa Placzek</u> , Kane Ditchfield, Peter Veth	Speleothem-Based Climate Reconstructions from Barrow Island
	12.10pm	<u>Robin Twaddle</u> , Sean Ulm, Christopher Wurster, Jane Hinton, Michael Bird	High-Resolution Scleroisotope Analysis: Preliminary Stable Isotope Values from the South Wellesley Islands, Gulf of Carpentaria

Parallel Session #5**Remotely Sensed Landscapes in the Twenty-First Century****(Convenors: Kelsey Lowe and Aaron Fogel)**

Room	Time	Author/s	Title
Bluewater 1	10.30am	<u>Selene Kenady</u> Sean Ulm, Peter Ridd, Kelsey Lowe, Daniel Rosendahl	Multimethod Geophysical Survey of Large Shell Matrix Sites: A Case Study from Thundi, Bentinck Island, Gulf of Carpentaria
	10.50am	<u>Aaron Fogel</u>	Assessing Cemetery Variability Using Ground-Penetrating Radar
	11.10am	<u>Kelsey Lowe</u> , Aaron Fogel, Bryce Barker, Lara Lamb	Public Archaeology Working Together with Archaeological Research: A Multiple Method Geophysical Survey of an Early Historic Period Inn at Drayton, Queensland
	11.30am	<u>Darrell Rigby</u> , Nick McKelvey, Aaron Fogel, Tessa Boer-Mah	3D Terrestrial Scanning and Complementary Technology
	11.50am	<u>Tony Miscamble</u> , Aaron Fogel, Michael Westaway, Philip D. Lowe	Aerial Reconnaissance and Survey in the Willandra Lakes World Heritage Area using Unmanned Aerial Systems (UAS)
	12.10am	<u>Matthew Spriggs</u>	LiDAR Survey and Earlier Archaeological Survey of Traditional Agricultural Infrastructure: New Use for Old Data in Assessing Climate Change

Parallel Session #6

North to South: Exploring Zooarchaeological Research within Australasia

(Convenors: Jillian Garvey, Georgia Roberts, Brent Koppel and Kat Szabó)

Room	Time	Author/s	Title
Bluewater 2	10.30am	<u>Mick Morrison</u>	Accidental Middens? The Function and Symbolism of Northern Australian Late Holocene Shell Mound Sites
	10.50am	<u>Brent Koppel</u> , Kat Szabó, Mark Moore, Mike Morwood	Separating the Behavioural from the Post-Depositional: Amino Acid Racemisation and its Application in Behavioural Archaeology
	11.10am	<u>Jillian Garvey</u> , Darren Perry	Lessons from Freshwater Middens: Late Quaternary Foraging and Subsistence Strategies from the Central Murray River Valley, Northwest Victoria
	11.30am	<u>Jacqueline Turney</u> , Ilya Berelov, Andy Herries, Ron Arnold, Steven Falconer, Pat Fall, Libby Riches, Kasey Robb, Martin Lawler, Tya Lovett, Christine Keogh, Jillian Garvey, Emmy Frost	A View from the Temperate Zone: The Browns Creek Community Archaeology Project
	11.50am	<u>Brit Asmussen</u>	Exploring 10,000 Years of Zooarchaeological Records from Queensland
	12.10pm	<u>Christopher Urwin</u> , Ian McNiven, Lachlan Macquarie	Hearing from Bones: The Archaeology of Human Hunting Influence on Dugong Demographics over the Past 1000 Years at Mabuyag, Western Torres Strait

Parallel Session #7

Screening and Discussion of 'Message from Mungo'

(Convenors: Ann McGrath and Harry Allen)

Room	Time	
Rosser	10.30am - 12.30pm	<i>Message from Mungo</i> documentary screening

LUNCH

12.30pm - 1.30pm

Time	Room	Event
12.30pm - 1.30pm	Rosser	ASHA AGM (Australasian Society for Historical Archaeology)
	Boardroom 1	AA Editorial Board Meeting (Convenors: Lynley Wallis and Heather Burke) (<i>Australian Archaeology</i>)
	Kingsford Lounge	Career Advice Workshops: * A Career as an Academic * Stone Artefacts * Historical Archaeology * Maritime Archaeology

7

1.30pm - 3.30pm **SESSION 7**

Parallel Session #1

Culturing the Rainforest: Cultural Adaption to and Human Impact on

Tropical Environments in Island and Mainland Southeast Asia

(Convenors: Chris Hunt and Graeme Barker)

Room	Time	Author/s	Title
Kuranda	1.30pm	<u>Tim Denham</u>	Early Agriculture and Plant Domestication in New Guinea and Island Southeast Asia
	1.50pm	<u>Stuart Hawkins</u> , Sue O'Connor	Zooarchaeological Evidence of Modern Human Palaeoecological Interactions at the Laili Rockshelter, East Timor since 33,000 BP
	2.10pm	<u>Freddy Pattiselanno</u> , Andrew Krockenberger	The Four Ts in Indigenous Hunting in Papua: The Role of Traditional Ecological Knowledge in Translating Human-Environmental Interactions
	2.30pm	<u>Kat Szabó</u> , Kira Westaway, Mike Morwood, Budianto Hakim	Keeping Pace with Rapidly Changing Landscapes: The Pleistocene/Holocene Sequence from Leang Pasaung, Maros, Sulawesi
	2.50pm	<u>Graeme Barker</u> , Lindsay Lloyd-Smith	How can Archaeology Contribute to Understanding Human-Rainforest Interactions in Island Southeast Asia? Some Borneo Examples
	3.10pm	<u>Samantha Jones</u> , Chris Hunt	Deciphering Anthropogenic Signals in Tropical Rainforests during the Mid-Late Holocene: A Multi-Proxy Investigation from the Kelabit Highlands of Sarawak, Malaysian Borneo

Parallel Session #2**Rock Art: Hot T(r)opics: Style and Time****(Convenors: Jo McDonald and Sven Ouzman)**

Room	Time	Author/s	Title
Mossman	1.30pm	<u>Ken Mulvaney</u>	The Complexity of Ancient Murujuga Rock Art
	1.50pm	<u>Meg Berry</u> , <u>Jo McDonald</u>	Rosemary and Time
	2.10pm	<u>Ben Curtis</u> , <u>Tim Pietsch</u> , <u>Jon Olley</u>	A Relative Date for Pilbara Petroglyphs
	2.30pm	<u>Sam Harper</u>	Heterogeneous Shield Designs Found in Rock Art on the Pilbara Desert Edge
	2.50pm	<u>Iain Gray Johnston</u>	A Review of the Dynamic Figure Chronology and a Dynamic Figure Guide for Mirarr Country, Northern Territory, Australia
	3.10pm	<u>Robert Gunn</u>	400 Years of Style at Nawarla Gabarnmang

Parallel Session #3**Lifeways of the First Australians Project: Archaeological Research in the Southern Kimberley****(Convenors: Dorcas Vannieuwenhuysse, Jane Fyfe, Tim Maloney, India Ella Dilkes-Hall, Sue O'Connor, Rose Whitau and Jane Balme)**

Room	Time	Author/s	Title
Tully 1	1.30pm	<u>Dorcas Vannieuwenhuysse</u>	High Resolution Geoarchaeology: Exploring the Discontinuities in Archaeological Sequences in Northwestern Australia
	1.50pm	<u>Jane Balme</u> , <u>Sue O'Connor</u> , <u>Tiina Manne</u> , <u>Tim Maloney</u> , <u>Dorcas Vannieuwenhuysse</u> , <u>Rachel Wood</u>	Occupation on the Edge of the Desert: Riwi Cave in the Southern Kimberley
	2.10pm	<u>Rose Whitau</u>	Late Quaternary Vegetation Change in Gooniyandi Country: Archaeological Wood Charcoal Analysis from Riwi Cave
	2.30pm	<u>India Ella Dilkes-Hall</u>	Archaeobotanical Analysis of Riwi Macrobotanical Remains, Kimberley, Western Australia
	2.50pm	<u>Jane Fyfe</u>	My Place - Your Place? Porous Rock Art Borders in the Southern Kimberley
	3.10pm	<u>Tim Maloney</u>	47,000 Years of Lithic Technology in the Southern Kimberley

Parallel Session #4**Challenges and Opportunities in Cultural Heritage Management in the Indo-Pacific Tropics****(Convenor: Luke Godwin)**

Room	Time	Author/s	Title
Tully 2/3	1.30pm	<u>Scott L'Oste-Brown</u> , <u>Luke Godwin</u>	Managing Cultural Values: Whose Responsibility?
	1.50pm	<u>Luke Godwin</u>	Issues in the Use of Offsets as a Means to Manage Impacts on Indigenous Cultural Heritage
	2.10pm	<u>Pamela McGrath</u>	Mining Knowledge: Bringing Heritage Information Home
	2.30pm	<u>Eloise Hoffman</u> , <u>Scott Goodson</u> , <u>Justin Shiner</u>	The Development and Implementation of the South of the Embley Communities, Heritage, and Environment Management Plan by the Wik-Waya People and Rio Tinto Alcan
	2.50pm	<u>Mick McKenzie</u> , <u>Alice Gorman</u>	Aboriginal Perspectives on the Message in the Theory: An Interview with Mick McKenzie
	3.10pm	Discussion Chaired by Luke Godwin	

Parallel Session #5**Naïve Island Landscapes: People and Change in the Wellesley Archipelago, Southern Gulf of Carpentaria****(Convenors: Sean Ulm, Lynley Wallis, Patrick Moss and Craig Sloss)**

Room	Time	Author/s	Title
Bluewater 1	1.30pm	<u>Roger Kelly</u> , <u>Christopher Loogatha</u>	Kaiadilt Country, Kaiadilt People: Reflections on Kaiadilt History and Futures
	1.50pm	<u>Erich Round</u>	The Tangkic World on the Eve of the Kayardilt Offshoot: Linguistic Evidence for a Strikingly Dynamic Mainland
	2.10pm	<u>Paul Memmott</u> , <u>Daniel Rosendahl</u> , <u>Erich Round</u> , <u>Sean Ulm</u>	Exploring Cultural, Linguistic and Environmental Changes amongst the Tangkic People of the Southern Gulf of Carpentaria
	2.30pm	<u>Craig Sloss</u> , <u>Luke Nothdurft</u> , <u>Daniel Rosendahl</u> , <u>Alison Sternes</u> , <u>Shoshannah O'Connor</u> , <u>Lydia McKenzie</u> , <u>Lynda Petherick</u> , <u>Patrick Moss</u> , <u>Sean Ulm</u> , <u>Rachel Nanson</u>	Holocene Sea-Level Change in the Southern Gulf of Carpentaria, Australia
	2.50pm	<u>Alison Sternes</u> , <u>Craig Sloss</u> , <u>Lynda Petherick</u> , <u>Sean Ulm</u>	The Influence of Late Quaternary Sea-Level Change on Coastal Landscape Evolution: The Gulf of Carpentaria, Australia
	3.10pm	<u>Shoshannah O'Connor</u> , <u>Craig Sloss</u> , <u>Luke Nothdurft</u> , <u>Sean Ulm</u>	Utilising Beachrock and Aeolianite Deposits to Determine Sea-Level and Climate Change during the Holocene Highstand in the South Wellesley Islands, Gulf of Carpentaria

Parallel Session #6**North to South: Exploring Zooarchaeological Research within Australasia****(Convenors: Jillian Garvey, Georgia Roberts, Brent Koppel and Kat Szabó)**

Room	Time	Author/s	Title
Bluewater 2	1.30pm	<u>Georgia Roberts</u> , Colin Smith, Richard Cosgrove, Michael Gagan	Seasonal Isotopic Variation in Archaeological Wombat Dental Enamel: Implications for Aboriginal Hunting Patterns in Pleistocene Southwestern Tasmania
	1.50pm	<u>Tony Miscamble</u> , Tiina Manne	A Taphonomic Signature for Quolls in the Archaeological Record
	2.10pm	<u>Carly Monks</u> , Kailah Thorn, Alexander Baynes, Joe Dortch	An Archaeological and Palaeoecological Investigation of Caladenia Cave, Northern Swan Coastal Plain, Western Australia
	2.30pm	<u>Jennifer Hull</u>	What of those Wallabies? The Zooarchaeology of Gebe Island, Moluccas
	2.50pm	<u>Rebecca Jones</u> , Philip J. Piper, Ambra Calo	Early Domestication and Exploitation of Pigs, Dogs and Goats in Bali and Evidence of Trans-Asiatic Exchange
	3.10pm	<u>Gordon Stenhouse</u>	Subsistence Strategies in Pre-Angkorian Communities: Comparing the Zooarchaeological Record of Ban Non Wat and Ban Salao, Northeast Thailand

Parallel Session #7**Forum: Current Issues in Historical Archaeology****(Convenor: Mary Casey)**

Room	Time	
Rosser	1.30pm - 3.30pm	All invited - Please bring your razor sharp wit, your ideas and your debating skills.

AFTERNOON TEA 3.30pm - 4.00pm**8****4.00pm - 6.00pm SESSION 8****Parallel Session #1****Culturing the Rainforest: Cultural Adaption to and Human Impact on Tropical Environments in Island and Mainland Southeast Asia****(Convenors: Chris Hunt and Graeme Barker)**

Room	Time	Author/s	Title
Kuranda	4.00pm	<u>Chris Hunt</u>	Widespread Holocene Forest Management in Southeast Asia: Evidence from Disturbance Floras?
	4.20pm	<u>Sam Player</u>	The Sands of Angkor: A Revised Model for the Development of the Angkorian Water Management Network
	4.40pm	<u>Chris Gosden</u>	How do Rainforests Think?
	5.00pm	Discussion Chaired by Graeme Barker	
	5.20pm		
	5.40pm		

Parallel Session #2**The Ethnography of Human-Environmental Interactions****(Convenors: Carly Monks and Andrew Cooper)**

Room	Time	Author/s	Title
Mossman	4.00pm	<u>Emma Rehn</u> , Sean Ulm, Mark Collard	Environmental Risk and Toolkit Variability in Australian Contexts
	4.20pm	<u>Vivienne Brown</u> , Colin Hamlett, Vicky Winton	The Ethnography and Archaeology of Bulli Bulli Claypan, Midwest Region, Western Australia
	4.40pm	<u>Andrew Cooper</u>	Contemporary Use of Ethnography in a GIS Behavioural Simulation from Northwestern Australia
	5.00pm	<u>Helen Cooke</u> , Billy Ó Foghlú	Lessons from the Present: How Ethnography Illuminates the Past in Weipa, Qld and Kakadu National Park, NT
	5.20pm	<u>Delyna Baxter</u>	Aboriginal Stockmen in Northern Australia's Colonial Economy: A Golden Era, Exploitation or Managed Resistance?
	5.40pm	<u>Dijana Crook</u> , Stuart Bedford, Matthew Spriggs, Matiu Prebble	'Waste Not, Want Not' Mission Era Appropriation of Sacred Stones in Aneityum, Vanuatu: An Ethnographic Approach to the Archaeological Record

Parallel Session #3
What do the 3 As Stand for?
(Convenor: Judy Powell)

Room	Time	Author/s	Title
Tully 1	4.00pm	<u>Steven John Vasilakis</u>	Maritime Research in the Prehistoric Aegean: Australians Working Abroad
	4.20pm	<u>Craig Barker</u>	Hellenistic to Medieval Cyprus: Australian Approaches to the Historical Archaeology of Aphrodite's Island
	4.40pm	<u>Louise Hitchcock,</u> <u>Aren Maeir, Brent Davis</u>	Who are you Calling a Philistine? The University of Melbourne Excavations at Tell Es-Safi/Gath
	5.00pm	<u>Judy Powell</u>	Six Degrees of Separation: Networks and Linkages in the History of Archaeology in Australia
	5.20pm	<u>Nathan Wright,</u> <u>Andrew Fairbairn, Cemre Ustunkaya</u>	Science, Archaeology and the AAA
	5.40pm	<u>Iain Davidson</u>	Anthropology is the Study of all Peoples at all Times and in all Places: Discuss

Parallel Session #4
Sweating it Out in Consulting Archaeology: The AACAI Session
(Convenor: Diana Neuweger)

Room	Time	Author/s	Title
Tully 2/3	4.00pm	<u>Ian Ryan,</u> <u>JJ McDermott</u>	Edict Come, Edict Go: An Overview of Legislative Approaches to the Conservation of Aboriginal Archaeological Heritage Sites in Australia
	4.20pm	<u>Anneliese Carson,</u> <u>Melissa Marshall, Maureen Pigram</u>	Consulting with a Difference: A Community-Driven Heritage Study
	4.40pm	<u>David Collard</u>	Rage Against the Machine: The Pros and Cons of Mechanical Test Excavation
	5.00pm	<u>Lucia Clayton Martinez,</u> <u>Jane Skippington, Annie Carson</u>	Zero Harm? A Consideration of Sexual Harassment in Australian Archaeology
	5.20pm	<u>Cameron Hartnell</u>	Seeing Stars in the Ground at the Old Adelaide Observatory
	5.40pm	<u>Karen Murphy</u>	Travelling through History: The Pacific Highway, New South Wales

Parallel Session #5
Naïve Island Landscapes: People and Change in the Wellesley Archipelago, Southern Gulf of Carpentaria
(Convenors: Sean Ulm, Lynley Wallis, Patrick Moss and Craig Sloss)

Room	Time	Author/s	Title
Bluewater 1	4.00pm	<u>Lydia Mackenzie,</u> <u>Patrick Moss, Craig Sloss, Sean Ulm,</u> <u>Daniel Rosendahl, Lynley Wallis</u>	Late Holocene Swamp Development and Human Occupation across the Wellesley Archipelago, Gulf of Carpentaria, Northern Australia
	4.20pm	<u>Texas Nagel,</u> <u>Daniel Rosendahl, Quan Hua, Sean Ulm</u>	Understanding the Tests of Time: Using Foraminifera to Refine Knowledge of Archaeological Site Formation Processes
	4.40pm	<u>Daniel Rosendahl,</u> <u>Sean Ulm, Helene Tomkins, Lynley Wallis,</u> <u>Paul Memmott</u>	Late Holocene Changes in Shellfishing Behaviours from the Gulf of Carpentaria, Northern Australia
	5.00pm	<u>Helene Tomkins,</u> <u>Sean Ulm</u>	Quantifying Hunter-Gatherer Impacts on Marine Resources: A Zooarchaeological Case Study from the South Wellesley Islands
	5.20pm	<u>Annette Oertle,</u> <u>Matthew Leavesley, Sean Ulm, Geraldine Mate</u>	Characterising the Intensity of Macassan Activities across Northern Australia: A Regional Model of Core and Periphery
	5.40pm	<u>Sean Ulm,</u> <u>Lynley Wallis, Patrick Moss, Craig Sloss,</u> <u>Daniel Rosendahl</u>	Naïve Island Landscapes: Recent Research in the South Wellesley Archipelago, Southern Gulf of Carpentaria

Parallel Session #6
Indigenous Knowledge, Stewardship and Heritage Management
(Convenors: Mick Morrison and Annie Ross)

Room	Time	Author/s	Title
Bluewater 2	4.00pm	<u>Isabel Wheeler</u> , Mick Morrison	Archaeology for Social Change: An Examination of the Relationship between Indigenous Archaeologies and Local Land Management Desires and Aspirations
	4.20pm	<u>Cassandra Schill</u> , Darlene McNaughton	'My Country is Like My Mother...': The Importance of Social Research into Indigenous Ecological Values in Indigenous Heritage Management
	4.40pm	<u>Annie Ross</u>	Stewardship and Human-Prey Interactions: The Challenge of Indigenous Knowledge of Natural Resources Management to Environmentally Deterministic Zooarchaeological Models
	5.00pm	<u>Heidi Pitman</u>	Marovo Lagoon Cultural Heritage: An Ethnobotanical Exploration of Diet Change and Changing Relationships between People and their Land and Seascape, Solomon Islands
	5.20pm	Amy Della-Sale, Isobelle Campbell, Rick Hartman, Steve Hemming	The Murrundi (River Murray) Recovery Program: Sugar Shack Wetland Complex as a Case Study in Indigenous Stewardship
	5.40pm	<u>David Guilfoyle</u> , Brad Rowe, Geoffrey Togo, Sean McNear, Chelsea Churnside	The Murujuga Land and Sea Management Unit: Applying Cultural Systems of Knowledge and Ways of Doing for Effective Landscape Management

Parallel Session #7
Forum: Challenges and Issues in Rock Art
(Convenors: Jo McDonald and Sven Ouzman)

Room	Time	
Rosser	4.00pm - 6.00pm	Moderated Discussion

EVENT: AAA AGM

Time	Room	Event
6.00pm - 7.30pm	Kuranda	AAA AGM (Australian Archaeological Association)

Wednesday 3 December 2014

Time	Room	Event
7.00am - 7.00pm	Ground Floor Lobby	Registration Desk Open

9

8.00am - 10.00am FLAGSHIP SESSION 9

Flagship Session 9: Big Question in Tropical Asia-Pacific Prehistory and Challenges for Archaeological Science
(Convenors: Richard (Bert) Roberts and Richard Fullagar)

Room	Time	Author/s	Title
Grand Ballroom	8.00am	<u>Richard Fullagar</u> , Richard (Bert) Roberts	Big Questions and Grand Challenges Round about Down Under
	8.20am	<u>Tiina Manne</u> , Jillian Garvey, Ken Aplin, Richard Cosgrove	Methodological Challenges in Tropical Zooarchaeology
	8.40am	<u>Mike Morley</u>	Geoarchaeology in Tropical Southeast Asia: Current Status and Future Challenges
	9.00am	<u>Elle Grono</u> , Tim Denham, Emily Dillon	Geoarchaeology in Australasia: From Particle to Landscape
	9.20am	<u>Robin Torrence</u>	Attacking Entrenched Biases: Challenges for Archaeological Science in Melanesia
	9.40am	<u>Richard (Bert) Roberts</u> , Richard Fullagar	An Australian Research Cluster for Archaeological Science: Opportunities and Options

**Parallel Session #1****Big Question in Tropical Asia-Pacific Prehistory and Challenges for Archaeological Science****(Convenors: Richard (Bert) Roberts and Richard Fullagar)**

Room	Time	Author/s	Title
Kuranda	10.30am	<u>Andy Herries</u> , Rhiannon Stammers, Alex Blackwood	Quantitative Identification of Stone Tool Heat Treatment Technology in the Archaeology of Australia
	10.50am	<u>Agathe Lise-Pronovost</u> , Andy Herries, Nicola Stern, Ilya Berilov, Will Anderson, Ben Watson	Archaeomagnetism: A Promising Dating Tool for Australian Archaeological Science
	11.10am	<u>Andrea Yates</u> , Andrew M. Smith, Fiona Bertuch, Birgit Gehlen, Bernhard Gramsch, Martin Heinen, Anja Scheffers, Jeffrey Parr, Alfred Pawlik, Renaud Joannes-Boyau	Radiocarbon-Dating Resinous and Wooden Residues on Stone Tools by Accelerator Mass Spectrometry: Challenges and Insights
	11.30am	<u>Sofia Cristina Samper Carro</u>	All You Can Eat
	11.50am	<u>Xavier Carah</u> , Chris Clarkson, Ben Marwick, Richard Fullagar, Lynley Wallis	Australian Anthracology - A New Challenge Explored: Investigating Change in the Local Environment and Resource Procurement Strategies at Madjedbebe (Malakunanja II)
	12.10pm	<u>Emilie Dotte-Sarout</u>	Ancient Gardens of the Pacific: How can Anthracology Help Investigate the Question of Arboriculture and Human Impact on Tropical Islands Vegetation?

Parallel Session #2**Archaeology of the Asian Diaspora****(Convenors: Gordon Grimwade and CHINA Inc.)**

Room	Time	Author/s	Title
Mossman	10.30am	<u>Gordon Grimwade</u>	Scratching the Surface in North Australia
	10.50am	<u>Melissa Dunk</u>	Overseas Chinese Archaeology in Australasia
	11.10am	<u>Paul Macgregor</u>	Chinese Temples of Colonial Victoria
	11.30am	<u>Diann Talbot</u>	Rediscovering the Chinese Settlements in the Upper Ovens
	11.50am	<u>Kevin Rains</u>	Examining the Overseas Chinese Landscape of Historic Cooktown
	12.10pm	<u>Sandi Robb</u>	Chinaman's Wall or Chinese Whispers? The Overshot Dam of Western Queensland

Parallel Session #3**Archaeology, History and Cultural Heritage of the Great Barrier Reef Province****(Convenors: Mike Rowland and Sean Ulm)**

Room	Time	Author/s	Title
Tully 1	10.30am	<u>Ian McNiven</u> , Matt Felgate, Jim Specht, Carol Lentfer, Bill Dickinson, Ulrike Proske, Simon Haberle, Jim Feathers, Claire Harris, Samantha Aird, Alison Fitzpatrick, Sean Ulm	Enigmatic Potsherds: A Summary of Field Investigations at Mangrove Beach, Lizard Island, 2006-2013
	10.50am	<u>Samantha Aird</u> , Sean Ulm, Ian McNiven	Aboriginal Occupation and Shellfish Predation Patterns during the Mid-to-Late Holocene at Lizard Island, Northeastern Australia
	11.10am	<u>Alison Fitzpatrick</u> , Sean Ulm, Ian McNiven	Stone Arrangements in the Lizard Island Group: A Study of Indigenous Seascapes in Northeastern Australia
	11.30am	<u>Bryce Barker</u>	The Whitsunday Islands and Archaeological Change: A Re-Evaluation and Future Directions
	11.50am	<u>Mike Rowland</u>	Dead, Buried and Almost Forgotten: Lonely Unmarked Graves in the Great Barrier Reef Province
	12.10pm	<u>Duncan Wright</u> , Sean Ulm, Paul Taçon, Cygnet Repu, Dimple Bani, Gabriel Bani	Archaeology of a Ceremonial Men's Meeting Area ('kod') on Mabuyag, Torres Strait

Parallel Session #4
The Environmental Context for Human Settlement and Occupation of Australia
(Convenor: Patrick Moss)

Room	Time	Author/s	Title
Tully 2/3	10.30am	<u>Peter McIntosh</u> , Patrick Moss, Emma Watson, Robert Onfray	Aboriginal Vegetation Management in Northwest Tasmania: When Did It Begin?
	10.50am	<u>Emma Watson</u> , Patrick Moss, Peter McIntosh, Robert Onfray	Holocene Environmental Change for the Surrey Hills Region, Northern Tasmania
	11.10am	<u>Alana Rossi</u>	Unconventional Proxies: Using Archaeological Measures of Occupation Intensity to Infer Holocene Climatic Variability in Inland Southwestern Australia
	11.30am	<u>Emily Dillon</u> , Tim Denham, Nicola Stern	Reconstructing the Localised Archaeostratigraphy of Location 969660 on the Lake Mungo Lunette
	11.50am	<u>Wendy Beck</u> , Robert Haworth	Holocene Environmental Change and Occupation in Northern New South Wales Tablelands
	12.10pm	<u>Katarina Sporic</u>	Investigation of Hearths with Stone Heat Retainers in Arid Northern South Australia

Parallel Session #5
Building a Digital Ecosystem: Notes from the Field
(Convenors: Shawn Ross, Penny Crook and Adela Sobotkova)

Room	Time	Author/s	Title
Bluewater 1	10.30am	<u>Shawn Ross</u> , Adela Sobotkova, Brian Ballsun-Stanton, Penny Crook	Going Digital: What Does It Take? Lessons from FAIMS Field Deployments
	10.50am	<u>Parker VanValkenburgh</u> , Penny Crook, Adela Sobotkova	Putting FAIMS to Use on Peru's North Coast
	11.10am	<u>Andrew Fairbairn</u>	The Boncuklu FAIMS Mobile Application in the Field: Implementation, Testing and Feedback
	11.30am	<u>Diana Cowie</u>	FAIMS: A Report on a New User's Field Experience
	11.50am	<u>Emma James</u> , Jessica Thompson, Rykene Sander-Ward, Jacob Davis	Digital Field Recording at Integrated Landscape and Site Scales: FAIMS in Action in Central Africa
	12.10pm	<u>Georgia Burnett</u> , Shawn Ross, Penny Crook	The Bleichert Ropeway (Katoomba): Digital Recording for Industrial Archaeology

LUNCH

12.30pm - 1.30pm

Time	Room	Event
12.30pm - 1.30pm	Boardroom 1	AIAA Meeting (Australian Indigenous Archaeologists Association)
	Boardroom 2	ANCATL Meeting (Australian National Committee for Archaeology Teaching and Learning)
	Kingsford Lounge	Career Advice Workshops * Bioarchaeology and Physical Anthropology * Geophysics * Historical Archaeological Artefact Analysis * Public Speaking and Presentations

**Parallel Session #1****Big Questions in Tropical Asia-Pacific Prehistory and Challenges for Archaeological Science
(Convenors: Richard (Bert) Roberts and Richard Fullagar)**

Room	Time	Author/s	Title
Kuranda	1.30pm	<u>Marc Oxenham</u> , Hallie Buckley	Disease, Diet, Mobility and Evolution in Southeast Asia: Through the Lens of Archaeological Science
	1.50pm	<u>Shimona Kealy</u>	Using Geological Data, Maps, and GIS Technology to Predict New Archaeological and Fossil Sites: An Example from the Wallacean Islands of Southeastern Indonesia
	2.10pm	<u>Jessie Birkett-Rees</u> , Jillian Garvey, Pat Fall, Jacqueline Turney, Darren Perry	Modelling the Past: The Application of Geospatial Analyses to the Late Quaternary Landscapes of the Central Murray River Valley
	2.30pm	<u>Kane Ditchfield</u>	Combining Analytical Techniques to Investigate Interaction, Stone Transport and Manufacture in the Southern Cook Islands
	2.50pm	<u>Jillian Huntley</u> , Mark Moore, June Ross, Michael Morwood	Big Questions about Small Pigments: Geochemical Indices of Pleistocene Ochre Use in Sahul, a Northwest Kimberley Case Study
	3.10pm	<u>Kira Westaway</u> , June Ross, Michael Morwood, Mark Moore	Establishing a Connection between the Evidence for Occupation and Modern Human Behaviour in Australia: OSL Dating of Kimberley Occupation and Rock Art

Parallel Session #2**Landscapes of Change: Rethinking the Role of Documents in Landscape Interpretation
(Convenors: Bec Parkes and Travis Gottschutzke)**

Room	Time	Author/s	Title
Mossman	1.30pm	<u>Mary Casey</u>	Colonial Landscapes at Sydney Cove: A Methodology for Using Early Paintings and Maps to Interpret the Beginnings of British Settlement
	1.50pm	<u>Asher Ford</u> , James Shephard, Ilya Berelov	The Old and New: The Cultural Landscape Surrounding Melbourne Airport, Victoria
	2.10pm	<u>Nicholas Pitt</u>	Putting Rose Hill on the Map
	2.30pm	<u>Jeannette Hope</u> , Travis Gottschutzke	Mapping the Murray: Reconstructing Archaeological Landscapes
	2.50pm	<u>Amanda Atkinson</u> , Rebecca Shepherd, Clare Anderson	Mining the Red Terror: 3000 Years of Resource Extraction at Mineral Hill
	3.10pm	<u>Jodi Turnbull</u> , Susan Lawrence, Peter Davies	Mapping Nineteenth Century Goldfields

Parallel Session #3**Towards Full Community Engagement Partnerships: Communications and Understandings
(Convenor: Catherine Clarke)**

Room	Time	Author/s	Title
Tully 1	1.30pm	<u>Robert Haworth</u> , Wendy Beck	Identity Politics: Does it Help or Hinder Community Engagement?
	1.50pm	<u>Anne McConnell</u>	'One Size Does Not Fit All': The Art of Tailoring Community Engagement for a Good Fit
	2.10pm	<u>Jamie Thomas</u>	Ancestral Remains: Return to Country: Sharing Responsibilities
	2.30pm	<u>Susan Arthure</u> , Cherrie De Leiuen	Historical Archaeology in Kapunda: Giving Voices to Past and Present Communities
	2.50pm	<u>John Duggan</u>	Cylcons: A Fresh Approach
	3.10pm	<u>Ross Stanger</u>	Legacy, Sustainability and Engagement: Community Heritage Projects in Northwestern Australia

Parallel Session #4**The Environmental Context for Human Settlement and Occupation of Australia****(Convenor: Patrick Moss)**

Room	Time	Author/s	Title
Tully 2/3	1.30pm	<u>Gilbert Price</u>	Investigating Human-Megafaunal Interactions in Late Quaternary Tropical Australia
	1.50pm	<u>Michael Slack</u> , Annabelle Davis, Trent Hamersley	Post-Glacial Settlement of the Central Hamersley Ranges: West Angelas
	2.10pm	<u>Amanda Greaves</u>	Nerang Revisited: Palaeoenvironmental Reconstruction of an Ancient Aboriginal Landscape Using Multidisciplinary Methodologies
	2.30pm	<u>Lynda Petherick</u> , Patrick Moss, Felicity Shapland, Craig Sloss	The Fraser Island Patterned Fens: Development and Persistence over the Past >35 kyr
	2.50pm	<u>Isabelle Balzer</u>	Contextualising the Human Journey: Expanding the Role of Species Distribution Models in Palaeoenvironmental Research
	3.10pm	<u>Patrick Moss</u> , John Tibby, Cameron Barr, Lynda Petherick, Craig Sloss, Allen Gontz, Dilva Terzano, Felicity Shapland	Where are the People? The Environmental Context for Human Occupation of the Subtropics of Eastern Australia

Parallel Session #5**Building a Digital Ecosystem: Notes from the Field****(Convenors: Shawn Ross, Penny Crook and Adela Sobotkova)**

Room	Time	Author/s	Title
Bluewater 1	1.30pm	<u>Penny Crook</u> , Shawn Ross, Adela Sobotkova, Brian Ballsun-Stanton	Translating the Workflows of Field Archaeology: The Customisation of the FAIMS Excavation Recording Module
	1.50pm	<u>Ian Johnson</u>	Ditch the Spreadsheet: We are not Accountants!
	2.10pm	<u>Adela Sobotkova</u> , Penny Crook, Brian Ballsun-Stanton, Shawn Ross	GitHub for Archaeology: FAIMS and Beyond
	2.30pm	<u>Dianna Hardy</u>	So, who does it belong to: Issues with the Online Publishing of Sensitive Archaeological Data
	2.50pm	<u>Adela Sobotkova</u> , Penny Crook, Shawn Ross	FAIMS Mini-Workshop I: FAIMS 2.0 Mobile Application Basics
	3.10pm	<u>Adela Sobotkova</u> , Penny Crook, Shawn Ross	FAIMS Mini-Workshop II: New Features in FAIMS 2.0

AFTERNOON TEA 3.30pm - 4.00pm**12****4.00pm - 6.00pm SESSION 12****Poster & Photo Session**

Room	Time	Event
Level 1 Gallery	4.00pm - 6.00pm	Poster & Photo Session

EVENTS: CONFERENCE DINNER & AWARDS and AFTER PARTY with DJ

Room	Time	Event
Grand Ballroom	7.00pm - 11.00pm	Conference Dinner & Awards

Room	Time	Event
Grand Ballroom	11.00pm - 2.00am	After Party with DJ

ABSTRACTS



= Oral



= Poster



= Student Oral



= Student Poster

A



Aboriginal Occupation and Shellfish Predation Patterns during the Mid-to-Late Holocene at Lizard Island, Northeastern Australia

Samantha Aird, *James Cook University*
Sean Ulm, *James Cook University*
Ian McNiven, *Monash University*

Limited archaeological research has been conducted on Great Barrier Reef (GBR) islands situated north of Cairns and south of Torres Strait. Dingaal oral histories and ethnohistoric evidence suggest that Lizard Island, located in the GBR province, was a destination for Aboriginal 'gatherings and ceremonies' in the past; however, it is unclear whether Lizard Island was only occupied during periodic visits (e.g. during times of ceremony) or if Lizard Island was permanently settled. This paper reports new radiocarbon chronologies for Aboriginal occupation of Lizard Island spanning 562–4036 cal BP and determines human predation patterns on *Conomurex (Strombus) luhuanus* and *Trochus tectus niloticus* from Site 3 Mangrove Beach Headland Midden and Site 17 Freshwater Bay Midden. Site chronologies and predation data from the Lizard Island midden assemblages are used to assess the nature of island occupation. This study provides new insights into localised occupation and impacts on marine resources from Lizard Island during the late Holocene in the context of occupational trends and island colonisation in the northern Queensland–trans-Torres Strait region.



Fuel Selection Strategies at Two Early East Otago Archaeological Sites

Francesca Allen, *University of Otago*

Shag River Mouth represents a significant site on the east coast of southern New Zealand. It has been suggested as an example for the 'transient village' model of occupation and has been subject to significant research and excavation. I further add to that research through an anthracological analysis of charcoal recovered from the pre-European occupation site in order to investigate fuel selection strategies. Analysis of the woody species utilised as fuel in both primary and secondary contexts is undertaken to identify if fuel selection strategies were in place, and the form that they took. This research is applied to previous anthracological investigation undertaken at Purakaunui to determine if a wider pattern of fuel selection was taking place in coastal Otago.



The Talgai Skull

Jim Allen, *La Trobe University*

This paper recognises that it is exactly 100 years since the Talgai skull was presented to the scientific community, at a British Association for the Advancement of Science (BAAS) meeting in Sydney. This was, however 28 years after its discovery in the Darling Downs and more than 50 years before its Pleistocene age could be satisfactorily established. While claims for great antiquity for humans and their artefacts in Australia had surfaced intermittently from about 1850 onwards, Talgai was arguably the first verifiable Pleistocene evidence of human presence in Australia (although not the first verified). This paper briefly traces the history of Talgai both before and after the BAAS meeting. As an iconic fossil once thought to carry the 'mark of ancient Java', Talgai's history links it with many more modern themes of Australian prehistory, including morphological arguments about the Australian human fossils, the association of humans and megafauna, the behavioural implications of the necessary water crossing into Australia, ethnographic hunter-gatherers as models for prehistoric hunter-gatherers, and, of course, the antiquity of humans in Australia. Its history may also give new meaning to the term skulduggery.



Revising Sue Bulmer's Six Style Port Moresby Pottery Sequence

Jim Allen, *La Trobe University*

In her 1978 PhD thesis, Sue Bulmer delineated a sequence of six pottery styles for the last 2000 years of Port Moresby prehistory. These were based on surface collections and Sue's excavations of the Eriama rockshelter, the hilltop village site of Nebira 2 and the Bootless Bay beach settlement of Taurama. This aspect of her thesis became the standard reference point for Port Moresby pottery for all Papuan researchers over the last 36 years, despite the fact that in subsequent publications the sequence was modified from time-to-time. In this paper I briefly consider the way Sue was forced to construct this sequence by the available data. A more recent analysis of another pottery sequence from the Bootless Bay site of Motupore now allows a revision of the latter part of the Bulmer sequence (Styles III, IV, V and VI). One spin-off of this adjustment is the manner in which we can now relate Bootless Bay to the development (and perhaps the beginning) of the hiri annual trading expedition. Motupore data support suggestions from Papuan Gulf sites that Bootless Bay trade pottery was reaching Gulf villages by the fifteenth century AD.



New Insights into the Ecology and Palaeoecology of Pigs in New Guinea, and Precision Dating of their Time of Arrival from Sites at Caution Bay

Ken Aplin, *Australian National University*
 Bruno David, *Monash University*
 Ian McNiven, *Monash University*
 Thomas Richards, *Monash University*
 Matthew Leavesley, *James Cook University*
 Fiona Petchey, *Waikato Radiocarbon Laboratory*

The timing and context of introduction of pigs to Melanesia, including the main island of New Guinea, remains controversial. We introduce two new datasets relevant to this issue. The first concerns the ecology of feral pigs in New Guinea, especially their abundance across elevational and disturbance transects – this derives from intensive camera trapping surveys undertaken at multiple sites since 2009; the second concerns the time of arrival of pigs and dogs in a new regional archaeological record – namely, the c.5000 year record of human habitation at Caution Bay. Our argument contains three key elements: (1) that pigs would become feral soon after any introduction to the island; (2) that they would disperse rapidly throughout their preferred habitats in lowland New Guinea (probably within decades); and (3) that given large enough archaeological faunal samples, pigs will register as hunted feral animals irrespective of whether people were practicing local pig husbandry. Under these assumptions, and using a combination of carefully selected sequences and direct dating, the Caution Bay sequence should allow the time of arrival of pigs to be defined to within a few centuries.



Did *Homo Floresiensis* have Down Syndrome?

Debbie Argue, *Australian National University*

Three hypotheses have been proposed for the phylogenetic position of *Homo floresiensis*. This species comprises a series of hominin bones discovered during excavations in Liang Bua cave, on the island of Flores, Indonesia. The remains are dated from c.18,000 years ago to 94,000 years ago and represent a population of very small hominins, a little over 1m tall, with short legs in relation to arms, large feet, and archaic shoulder and wrist configurations. *H. floresiensis* was originally hypothesised to be the outcome of dwarfing of *H. erectus* in response to the 'Island Rule' (Brown *et al.* 2004). Although this was rescinded following analysis of further skeletal material (Morwood *et al.* 2005), it remains an extant hypothesis supported by a number of researchers (e.g. Kaifu *et al.* 2011). Within days of Brown *et al.*'s 2004 publication that named *H. floresiensis*, another interpretation was promulgated – that the

skeletal material represented a modern human with a genetic disorder, Microcephaly (Henneberg and Thorne 2004). This hypothesis did not survive testing, and within a few years two other disorders, Laron Syndrome and Cretinism, were proposed, neither of which survived testing. In August this year, Down Syndrome in a small-bodied Austromelanesian population was hypothesised as an explanation for the partial skeleton, LB1 (Henneberg *et al.* 2014). I test this hypothesis by comparing the diagnostic skeletal traits of Down syndrome and observe if these are present on LB1 and I examine if Down Syndrome bones display the archaic characters that are evident on LB1 and the other bones that comprises *H. floresiensis*. I conclude that LB1 represents a separate species and does not represent a modern human with Down Syndrome.



Historical Archaeology in Kapunda: Giving Voices to Past and Present Communities

Susan Arthure, *Flinders University*
 Cherrie De Leiuon, *Flinders University*

Kapunda has the distinction of being Australia's oldest mining town. Located 75km north of Adelaide, its heritage places and stories are entrenched with narratives of Cornish miners and wealthy landowners. Kapunda's local historians are the accepted 'guardians' of knowledge within the community, but two archaeological research projects by outsiders have revealed other versions of the past that had been erased, unconsciously or intentionally, over time. This presentation explores the notion of contested grounds of theory, power and voice in community archaeology. Here, the communities are not a passive 'general public' or audience to the archaeology, but actively engage in the process of investigation. Results have included returning and legitimising a forgotten history to people, reconnecting people to their shared stories with tangible archaeological evidence. While our research projects each have distinctive, separate aims and outcomes, they are underpinned by our conviction that collaborative practice is critical in our professional work and community engagement. These research projects deliberately move beyond the scope of archaeologist as contributor of specialised information about 'the community's past', and instead look to maintaining community relationships that are mutually beneficial and meaningful.



The Occupation of Baker's Flat: A Study of Irishness and Power in a South Australian Community

Susan Arthure, *Flinders University*

This research, undertaken for a Master of Archaeology thesis at Flinders University, focuses on 'Irishness' and how it may be marked in the material evidence of a forgotten community. The study area is a nineteenth century emigrant Irish community based at Baker's Flat, Kapunda, in the mid-north of South Australia. From the 1850s to the early twentieth century, it operated as a self-contained settlement that was recognisably Irish and working class. The research focuses on how this Irish community expressed identity through material culture, and what this tells us about power relations between Baker's Flat and the broader community. An existing collection of 1100 metal artefacts, as well as archaeological data resulting from a site survey in February 2013, are being analysed to determine the relationships of power, class, and 'Irishness'. In the context of this research, symbols are seen as cultural signifiers, and as a way of expressing affiliation with 'Irishness' or class. The survey results and artefacts are being studied for evidence of overt or subtle symbolism. Examining the material remains associated with the entire community aims to assist in understanding the broad connections and networks operating at a community level, and those that operated between this community and other communities.



Exploring 10,000 Years of Zooarchaeological Records from Queensland

Brit Asmussen, *Queensland Museum*

Archaeological research on Australian stone tools suggests that c.4000–1000 years ago people responded to less predictable and more hostile climate by making specific artefacts designed to reduce increased foraging risks, including subsistence failure. Recent research examining this issue directly via key subsistence resources – plant remains – strongly suggests conditions were difficult enough to prompt the widespread use of toxic *Macrozamia* plant seeds in eastern Australia. This AIATSIS- and AINSE-supported research further examines this hypothesis via multiple Holocene-age faunal records from Queensland, exploring direct evidence for changes in hunting strategies and increased foraging risk via archaeological faunal sequences and developing high-resolution site chronologies to identify any correlations between faunal, artefactual and climatic sequences.



Mining the Red Terror: 3000 Years of Resource Extraction at Mineral Hill

Amanda Atkinson, *Niche Environment and Heritage*
Rebecca Shepherd, *Condobolin Local Aboriginal
Land Council / Wiradjuri Arts and Heritage Group*
Clare Anderson, *Niche Environment and Heritage*

Known in the early twentieth century as the Red Terror Mine, Mineral Hill mine is located near Condobolin in the Lachlan LGA of New South Wales and has been the location of ongoing resource extraction throughout the twentieth century. Resource extraction is well-documented at Mineral Hill from as early as 1912 when the mining lease was taken up by the Mineral Hill Mining Company. Early ethnographic documents and accounts also reveal ongoing Indigenous occupation of the area and Aboriginal heritage sites show a vast range of cultural activities were taking place in the Mining Lease area. Niche Environment and Heritage, in consultation with the Condobolin Local Aboriginal Land Council, were commissioned in 2013 to undertake a surface and subsurface salvage of the proposed Pearse extraction area located within the Mineral Hill lease area. The salvage programme recovered a total of 2595 stone artefacts, which underwent lithic analysis and revealed the likelihood of local quarrying activity. Further survey has revealed likely sources of raw lithic materials at Mineral Hill. Radiocarbon dating of the excavated material indicates Indigenous activity for at least 3,000 years. Through review and interpretation of the historic mining records, ethnographic accounts and analysis of the 2013 salvage programme we aim discuss 3000 years of Indigenous and non-Indigenous quarrying and resource extraction at Mineral Hill and aim to examine the results in relation to the larger cultural landscape.



eResearch and Archaeological Datasets: A Semantic Web Approach

Ian Atkinson, *James Cook University*
Dianna Hardy, *James Cook University*

Every archaeological investigation generates ever-increasing amounts of research data. Frequently these data are structured in a way that suits the current project, with little view towards its place in the greater archaeological record. This situation is indicative of the way that research is conducted, i.e. that many individual projects lead toward a bricolage that composes our knowledge about the world and its history. Due to inconsistencies in structure between archaeological datasets, drawing conclusions across many records is difficult. In 2008, we reported on our research which attempted to use semantic web technologies to bridge

these inconsistencies in structure to provide a unified record across multiple maritime archaeological datasets. We found that although interesting connections can be drawn between datasets, the merging of these data required a substantial requirement for data consistency and structure that has, as yet, not been agreed upon (standards etc). Currently, access to archaeological data is undertaken on a piecemeal basis. Larger entities such as the Archaeological Data Service (ADS) in the UK and the Federated Archaeological Information Management Systems (FAIMS) here in Australia allow researchers to deposit data in large databases which require data to be formatted in a specific structure. This generally takes two forms: (a) make all data structurally the same or (b) provide substantial metadata that endeavours to make data discoverable across database systems. In this paper, we highlight research conducted at JCU that attempts to bridge these two scenarios. We discuss a repository created by the JCU eResearch Centre called the Tropical Data Hub which allows the deposit of archaeological datasets. We also discuss how the original recording of information in the field (using the Ban Non Wat site in Thailand with Nigel Chang's research as an exemplar) has an impact on its later usability, discoverability and suitability for deposit in such repositories.



Ice Age Art in the Tropics

Maxime Aubert, *Griffith University*

Cave art from the Indonesian island of Sulawesi, consisting of human hand stencils and animal paintings, is Pleistocene in age, challenging current views about the origin of art and human modernity.

B



Archaeology in the Australian National Curriculum: A View from the Trenches

Kelsey Baker, *La Trobe University*

As part of the Victorian Certificate of Education and the Australian National Curriculum, students are required to apply their accumulated knowledge to unforeseen questions in final exams. In the humanities department, this knowledge is generally based around the ability to analyse data and primary sources. The analysis of visual and/or written documents is also used for class-based assessments across all of the history disciplines. Despite the importance of primary source analysis to a student's final score, it is clear that many students

do not know how to effectively analyse a document in order to use it as evidence in a discussion. The ability to analyse and interpret artefacts for discussion evidence, however, is something that the archaeological profession can support students with. As a qualified secondary teacher and an archaeologist, classes have been conducted using archaeological techniques and materials in order to combat this downward spiral of student understanding. Using classes in an all-girls Victorian secondary school as examples, the very high rate of success using archaeology to engage students in a range of historical periods and topical issues will be discussed. These include Ancient Rome and the spread of the Roman Empire, migration and the Middle East, Ancient Australian cultures, and Australia's engagement in World War I and II. Experience shows that as students begin to engage with cultural material, they not only develop higher-order thinking skills which will allow them to create more complex ideas, but they also appreciate and develop the skills of interpretation, research and analysis. Further to this, students expand their knowledge and acceptance of both foreign and indigenous cultures through a better understanding of material culture throughout the world.



Occupation on the Edge of the Desert: Riwi Cave in the Southern Kimberley

Jane Balme, *University of Western Australia*
Sue O'Connor, *Australian National University*
Tiina Manne, *University of Queensland*
Tim Maloney, *Australian National University*
Dorcas Vannieuwenhuysse, *University of Western Australia*
Rachel Wood, *Australian National University*

Riwi is a limestone cave in the southern Kimberley with evidence of over 45,000 years of occupation. Its location on the 'edge of the desert' has made human subsistence vulnerable to environmental changes that accompanied the Last Glacial Maximum. Stone, wood and fibre artefacts and evidence of subsistence, in the form of faunal remains, from the site map fluctuating occupation over its long history. The presence of shell beads demonstrates the importance of long-distance networks for thousands of years.



Contextualising the Human Journey: Expanding the Role of Species Distribution Models in Palaeoenvironmental Research

Isabelle Balzer, University of New England

The monsoon tropics pose considerable challenges for palaeoenvironmental research. Traditional qualitative approaches to regional and continental based palaeoenvironmental reconstructions rely heavily on a small number of sites, geographically separated by vast distances or significant geographic barriers and across areas that may also be ecologically distinct and unrelated. Ecologically-based Species Distribution Models (or SDMs) offer a way to quantitatively resolve this problem by mathematically pairing present-day geographic locations of a species with their present-day environmental requirements to ascertain biogeographic relationships. The subsequent model can then be applied to environmental information from the deep past to generate scenarios for the past geographic range and likely distribution of selected species. By allowing projections into the past, SDMs provide an effective approach for reconstructing across regions considered to be fundamentally data poor. In a bid to generate stronger, and more geographically-explicit, biogeographic contexts, this presentation reports upon research that is extending and further developing methodological elements of the existing SDM framework to advance the application of SDM techniques in palaeoenvironmental contexts. In particular, this research considers the potential for an extended SDM framework to inform regional biogeography and archaeological research, using endemic north Australian species common to the Kimberley region.



The Whitsunday Islands and Archaeological Change: A Re-Evaluation and Future Directions

Bryce Barker, University of Southern Queensland

It has been two decades since major archaeological research was carried out on the Whitsunday Islands in the form of 2 PhD theses. Since that time models of change first proposed in Barker's (2004) baseline PhD study have been variously critiqued (Lamb 2011; Hiscock 2005; Sim and Wallis 2008; Ulm 2006) and a range of more recent research both archaeological and environmental has emerged that demands a re-evaluation of the archaeology of the Whitsunday Islands. This paper examines the original models for change as proposed by Barker (2004) in the light of this and presents a refined model of the Holocene occupation and use of the islands based on this evidence, including

impacts of the El Niño-Southern Oscillation (ENSO) effect, Holocene sea level fluctuations, timing of mangrove establishment and the human response to these. As with the original research, it is recognised that the large offshore islands of the Whitsunday's provide an ideal research environment to answer questions about coastal and island occupation and use throughout the Holocene on the northern coast (see also Rowland 1985). Thus a new multidisciplinary research project in the Whitsundays is planned for the future to provide a more sophisticated and holistic interpretation of Holocene change for the region.



Hellenistic to Medieval Cyprus: Australian Approaches to the Historical Archaeology of Aphrodite's Island

Craig Barker, Sydney University Museums

Australian universities have had a long tradition dating back to the 1950s of excavating and interpreting Bronze Age Cyprus, but the later periods of the Mediterranean island's history were generally ignored by Australian scholarship until relatively recently. The University of Sydney's excavations at Nea Paphos began in 1995, and continue today. The excavations were conceived as a training excavation for Sydney University students, and as an examination of the architectural remains of the ancient theatre of the town used for over six centuries (c.300BC–c.365 AD). The project has evolved to also question Hellenistic and Roman urbanisation in the eastern Mediterranean, trade networks, and the development of ceramic traditions during the Crusades. This paper reviews the project's aims and achievements, and broader Australian scholarly interest in Late Antique Cyprus. Can (and should) Australian archaeology continue to make an impact on Cypriot archaeology in the twenty-first century?



How can Archaeology Contribute to Understanding Human-Rainforest Interactions in Island Southeast Asia? Some Borneo Examples

*Graeme Barker, University of Cambridge
Lindsay Lloyd-Smith, Sogang University*

Palaeoecological studies have proved extremely effective in recent years in documenting vegetation histories in Island Southeast Asia, and using these on the one hand to model climate change through the late Pleistocene and Holocene, and on the other to detect human impacts in the form of clearance and burning impacts on vegetation succession. The archaeological record of caves and open sites of course demonstrates that the people who

caused the vegetation disturbances lived in the forest, and frequently buried their dead there, but can it amplify our understanding of human-rainforest interactions? The paper takes examples of studies of artefactual and bioarchaeological materials from two recent archaeological investigations in Sarawak in northern Borneo, in the coastal Niah Caves and in the interior Kelabit Highlands, to discuss how, even if formal archaeological datasets cannot contribute much to questions of the nature and scale of forest disturbance, they can give us important insights into the changing social contexts of those activities, and of how differently rainforest communities at different times in the past imagined the forest and their relationships to it.



Bone Points at Madjedbebe, Arnhem Land

Adriana Basiaco, *University of Queensland*

Tiina Manne, *University of Queensland*

Chris Clarkson, *University of Queensland*

Madjedbebe (formerly known as Malakunanja II), is one of several rockshelter sites situated in Arnhem Land, northern Territory, dating to the late Pleistocene and Holocene. During the Holocene, the region underwent significant environmental changes, which have been termed as three distinctive phases: Big Swamp, Transitional and Freshwater (Brockwell and Akerman 2007; Schrire 1982). Holocene changes in human settlement patterns and economic and social organisation are argued to have been driven by environmental factors (Brockwell et al. 2011), with previous research suggesting that the distribution and typology of bone tools at several Arnhem Land sites are associated with these environmental trends (Brockwell and Akerman 2007). Excavation (1972, 1989 and 2012) and analysis of Madjedbebe has uncovered a range of terrestrial, estuarine and aquatic faunal remains and numerous bone artefacts consisting of points, spatulae and awls. This study focuses on the typology, manufacturing technique (including materials used), and distribution in space and time of bone artefacts from Madjedbebe's latest excavation season (2012). The material dates between 3000 and 7000 years ago and thus chronologically is associated with all three of the major environmental phases. An analysis is conducted with reference to bone artefacts previously found from Madjedbebe, other bone artefacts and faunal remains uncovered from several nearby Arnhem Land sites, and the region's past environment. A greater understanding of bone artefacts from Madjedbebe, in conjunction with palaeoenvironmental reconstructions and zooarchaeological research, reveals new information on the relationship between osseous technology and environmental change. This is one of the first systematic studies into bone tool manufacture and use through time in Arnhem Land, and contributes to an understudied

subject in the archaeology of the north and Australia as a whole by exploring the dynamic role which these perishable materials occupied within Indigenous toolkits.



Aboriginal Stockmen in Northern Australia's Colonial Economy: A Golden Era, Exploitation or Managed Resistance?

Delyna Baxter, *Australian National University / Charles Darwin University*

This paper examines the effects of colonialism on the pastoral industry frontier, which has been extensively documented by many scholars. However, there is an underwhelming lack of research into the Aboriginal perspective of the experience. The recorded Aboriginal history of life on stations has generally been inadequate and largely relates to the culture of contact and conflict, which existed throughout the initial stages of European settlement. In an attempt to redress this situation I plan to undertake a review of the history of Aboriginal people in the pastoral industry, placing a strong emphasis on the Aboriginal perspective. A major element of this will be the analysis of the literature and oral histories collected as part of the Indigenous Heritage Project: 'The lives and contribution of Aboriginal people to the Australian pastoral industry' at the Australian Stockman's Hall Of Fame, Longreach Queensland. This study will look at the cultural, economic, historical, psychological and political contextual factors of this period and will examine three questions: whether or not this was a 'golden era'; were Aboriginal people 'exploited' – or was this a unique time in history, created through the process of acculturation and colonisation.



Holocene Environmental Change and Occupation in Northern New South Wales Tablelands

Wendy Beck, *University of New England*

Robert Haworth, *University of New England*

Palaeoenvironmental reconstruction of the New England Tablelands indicates that conditions were warmer and wetter in the early Holocene, yet there is little sign of permanent human occupation until after 5000 BP, when the climate deteriorated with the onset of ENSO climatic cycles. Recent work has developed an inventory of material resources and ceremonial networks and compared it to changes in lake-lunette systems in the high country throughout the Holocene, to try to tease out the relative importance of environmental and cultural factors in supporting sustainable human occupation in difficult country. That occupation appeared to intensify as climatic conditions worsened (colder and dryer)

suggests that push-pull factors may have come from the surrounding areas, where conditions may have been even worse – the subtropical coastal region where the best land had been inundated by rising early Holocene sea-levels, and the western slopes and plains where the onset of regular El Niño droughts may have increased the relative attractiveness of the Tablelands. The frequency of ceremonial sites on the Tablelands from the mid-Holocene, and exchanges which stretched as far as the Bunya Mountains, 300km to the north, suggest extensive cultural adaptations in response to deteriorating climate.



Rosemary and Time

Meg Berry, *University of Western Australia*
Jo McDonald, *University of Western Australia*

Murujuga (Dampier Archipelago) comprises one of the richest cultural landscapes in the world. The archipelago encompasses the remnant landmass of a drowned coastal plain, and is internationally renowned as one of the largest open air rock art galleries on the planet. Although the archipelago currently has a predominantly Holocene archaeological signature, with the oldest subsurface evidence of human occupation dating to 8520±80 BP (uncalibrated) on Rosemary Island (Bradshaw 1995), the rock art corpus speaks to an occupation of the area spanning more than 30,000 years. In this paper we return to Rosemary Island to discuss ongoing research. We will unpack our findings, outlining how new lines of evidence enable us to scaffold our understanding of the rock art sequence. Focusing on the end of the Last Glacial Maximum, this paper will illustrate the interplay between subsurface and surficial archaeology in our understanding of an enigmatic landscape that experienced exceptional environmental and social change in a period of great transition.



Diagnosing our Species: How can we Identify the Skull of *Homo sapiens*?

Rhiannon Bice, *University of New South Wales*
Darren Curnoe, *University of New South Wales*

As it stands in biology today, there is no accepted diagnosis of *Homo sapiens* as a species taxon. Attempts have been made over many decades to address this problem, most notably by Le Gros Clark (1964), Day and Stringer (1982), Stringer, Hublin and Vandermeersch (1984), Trinkaus (2006) and Tattersall and Schwartz (2008). Unfortunately the palaeoanthropology community has not agreed on any of these diagnoses,

nor have some of them ever been tested against samples of recent human populations. The aim of this project was to review and critically evaluate previous diagnoses and to assess their utility for diagnosing and identifying members of our species from the fossil record. In particular, this project focused on studying suggested craniofacial autapomorphies. Traits were examined in a diverse range of samples against four criteria: they were putatively autapomorphic, presence/absence, did not require comparison with another hominin's features for identification, and must not be defined by ambiguous terms such as 'usually' or 'relatively'. For a character to hold potential as a reliable and accurate *Homo sapiens* diagnostic, the state must be found consistently in samples and must be present in 95% or higher of individuals. Over 450 crania were surveyed which were sourced from populations in Western Europe, India and Melanesia to capture a wide sample of geographic variation. Results will be presented and their implications for diagnosing and defining our species discussed.



Isotopes in Charcoal

Michael Bird, *James Cook University*
Christopher Wurster, *James Cook University*
Philippa Ascough, *University of Glasgow*
Vladimir Levchenko, *Australian Nuclear Science and Technology Organisation*
Anna McBeath, *James Cook University*

Pyrogenic carbon (PyC from charcoal to individual pyrogenic molecules) derived from natural and anthropogenic burning is abundant in the modern environment and in the archaeological record. PyC is one of the most commonly used materials for radiocarbon dating of environmental and archaeological samples. In addition, the stable carbon isotope composition of PyC in the tropics, in particular, yields information on the nature of the vegetation being burnt. Hydrogen pyrolysis (hypy) is a new technique with the capacity to isolate PyC from a wide-range of environmental matrices both for radiocarbon dating and measurement of stable isotope composition. This paper will report recent developments of hypy as an alternative pretreatment for radiocarbon dating in comparison with other pretreatments (ABA and ABOX). It will also report on the development of hypy as a new tool for measurement of the abundance and stable isotope composition of PyC for use in palaeoenvironmental reconstruction in the tropics with examples drawn from newly discovered lake archives developed in sinkholes in the top end of the Northern Territory.



Modelling the Past: The Application of Geospatial Analyses to the Late Quaternary Landscapes of the Central Murray River Valley

Jessie Birkett-Rees, *La Trobe University*
 Jillian Garvey, *La Trobe University*
 Pat Fall, *La Trobe University*
 Jacqueline Tumney, *La Trobe University*
 Darren Perry, *La Trobe University*

The chronology and nature of colonisation of the Central Murray River region in far northwestern Victoria and southeastern New South Wales remains an important question with broad implications for our understanding of culture, climate and change in eastern Australia. Geospatial analyses and data visualisation techniques have much to offer archaeology and are assisting us to model long-term, large-scale changes on physical and cultural landscapes. This is allowing us to approach questions of the antiquity of human occupation of the region and investigate long-term behavioural responses and adaptive strategies to environmental change. The question of human habitation of this region has previously been examined using evidence from the Willandra Lakes World Heritage Area (WLWHA); Pleistocene-age lakes in the WLWHA experienced drying and abandonment by human populations around 15,000 BP, coinciding with the occupation of the Murray River Valley to the south. The cultural landscape of Trust for Nature's Ned's Corner Station and the adjacent Murray-Sunset National Park provide a rich cultural record, including artefact scatters on late Pleistocene and Holocene landforms, stone quarries indicating long-term land-use, and the Murray River dunes which form a sacred landscape containing the largest extent of human burials on the continent. The Murray River and its overflow lakes to the south provided an attractive alternative landscape to the lunette lakes north of the river. Modelling the varied cultural record within an integrated study of landform development and palaeoenvironmental context provides a method by which to address the human occupation and utilisation of one of Australia's greatest resources, the Murray River. An extension of this investigation into the legacy of human occupation and adaptations to late Pleistocene-Holocene environmental changes is the integration of information on more recent alterations to the Murray River landscape, including the creation of historic pastoral landscapes.



1 William Street Brisbane Historical Archaeological Excavation

Stefani Blackmore, *ERM Australia Pty Ltd*
 Holly Maclean, *ERM Australia Pty Ltd*
 Tina King, *ERM Australia Pty Ltd*

Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by Brookfield Multiplex Constructions on behalf of Cbus Property to undertake an archaeological investigation for the 1 William Street project. Overall, 137 archaeological features and more than 600 artefacts were recorded. The archaeological evidence contributes to the known historical occupation of the site from the period of free settlement in Brisbane, following the closure of the Moreton Bay Penal Settlement, to the eventual demolition/removal of all buildings in 1982. The archaeology also provides evidence of mid-nineteenth century warehouse design, drainage, and well construction. The archaeological features largely comprised structural remains associated with the various commercial buildings that once occupied the site including the mid-nineteenth century brick and stone warehouses associated with the emergent mercantile shipping industry in Brisbane. Of particular note, were the discoveries of a stone box drain, a large brick well and the remains of a hand-cut stone flagstone floor associated with the first building to be constructed on site, the Harris warehouse (1854). The archaeological remains at 1 William Street do not satisfy the *Queensland Heritage Act 1992* criteria for entry on the Queensland Heritage Register as an archaeological place; however, they contain information that is significant at a local level; demonstrating historical and archaeological significance and a degree of rarity. Following the excavation, ERM prepared an interpretive strategy for the project. Recommendations included the use of salvaged archaeological materials, including Brisbane Tuff kerbing, blocks and paving, timber piers, joists and bearers for inclusion in the design of the new building and the outdoor landscape, either recreated or adaptively reused. This project represents one of the few historical archaeological investigations undertaken in Brisbane CBD, and provides a better understanding of the historical occupation, use and development of the study area that may assist with future historical and archaeological research.



Discovery of New Hominin Remains from the Main Quarry at the Early Hominin Bearing Drimolen Cave System by the Australian-South African Palaeoanthropological and Geoarchaeological Field School

Alex Blackwood, *La Trobe University*
Angeline Leece, *La Trobe University*
Tom Mallett, *La Trobe University*
Giovanni Boschian, *University of Piza*
Rhiannon Stammers, *La Trobe University*
Stephanie Baker, *University of Johannesburg*
Matt Caruana, *University of the Witwatersrand*
Renaud Joannes-Boyau, *Southern Cross University*
Robyn Pickering, *University of Melbourne*
Colin Menter, *University of Johannesburg*
Andy Herries, *La Trobe University*

The Drimolen Cave System is well-known for the large number of *Paranthropus robustus* remains that have been recovered, including the most complete specimen of this species recovered to date (DNH7); making it the third-richest hominin-bearing site in South Africa. The site has also yielded Oldowan-type stone tools, potentially the worlds oldest bone tools and fossils of early *Homo*. Two field schools have been run at Drimolen between La Trobe University and the University of Johannesburg in 2013 and 2014. Both have recovered new hominin remains from the 2.0-1.4 Ma 'Main Quarry' part of the site that are currently under study by a student as part of the analysis of the palaeodemography of the site. This material includes a tooth of a baby *Paranthropus*. Further student projects are working on an analysis of the bone tools, four additional specimens of which were recovered in 2014, taking the total to over 70. In comparison, stone tools are limited but the first analysis of these has also been undertaken and indicates a mode-1 technology. Work is ongoing on the dating and stratigraphy of the site including micromorphology, palaeomagnetism, uranium-lead dating and electron spin resonance dating. A preliminary outline of this research will be presented.



Discovery of a New, Older Fossil Bearing Deposit at the Drimolen Hominin Site, South Africa

Alex Blackwood, *La Trobe University*
Rhiannon Stammers, *La Trobe University*
Tom Mallett, *La Trobe University*
Brian Armstrong, *La Trobe University*
Douglass Rovinsky, *Grand Valley State University*
Giovanni Boschian, *University of Piza*
Philip Hopley, *University of London*
Randy Parrish, *University of Leicester*
James Donlon, *La Trobe University*
Joseph Bevitt, *Australian Nuclear Science and Technology Organisation*
Paul Penzo-Kalewski, *La Trobe University*
Stephanie Baker, *University of Johannesburg*
Justin Adams, *Monash University*
Colin Menter, *University of Johannesburg*
Andy Herries, *La Trobe University*

The Drimolen Cave System is well-known for the large number of *Paranthropus robustus* remains that have been recovered, including the most complete specimen of this species recovered to date (DNH7); making it the third-richest hominin-bearing site in South Africa. The site has also yielded Oldowan type stone tools, potentially the world's oldest bone tools and fossils of early *Homo*. Two field schools have been run at Drimolen between La Trobe University and the University of Johannesburg in 2013 and 2014. In 2014 excavations started at a new deposit within the system that has yielded a large array of partial skeletons of different species. The 'Drimolen Makondo' deposit has a distinctly different geological character when compared to the Main Quarry and appears to represent an older cave entrance into the Drimolen cave system. The fossil remains have distinct manganese staining and articulated remains are very common. Synchrotron, XRF and archaeomagnetic analysis all indicate the deposit has a different sediment source to the Main Quarry deposit. The species represented are also different to the Main Quarry and suggest the Drimolen Makondo is older, making it one of only a few deposits dated to the late Pliocene or very early Pleistocene in South Africa. Neutron tomography has been used to visualise micro-fossils within the deposit prior to analysis. Ground Penetrating Radar (GPR) analysis has been used to investigate the extent of the buried deposits and the results of this, the excavations and faunal, geological, uranium-lead and palaeomagnetic analysis will be presented. The majority of this research is led by honours and PhD student projects.



The Archaeology of the Late Prehistoric Southeast Solomon Islands: The Last 1000 Years of Mwanihuki, Makira

Natalie Blake, *University of Sydney*

With an occupation sequence from c.3000 BP to the recent historic period, the aceramic Mwanihuki site provides an opportunity to discuss trade and exchange and the associated networks from the later prehistoric phases of this site. Mwanihuki, located on the mid-north coast of Makira in the southeast Solomon Islands, affords access to the trade networks that linked Ulawa, Malaita and southern Guadalcanal in the post-Lapita period with archaeological evidence that can go some way towards relating these trade nodes. Radiocarbon dates and the material culture evidence from excavation of middens and burial structures, along with the spatial association of house platforms shows a changing pattern of site use over time. These results also provide the ability to discuss the spatial distribution of settlement on this abandoned coastal village. This paper will focus on archaeological evidence that relates to trade from excavations on Mwanihuki in 2010–2011 and contribute some preliminary discussion on the archaeological of trade and exchange during this dynamic period in Solomon Islands history.



Hybrid Morphology in Asian Macaques, and the Implications for Detecting Hybrids in the Human Fossil Record

Ceridwen Boel, *University of New South Wales*
Darren Curnoe, *University of New South Wales*

Recent advancements in genetic research techniques have seen a dramatic increase in the number and quality of sequenced archaic hominid genomes, and the possibility of hybridisation in human evolution is once again under consideration. In the Asia-Pacific region alone, the little-known group of archaic humans known only as the Denisovans have been implicated in gene flow with Australian, Melanesian and possibly some scattered Southeast Asian ethnic groups. Hybridisation is also one of many suggested explanations for a newly-discovered and still poorly-defined group known as the Red Deer Cave people in southern China, but to date no DNA has been successfully extracted. Limitations on genetic research techniques and the availability and preservation of fossils mean that genetic research can't be our only avenue of investigation. Unfortunately, the application of a complementary morphological approach has often proven to be problematic. Despite a number of claims being made over decades of research, there are no widely accepted examples of

hybridisation in the human fossil record. Generally citing unusual combinations of modern and archaic features, claims are difficult to test – and the fact is that we have very little idea of what a hybrid in the human lineage would actually look like. Using 3D morphometrics and select non-metric characters, this study investigates the morphological manifestation of hybridisation in Chinese and Japanese macaque populations as an analogue for human evolution. These macaques are well-documented in range, morphology and genetics, and show indications of supraspecific gene flow over varying periods of evolutionary time. The results are compared to research of similar intent conducted on African primates, and the implications for the possibility of identifying hybrids in human evolution are considered.



Letting the Smoke Clear: Exploring the Potential of Microfossils Residue Analysis in North American Smoking Pipes

Karleah Bonk, *Lakehead University*
Matthew Boyd, *Lakehead University*

Smoking pipes have an established importance in many North American cultures. Studying plant residues from archaeological pipes can generate a clearer understanding of the ethnobotanical use of regional plants and how they fit into the lives of the people who used them. This study focuses on the practicality of using plant microfossil analysis on smoking pipe residues. Previous research studies on smoking pipe residues have collected data through a variety of methods, such as GC/MS, however microfossil analysis has largely been left untouched. This technique was applied to residues obtained from a sample of historic pipes recovered on Canadian archaeological sites in northern Ontario and Manitoba. These residues were analysed for the presence of any microfossils such as phytoliths, starch etc that had potential to be diagnostic and a comparative collection was used for identification efforts. The results of this study provide grounds to argue that microfossil analysis is a viable method to use on smoking pipes and would be an asset to include in future research.



Making Productive Space from Sawmill Waste: A Case Study from Kohukohu, Northland, New Zealand

Gretel Boswijk, *The University of Auckland*
Duncan Munro, *The University of Auckland*

One of the most significant environmental changes in New Zealand (NZ) since nineteenth century European

colonisation has been the removal of forest and creation of a farm landscape. Forest was cleared by fire and by axe, producing large-scale and highly visible changes to the physical environment. For example, in addition to the creation of pasture land, deforestation altered rates of sediment discharge to the coast. In the kauri district of northern NZ, the geomorphology of headwater streams was impacted by the construction and use of driving dams. Local-scale changes also occurred as a direct consequence of industrialised timber production, although these may be less obvious or have become familiar and therefore are 'unseen'. One such driver of localised change was the disposal of waste material from sawmills. Sawmilling produced large quantities of sawdust and slabs which were a nuisance and had to be got rid of somehow. In this paper, we present findings from an investigation into the disposal of sawmill waste at Kohukohu, on the edge of the Hokianga Harbour, Northland. Between 1879 and 1912 a steam-powered sawmill operated at Kohukohu, with capacity to cut six million feet of kauri timber annually. Whilst some material probably fuelled the sawmill boilers, slabs and sawdust were used to progressively infill the bay. Reclamation was tied into the creation of productive spaces for the sawmill and was, eventually, promoted as beneficial for the whole community. Such local-scale modifications occurred elsewhere in the kauri district and are a (sometimes forgotten) legacy of industrialised timber production in colonial and early Dominion-era NZ.



What's in a Name?

Maxine Boyd, *La Trobe University*

Fieldwork and continuing research from the Royal Mail Hotel in Blackwood, Victoria, has enabled specific links to be made between artefacts from our recent past to more contemporary concepts in social memory. However, the language we use to describe artefacts not only mirrors our own cultural experiences and knowledge, but also often sets the agenda for further and future research directions. Two elements from the site, the name of the hotel and one recovered artefact, are used to highlight issues arising from literal versus more open-ended language, tools used within historical archaeology in its quest to quantify and describe material culture. How do we reconcile the manifest with conceptual language? Importantly, the task is then to ensure a translation into ongoing meaningful associations, understandings and concepts for present and future audiences.



The Development of the Nineteenth Century Urban Meat Market in Sydney

Annabelle Brealey, *University of Queensland*

Between 2010 and 2013, excavations by the Sydney Harbour Foreshore Authority at 188 Cumberland Street, The Rocks, recovered faunal material dating from 1810–1829 and then 1842–1883. In 1810, 188 Cumberland Street was the site of one of Australia's first watch-houses before being converted to a purely residential household in the mid-nineteenth century. Zooarchaeological analyses, including the use of Unit of Acquisition (Chichkoyan 2013), provide a comparison of consumer meat preference between a semi-public space (watch house) and later, a residential dwelling. Through a temporal study, this research contributes to our understanding of how the urban meat market developed in The Rocks from early settlement through to industrialised city.



The Ewamian Cultural Landscape of Talaroo Station

Jean Brickey, *Ewamian Aboriginal Corporation*
Alice Buhrich, *James Cook University*

This poster documents cultural site recording on Talaroo Station, Georgetown, by Ewamian Cultural Heritage Officers, Ewamian Rangers and an archaeologist. Talaroo is an ILC property, purchased on behalf of Ewamian people because of highly significant story places and sites. The property is bound by Einasleigh River, which was the main 'highway' for Ewamian people who camped, fished and travelled on the river banks. The river features cultural sites including story places, fishing holes and grinding grooves. Ewamian people today continue to have a special association with the river through fishing, camping and other cultural activities. Twenty three sugarbag trees have been identified and recorded on Talaroo. Sugarbag scars, made by cutting into the heartwood of a tree with a stone axe to get to honey and wax of native bees, have been recorded on twenty three Cooktown ironwoods. This poster documents the activities of Cultural Heritage officers and rangers in documenting these significant sites.



Illustrating Australian Archaeology

Sally Brockwell, *Australian National University*
Ursula Frederick, *Australian National University*

Pictures, it is often said, tell a thousand words. In this paper we examine how archaeologists have communicated the developing discourse of Australian archaeology through image and word (caption). Focusing on Australia's two academic archaeology journals, *Australian Archaeology* and *Archaeology in Oceania*, we survey the story of the discipline as imaged by its practitioners over the past 40 years. We focus particularly on photography to consider what conventions and tropes may exist in the visual representation of Australian archaeology, from site photography to artefact display, and what this may reveal about the changing nature of the discipline.



The Ethnography and Archaeology of Bulli Bulli Claypan, Midwest Region, Western Australia

Vivienne Brown, *University of Western Australia*
Colin Hamlett, *Ethical Engagement Consultancy*
Vicky Winton, *University of Western Australia*

Ethnography is an important tool for theory-building; it provides fertile ground for generating archaeologically testable hypotheses about past human behaviour. For archaeological sites described by ethnohistoric accounts it has the added value of humanising the past. We gain insight into how the archaeological features were used in the recent past and the way these places were incorporated into wider social systems. Archaeological research at Bulli Bulli Claypan, a fresh seasonal claypan located northwest of the Weld Range, has documented a diverse, and in places dense, stone artefact scatter which occurs on and within the low aeolian dunes bordering the claypan. On the claypan itself, a series of stone features are preserved, marking this claypan as different from those nearby. Daisy Bates, Norman Tindale and comments by other visitors to the area describe the contemporary importance of Bulli Bulli Claypan to the Wajarri people. While each had an agenda which influenced the knowledge preserved about this place, its position as a food resource supporting large gatherings in the Weld Range becomes apparent. In combining these ethnohistoric resources with contemporary ethnographic information from adjacent regions we are able to create hypotheses for understanding of the role different stone features play at claypan sites.



New Excavations at Leang Burung 2 in the Maros Karsts of Sulawesi, Indonesia

Adam Brumm, *Griffith University*

The oldest reported evidence for humans on Sulawesi extends back to ~30,000 BP, from Ian Glover's 1975 excavations at Leang Burung 2 rockshelter in the limestone karsts of Maros, on the island's southwestern peninsula. This uncalibrated 14C age is on a shell from a layer containing cultural and faunal remains attributed to modern humans (*Homo sapiens*), and which overlaid the deepest sedimentary deposit exposed at the site by Glover, Layer I. Glover got to a maximum depth of 3.4m, but did not reveal the bottom of Layer I and was unable to date it. He proposed that Layer I was at least 40,000 years old and that the faunal remains and stone artefacts in this deposit differ markedly from those within the overlying strata, dated to ~30,000 to 19,000 years ago. Mike Morwood re-excavated Leang Burung 2 in 2007 with the aim of plumbing the depths of Layer I and underlying deposits to bedrock, and my team continued this work between 2011–2013. I will describe our ongoing work at this classic site and consider the implications for our understanding of the earliest human prehistory of Sulawesi.



Compliance Archaeology as an Educational Medium

Ben Brusch, *BHP Billiton*
Rachel Bulloch, *BHP Billiton*

Compliance archaeology is driven by legislation such as the *Aboriginal Heritage Act 1972* in Western Australia, and is undertaken for the purpose of significance and impact assessment. In this poster, we ask the question 'Can compliance archaeology also be successfully used as an educational medium to promote cultural heritage?'. The involvement of professionals from a diverse range of industry backgrounds in the excavation of an open site alongside heritage professionals and Traditional Owners was used as a test case study. We were able to demonstrate that it is possible to use compliance archaeology to create positive experiences for employees by building on previous knowledge from industry cultural awareness programmes, thereby furthering positive cultural awareness in industry employees. The circle of influence of this project, although difficult to measure, additionally emphasises the lasting impacts and influences attitudes towards cultural heritage that can be had from compliance driven archaeology.



MacDonald River Hatchets: Tracking Sources in the Hawkesbury-Hunter Regions

Rebecca Bryant, *University of New England*
Val Attenbrow, *Australian Museum*
Peter Grave, *University of New England*
Lin Sutherland, *Australian Museum*
Ross Pogson, *Australian Museum*
Hugh Watt, *University of New England*
Tessa Corkill, *Australian Museum*
Karen Stokes, *University of Sydney*

In Australia, ground-edged stone hatchets (stone axes) were noted historically as being amongst the items exchanged between Aboriginal communities. Hatchets often traveled long distances from their raw material sources to their find spots suggesting the existence of long-distance exchange systems. The project presented here explores whether igneous artefacts from Macdonald River MR/1 rockshelter, which have been identified with hatchet-making and/or modification, reflect part of an exchange system within and beyond the Hawkesbury and Hunter regions of eastern New South Wales, and whether there were changes over time in the sources of rocks used. Early European settlers described the 'Boree Track', with its numerous associated engraved and pigment images, as an important Aboriginal ceremonial and exchange route between the Hawkesbury and Hunter Valleys. MR/1, excavated by David Moore in the 1970s, is a large rockshelter site near the southern end of the Boree Track with occupation dating back to c.6500 years. Archaeological evidence for the manufacture and modification of ground-edged hatchets is found in levels dating to the last c.3500 years. As part of David Moore's 1981 study, geologist David Branagan suggested the sources of rocks from which ground-edged hatchets were made were in the northern fringes of the Hunter Valley and the New England region. We have used pXRF technology to seek matches between the MR/1 artefacts to potential geological sources. Our results indicate that several different sources of rock were used, but that a large proportion of the artefacts match basalts from Peats Ridge/Popran Creek in the adjacent Mangrove Creek Valley. This basalt was present throughout the MR/1 sequence.



Human-Environment Interaction in Colonial Queensland: Establishment, Use and Abandonment of the Port of St Lawrence and Implications for the Archaeological Record

Aleisha Buckler, *University of Queensland*
Jon Prangnell, *University of Queensland*

This paper explores the recursive relationships between people and the environment in a colonial setting through a case study from the central Queensland coast. The St Lawrence port settlement was established in c.1860 following the expansion of pastoral and maritime interests in central Queensland during the mid-nineteenth century. Its development, and the lives of those who lived or engaged in business there, was mediated by the dynamic coastal environment which characterises the surrounding Broadsound region. The large tidal range and strong tidal currents of St Lawrence Creek, in particular, greatly influenced the initial movement of European settlers throughout the area, and the subsequent placement of town and port infrastructure. The transformations of the physical environment prompted by settlers – specifically the removal of mangrove vegetation – to allow for the port development changed the geomorphology of the creek environment and led to accelerated erosion at the chosen wharf site, and – following a catastrophic cyclonic event in 1874 – ultimately to the abandonment of the port in St Lawrence Creek. This paper considers the implications of such past human-environment interaction for the formation of the archaeological record at St Lawrence during the nineteenth century, and its preservation today. In doing so, we contribute to an understanding of the rapidity and nature of landscape change and environmental degradation as a consequence of colonial settlement and land-use intensification.



Giants in Time: Rainforest Dendroglyphs of North Queensland

Alice Buhrich, *James Cook University*
Steve Purcell, *Mamu Aboriginal Corporation*

If dendroglyphs were a faunal species they would be classified as critically endangered. They are the Giant Panda of the archaeological world, threatened by loss of habitat and natural decay. This paper describes the significance, attributes and preservation of Aboriginal dendroglyphs in the Wet Tropics World Heritage Area, the only dendroglyphs recorded in a tropical rainforest environment. For the Dugulbarra and Waribarra clan group of Mamu Traditional Owners the dendroglyphs are an illustration of the rainforest as a living cultural landscape. The dendroglyphs assert survival of rainforest Aboriginal cultural heritage after a history of land-clearing, logging and 'locking the gate' on the world heritage protected area. Our research identifies the attributes of rainforest dendroglyphs – typically abstract linear or figurative designs cut into the bark, usually on single trees associated with Aboriginal walking tracks and other cultural sites. Tree carving was probably practised over a much larger area, but the surviving

dendroglyphs appear to have been protected by their inaccessibility, forestry management and national park/world heritage tenure. Comparison of records of the dendroglyphs made 25 years ago suggests the main threat to surviving rainforest dendroglyphs is the finite lifespan of the trees themselves.



A Scar-ry Problem: Culturally Modified Trees in the Pilbara

Rachel Bulloch, *BHP Billiton*

Culturally Modified Trees help inform the narrative of human occupation in the Pilbara, but a standardised method of identification and recording has not been established. A review of the available literature shows a gap in northwestern Australian studies. This poster outlines the issues surrounding correct identification of Culturally Modified Trees in the Pilbara and details results of a desktop report and subsequent fieldwork undertaken. Suitable criteria and attributes to be recorded in future consultant fieldwork are suggested as well as future research directions.



The Bleichert Ropeway (Katoomba): Digital Recording for Industrial Archaeology

Georgia Burnett, *University of New South Wales*
Shawn Ross, *University of New South Wales*
Penny Crook, *La Trobe University*

The Bleichert Ropeway was a late-nineteenth century bicable aerial tramway for mining situated near Katoomba, New South Wales. This wire ropeway was built – and failed catastrophically – in the 1880s. In 2014, the Blue Mountains World Heritage Institute and the New South Wales Parks Department undertook a non-destructive inventory of surviving remnants of this industrial feature. Federated Archaeological Information Management Systems (FAIMS) personnel developed a digital recording module for this project, and then participated in field recording. From this experience, we learned first-hand the advantages and challenges of digital recording. Even though the nature of the remains was well-known and the range of artefacts limited – not to mention that we were using our own software – careful planning and implementation was still necessary. Indeed, knowing the universe of possible finds required adjusting our usual approach to data modelling and workflow implementation. This paper discusses the FAIMS experience using our own software for industrial archaeology, including the customisation process, field performance, modifications made to the software between field sessions, and export of the resulting data for analysis and dissemination.

C



Doing History: Public Archaeology and Engaging with the New Australian Curriculum

Laura Campbell, *La Trobe University*

The new Australian Curriculum encourages a changed perception of archaeology and a deeper enquiry into the interpretation of the past. In the previous curriculum certain aspects of Australian history were overlooked. The introduction of archaeological analysis into the Australian Curriculum provides archaeologists with a unique opportunity to correct common historical myths and cover previously untouched topics and perspectives. Public archaeology provides opportunities for Australian students and teachers to engage with new resources and presents essential, tangible evidence that enables students to engage with history ‘hands-on’. Public archaeology endeavours to educate a wider audience about archaeology and achieves this using different mediums. The essential part of public archaeology is interpreting the information found on-site, including historical themes and important findings, and translating that information into a relatable format for members of the wider public. If this experience is then adapted for school groups, it provides students with a range of opportunities to engage in enquiry-based learning, interdisciplinary learning and caters to different multiple intelligence learners. The success of well-established programmes such as the Port Arthur ‘Kids Dig’ and the ‘Big Dig’ on Sydney’s The Rocks, and general public presentations, for example, The Former HM Pentridge Prison Public Outreach Program, all demonstrate that public archaeology is successful in engaging younger people and that it is beneficial for students to move away from traditional text-based historical inquiry. Public archaeology presentations will engage educators and students by allowing this audience to experience evidence first-hand, to analyse the primary sources, and to challenge and reconsider existing historical narratives. This also allows archaeologists to work with the Australian Curriculum and steer away from ‘popular’ history and stereotypes and create a deeper and meaningful appreciation of Australia’s cultural heritage.



Naming the Mask: A Contextualisation of the RD Milns Mummy Mask

Abby Capel, *University of Queensland*

Multiple methods of archaeological enquiry were undertaken in an attempt to provide context to the RD

Milns Antiquities Museum mummy mask. This research was undertaken in an attempt to combat the lack of contextual information associated with the ancient Egyptian funerary mask. To achieve a contextual understanding of the mask multiple methods of scientific enquiry were undertaken. These included radiocarbon dating, compositional and construction testing through gas chromatography-mass spectrometry (GC/MS), and a stylistic analysis of the mask's features. The application of this methodology was successful and the mask now has context. The results of the radiocarbon dating indicated that the mask dates to 340–390BC, within the Dynastic period referred to as the Late Egyptian Period. The compositional testing of the mask suggested that the cartonnage mask is made from linen and an animal glue compound that has created the lightweight, but durable structure seen over two millennia later. Additionally, a stylistic analysis of the mask provided cultural and social information about the individual the mask belonged to, and the funerary practices of the time. The results of this research have provided significance and value to the RD Milns Antiquities Museum mummy mask and all their associated stakeholders in the form of context. Furthermore, this research has identified and begun to address the gap in knowledge within the field of Egyptian archaeology regarding the construction, evolution, style, and uses of mummy masks in ancient Egypt over time.



Australian Anthracology – A New Challenge Explored: Investigating Change in the Local Environment and Resource Procurement Strategies at Madjedbebe (Malakunanja II)

Xavier Carah, *University of Queensland*
Chris Clarkson, *University of Queensland*
Ben Marwick, *University of Washington*
Richard Fullagar, *University of Wollongong*
Lynley Wallis, *Wallis Heritage Consulting*

Anthracology is a technique which has been greatly underutilised in Australian archaeology. This is surprising considering the importance of wood in the economy of Indigenous Australian societies. The taxonomic identification of wood charcoal (anthracology) allows researchers to test hypotheses relating to environmental change, landscape modification, and fuel wood selection strategies, among many other applications. The composition and distribution of vegetation communities at the time of colonisation, the affect anthropogenic fire regimes have had on the Australian landscape, and the role of wood resources in the Australian Indigenous economy can all be explored through anthracology. This paper demonstrates the potential of anthracology, through a discussion of the fuel wood selection strategies of the inhabitants of Madjedbebe (Malakunanja II), a

Pleistocene rockshelter in Kakadu. Shaped by post-glacial sea-level rise, the environment of this region underwent large-scale landscape changes during the Holocene. These changes reshaped the entire northern Australian landscape, greatly affecting the presence and distribution of landforms and vegetation communities. These changes would have had a marked effect on the local environment and peoples' ability to access particular resources. This paper explores how people responded to these transformations in landscape and vegetation, specifically examining fuel wood selection strategies. Initial results suggest that instead of targeting particular ecological niches or species, the inhabitants of Madjedbebe employed a principle of least effort (PLE) fuel wood selection strategy, and collected a range of easily accessible taxa from the woodland vegetation directly adjacent to Madjedbebe. This research demonstrates the broader utility of wood charcoal analysis. Anthracology is an innovative technique which can maximise the interpretative power of wood charcoal and contribute to answering fundamental questions in Australian archaeology.



Consulting with a Difference: A Community-Driven Heritage Study

Anneliese Carson, *Western Australian Museum*
Melissa Marshall, *Australian National University*
Maureen Pigram, *Bidan Aboriginal Corporation*

Consulting archaeology in Western Australia is typically associated with mining, government or industrial developments and projects of this type tend to be limited in scope with a particular focus on heritage compliance. In contrast, community-led consultancy projects that are instigated, managed by and for Aboriginal groups have the potential to extend beyond compliance and incorporate a broad range of activities and outcomes that are specifically aimed at meeting community needs. Consultants also benefit from these projects, building lasting relationships with communities and broadening the scope of typical heritage projects, including research, Native Title, cultural heritage management and training. This paper presents a collaboration between an Aboriginal community in the west Kimberley and consultants at the University of Western Australia. This small family group sought to document and identify cultural heritage significance within their reserve, to protect them for future generations. While this was underpinned by a process of land transfer, it was not legally required and was pursued independently. Surrounded by active mining and development that is encroaching closer and threatening to impact their way of life in the coming years, they seek to preserve their stories for their grandchildren and their grandchildren's

grandchildren to come. Additionally, while the focus of the consultancy was to record material culture they also sought to capture ethnobotanical and cultural information relating to connection to country. Contributing continually to heritage clearances around them, their experience had shown that this is then used for the proponents' legislative requirements and rarely does it return to them or their families. This process importantly has ensured that they are the keepers of these stories and now actively protect places instead of simply identifying them. This case study will showcase an alternative form of consultancy, a community initiative supporting self-determination and cultural heritage preservation.



Colonial Landscapes at Sydney Cove: A Methodology for Using Early Paintings and Maps to Interpret the Beginnings of British Settlement

Mary Casey, Casey & Lowe Pty Ltd

Investigates the methodology Mary Casey developed to analyse early colonial paintings in order to interrogate the changing archaeology and landscape of Sydney Cove between 1788 and 1821. This methodology was essential to having confidence in the use of paintings, in association with historic maps, as evidence of how British settlement remade the landscape of Sydney Cove in this short period of time. Analysis of sketches, paintings and lithographs revealed the accuracy of the evidence as well as the flaws in this process. While there are risks involved, the reward can be very revealing and insightful. Mary Casey used archaeological evidence as the basis for informing the interpretations of these images but they provided the clues for the overarching analysis of the archaeological landscape. She also discusses examples of where researchers have had flawed results when they have uncritically used images as evidence or where the artist and his patron were intent on the production of images for propaganda purposes. Also, while images can help us understand maps, it is the process of interrogating maps which can reveal information we did not understand or know they contained. So while facts and evidence matter, disentangling them from the overall representation, which can be quite political in intention, is a matter of analytical persistence.



Tackling Global Climate Change: A Contribution from the Prehistoric Archaeology of Northeast Thailand

*Nigel Chang, James Cook University
William Boyd, Southern Cross University*

In this paper we discuss how research into the prehistory of northeast Thailand may provide valuable information that can help public policy developers tackle the urgent needs of adaptive and mitigation responses to global climate change. The International Panel on Climate Change advocates both adaptive and mitigation responses to global climate change. Neither adaptation nor mitigation alone can reduce all climate change impacts, and they need to complement each other to reduce risks of climate change. Importantly, barriers to, and limits and costs of, adaptation and mitigation are not fully understood. The archaeological record in northeast Thailand provides an excellent example of long-term and sustainable adaptive and mitigation success by a changing society in a changing world, and thus provides opportunities to examine the social processes of successful adaptation and mitigation. The archaeology also contains records of critical tipping points in which society experienced the negative effects of unmitigated climate change exceeding the capacity of natural, managed and human systems to adapt. By examining long-term (c.4000–1000 BP) and sustainable social processes of resilience in the face of climate change we contribute to an understanding of past social processes and the current debate about how society must respond to global climate change. This examination reinforces the need for inclusive studies that tightly integrate landscape, environment, archaeology and people within whole catchments into a holistic picture that recognises that each aspect affects and is affected by each other.



'Born to be a Stowaway': Inscriptions, Graffiti and the Rupture of Space at the North Head Quarantine Station, Sydney

*Anne Clarke, University of Sydney
Ursula Frederick, University of Sydney*

Like other colonial/settler nations Australia has embraced a series of narratives that work to define, constrain and maintain constructions of national identity. Border protection, quarantine and immigration are three closely related and enduring themes of colonial and contemporary Australia alike. Quarantine, the focus of this paper and of a current archaeology and history research project, was an act of enforced isolation and medical supervision, used by British colonial authorities and later by Australian governments to manage

and control the introduction of infectious diseases. Quarantine stations such as that located at North Head, Manly were initially built as specialist institutions. Over time, however, as the need for mass quarantine declined, the facilities at North Head were used for other forms of social regulation and welfare. These included a detention centre for illegal immigrants, an evacuation centre after Cyclone Tracy and as a nursery for 'Operation Babylift' during the Vietnam War. At North Head an enduring tradition of memorialisation, commemoration, and in some instances, resistance to the conditions of isolation and confinement is found in the mark-making practices of people held there from the 1830s to the 1970s. In this paper we briefly compare two distinct assemblages of marks – the nineteenth and early twentieth century sandstone inscriptions around the wharf in Spring Cove where people arrived by boat and the 1970s pencil, biro and felt-tip pen graffiti drawn on the internal walls of building A20 by 'illegal immigrants' waiting for deportation back to their countries of origin.



Adapting the Methodology to Overcome Some Tropical Complications

Marianne Clarkson, *James Cook University*

My current research project focuses on the small Range Hotel township that was located 36km southwest of Townsville, North Queensland. The township was established in 1866 and survived for only 18 years, but included a hotel, a blacksmith, a butcher, at least one other domestic dwelling, a toll gate, a carrier's camp site and a small cemetery. Built at the foot of Hervey's Range it provided rest, food and amenities for the travellers using the vital road that linked the newly established port of Townsville to the goldmines and pastoral stations of the hinterland. The area was listed on the Queensland Heritage Register in 2009 under the category of 'archaeological place', with only the headstones in the cemetery, parts of the old road and a scatter of broken glass artefacts still visible in the dense undergrowth. The protected site complex is large and the actual locations of the old buildings were unknown, presenting us with the methodological challenge of trying to uncover the old township from beneath the dense, metre-high grass within the very real constraints of limited time, personnel and tropical weather. Formal walking surveys, random sampling and pre-planned excavations proved difficult, giving way instead to opportunistic post-bushfire surveys, various attempts at different types of sampling, excavations based on artefact numbers in test pits and the happy coincidence of meeting a metal detector enthusiast illegally walking on the council-owned land. The results of this slightly unusual and opportunistic methodology have, however, proved fruitful with the

discovery of the blacksmith forge, a domestic rubbish pit, abandoned trackways, a large stone floor and a granite rock-splitting site. It has also provided evidence for at least two other areas of potential significance, where it is hoped future excavations may reveal a domestic dwelling and the Range Hotel.



Zero Harm? A Consideration of Sexual Harassment in Australian Archaeology

Lucia Clayton Martinez, *Heritage Consulting Australia*
Jane Skippington, *University of Western Australia*
Annie Carson, *Western Australian Museum*

Gender equity in Australian academic archaeology has been subject of studies such as Burke and Smith's 2006 paper, and Bowman and Ulm's 2009 study of ARC grants. Kate Clancy raised the further issue of sexual harassment and abuse in the field in her 2013 survey on biological anthropologists in America. The results were astounding in the number of cases that came forward, the degree to which these had been suppressed, and the emotional consequences experienced by victims. We feel that there needs to be a similar study undertaken in Australia. Sexual harassment, especially in the field, is a current issue. For this paper we have looked at various aspects: company sexual harassment policies, company incident statistics, and personal experiences. Our aim is to show that sexual harassment is a serious concern that is rarely discussed, and to propose measures to eliminate these incidents.



The History of Human Occupation on Upolu's (Samoa) East Coast: Implications for Lapita Settlement

Ethan Cochrane, *University of Auckland*
Alexander Morrison, *University of Auckland*
Charles Fletcher, *University of Hawaii*

Archaeological coring, excavation, survey, and new digital elevation models are used to outline the changing landscape and history of human occupation in Aleipata, Eastern Upolu, Samoa. This coastline has undergone dramatic changes in the last 3500 years that have influenced human settlement locations, land-use, food production, and interaction. Our work suggests this area was not favourable to settlement until after the Lapita era.



Dancing Figures, Red Hands, Boomerangs, Late Early Man Style and a Great White Phase: The Mysterious Lost Art of Cape York and Regional Archaeology

Noelene Cole, *James Cook University*

Fifty years of archaeological research in tropical North Queensland has produced a long timeline of Aboriginal history from the late Pleistocene to the present. An unfolding scenario of expanding settlement, intensified land-use and inbuilt symbolic structure has been identified. Archaeologists have accompanied this scenario with explanations of how Aboriginal societies changed over the millennia, eventually developing into regional societies. The prevailing archaeological model interprets the temporally and spatially varied rock art landscape of southern Cape York Peninsula and its environs largely as a product of a regionalisation process underway in the mid-Holocene. However, there are particular stylistic features and/or discontinuities in the art which sit uncertainly within a coarse-grained model; for example, ‘dynamic’ dancing figures, a ‘great white phase’, boomerangs, red hands, and a late Holocene ‘Early Man’ style. Although many potential explanations for stylistic variations in rock art exist, establishing chronology is vital. As direct dating has produced few absolute age estimates for these errant and/or discontinued styles, most can be situated in the art sequence only relatively and in a tentative way via contextual attributes, superimposition study and estimates of relative weathering. In reviewing these enigmatic, unaccounted for assemblages, their contexts and the archaeological questions which arise, this paper considers the need to fine tune/review/overhaul the regional model.



Rage Against the Machine: The Pros and Cons of Mechanical Test Excavation

David Collard, *Jacobs*

This paper presents a critique of the use of mechanical test excavation for Aboriginal cultural heritage assessment, in comparison to more traditional forms of test excavation, particularly shovel test probing. This comparison is based upon data obtained through test excavations for the Warrell Creek to Urunga Pacific Highway Upgrade project, undertaken by Jacobs on behalf of Roads and Maritime Services, New South Wales. Factors considered in this comparison include: time, cost, logistics, stakeholder concerns, stratigraphic resolution and excavation coverage. This later theme will be considered in detail in relation to the identification of low density artefact scatters. Based on the results of

the comparison, this paper considers the circumstances (if any) under which mechanical test excavation may provide better outcomes for the management of Aboriginal cultural heritage.



The Liang Bua Hominin Fossils Do Not Belong in Genus *Homo*

Mark Collard, *Simon Fraser University*
 Mana Dembo, *Simon Fraser University*

In this paper we reassess the assignment of the Liang Bua hominin fossils to genus *Homo*. In justifying the inclusion of the floresiensis material in *Homo*, Brown *et al.* (2004) cite Wood and Collard’s (1999) study in such a way that it appears that incorporating the material in *Homo* is compatible with the latter authors’ proposals regarding the definition of the genus. Accordingly, we base our reassessment on Wood and Collard’s (1999) criteria for allocating species to genus *Homo*. Wood and Collard (1999) argue that, to be assigned to *Homo*, a species must 1) be more closely related to the type species of *Homo*, *Homo sapiens*, than to the type species of any other genus, and 2) occupy the same adaptive zone as the type species of *Homo*. The results of our Bayesian-phylogenetics-based analysis of the most comprehensive hominin cranial dataset compiled to date are not consistent with the criterion that the floresiensis specimens should be more closely related to *H. sapiens* than to the type species of the other hominin genera. Additionally, the results of our analysis of the adaptive characteristics of the floresiensis specimens are inconsistent with the criterion that they should share an adaptive zone with *H. sapiens*. Given these results, we contend the Liang Bua hominin fossils should be removed from *Homo* and assigned to a different genus.



Envisioning Digital Research Data

Sarah Colley, *University of Leicester*
 Sally Brockwell, *Australian National University*

Even a modest archaeological project may produce thousands of digital images and associated text and metadata in different formats and variably useful, including project documentation, analysis and interpretation, scholarly publication, research collaboration and public engagement. To make research information about Australian archaeology more accessible, we are developing open-access online data collections through the Australian National University, University of Leicester, University of Sydney and elsewhere. One challenge is helping users/viewers understand, appreciate and find their way around very large collections of images. We are

creating experimental audiovisual sequences that invite viewers into the collections, show them around, explain why the collections are important and demonstrate how content can and could be used for further research, communication and collaboration. These sequences complement but are slightly different to more standard user-interfaces and web-based collection guides that are based primarily on text, text searching, geolocation and/or still images. Our paper discusses the potential and challenges of such a project.



Understanding Landscapes for Aboriginal Cultural Heritage: A Mitakoodi Example

Gordon Connelly, *Mitakoodi Traditional Owners Aboriginal Corporation*
Iain Davidson, *IDHA Partners*

Much archaeology, whether derived from academic research or from cultural heritage management projects, has concentrated on the discovery of 'sites' but the reality on the ground is often very different. In this paper we will describe some recent work near Cloncurry and how it shows the way in which Mitakoodi people used that landscape. This interpretation allows a better understanding of how archaeological discovery fits with Aboriginal understandings of the landscape.



Investigations of the Old Owen Springs Homestead Cellar, Northern Territory

Malcolm Connolly, *University of Queensland / Northern Territory Government*

Old cellars can be the subject for investigation in some of the harshest areas in Australia as these are rare examples of early pastoralism and unique storage places away from the heat and dust of Central Australia. Malcolm Connolly, a Senior Heritage Officer based in Alice Springs reports on the excavation of Old Owen Springs cellar, which is believed to be constructed between 1873 and 1885 as part of the provision of horses for the Field Artillery batteries of the Commonwealth Military Forces and the Indian remount trade, both prior to and after 1900. This poster describes the cellar design and discusses its use as part of the colonial advancement during the early pastoral period of Central Australia.



Lessons from the Present: How Ethnography Illuminates the Past in Weipa, Qld and Kakadu National Park, NT

Helen Cooke, *Australian National University*
Billy Ó Foghlú, *Australian National University*

This talk presents the ethnographic research of two PhD projects linked by landscape, archaeology and history. Cooke's project is related to cultural heritage management, recording recent camp sites, oral history and spatial elements that are important to the Traditional Owners of Wathayn Country, Weipa. Ó Foghlú's investigates the nature of archaeological earth mounds in Wathayn and also in Kakadu. Similarities between recent camp sites and older excavated earth mounds are highlighted through observing and recording Traditional Owners' detailed knowledge of modern kup marie earth-oven cooking and land-use. Oral history reveals why different areas were used in particular timeframes: historical access to resource areas was linked to the locations of the Mission and modes of access, from kinoo to modern travel affected by bauxite mining. In addition, involvement with environmental practices and issues at Weipa has elicited information useful to archaeology and cultural mapping. Ó Foghlú's work in Kakadu with a Traditional Owner and the active earth mounds they manage corroborates conclusions garnered from archaeological excavations and offers new insights into the micro- and macro-spatial organisation of such sites, their continued development (or permanent abandonment) and the reasons why such hubs of activity yield almost no faunal remains. In both locations this information is observable through interviews and demonstrations but is invisible archaeologically. Understanding the mindset behind modern sites does not provide a blueprint for the mindset behind archaeological sites, or the cultural practices that shaped the landscape and informed the actions of people in the past, but it allows us to extrapolate in new ways. The use of ethnography in understanding past human-environment interactions introduces us to informed reasoning backed by expert opinions from people who experience the landscape and its traditions first-hand, every day. By taking stock of the contrasts; the present can inform us about the past.



Contemporary Use of Ethnography in a GIS Behavioural Simulation from Northwestern Australia

Andrew Cooper, *University of Western Australia*

People's interactions with the environment are the central and primary factor in the dynamic production of

the archaeological record. As archaeologists, we strive to understand, interpret and explain the archaeological record. Explanation comes from many different sources and can be influenced by different theoretical and methodological considerations. Theories of inland Pilbara landscape use during the Holocene require further investigation. Early ethnographies from the region do not contain a level of detail required for further elaboration of past lifeways. In my research with the Yindjibarndi Aboriginal Corporation, I propose to construct an ethnography of mobility, which will examine in detail the different motivations for movement in Yindjibarndi Country. I intend to incorporate a combination of ethnographic, archaeological and environmental evidence in the creation of a series of GIS behavioural simulations. Different aspects of Yindjibarndi life will be analysed and simulated spatially, from subsistence to socially and culturally-based behaviours. Characteristics of cultural and subsistence motivated mobility will be examined using Least Cost Path Analysis. The resulting comparison of different strands of evidence will assist with an improved understanding of mobility in the late Holocene for Yindjibarndi Country.



Ground-Edge Stone Technology of Australia's Wet Tropics

Richard Cosgrove, *La Trobe University*

Ground-edge stone technologies have a long antiquity in Australia and New Guinea (Groube *et al.* 1989; O'Connell and Allen 2004; Geneste *et al.* 2011). Their distribution, movement and petrographic studies have long provided a basis for understanding complex social interactions, function and regional distinctiveness within Aboriginal Australia (Davidson 2003:422; McBryde 1984, 1986, 1987). However, studies of stone tool technology from the northeast Queensland Wet Tropics has been limited despite a significant number of distinctive ground edge tools reported from the rainforest zone. The 'Ooyurka' is one such tool that is unusual morphologically and is found nowhere else in Australia. Its ground face is perpendicular to the medial plane, unlike axes that are oblique. This has posed interesting questions for the functional and stylistic classification of the tool. Very few Ooyurkas are known from the region. Those that are recorded have been ploughed up during cultivation and forestry operations in the upland ranges and along the coastal strip between Cairns and Cardwell. Their main concentration is in the Innisfail area but none have been excavated from any north Queensland archaeological sites. Further, no mention of the Ooyurka had been made anywhere in the early ethnographic literature. Indeed, despite the fact that explorers and scientists moved around rainforest Aboriginal campsites, descriptions

of the overall stone technology in their field notes and published accounts are rare. The possible function of this tool is discussed through an examination of use-wear and a residue study.



FAIMS: A Report on a New User's Field Experience

Diana Cowie, *GML Heritage*

Boncuklu Höyük (Boncuklu) in Central Turkey is a Neolithic settlement dated to 8500 BC. It is smaller, older and arguably better than the famous site of Çatalhöyük located c.10km to the north. The site was discovered in 2001 during the Konya Plain Survey, and excavations commenced in 2006, directed by Dr Andrew Fairbairn (University of Queensland) and Dr Douglas Baird (University of Liverpool). Until the 2014 season, this site, like most others around the world, relied on hand-written paper recording in the field followed by manual digitisation of data post-excavation. In 2014, the Federated Archaeological Information Management Systems (FAIMS) digital system for recording archaeology in the field was tested as a means of replacing the usual paper methodology. In a trench assistant role during this trial in 2014, the application was used on a daily basis. This paper reports on the pros and cons of using this application in the field from the perspective of an inaugural user.



The View from Within: Can CT be Used to Help Detect Differences between Human and Non-Human Bones?

Sarah Croker, *University of Sydney*

When attempting to identify fragments of bone as human or non-human, few morphological details may be remaining, particularly from the shafts of long bones. It was noticed that the endosteal (internal) surface of long bones can differ in appearance between humans and non-human mammals. This difference generally takes the form of the presence of irregular trabeculae throughout the human long bone shaft, and a smooth endosteal surface in the long bones of some non-human mammals. This aspect is worthy of further exploration, since the endosteal surface is likely to be visible in the majority of bone fragments. One problem with such research is observing the endosteal surface of an appropriate number of bones without destroying them (for bones held in collections). Simple radiography allows clear images but the two-dimensional nature means it is not possible to determine whether internal bone patterns relate to the endosteal surface itself or the central medullary space of the bone. Computed tomography (CT) may be the answer, as it allows images to be rotated and viewed from numerous orientations.

However, regular CT can have difficulties defining very fine bone. This poster describes a pilot study conducted to determine how well CT can be used to visualise the endosteal area of a range of long bone sizes. The major limb bones of a rabbit, cat, dog, two different wallabies, red kangaroo, sheep, pig and horse were compared with those of several humans. The results show the clarity of image that can be expected (smaller bones are more difficult to visualise), and the type of information regarding the endosteal region it is possible to extract from such images. This research is an important step in shaping new paths for continuing research in readily accessible methods for the identification of bone fragments



**'Waste Not, Want Not' Mission Era
Appropriation of Sacred Stones in Aneityum,
Vanuatu: An Ethnographic Approach
to the Archaeological Record**

Dijana Crook, *Australian National University*
Stuart Bedford, *Australian National University*
Matthew Spriggs, *Australian National University*
Matiu Prebble, *Australian National University*

Mission contact in southern Vanuatu greatly impacted on the traditional beliefs of indigenous populations. Missionaries strove to make physical changes to the villages by constructing specialised structures such as churches, printing houses, teaching institutions and dwellings. These changes served to provide a visual reminder of the dominance of the new religion. However, changes did not simply happen on the surface, and it is through the ethnographic approach that we can identify the indigenous reaction to the conversion process. By investigating oral traditions, a cache of buried sacred (tabu) stones were uncovered on the mission site established in 1848 by Rev. John Geddie in Anelcauhat, Aneityum and date to the mission period via contextual association with historical artefacts. Rubble, consisting of washed and unwashed plaster, mortar and dressed stone, covering these stones indicates their intentional burial by members of the mission. The presence of dressed stone provides an upper limit date for the burial, aligning with the stone church construction during the 1860s. Two associated pits excavated adjacent to the tabu stone pit and filled with historic building debris, provide additional dating contexts and indicate that Presbyterian ideals of cleanliness and order permeated through to removing remains of old buildings from sight and extended to include repurposing sacred stones into mission era structures. Surviving missionary records have contributed to information gleaned from the archaeological record and together strongly suggest that these stones were put to structural use within the

mission site. In particular, the topmost sacred stone, raised significantly above the remaining stones, and stabilised by dressed stone beneath it, indicate its use as a doorstep. Such repurposing in high traffic areas advocates the intention to symbolically remove the imbued power from these artefacts – a practice not unusual to southern Vanuatu and Aneityum in particular.



**Translating the Workflows of Field
Archaeology: The Customisation of the
FAIMS Excavation Recording Module**

Penny Crook, *La Trobe University*
Shawn Ross, *University of New South Wales*
Adela Sobotkova, *University of New South Wales*
Brian Ballsun-Stanton, *University of New South Wales*

In late 2013, we prepared a demonstration recording module for excavation, now known as the Federated Archaeological Information Management Systems (FAIMS) Excavation Recording Module. It was designed to serve the workflow of single-context recording, in a multitrench excavation. It followed a detailed comparison of 11 excavation recording sheets submitted by our FAIMS partners and drew on the Museum of London's guide book. It was released as a textbook exemplar. The module has now been adopted by several projects. With each deployment, we have added attributes, presented attributes in new ways, made design enhancements, and produced one complete translation to Spanish. The modules now look very different, and in some cases they function differently to accommodate idiosyncratic workflows, but they retain a shared set of equivalent concepts. As a result, they still produce data that is largely comparable with no additional effort – an outcome we expect to extend to many more modules of this type. This paper discusses the customisation of the FAIMS Excavation Recording Module and examines the analytical benefits, the practical limitations, and the long-term productivity gains of the FAIMS approach to data comparability.



Food Crops, Culinary Frontiers, and the Colonisation of Madagascar

Alison Crowther, *University of Queensland*
Nicole Boivin, *University of Oxford*
Dorian Fuller, *University College London*
Leilani Lucas, *University College London*
Solomon Pomerantz, *University of Oxford*
Henry Wright, *University of Michigan*
Chantal Radimilahy, *University of Antananarivo*
Mark Horton, *University of Bristol*

The first permanent colonisation of Madagascar is one of the longest-standing puzzles of African prehistory. Despite its proximity to East Africa, converging lines of genetic, linguistic and cultural evidence suggest that this remote western Indian Ocean island was first settled by people from Indonesia, yet decades of archaeological research has so far failed to find any direct evidence of links to Southeast Asia in the island's first settlements. One potentially critical line of enquiry that has been largely ignored is the remains of food plants that were introduced as part of this trans-oceanic migration. These are thought to include various vegetative crops such as banana, taro and yam, as well as Asian rice. Oxford's Sealinks Project recently undertook renewed excavations at several early occupation sites on Madagascar with the explicit aim of recovering archaeobotanical evidence of these crop transfers. We present the preliminary results of these analyses, and contextualise them in light of broader archaeobotanical and culinary patterns from across East Africa and the Comores, highlighting major differences in the past foodways of these regions. We argue that these differences represent deeply-embedded cultural values and food preferences, which in the case of Madagascar reflect strong Southeast Asian influences during its early settlement phase.



Age and Provenance of a Bronze Swivel Gun from Dundee Beach, Northern Australia

Matt Cupper, *University of Melbourne*
Jon Woodhead, *University of Melbourne*
Ian McIntosh, *University Indianapolis*
Tim Stone, *Tim Stone Heritage*
Michael Owen, *SEP Consultancy*
Michael Hermes, *Consultant Archaeologist*
Matthew Maus, *Indiana University Bloomington*

A bronze cannon found on a Northern Territory beach in 2010 may be evidence of early historical Asian or European contact with northern Australia. The 107cm-long gun, an anti-personnel light artillery piece, was found on the mudflats at Dundee Beach southwest of

Darwin by then 13-year-old Christopher Doukas. There is debate over the origin and age of the gun. When first reported in the popular media, it was speculated that the gun might have once belonged to sixteenth century seafarers from Portugal. Conversely, some have proposed that the gun is most likely an Indonesian reproduction of European original. It has been theorised that the gun may have belonged to a slaving party of Balinese or Banda Islanders or perhaps Macassans involved in the trepang trade. Stylistic, metallurgical and dating analyses are being utilised to provenance the gun. These include optically-stimulated luminescence (OSL) and Accelerator Mass Spectrometry (AMS) radiocarbon dating methods applied to sediment in the gun to assess how long the gun had been buried in the sand. The OSL results suggest that most of the sand washed into the barrel around 250 years ago. However, both older and younger sand is present and an AMS radiocarbon age from seaweed in the barrel gave an age after 1950. Lead isotope analyses have provided similarly inconclusive results. Of the known lead sources, the lead isotopic signature of the gun is most similar to that of several ores from the Iberian Peninsula. Ongoing studies may further characterise the age and origin of the Dundee Beach swivel gun.



New Investigations of Some Very Old Human Remains from Niah Caves, Sarawak, Malaysia

Darren Curnoe, *University of New South Wales*
Ipoi Datan, *Pengarah Jabatan Muzium Negeri Sarawak*
Paul Taçon, *Griffith University*
Charles Leh Moi Ung, *Pengarah Jabatan Muzium Negeri Sarawak*
Mohammed Shermann Sauffi William, *Pengarah Jabatan Muzium Negeri Sarawak*

Pleistocene-aged human remains from the West Mouth of Gua Niah (Niah Caves) have played a central role in reconstructing the early peopling of East Asia and Australasia for more than 50 years. Ever since D. Brothwell likened the 'Deep Skull' to Aboriginal Tasmanians in 1960, and made much of purported similarities to the Talgai skull, a consensus has held that people closely related to Aboriginal Australians once occupied much of Southeast Asia before being replaced during the Neolithic. Yet, from the biological perspective, this scenario hinges largely on outdated interpretations of a very small number of Pleistocene human fossils and overly-simplistic interpretations that have considered any cranium from Southeast Asia with a rugged morphology to show affinities to Australians. Here we present the results of a new morphological investigation of the 'Deep Skull' and a stratigraphically similarly-aged and previously unpublished partial

mandible from the 'Hell Trench'. Our findings suggest that the living indigenous people of Borneo may not be the descendants of Holocene (Austronesian-speaking) migrants but instead owe their ancestry to the earliest Pleistocene humans in the region. They also undermine the hypothesis of a widespread Pleistocene presence of people closely related to Aboriginal Australians in the northwest archipelago of Southeast Asia. Instead, our work is consistent with recent genetic studies about the ancestry of living indigenous populations like the Iban living in Borneo today.



A Relative Date for Pilbara Petroglyphs

Ben Curtis, *Terra Rosa CRM*
Tim Pietsch, *Griffith University*
Jon Olley, *Griffith University*

This project was born out of consultancy work in the Hamersley Ranges, in the country of the Yindjibarndi Traditional Owners. A set of stratigraphic circumstances were noted within a rock art site which offered the opportunity to utilise OSL dating techniques, to provide a relative date for the creation of a suite of petroglyphs on a single, large panel. Through consultation with the Yindjibarndi Traditional Owners and collaboration with Dr Timothy Pietsch and Prof. Jon Olley of Griffith University, a process was devised to undertake this project, which has produced both interesting results and a process that could be applied more broadly to rock art sites within the Australian arid zone.

D



Anthropology is the Study of all Peoples at all Times and in all Places: Discuss

Iain Davidson, *IDHA Partners*

In this paper I will reflect on a lifetime of archaeology as a European becoming Australian. In doing so I will consider some fundamental questions about the nature of archaeology and the reasons why it is done. Given archaeology's close association with national histories, puzzles occur when people step outside their local areas to look at the archaeology there. As a discipline originating in Western Europe in the nineteenth century, many of the research agendas still reflect the frameworks established there and there. Researching inside and outside Australia/Sahul requires perspectives different from those, and illuminates issues outside Australia/Sahul. I will argue that only by allowing ourselves to

see the rest of the world from Sahul can we realise the objective of anthropology as defined in my title.



Simulating Mobility, Place Use, and the Distribution of Stone Artefacts at Rutherford's Creek, Western New South Wales

Benjamin Davies, *University of Auckland*

Archaeologists studying surface assemblages often rely on scatters of lithic artefacts to inform on past human activity. The cortex ratio method is one approach which uses geometric models of raw material to assess the amount of cortical stone present in an assemblage against what might be expected from the assemblage. This figure has been used as a proxy for mobility, expressed through the net transport of lithic material to and from a location. However, the scales of mobility and human activity inferred from these assemblages usually extend well beyond the boundaries of assemblage study areas, meaning that assemblages represent a sample of a larger, more continuous landscape. Understanding what these assemblages mean in terms of human mobility requires some assessment of how these samples fit within a wider distribution. This study uses computer simulation to evaluate interpretations of mobility and place use from distributions of cortical stone in surface assemblages at Rutherford's Creek in western New South Wales. First, the cortex ratio concept is investigated using an exploratory agent-based model coupled with an experimental dataset. Model outcomes are found to be consistent with expectations from the differential distribution of cortex, and the influence of local core reduction intensity on assemblage variation is demonstrated. Second, a measure called the average cumulative cortex ratio is proposed for evaluating the dispersal of cortex over a continuous surface. This measure is based on multidistance spatial clustering statistics, and is shown to be sensitive to patterns in distance ranges of artefact dispersal. Finally, the differential distribution of cortex within the Rutherford's Creek stream catchment is assessed by simulating different scenarios of place use and computing the average cumulative cortex ratio on simulated data.



'Corporal Punishment and the Grace of God': The Archaeology of a Nineteenth Century Girls' Reformatory

Cherrie De Leiuën, *Flinders University*

The site of St John's, near Kapunda, South Australia was one of the earliest Catholic parishes established in the state, and was converted for use as a reformatory in 1897. The buildings, remote and isolated, evolved and were altered from an open site as a presbytery and a church, to a place for community and children as a school; then to a closed, confined Girl's Reformatory, run by nuns. Enclosed within high galvanized iron fencing, the site was altered to contain 'classed' dormitories, 6ft x 6ft x 6ft cells, workrooms and a chapel. Symbolising contemporary attitudes towards female and juvenile crime and punishment, social welfare and the particularities of the Australian colonial situation, girls aged between 13 and 17 suffered excessive sentencing, punitive domestic training, drudgery and repression – not only because they were 'bad' but also because their 'crime' was being female, poor, and Irish Catholic. The site physically restrained, reconstructed and sought to transform gender, religious and cultural identities. These processes materialised in the landscape, the architecture, and the artefacts left behind and are analysed in this paper as a discourse on gender and repression.



The Murrundi (River Murray) Recovery Program: Sugar Shack Wetland Complex as a Case Study in Indigenous Stewardship

Amy Della-Sale, *Ngarrindjeri Regional Authority*
Isobelle Campbell, *Mannum Aboriginal Community Association / Ngarrindjeri Regional Authority*
Rick Hartman, *Ngarrindjeri Regional Authority*
Steve Hemming, *Flinders University*

The Ngarrindjeri Regional Authority (NRA) is working with the Department of Environment and Natural Resources on a project under the broader Murray Futures Program called the Riverine Recovery Project (RRP). The NRA renamed their involvement in the project as the Murrundi (River Murray) Recovery Project (MRP) with a vision to 'to bring life to Murrundi'. Supported by NRA's Ngarrindjeri Yarlumar Ruwe caring for country programme, the aims of the MRP include: building the capacity of the Mannum Aboriginal Community Association Inc. (MACAI) to care for Murrundi; bringing Ngarrindjeri interests, cultural principles and rights and responsibilities to Ngarrindjeri Ruwe/Ruwar (country) into water and natural resource management; developing long-term strategies for

culturally appropriate community development and strengthening the partnership between NRA and the South Australian government in NRM. This involves the application of a cultural health assessment programme and registration of each wetland under the *Aboriginal Heritage Act 1988* as part of the well-known Ngurunderi creation story of Murrundi. The approach ensures that elements of each wetland complex – including burials, Ancestor trees and Old people as parts of the broader body of Murrundi are valued, cared for and understood and that a 'plan' is in place to ensure long-term care and protection. This ongoing process has begun with preliminary input into wetland management plans, and through on-ground heritage survey works as part of the RRP. This paper presents a case study of a wetland plan developed by the NRA for a series of wetlands north of Swan Reach renamed the Sugar Shack Complex. The plan incorporates Western scientific knowledge and Ngarrindjeri knowledge and aspirations in long-term management of this wetland complex. The NRA expects that the Sugar Shack Complex will become an example of best-practice Indigenous management or 'stewardship' of wetlands in the Murray-Darling Basin.



Early Agriculture and Plant Domestication in New Guinea and Island Southeast Asia

Tim Denham, *Australian National University*

The multidisciplinary evidence for early agriculture and plant domestication in New Guinea and Island Southeast Asia is reviewed. Drawing on new research, traditional portrayals of early-to-late Holocene agricultural history for these regions are revised. The broader significance of agronomic practices and plant domesticates originating in the broader Island Southeast Asia-New Guinea region are highlighted with respect to locales extending from the Pacific to West Africa.



The Book as Artefact

Robin Derricourt, *University of New South Wales*

In archaeology we focus a lot on artefacts, their classification and the behavioural and social significance of this classification. The long-form publication called the 'book' is an artefact created by humans (including archaeologists) with its own characteristics, descriptive elements, economic and social contexts: an artefact subject to classificatory categorisation. This short presentation is based on the presenter's experience both as author and as publisher. It will address the perceived difference between book categories in the hard sciences (with a sharp trimodal division into text,

trade and specialist) and the humanities (where these categories have traditionally merged or been blurred). Has archaeology long-form writing moved to the first model from the second as the discipline has developed and changed? Is it now locked into the framework and categories of science publishing rather than the communication modes of the humanities? A broader question is how the structures of long-form publication affect our desire to communicate. Will the future models of long-form publishing in archaeology allow both the 300,000 copy seller (as achieved by Gordon Childe) and books in the Archaeopress/BAR series (3220 titles and still counting) each with far fewer (and perhaps at times no) actual readers?



The Materiality of Rock Art: Complex Narratives between People and Stone

Julie Dibden, *NSW Archaeology Pty Ltd*

This paper looks at images as objects in an archaeological analysis of the rock art. The land of the southern Sydney Basin, with its abundance of sandstone, provided Aboriginal people with an opportunity to formulate and enact a visual language for the objectification of their ideology and social geography. In this paper, imagery is conceptualised as much more embodied than merely style, signs, symbols or representations. While traditional analyses assume that style is where social information is encoded, in this analysis, the materiality of rock art is emphasised. Several images will be discussed to illustrate this view. The analysis is framed with reference to the notion that the physicality of rock art is entangled in the world of praxis and that the construction of meaning is born out of action as much as conceptualisation. It is argued that symbolic and materialist readings of the world are a false dichotomy, and that rock art, as a medium of objectification, allows us to glimpse a complex narrative of rock art as a material technology of marking ideology and meaning onto the land.



Archaeobotanical Analysis of Riwi Macrobotanical Remains, Kimberley, Western Australia

India Ella Dilkes-Hall, *University of Western Australia*

Riwi is a limestone cave with a well-defined Pleistocene and Holocene sequence dated to 47,000 cal BP at the lowest occupation level. Although largely confined to Holocene sediments, the preservation of the macrobotanical remains is excellent. This project provides a remarkable opportunity to investigate the use of plant remains in the site by hunter-gatherers. Seeds, bark, woodshavings, twigs, leaves, and artefacts

made from plants (such as twine, wooden tools, and painted wood) provide evidence for the economic use of plants by people throughout the Holocene. However, macrobotanical remains can also be deposited at the site by animals or through natural processes such as aeolian input. Therefore, a major component of the project analysis concentrates on the taphonomy of the macrobotanical material from Riwi to identify the different sources of input possible and distinguish cultural activity from natural processes. This presentation will enlighten the potential of archaeobotanical analysis to provide information about subsistence and social strategies on the edge of the arid zone during a period of rapid social change.



Reconstructing the Localised Archaeostratigraphy of Location 969660 on the Lake Mungo Lunette

Emily Dillon, *Australian National University*
Tim Denham, *Australian National University*
Nicola Stern, *La Trobe University*

Lake Mungo, part of the Willandra Lakes system in southeastern Australia, has been the focus of archaeological and geomorphological research since the 1970s. Previous research has established a series of generalised stratigraphic models for different locales within this highly dynamic landscape, subjected to a range of environmental and cultural processes. Understandably these macroscale stratigraphic models are guides that have been applied to the lunette as a whole; each unit representing thousands or tens of thousands of years and general depositional and climatic trends. New research conducted at location 969660 on the Lake Mungo Lunette has been designed to reconstruct a high-resolution, time-limited archaeostratigraphic sequence from within a deflated surface of archaeological interest. In this talk we present the results of these investigations, with a focus upon how these local sequences correspond to published stratigraphic models and in turn how these sequences correspond to depositional and palaeoclimatic conditions associated with the archaeology within location 969660. The focus here is to construct a highly-detailed and specific archaeostratigraphic model for location 969660 in order to provide increased archaeological resolution and understanding for the site.



Beyond Subsistence of the Unfree: Nineteenth Century Artefacts at the Prisoner Barracks, Port Arthur

Caitlin Dircks, University of Sydney / Port Arthur Historic Site Management Authority
Martin Gibbs, University of New England
David Roe, Port Arthur Historic Site Management Authority
Chloe Hamilton, University of Sydney

The c.1833 palisaded 'defensible barracks' was one of the first permanent structures completed at the Port Arthur secondary punishment convict station on Tasman Peninsula, Tasmania. Located at the heart of the settlement, the several barracks buildings were originally intended to house the several classes of prisoner, although over time the complex evolved to encompass a range of different uses including accommodation for 'lunatics and paupers'. Surprisingly, many of the buildings survived to the end of the convict era before being destroyed in the 1880s and 1890s. In 1976 the site was partially excavated by University of Sydney PhD student Maureen Byrne, whose tragic death the following year meant that the artefact analysis was never completed. Re-engagement with the barracks assemblage commenced in 2012 by Gibbs and Roe as part of a new University of Sydney/PAHSMA research design, with a University of Sydney field school and 2013 Honours projects by Dircks and Hamilton examining the evolution of consumption and subsistence practices at the Prisoner Barracks within a broader network. Ambiguities between historical and archaeological sources indicate that the settlement functioned through both official and unofficial everyday activities. Official regulations prescribed a practice of subsistence based on rations, although both faunal remains and material possessions indicate the consumption of goods beyond the rationing system. Historical documents suggest the excavated area of the barracks was inhabited by privileged convicts, whereas the study found evidence of more varied occupancy in later periods including military personnel and their wives and children. While these results reflect the complex patterns of subsistence and consumption within the Prisoner Barracks, they facilitate further comparisons for a more comprehensive understanding of the unfree. The lives of all the occupants may be considered unfree regardless of their status, as the regulations and hierarchy of prison life affected the supply and control of consumption for all who lived there.



Hominin-Bearing Caves and Landscape Dynamics in the Cradle of Humankind, South Africa

Paul Dirks, James Cook University
Christa Placzek, James Cook University

We provide constraints on the evolution of the landscape in the Cradle of Humankind (CoH), South Africa, since the Pliocene to better understand the distribution of hominin fossils and determine links between tectonic processes controlling the landscape and the evolution and distribution of hominins occupying that landscape. We focus on the site of Malapa and the remains of *Australopithicus sediba*. Ultimately our hope is to develop a dynamic landscape model that is predictive in terms of hominin fossil distribution. Regional erosion and landscape modification rates have been quantified using ¹⁰Be cosmogenic dating. Catchments in the CoH were lowered on average at $3.82 \pm 0.52 \text{ m/Ma}$ i.e. one of the lowest basin-averaged erosion rates ever reported on Earth. Basin-averaged erosion rates are consistent with palaeo-erosion rates (3.99 ± 1.00) over the last 4 Ma. Therefore, the overall physical landscape in the CoH is old and stable. Despite this, significant landscape modifications occurred locally. Using ¹⁰Be exposure ages local down cutting rates were calculated that show that 2 My ago Malapa cave was ~10-20m deep. Cave fossil deposits in the CoH for which well-constrained ages exist, are no older than ~2.8 Ma. Considering the slow erosion rates, the lack of older fossils suggests that caves only formed from ~3 Ma forward. We suggest that Pliocene uplift resulted in extension of fractures along which caves formed. This happened before general aridification of the landscape. Fossil-bearing caves have a distribution pattern that is distinct from non-fossil bearing caves, with different directional controls, a high degree of clustering and a characteristic bi-model fractal distribution best explained by a combination of geological and biological controls. Clustering of fossil-bearing caves reflects a Lévy flight patterns typical for foraging behavior in animals. The controlling element in this behavior could have been availability of water resulting in preferential occupation.



Combining Analytical Techniques to Investigate Interaction, Stone Transport and Manufacture in the Southern Cook Islands

Kane Ditchfield, University of Western Australia

Studying patterns of human interaction in tropical Polynesia represents a major research agenda in Polynesian archaeology. This is often reconstructed by using stone artefacts, not only because of their excellent preservation, but also because stone artefacts, especially adzes, were transported extensively in the

past. Recently, geochemical analyses have begun to investigate and establish the scale of Polynesian stone artefact transport by providing estimates for the distance and direction of movement from quarry locations. However, by combining geochemical research with chronological (e.g. occupation models using calibration software) and technological analyses (e.g. reduction intensity indices), while also providing estimates for the number of transported stone artefacts, it is possible to produce a much more holistic approach. To demonstrate this, these research foci are combined using recent analyses from the Southern Cook Islands. Results not only have implications for reconstructing patterns of interaction in tropical Polynesia but also for investigating variation in the intensity of stone manufacture and transport overtime in Polynesia.



Demonstrating Niche Construction through Zooarchaeology in Southwestern Australia

Joe Dortch, *University of Western Australia*
Wayne Webb, *Dowark Foundation*
Toni Webb, *Dowark Foundation*
Rebecca Foote, *University of Western Australia*
Shannon Henderson, *University of Western Australia*
Carly Monks, *University of Western Australia*
Tash Busher, *University of Western Australia*

Despite considerable research work in the 1970s and 1990s, zooarchaeological sites in southwestern Australia are under-utilised as sources of information about past Aboriginal land management. Niche Construction Theory (NCT) suggests that anthropogenic change in animal habitat can be identified from zooarchaeological records. Excavations in 2013 at Wonitji Janga, a late Holocene limestone rockshelter site, and a nearby unnamed sink-hole, near Yallingup, southwestern Australia, reveal changes in species representation from 500 BP to the early-to-mid-twentieth century. The most marked changes are among species that require the most intensive effort to manage or capture. This evidence suggests that as their ability to manage some animal species using traditional methods became restricted by British settlement, Wardandi Noongar people exploited alternative resources requiring less intensive foraging and management techniques. It also suggests NCT will be a useful paradigm for assessing pre-European Noongar land management elsewhere in the region.



Ancient Gardens of the Pacific: How can Anthracology Help Investigate the Question of Arboriculture and Human Impact on Tropical Islands Vegetation?

Emilie Dotte-Sarout, *University of Western Australia*

This paper proposes a comparison of two case studies looking at past environment and human management of woody resources, in pre-contact French Polynesia and New Caledonia. Both used the anthracological approach to analyse wood charcoal macro-remains from archaeological deposits. Results demonstrate remarkable differences between the two regions; (1) concerning palaeoenvironmental and palaeoethnobotanical histories – despite their common Lapita heritage of transported landscapes and crops; (2) relating to methodological considerations for the application of anthracology in the tropical Pacific. The anthracological assemblages obtained from three New Caledonian precolonial Kanak settlement sites show few signs of deforestation per se in the oldest levels (c.1200-1400 AD) – despite 2000 years of human presence on the island, but a rapid and more disruptive impact is recorded in the latest pre-colonial period (c.1600-1800 AD). In contrast, the French Polynesia assemblages, obtained from five natural and cultural sequences on three islands of the Society and Gambier archipelagos, demonstrate a rapid and quite dramatic transformation of the vegetation following human settlement in the early second millennium AD. A similarity of significance exist between the two regions though: that wood charcoal records show a replacement – more or less severe – of the native forest by anthropogenic arboricultural gardens rather than simple deforestation. In terms of methodology, while New Caledonia exhibits an extremely high taxonomic diversity demanding for larger assemblages to be analysed in order to secure valid palaeoecological and palaeoethnobotanical interpretations, the French Polynesia assemblages are relatively less complex in their composition, allowing for a stronger focus on detailed issues surrounding species identification. These differences and similarities will be discussed in an effort to pinpoint the archaeological questions that can be investigated by anthracology in the Pacific, and the methodological challenges at stakes.



Can the Study of our Ancestors Enhance our Modern Societies? With an Emphasis on Australian Aboriginal Peoples

Mark Dugay-Grist, *Grist Archaeology Heritage Management*

Homo sapien sapiens are social creatures by nature and the need to survive is our prime objective! But how we survive depends on the mechanisms we choose to employ, via basic human needs, technology, mental, emotional and/or spiritual behaviours. In this paper it is my wish to extract from our present learnt understandings of the oldest continuous living culture on earth, the Australian Aboriginal peoples, whom as a people have survived for at least 40,000 years, employing the most basic materials known to our species – wood, stone and fibre, together with a comprehensive understanding of the flora and fauna for subsistence and spiritual well-being. The question for me presently, is; can a hunter-gatherers' ethos and practices play a part in enhancing the thinking and workings of a modern world? Is it possible for our modern societies to benefit from understanding the ways in which the Australian Indigenous people are surviving? What messages or practices from Australia's Indigenous peoples exist that may play a part in enhancing our global future? To conclude I would like to summarise: what can be learnt from how my people (the Australian Aboriginal peoples) were viewed in the past and how we may be viewed in the future, using education and understanding.



Cylcons: A Fresh Approach

John Duggan, *Museum Victoria*

Cylcons are unique and significant cultural objects from within the Darling River Valley in New South Wales. The distribution of the main Cylcon caches extends from just north of Burke to south, to the Murray River junction. Through acquisitions spanning a century, an estimated 820 Cylcons have been in the care of Museum Victoria since the late 1890s. In 2012–2013 this collection was extensively documented and rehoused according to current professional museum standards, with the aim of engaging with and sharing this information with the relevant communities. This collection is currently managed according to the cultural protocols applied to Restricted Australian Indigenous Collections, and community engagement is essential to its care and access. Prior to work commencing in 2012, initial contact was made with a number of community members in western New South Wales to inform them of the Cylcon collection and this project, and to contribute any concerns or opinions toward the collection

management work that was about to take place. Formal consultation commenced in May 2014, with the aim of engaging with Traditional Owners in western New South Wales regarding Cylcons. The aims of this project are to share information about the Collection; record the views of Traditional Owners to better understand the status and meaning of these cultural objects; ensure that they are appropriately managed now; consider the future of these objects; and to provide advice for the care and cataloguing of such collections.



Reflected in the Soil: Site Formation Processes as an Index of Social and Environmental Change at the Mound Site Ban Non Wat, Northeast Thailand

Belinda Duke, *James Cook University*

Understanding and interpreting site formation processes of mounded sites is an invaluable tool for examining the changes in social and environment conditions in prehistory. This paper will present data from the site of Ban Non Wat (BNW) where 4000 years of habitation has been recorded in the site's stratigraphy. This research examines mound sites, such as BNW, as artefacts within the cultural landscape, where each sediment deposition event can be viewed as part of the social memory of the site's (and by extension, the community's) development. A multiproxy approach was applied to describe formation processes, with emphasis on distinguishing between natural and anthropogenic deposition. This approach incorporates elements of traditional archaeological approaches to stratigraphy, geological analyses of sediments and Bayesian statistical treatments of radiocarbon dating. Ground-penetrating radar (GPR) analyses are also incorporated. Social memory theory was applied to these results to identify patterns in sediment deposition in terms of the social and cultural practices behind them. This paper moves away from environmental deterministic interpretations and emphasises that it is the interaction between environment and social events that shape both the formation processes and the nature of the community that lived there.



Dark Tourism, Archaeology and the Spectacle of Shipwreck

Brad Duncan, *University of Sydney*
Martin Gibbs, *University of New England*

Archaeologists have tended to view relationships between people and shipping mishaps in relatively simplistic terms focused on mitigation, rescue and economically-driven salvage, usually with reference to site formation processes and the eventual extraction of materials

from wreck sites. However, even the briefest glance at images captured of near-shore wrecks in progress shows shorelines and cliffs packed with multitudes of people, hinting at a far more complex desire for engagement with wrecks and wreck materials. In this paper we explore several mid-to-late twentieth century shipwrecks in the Queenscliffe on Port Phillip Bay (Victoria), drawing on oral, documentary and archaeological data to consider the wider range of motivations behind witnessing the spectacle of shipwreck, and how these encounters sit within the 'dark tourism' spectrum. This includes the driving forces behind removing material from sites, the significance of wreck-related objects, and the generation of wreck-related tourism items.



Overseas Chinese Archaeology in Australasia

Melissa Dunk, *University of Queensland*

Over the past 10 years, the volume of Chinese-Australian heritage conferences and publications has increased. The last published review of Overseas Chinese archaeology in Australasia was conducted by Neville Ritchie in 2003. At the time, he concluded that there was no sustained academic interest in Australia and New Zealand. Archaeological research on the Overseas Chinese has traditionally focused on sites and objects across Australasia, and although this contributes to the information known about the Chinese community during the nineteenth century, there is a general lack of research connecting and exploring the interactions of the Overseas Chinese. More recent research on the Overseas Chinese in Australasia has adopted a trans-disciplinary approach focusing on the social community and narratives of the Chinese people.

This paper aims at identifying gaps in current archaeological research on the Overseas Chinese in Australasia and the differing approaches taken by historians and archaeologists. To address this question, a review of Overseas Chinese archaeology in Australasia since 2003 is presented, providing insights into current directions, and allowing for areas with research potential to be established.



The First Digital Reconstructions of Crania from Roonka, South Australia

Arthur Durband, *Texas Tech University*
Marcia Ponce de Leon, *Universität Zurich-Irchel*
Keryn Walshe, *South Australian Museum*
Christoph Zollikofer, *Universität Zurich-Irchel*

Between 1968 and 1976 excavations at Roonka Flat, South Australia, recovered the remains of approximately

200 individuals. These remains date from roughly 7500 BP to the time that Europeans became established in the area (approximately AD 1840). The depth of history represented at Roonka, along with the sheer number of remains that were recovered, makes this site uniquely suited to approach a number of questions about Australian prehistory. Unfortunately, many of the crania are fragmentary, and in the majority of cases various quantities of molding wax were used to attempt reconstructions. The sheer number of these reconstructions, and their varying quality, have led many researchers interested in ancient Australians to discount the value of this collection. During January and February of 2014 the entire skeletal collection from Roonka was scanned using computerised tomography (CT). These scans are used to digitally reconstruct damaged or previously reconstructed crania. The wax used in the original reconstructions is digitally removed, allowing the surviving cranial fragments to be separated and repositioned to provide more accurate virtual reconstructions of these individuals. This presentation will detail the first reconstructions to be attempted, and discuss directions for future research with the Roonka crania.

E



'Not the Worst Goldfield in Queensland': Archaeological Landscapes of Mobility at the Cape River Gold Field

John Edgar, *James Cook University*

This paper discusses examples of the archaeological landscape of mobility at the North Queensland goldfield of Cape River during the 1860s and 1870s. While mobility is the defining feature of a goldrush the continuous mobility of miners, administrators and machinery once the field was established is a means of exploring the development of a goldfield. The landscapes of mobility are constructed using a modification of James Delle's spatialities of contestation. They form part of a broader examination of archaeological landscapes at the field revealing some of the complexity of social interaction at an early North Queensland goldfield.



Sport and War in North Queensland: How does the Archaeological Record Expose the Inter-Connection between Sport and War?

Christopher Egan, *British Consulate / Independent Scholar*

War and sport are two themes that have shaped Australia's national identity. Sport in particular is often a cultural centrepiece of society in Australia; however our sporting fields have largely been forgotten by historical archaeologists. This paper will look at the Townsville Grammar School War Memorial Gates, Eton Memorial Gates and Winton Memorial Swimming Pool to gather an understanding of how the themes of war and sport interacted within North Queensland. Rather than treating war memorials as isolated objects, they should be seen as reflecting historic trade and communication links. This presentation hopes to stimulate discussion surrounding the role of archaeology and how it can aid the historical archivist in writing the stories of their community, as few sports historians have looked at the archaeological record to understand this history.



Aboriginal Prospectors and Miners in North Queensland

Galiina (Kal) Ellwood, *James Cook University*

The history of Aboriginal mining in post-contact Australia has been both neglected by historians and forgotten by the community. In North Queensland alone there are 22 named individuals, 17 named families and an unknown number of the nameless who were Aboriginal miners and prospectors mentioned in the historical records. Using historical records and archaeological investigation, this paper will present a case for continuance of pre-contact mining in the Chillagoe District.

F



The Boncuklu FAIMS Mobile Application in the Field: Implementation, Testing and Feedback

Andrew Fairbairn, *University of Queensland*

Boncuklu is a 10,000 year old early farming site in the high plateau of Central Anatolia excavated as part of a joint project between The University of Liverpool and The University of Queensland (<http://boncuklu.org>). At 1ha in area and 1.5m in depth it comprises a shallow and finely-

stratified artificial mound – höyük, tell or tepe – with a complex stratigraphy incorporating houses, middens and external work installations. Excavated in open areas using a single-context recording system, archaeological data – including context information, finds information and sample processing details – have been recorded at the site using paper forms and plans supplemented by digital photography. Long-term integration and curation of recorded data is primarily done through a stand-alone relational database entered manually from the paper records. In July-September 2014 the Boncuklu Project trialed a mobile application produced by the Federated Archaeological Information Management System (FAIMS) Project (<https://www.fedarch.org/wordpress/>) to record and integrate project data aiming to allow easier and more efficient data handling, storage and dissemination, as well as sample and artefact tracking and storage. The system comprises multiple handheld Android tablets linked via a local Wi-Fi system to the FAIMS server which stores, integrates and backs-up the data from each tablet. The project is also trialing the 'FAIMS in a box system', which provides an integrated off-the-shelf system for instant deployment. This paper will describe the 2014 experience of deploying the Boncuklu FAIMS Mobile Application, including survey data from team members investigating attitudes to and evaluation of electronic recording in relation to traditional paper recording systems.



There for All to See: Using Video to Communicate Archaeology

Charlotte Feakins, *University of Sydney*

Archaeology is a visually-rich discipline and, unsurprisingly, offers attractive viewing through audiovisual media, like film and television. When we think of archaeology on the screen, we often think of big budget Discovery Channel-type documentaries or the ever-popular *Time Team* television programme. Small-scale videographic productions, using hand-held devices, seldom come to mind, however, these can offer an effective means for disseminating research to a wider audience. On a basic level, video can be used to complement textual media, providing a rich visual description of the archaeology, including the site, environment and material remains, as well as recording thoughts and experiences of those involved. Whether a quarry, cave or crowded street in Sydney, an artefact *in situ* or rock art high on the Arnhem Land plateau, or an interview with an old women who remembers the site as a child, such vivid images are of great significance and communicate much more than words, maps and photographs alone. With colour, sound and dynamism, a greater understanding can be presented

via a videographic medium, complementing black-and-white, often jargon-dense, articles and documents, and making research more accessible and interesting, allowing a wider audience of lay people to connect with it. My doctoral research is investigating the historical archaeology of remote buffalo shooters' camp sites in the Northern Territory, examining cross-cultural relationships that were formed and negotiated from the late nineteenth century to mid-twentieth century. It aims to provide a more objective understanding of this shared history, replacing Eurocentric and biased accounts. The research will be submitted as a written document but with an accompanying high definition video component, providing an alternative means of understanding my research, which is accessible to a wider audience than text alone and offers an alternative form of representation.



Pre- to Post-Lapita Predation Patterns: Shellfish Exploitation at Tanamu 1, Caution Bay, Papua New Guinea

Redbird Ferguson, *James Cook University*
Samantha Aird, *James Cook University*
Matthew Leavesley, *James Cook University*
Sean Ulm, *James Cook University*
Helene Tomkins, *James Cook University*
Bruno David, *Monash University*
Ian McNiven, *Monash University*
Eddie Thangavelu, *University of Southern Queensland*
Thomas Richards, *Monash University*
Tanya Drury, *James Cook University*

Few studies have investigated past human shellfish predation patterns using archaeological shell assemblages from mainland Papua New Guinea dating to the mid-to-late Holocene. Caution Bay boasts the largest Lapita site complex ever recorded on mainland Papua New Guinea and includes rich and diverse shellfish midden assemblages. Human harvesting of shellfish among ancestral coastal Motuan/Koita gardening societies was an important subsistence strategy. Our research questions 1) the nature of selection pressure on shellfish species and 2) optimal foraging strategies adopted by Motuan/Koita peoples. Morphometric analysis of two shellfish species from JD6, Square B, Caution Bay, Papua New Guinea will identify the age-at-death of *Anadara* spp. and *Conomurex luhuanus* midden assemblages. Morphometric results will be used to explore whether predation can be isolated to either human exploitation and/or environmental impacts on shellfish populations through time.



The Wet and the Dry: Aboriginal Responses to Northern Australian Tropical Rainforest Environments and Savannah Woodland

Åsa Ferrier, *La Trobe University*
Richard Cosgrove, *La Trobe University*
Judith Field, *University of New South Wales*

Recent research has suggested that the permanent occupation of Australian rainforests occurred c.2000 BP in response to increasing ENSO instability that started c.5000 BP. The hypothesis is that people moved permanently into these environments by adopting the practice of noxious food processing as a way to exploit new and important carbohydrate sources. This movement was argued to be a way to reduce risk and uncertainty in the face of resource unpredictability in semi-arid zones. The use of noxious foods afforded a more stable economic resource, albeit one that required considerable investment of time, energy and new technology. This was offset by the high return rates these foods were able to provide. Population appears to have increased, giving impetus to social and ceremonial activity, underpinned by a plentiful supply of carbohydrates. New research in the savannah country to the west suggests similar increases in activity at this time were under way in these regions as well. The discussion will focus on the various catalysts for rainforest-savannah occupation and whether a single cause like ENSO-driven population movement into rainforests is an appropriate explanation for the patterns recorded archaeologically.



Microfossil Evidence for Plant Use and Environmental Change from Koombaloomba Dam, Wet Tropics, North Queensland

Judith Field, *University of New South Wales*
Lisa Kealhofer, *Clara University*
Adelle Coster, *University of New South Wales*

Investigations of rainforest archaeological sites from the Koombaloomba Dam environs in the northeast Queensland Wet Tropics, have established a human presence here since the early Holocene (Cosgrove et al. 2007). These open sites have yielded abundant archaeological finds including excellent preservation of plant macroremains in the form of wood charcoal and the carbonised shells of some toxic starchy economic plant species including *Beilschmiedia bancroftii*, the Yellow Walnut. Examination of the microfossil record from soils collected during excavation at Urumbal Pocket (a Eucalyptus pocket within the rainforest) and Goddard Creek (within the rainforest), has revealed an *in situ* record of phytoliths and, through part of these

sequences, starch. The Urumbal Pocket excavations also yielded a small grindstone fragment from which starch grains were recovered. This paper presents the compiled phytolith and starch data and discusses the possible interpretation of site use and change through time as reflected in the plant microfossil record. Using recently developed analytical techniques for the analysis of starch we will explore the quantitative identification of starch to genera, and possibly species.



A Quantitative Approach to the Analysis and Identification of Ancient Starch

Judith Field, *University of New South Wales*
Adelle Coster, *University of New South Wales*
Simon Wyatt Spratt, *University of New South Wales*

The study of ancient starch as use-related residues, or in soils, has relied on the availability of good comparative reference collections to aid in identification. These identifications have depended on a range of subjective observations of starch grain attributes including absence/presence and description of fissures in the hilum, shape descriptors, presence or absence of lamella and position of the hilum, to name few. Currently, there is no standard methodology available which is comparable between researchers, with many of the attributes difficult to describe in a uniform way. We have developed an algorithm for the analysis of starch grains, which involves digitising the images and analysing these using a range of statistical methods to objectively determine the differences and similarities between assemblages. In doing so we are preparing a large starch grain database that will be available to researchers through an internet platform such as Palaeoworks (Simon Haberle, ANU), the intention being to make available all the data for other researchers to utilise. The starch database currently being constructed will group starch assemblages by bioregions and include all the metrical data.



Classification of the Rock Art of Red Lily Lagoon in Western Arnhem Land

Damien Finch, *Australian National University*
Tristen Jones, *Australian National University*

The rock art of a site at Red Lily Lagoon in western Arnhem Land has been surveyed and classified according to stylistic chronologies established for the region. The classification is based on depictions of human figures, weaponry and material culture. The rock art is dominated by paintings of energetic, speartrowing stick figures of

Darrell Lewis's Long Speartrower Period which would make these motifs less than 2000, but probably less than 1000, years old. Some 5% of motifs belong to the earlier Broad Speartrower and 'Hooked Stick' Periods. In Paul Taçon's chronology, almost all motifs belong to the Complete Figure Complex making them less than 3000 to 4000 years old.

Some motifs were unable to be classified into either of the main typologies. This reflects both the inherent variability of Arnhem Land rock art and the incomplete coverage of the prevailing typologies.



Stone Arrangements in the Lizard Island Group: A Study of Indigenous Seascapes in Northeastern Australia

Alison Fitzpatrick, *James Cook University*
Sean Ulm, *James Cook University*
Ian McNiven, *Monash University*

Stone arrangements are frequently encountered on mainland Australia and on offshore Australian and Torres Strait islands. They have high significance values in Indigenous Australian communities. Despite being ubiquitous in the Australian archaeological landscape the form and function of stone arrangements often remains ambiguous. This paper establishes methods to examine the authorship of stone arrangements documented in the Lizard Island Group, located in the northern section of the Great Barrier Reef in Queensland. Ethnographic and archaeological evidence demonstrates that Aboriginal and Torres Strait Islander peoples visited Lizard Island. The Dingaál people regard Lizard Island as a sacred site where men's initiations and other ceremonies occurred. Rich Dingaál oral history and detailed ethnohistoric and archaeological records made the Lizard Island Group an ideal case study for this research.



Assessing Cemetery Variability using Ground-Penetrating Radar

Aaron Fogel, *Griffith University*

Cemeteries that have been used for many decades often suffer from poor record-keeping and neglect, resulting in misplaced or missing headstones of an unknown number of unmarked graves. This poses significant issues for cemetery managers who are looking to identify areas for new burials within the defined boundaries of the cemetery. This is further exacerbated as the boundaries of many cemeteries were often poorly-defined throughout much of their use, resulting in a higher probability for unmarked burials to exist outside their currently defined extent. This then poses significant

issues for development or redevelopment adjacent to such cemeteries. Ground-penetrating radar (GPR) is often requested by cemetery managers, developers and Traditional Owners as a non-invasive technique for locating unmarked graves in these particular situations. This paper presents several case studies where GPR was cost-effectively implemented to (1) resolve the issues regarding unmarked burials; and (2) improve the long-term management strategies at a number of cemeteries across Australia. Occurring in both Indigenous and non-Indigenous settings, these surveys were conducted in temporally disparate cemeteries and were subject to variable vegetation regimes, surface roughness and soil types. These case studies originate out of both heritage management and research contexts and demonstrate the complexity faced by those involved in the heritage management process due to the combination of taphonomic processes and poor record-keeping.



Sourcing Stone along the South Coast of Papua New Guinea: Evidence from Caution Bay

Anne Ford, *University of Otago*
Jerome Mialanes, *Monash University*
Ian McNiven, *Monash University*
Thomas Richards, *Monash University*
Bruno David, *Monash University*
Glenn Summerhayes, *University of Otago*
Matthew Leavesley, *James Cook University*

The south coast of Papua New Guinea was first settled by Austronesian speakers c.2800 BP, as shown by recent evidence from Caution Bay. One of the markers of Lapita colonisation is the presence of highly mobile interaction networks, usually displayed through long-distance transport of obsidian. Over time, this colonisation phase appears to transform into regionalised local sequences with decreased interaction and mobility between areas. This paper will examine how exchange networks change over time in the Caution Bay area, using the geochemical characterisation of obsidian and the sourcing of greenstone axes.



The Old and New: The Cultural Landscape Surrounding Melbourne Airport Victoria

Asher Ford, *Biosis Pty Ltd*
James Shephard, *Biosis Pty Ltd*
Ilya Berelov, *Biosis Pty Ltd*

The Melbourne Airport area is located across the regions of Kior and Tullamarine. These areas have long been of interest to Australian and international archaeologists since the discovery of the Kior skull in 1940

demonstrated the antiquity of Indigenous habitation of Australia. Still a largely rural landscape in suburban Melbourne, Melbourne Airport and its surrounds preserves a fascinating landscape documenting past Indigenous and non-Indigenous lifeway's and interactions. This paper presents a discussion on the interpretation of this landscape using a combination of newer technological developments, such as LiDAR and GIS modelling, as well as historical archives, aerial photos, archaeological survey and excavation.



Dust on the Lens: Contemporary Art Photography and Archaeology

Ursula Frederick, *University of Sydney*

Within Australia, many archaeologists continue to espouse the 'mechanical exactitude' of photography and utilise the camera as a tool for documentation, specifically focusing on its powers as a device of representation. In contrast, I suggest that contemporary art photography asks questions of the medium. In this respect, a key contribution that contemporary art practice has to offer archaeology is by challenging photography's place and power as evidence and as testimony to reality. The sites and subjects of archaeological research have long been a source of inspiration for artists. As well as the material record itself, processes, ideas and archaeological metaphors such as excavation and stratigraphy, and even systems of artefact storage, presentation and display have proven to be fertile ground for artistic engagement. Photography, in particular, resonates historically with archaeology sharing a mutual interest in notions of the trace, the fragment, temporality, 'pastness' and fixity. In this paper I will survey work from several contemporary Australian art photographers whose practice involves a dialogue with archaeology.



Big Questions and Grand Challenges Round about Down Under

Richard Fullagar, *University of Wollongong*
Richard (Bert) Roberts, *University of Wollongong*

A variety of approaches have been applied to the identification of big questions and grand challenges for academic disciplines over the last 10 years. Some approaches have gone down the track of crowd-sourcing, web-based surveys and integration with global scientific challenges via a series of workshops. Disciplinary experts have contributed to a series of Specialty Grand Challenge Articles in *Frontiers in Earth Science* and there have been several such horizon-scanning exercises related to global

priorities in agriculture, forestry, ecology and conservation biology. In two papers published this year in *American Antiquity* and *PNAS*, Keith Kintigh and colleagues whittled down 181 responses to 25 global challenges facing archaeology under five broad themes. Are these approaches useful for reinvigorating an Australian research cluster for archaeological science? A key function of such a research cluster would be to foster collaboration and support, particularly where there are major gaps in our knowledge. This presentation opens discussion on how best to frame the big questions and grand challenges to identify research priorities for archaeological science in the Australian region, and we hope to use this forum as the catalyst for a workshop to explore future research directions and opportunities.



My Place – Your Place? Porous Rock Art Borders in the Southern Kimberley

Jane Fyfe, *University of Western Australia*

Anthropomorphic Wanjina figures are pervasive in public perceptions of rock art in the Kimberley; and for some of the linguistic groups these figures are central to their identity, law and relationship with the land. In the southern Kimberley we see Waliarri, which are Bunuba figures similar to Wanjina, but they are not prolific. This paper explores the extent to which Waliarri and other unique anthropomorphs and zoomorphs define the identity of the contemporary Bunuba and Gooniyandi peoples, and deconstructs the non-unique elements of anthropomorphs that are shared with western neighbours to define the liminal areas between the southern and western Kimberley.



Overcoming the Challenges of Time Depth in Stylistic Sequences with Innovative Dating Techniques

Jane Fyfe, *University of Western Australia*
Maxime Aubert, *Griffith University*

The challenges of positioning rock art within a framework of cultural change and exchange are considerably reduced when the art is datable. In Bunuba country in the southern Kimberley, pigment art dominates and rock art styles for anthropomorphs offer insight into identity and cultural exchange. New research and the application of innovative dating techniques now offer the opportunity to give these styles, and other rock art motifs, time depth. This poster presents the first results of the pigment dating applied to the anthropomorph stylistic sequence identified at a large and densely painted rock art site in the heart of Bunuba country.

G



Archaeological Investigations along the Northeast Coast of New Guinea

Dylan Gaffney, *University of Otago*
Glenn Summerhayes, *University of Otago*

This paper describes preliminary archaeological research undertaken in Madang Province, on the northeast coast of PNG in order to clarify networks of trade and interaction from 2000 BP to the ethnographic present. Surface surveys were undertaken along the coast following in the footsteps of Egloff's 1973/1974 work, and excavations were undertaken in June 2014 at two archaeological sites (Tilu at Malmal village, and Nunguri on Bilbil Island).



Lessons from Freshwater Middens: Late Quaternary Foraging and Subsistence Strategies from the Central Murray River Valley, Northwest Victoria

Jillian Garvey, *La Trobe University*
Darren Perry, *La Trobe University*

The Central Murray River Valley in northwest Victoria consists of a rich and diverse cultural landscape spanning the last 20,000 years. These sites have the potential to help inform on human behaviour and subsistence strategies. Despite the large number of cultural sites, zooarchaeological vertebrate assemblages appear to be rare. Alternatively shell middens are common, with some middens consisting of quite thin lenses but being laterally expansive in size (some measuring up to 400m in length). These middens are dominated by two aquatic molluscs: the Murray River mussel *Alathyria jacksoni* and the river snail *Notopala sublineata*. However while it is generally accepted that *A. jacksoni* was a common targeted prey species, it is thought that the smaller gastropod *N. sublineata* was collected accidentally as by-catch. To investigate, the potential economic and nutritional quality of these two taxa will be compared to the results of faunal analyses from middens across different land-systems spanning the Last Glacial Maximum to the late Holocene. These results, coupled with the modern behavioural ecology of these freshwater molluscs as well as ethnographic and modern cooking experiments, will help identify changes in human foraging and subsistence strategies in the region. Future isotopic and chemical analyses of these species will also contribute to our understanding of the local palaeoenvironment during the late Quaternary.



Economic Utility and Nutritional Value of the Common Wombat: Evaluating Australian Aboriginal Hunting and Butchery Patterns

Jillian Garvey, *La Trobe University*
Georgia Roberts, *La Trobe University*
Richard Cosgrove, *La Trobe University*

The Common or Bare-nosed wombat (*Vombatus ursinus*) is Australia's largest extant quadruped herbivorous marsupial, yet little is known about its potential economic and dietary value in the archaeological record. In the rich late Pleistocene southwest Tasmanian assemblages the wombat is the second-most common prey species, after the medium-sized macropod the Bennett's wallaby (*Macropus rufogriseus*). Detailed analysis of these sites indicates that the head, pectoral region and forelimbs of the wombat were frequently selected, while the pelvic girdle and hindlimbs were largely ignored. This differs to the wallaby butchery patterns where the anterior part of the animal is rare in the archaeological assemblages. To investigate the distribution of wombat body parts an economic utility and nutritional analysis was conducted, and the results compared to the distribution of wombat body parts in the southwest Tasmanian caves. It seems that people ignored the meatier hind limbs and pelvis, preferring the meat closer to the brain, which itself may also have been an influencing factor. It may also have been the high fat content surrounding the pectoral girdle and along the vertebral column that people were seeking. While wombat bones were fractured to obtain marrow, these elements do not provide the same quantity available from the Bennett's wallaby, suggesting that it was another commodity that people were seeking. These results have implications for understanding prey selection and butchery strategies of some of the most southerly late Pleistocene hunter-gatherers especially during the height of the Last Glacial Maximum, a time of significant climatic variability.



Shells, Fur, Fibre and Feathers: How do we Teach Aboriginal Archaeology to History Students?

Shirley Gilbert, *University of Western Sydney*

The new Australian History Curriculum provides teachers with unprecedented opportunities to explore notions of Aboriginal material culture. However, many teachers are struggling with the complexities and dilemmas of negotiating the sensitive knowledges and protocols associated with materials of a secret or sacred nature. How can non-Aboriginal teachers overcome these issues? As a Gunditjmara woman and teacher educator I will explain how historical enquiry method and the new curriculum's

historical thinking concepts of 'Contestability', 'Continuity and Change', and 'Perspectives' can stimulate students' critical thinking and challenge notions of the invisibility of Aboriginal people in the landscape of Australia's ancient past. I will also demonstrate practical ways that teachers can use representative items of Aboriginal material culture, such as shells, fur, fibre and feathers, to develop haptic and kinaesthetic learning activities that interrogate and interpret Aboriginal archaeology. Finally, I will address some of the ethical issues teachers face when dealing with negative stereotypes of ancient Aboriginal people that still exist in academic literature and history textbooks, and how teachers might build strong, positive relationships with local Aboriginal communities.



Issues in the Use of Offsets as a Means to Manage Impacts on Indigenous Cultural Heritage

Luke Godwin, *Cultural Heritage Systems and Strategies / James Cook University / University of New England*

The use of environmental offsets to manage the impact of infrastructure and mineral/energy extraction on biodiversity is now a common condition in the regulatory package for such projects. Resource development companies regularly fund expensive land acquisition programmes for just this purpose. These programmes have been heavily influenced by prescriptions from regulatory agencies: what elements of the area's biodiversity are at risk, how much land needs to be acquired, where that land should be acquired and how is it to be managed into the future? Impacts on Aboriginal cultural heritage have increasingly been seen as a matter that also can be managed through the use of offsets. In some cases this has seen conditions set that certain cultural heritage values (such as culturally significant plants) be considered as a component of biodiversity offsets. In other instances there have been requirements that other categories of Aboriginal cultural heritage, such as archaeological sites, also be managed by acquisition of areas of apparent equal cultural value. Offsetting will be an increasingly hot issue in tropical areas as development of resources continues. This paper examines some of the key concepts and issues associated with offsetting. Can we really offset the impact of developments on cultural heritage through the use of offsets? If so, how is this best done? Can we address fungibility in the cultural context? How do we balance the competing interests of Aboriginal communities, the environmental lobby, regulatory agencies and others, including archaeologists, when selecting lands and constructing management structures for these areas? Should we be lobbying for separate offset areas for cultural purposes if competing interests cannot be reconciled?



The Old Marulan 2007 Archaeological Project: Exploring Alternatives to how the Public Sees Archaeology

Denis Gojak, *NSW Roads and Maritime Service*

When people visit an archaeological dig how do they make sense of all the strings, pits, piles of dirt and bums in the air? Has a decade of Time Team and other positive archaeological media really helped to make people understand how we do what we do, or is it just as perplexing as it ever was? As archaeologists we are trained how to read landscapes, soils and objects in a unique way. It is a learned skill and forms part of our disciplinary boundary-marking. We cannot assume that the general public sees the same things when they walk onto a site. With this in mind the Old Marulan 2007 archaeological project provided an opportunity to explore alternate ways that archaeology could be shown taking place. In this paper I talk about two different means that we used to engage with our public, a small rural town, firstly by tapping into established social structures that allowed access to the site to be flexible and porous and removing the Us–Them divide, and secondly by developing an Artist in Residence programme. Neither was without problems, but the initial results from our approach have been extremely positive and suggest themselves as standard techniques for future archaeological work. The paper concludes with an analysis of the work of the OM7 Artist in Residence, Geraldine Berkemeier, and uses her work to explore further the idea of how others see, and can capture, archaeology in action.



Of Bananas and Shields: Rock Art of the Townsville Region

Felise Goldfinch, *James Cook University*

This presentation is based on Honours research that has been completed at James Cook University this past year. The research examines prehistoric rock art from the Herbert/Burdekin region in the dry tropics of far north Queensland. The principal aim of this research was to identify a particular motif found throughout this region: the rainforest shield. These images are largely reminiscent of the ethnography, known from museum collections rainforest shields, which are artefacts that are rather distinctive and iconic of the Wet Tropics. These rock art depictions are therefore an anomaly, as the Townsville region is part of the Dry Tropics, an area adjacent to the Wet Tropics but beyond where the production of these shields were produced and (for the most part) collected. Analysis of these motifs has been undertaken by exploring the stylistic variability

including shape and length:breadth ratios and design organisation. These attributes were then compared to ethnography. This research has been conducted through the lens of human agency, rather than the typical model of environmental. agency, providing scope for using humanism to explain why these rainforest shield motifs were painted outside the area of the production and use.



Space Archaeology: The Next Decade

Alice Gorman, *Flinders University*

When space archaeology emerged in 2003, it divided opinions. Ten years on, space archaeology is now represented in encyclopaedias and handbooks, and an impressive body of work has accumulated. NASA has produced guidelines for managing lunar heritage and there are plans to register the Apollo 11 Tranquility Base site as a national or world heritage site. Some commentators, such as Michael Schiffer, have contextualised space archaeology within an ‘archaeology of science’, while others situate it within ‘the archaeology of the contemporary past’. In this paper I review how the directions and ideas that emerged from the first conference session at the World Archaeological Congress have developed. Despite critiques of these approaches, nationalist agendas and ‘Space Race’ narratives are still a noticeable part of how space archaeology is framed. There is a dearth of fieldwork and analysis of material remains from terrestrial space sites, which can be partially attributed to few active practitioners, and security issues around military precincts. Another limitation is that the technical knowledge needed to understand the hardware of space exploration is rarely part of standard archaeological training. Given the constraints, what are the most realistic directions for future research in this subfield? Following the lead of the astronomy community, I sketch a decadal plan for space archaeology and heritage management.



How do Rainforests Think?

Chris Gosden, *University of Oxford*

Rainforests are human products; the people who live in forests are produced by the ecological relations in which they live. An ecological approach to human intelligence and action is emerging in which human intentions are understood in relation to the intentions of all other living things. A complex ecology, such as a rainforest, can be seen a series of variegated intelligences. I will use an example from the Cultured Rainforest project in Sarawak to understand the nature of such relations in the present and particularly the long-term implications concerning

how people have shaped the forest and it has shaped them. We worked with both hunter-gatherer and farming groups looking at their particular relations with their broader environment, charting key introductions of plants and animals over time and looking at the human implications of broader ecological relations.



Nerang Revisited: Palaeoenvironmental Reconstruction of an Ancient Aboriginal Landscape using Multidisciplinary Methodologies

Amanda Greaves, *University of Queensland*

Sydney Skertchly, former Assistant State Geologist in the Colony of Queensland, began investigating Aboriginal occupation in the Nerang region upon his retirement in 1913. Exposed geological sections from canal work at the Great Merrimac Swamp revealed Aboriginal artefacts and possible hearths situated within a black soil layer. Documented correspondence between the Directors of the Queensland Museum and the South Australia Museum regarding the finds indicated their potential to inform about Aboriginal stone tool typologies but the study was hindered by a lack of interest in Australian prehistory during Skertchly's lifetime, and the subsequent death of cadet ethnologist Ken Jackson in 1943. Renewed investigations have established a complex depositional environment with preliminary indications from palynology suggesting that the area could represent some of the oldest cultural material in southeast Queensland thus denoting its significance to Australian east coast archaeology. Detailed palynological work in southeast Queensland signifies the area's potential for refugia which may offer a rare insight into Aboriginal lifeways through inter- and intra-site palaeoenvironmental reconstructions, as well as the timing of humans in the region. New methodologies incorporating multiple disciplines will contribute to nascent subtropical climatic records, and in concert with anticipated faunal remains and lithic assemblages, will offer the opportunity to understand the use of refugia by colonisers through appropriately-scaled examination of pollen-bearing Quaternary sediments.



Garabarra: A Community-Based Heritage Project in Townsville, North Queensland

Shelley Greer, *James Cook University*
Michele Bird, *North Queensland Cultural Heritage / James Cook University*

In 1995, consultation with Traditional Owners began concerning Garabarra, the former Jezzine Barracks site, Kissing Point, Townsville. The site is high end real

estate, occupying the northwestern end of the Strand, within the city precinct, and includes a state heritage-listed nineteenth century fortification. Importantly, it offered a rare opportunity to explore Traditional Owner interests for a coastal, inner-city area. This paper describes the nature and extent of consultation with Traditional Owners from initial investigations to the completion of a \$40 million public space, now called the Garabarra Jezzine Barracks Redevelopment Area. Garabarra now boasts an impressive collection of public art that interprets both Aboriginal and military heritage. In particular, the development of Aboriginal artworks involved a unique collaboration between Traditional Owner artists and well-known Queensland sculptors overseen by Jumbana, the acclaimed design company run by Ros and John Moriarty. This project highlights the kind of community-based approach that can be utilised when there is a willing client, adequate resources and a shared vision.



The Forgotten Village of Byethorne

Nicolas Grguric, *Waru Consulting Pty Ltd*

This paper tells the story of a small village established in the 1850s near the town of Nairne in the Adelaide Hills. Archaeological analysis of ceramics associated with the earliest surviving cottage of the village, as well as a study of the structure itself, tells us about one of the early families who lived there. Bisectioned by the construction of the South Australia to Victoria railroad in the mid-1880s, the village was gradually subsumed into Nairne until its name and independent identity were forgotten altogether.



The Architecture of Contact: Unearthing a Cultural Landmark of Early Melbourne

Billy Griffiths, *Archaeological and Heritage Management Solutions*
Cathryn Barr, *Archaeological and Heritage Management Solutions*
Adrian Burrow, *Archaeological and Heritage Management Solutions*

The bluestone footprint of Strangway Farm in the inner Melbourne suburb of Coburg is embedded with layers of meaning. William Thomas, Assistant Protector and later 'Guardian' of Aborigines, built the house in 1842 and lived there with his family for almost two decades. It was the hub of daily life, a site of family celebration, and it became marked by personal tragedy when his 18-year-old daughter Susannah Thomas 'drowned in

a pond in the garden' in 1845. But beyond this unique personal perspective of Thomas lies a deeper story. Strangway Farm was an important cultural landmark in early Melbourne. It was quickly laid claim to by the Kulin people, invested with intense human meaning, and absorbed into the existing cultural landscape. It became used as a pit-stop on hunting expeditions, a place to eat, sleep and share knowledge, a site for shelter and employment. The men and women who passed through the property sought information on the movements of other tribes, the best places to sell skins, and where they could repair their guns. The recent excavation of William Thomas' house by AHMS offers a compelling insight into a shifting cultural landscape and the curious dynamic of the Victorian frontier. The exposed foundations bring this early history to life, conveying a visceral sense of cross-cultural encounter.



Scratching the Surface in North Australia

Gordon Grimwade, *Flinders University*

This paper examines nearly three decades of archaeological research on Chinese and selected Japanese sites in northeast Australia. The region extends from the savanna of the Territory's Top End to the Wet Tropics of northeast Queensland and to the southern Torres Strait. Chinese and Japanese settlers and sojourners left their mark on the region, primarily between the 1870s and 1920s. Despite covering a relatively short period, the impact was significant in many fields of endeavour. Unfortunately they rarely rated a mention, in any positive sense, in histories of the region until the late twentieth century while archaeological research has been skewed to focus on involvement in mining and semi-urban settlements. Those studies range from the remote gullies of the Palmer and Pine Creek goldfields to Australasia's oldest and only remaining rural temple, and urban settlements, with limited attention to isolated cattle stations and the Torres Strait pearling industry. While limited systematic research has been completed it demonstrates the tenacity and resilience of an immigrant population facing ostracism and hostility on the one hand with the need for more comprehensive and detailed studies in the region.



Geoarchaeology in Australasia: From Particle to Landscape

Elle Grono, *Australian National University*
Tim Denham, *Australian National University*
Emily Dillon, *Australian National University*

Geoarchaeological perspectives are undergoing a resurgence in Australasian research. In this talk we focus upon the 'zoomability' enabled by multiscale and mixed-method geoarchaeological techniques. Multiscalar research methods facilitate a continuous shift in resolution from the particle to the landscape, as well as all intermediate scales. These findings are illustrated using new research at Kuk Swamp (highlands of Papua New Guinea) and Lake Mungo (NSW, Australia), as well as other sites.



Hovering on the Brink II

Colin Groves, *Australian National University*

Father Verhoeven found stone tools, apparently associated with *Stegodon* remains, on both Flores and Timor, but no one did anything about investigating this until the late Mike Morwood, who confirmed the Early/Middle Pleistocene age of the tools of the Soa Basin, Flores. It then looked as if at last we had found the stone industry used by *Homo erectus* – under impeccable circumstances, free of the stratigraphic problems which at the time bedevilled the stone tools ascribed to *H. erectus* on Java, although we had to dream up new scenarios about that species' dispersal capabilities. Now, however, it is clear that *H. erectus* was not the only pre-sapiens human species in Indonesia. We really do not know exactly who made the stone tools of the Soa Basin; if we could find hominin remains there, it would very likely solve the problem of the origin of *Homo floresiensis*. But what about Timor? Or Sulawesi? Or elsewhere east of Wallace's Line? Dare we imagine our precursors crossing Lydekker's Line, on the other side of Wallacea?



The Murujuga Land and Sea Management Unit: Applying Cultural Systems of Knowledge and Ways of Doing for Effective Landscape Management

David Guilfoyle, *Applied Archaeology International*
Brad Rowe, *Murujuga Aboriginal Corporation*
Geoffrey Togo, *Murujuga Aboriginal Corporation*
Sean McNear, *Murujuga Aboriginal Corporation*
Chelsea Churnside, *Murujuga Aboriginal Corporation*

The Murujuga Land and Sea Management Unit (MLSMU) oversees a Ranger programme that was set-up to manage and protect the environmental and cultural values of the Murujuga National Park, within the Burrup Peninsula in northwestern Australia. The Murujuga National Park is jointly managed by the Ngarluma, Yindjibarndi, Yaburara, Mardudhunera, and Wong-Goo-Tt-Oo People, with the WA Department of Parks and Wildlife. The MLSMU Ranger programme operates under the guidance of the Circle of Elders from the five groups. The work involves patrols and projects to monitor wildlife, visitor access, and land care work, while carrying out cultural heritage management (Caring for Country) projects. The programme, embedded with cultural protocols, cultural structures, and cultural systems of doing, integrates all disciplines and land managers for practical, effective management. The operation of the programme continues to have a significant impact on the community, particularly as a focus and demonstration of community cohesion around a common goal – the protection of the natural and cultural landscape of Murujuga and the surrounding islands and sea country. This cohesion is reflected in a fundamental principle of the operation – Ngayintharri Gumawarni Ngurrangka – we all come together for country. This paper explores the development and successful implementation of this programme, that requires identifying and addressing limitations in current legislative frameworks, as well as external research-based, consultancy, and/or agency agendas. At the same time, this paper discusses key areas where archaeology and other disciplines may benefit from the ways this largely independent programme has been structured and the methodologies that have been developed – toward a fully-integrated, holistic, landscape management regime.



400 Years of Style at Nawarla Gabarnmang

Robert Gunn, *Monash University*

Western Arnhem Land rock art contains one of the largest concentrations of pigment rock art in the world. It has also been described as having the world's longest tradition of rock art. While a good deal of attention has been given to the range and variation of the earlier styles present and the array of 'contact' motifs, little has been presented on the range of the more recent styles other than the ubiquitous X-ray form. As an initial step, this paper will present a preliminary description of the range of rock art styles that have been produced at Nawarla Gabarnmang on the Arnhem Land plateau over the last 400 years.

H



The Economic Value of Convict Transportation: An Archaeological Study

Alyce Haast, *University of Western Australia*

The convicts were introduced to the Western Australian economy at a point in time in which the colony was suffering from its small size, isolation and lack of a local market from which to source and sell their wares. While the convicts were introduced to the colony with the dual purpose of convict punishment and settler access to cheap labour, a significant portion of the value of the convict system lies in the increase to the local market that developed with the drastically increased population relating to the convict system. Past archaeological approaches to the introduction of the convicts have focused on the value of the convicts as forced labour, their lifeways and concepts of dominance and resistance, topics that securely focus on the convict themselves. While the benefit of the convicts to WA has long been considered as a significant boost to the 'labour and capital' available to the colony, the archaeological focus has been heavily based around the forced labour aspect. By tracing the goods and services purchased by the convict system an understanding of the broader implications of the introduction of capital on the wider economy can be developed. As such this paper reconfigures the value of the convict system away from what the convicts provided the economy in the form of labour towards the convict system as an overall source of demand on the local economy. Using the concept of 'linkages' developed in the economics-based Staple theory, This paper will use archaeological and historical evidence to examine the impact of the convict system on the WA economy in the second half of the nineteenth century.



Fire as a Tool for Change: New Fire Histories from the Wet Tropics Reveal the Role of Humans and Climate in Transforming Landscapes

Simon Haberle, *Australian National University*
Phil Roberts, *Australian National University*
Mark Burrows, *Australian National University*

Fire is a major component of the Australian environment and is believed to have played a role in the transformation of landscapes in the wake of human occupation over 40,000 years ago. New high-resolution and continuous charcoal records from the Atherton Tablelands are being produced as part of a research programme into

Australian fire palaeoecology. These records reveal a complex interaction between people-climate-vegetation and fire that is best examined through the lens of multiproxy data across several sites. CHARANALYSIS software provides the capacity to extract frequency and magnitude of fire events through time. Comparisons between sites through time on the Atherton Tableland shows that widespread mega-fire events occurred even in the Wet Tropics during the Holocene. The implications for human occupants of the area and the palaeoclimate record for the region will be discussed in the paper.



Using Local Fire History as a Proxy for Occupation of a Khmer Industrial Outpost during the Decline of the Angkor Empire

Tegan Hall, *University of Sydney*
Daniel Penny, *University of Sydney*

Preah Khan of Kompong Svay, a regional outpost of the Khmer Empire, believed to be an important industrial centre during the Angkorian period (ie. ninth to fifteenth centuries AD). Stylistic dating of the site's temple architecture, along with its single dated inscription, had previously suggested that occupation extended from the eleventh through to the fifteenth century AD, and that the site was left to ruin with the abandonment of the Khmer capital of Angkor in the mid-fifteenth century AD. However, recent archaeological work by Hendrickson et al. (2013) has revealed that industrial activity within the temple enclosure in fact may have peaked during the period of decline in the capital Angkor and extended well beyond the so-called collapse of the Empire. This multiproxy palaeoenvironmental study, focusing predominantly on an analysis of the macro- and micro-charcoal record, has substantiated this idea of a delayed transition to industrial usage of the site and revealed that the settlement history of Preah Khan of Kompong Svay is much more complex than previously assumed. This city does not have a clearly defined sequence of establishment, florescence and abandonment, but was more likely utilised in patchy episodes, either strategically by the Khmer or parasitically by neighbouring hill tribes, and intriguingly was most intensely utilised during the capital's final days. The data presented here confirm that Preah Khan of Kompong Svay presents an interesting case for further investigation into the resiliency of regional settlements throughout the Khmer kingdom following the abandonment of the capital in 1431.



So, who does it belong to? Issues with the Online Publishing of Sensitive Archaeological Data

Dianna Hardy, *James Cook University*

Many Indigenous groups have significant cultural heritage resources that they are interested in transferring into digital form, both to facilitate internal access and to allow (partial) access to outsiders. This paper focuses on two issues encountered in such projects: (1) complying with the formatting requirements mandated by large repositories and (2) asserting intellectual property over data collected from them over historical time. In the first case many existing data sharing systems for cultural information focus on the needs of researchers rather than those of community members and the multifaceted nature of community knowledge. The second issue focuses on the difficulty in obtaining the rights to publish (via the internet) knowledge previously made available on museum sites and printed in historical periodicals. Additionally this paper reports on two case studies that focus on the community needs for data sharing and archiving. Analysis of the outcomes from the case studies shows that Indigenous community members may have significant data-sharing concerns that are not being met currently by larger archival systems. We also address the issue of sustaining the outputs of internet-based development past the short-term nature of funding structures.



Heterogeneous Shield Designs Found in Rock Art on the Pilbara Desert Edge

Sam Harper, *University of Western Australia*

The Port Hedland rock art province has a distinctly high proportion of 'shield' engravings within its rock art repertoire including both unique and repeated shield designs. I argue that there are high levels of design heterogeneity within these shield motifs across a number of limestone ridges within this coastal Pilbara region, representing aggregation of coastal Pilbara, inland Pilbara and potentially Western Desert groups. Port Hedland is located in the coastal Pilbara region, Western Australia, on the northern side of the Pilbara bordering the Great Sandy Desert. The Pilbara as a biogeographic region is marked by a seasonal river network, with increasing aridity and desertification with distance from the coast. The coastal fringe of the Pilbara is a comparatively resource rich region which, at European contact, had markedly smaller, and potentially more contested, linguistic and cultural boundaries than found further inland in areas of increasing resource scarcity. The Port Hedland rock art province, it is argued, has a unique style which is geographically constrained to the

rock type found here. Within the rock art repertoire certain shield designs are repeated, and particular designs are associated with and/or superimposed by motifs including anthropomorphs and other material culture. These relationships will be spatially and stylistically analysed to discuss possible interpretations of group interactions and relationships. These connections will be explored both discretely within the Port Hedland area, and within the context of the broader Pilbara and surrounding desert groups.



Seeing Stars in the Ground at the Old Adelaide Observatory

Cameron Hartnell, *Australian Heritage Services*

From 1855–1952, the Adelaide Observatory delivered the time and weather information that kept the State's many gears working together. Its astronomical function got the trains running on time, and ships and land surveys in the right place. Australian Heritage Services excavated the Observatory's 1885 Transit Circle Room with the redevelopment of the Adelaide High School. This presentation will present the history and findings, as well as what they say about the current state of archaeological consulting practice in South Australia.



Zooarchaeological Evidence of Modern Human Palaeoecological Interactions at the Laili Rockshelter, East Timor since 33,000 BP

Stuart Hawkins, *Australian National University*
Sue O'Connor, *Australian National University*

Zooarchaeological research has been sparingly used to inform how modern humans adapted to and affected tropical island palaeoecologies over long time spans within the Wallacea region of Island Southeast Asia. This paper goes some way to address this discrepancy through the analysis of vertebrate remains from deposits excavated in the Laili rockshelter in east Timor dated between 33,000 BP to the recent past. A range of taxa are represented in the assemblage numbering over 13,000 specimens including rat, giant rat, small bird, snake, bat, frog, human, turtle, small lizard and fish taxa in association with dense concentrations of lithic tools and flakes. Taxonomic relative abundance, diversity indexes, skeletal element representation, animal demographic reconstructions and bone modification analyses are used to assess changes in human palaeoecological interactions during this period.



Identity Politics: Does it Help or Hinder Community Engagement?

Robert Haworth, *University of New England*
Wendy Beck, *University of New England*

Community engagement programmes aimed at the inclusion of marginalised groups may be seen as adopting two major and perhaps contradictory strategies. One is Fraser's 'identity model' of recognition, concentrating on valorising group identity, through such measures as affirmative action and anti-hate speech laws. The other is her 'status model', which aims to remove institutional barriers so that individuals can get ahead, with or without the other members of their group. In both however is the understanding that 'Justice is not primarily concerned with how many goods a person should have but rather with what kind of standing vis-à-vis other persons they deserve' (Young 1990). Central to both is the issue of identity, either the construction or destruction of such. Identity must be recognised by others to be valid, but most importantly it must be recognised and policed by the members of the out-group. In the status model, there is the implication that identity may be a hindrance, one of the institutional barriers to advancement and acceptance into the mainstream. The clash between the individual and the group has the possibility of being very harmful to group self-respect, and the tall poppy syndrome may be used to either hobble or deflate deviant individuals in a good or bad way. Each strategy rests on assumptions that change over time and between regions. Which model has the better outcomes also depends on how success is defined. The effectiveness of these two strategies in relation to work with members of communities in both northern New South Wales and Tasmania will be discussed, while accepting that there are no easy answers to issues that touch on much broader aspects of human society and the human psyche.



Experimental Replication of Australian Grinding Stone Implements

Elsbeth Hayes, *University of Wollongong*
Dries Cnuts, *University of Liege*
Richard Fullagar, *University of Wollongong*
Colin Pardoe, *Bio-Anthropology & Archaeology*
Chris Clarkson, *University of Queensland*
Birgitta Stephenson, *In the Groove Analysis Pty Ltd / University of Queensland*

Until recently in Australia, lithic tool-use experiments were dominated by flaked stone with relatively few studies of ground-stone. This poster reports on a

workshop, during which tool-use experiments were designed to document the wear traces associated with the grinding various materials, different processing techniques and sandstones of different physical properties (e.g. hardness, grain size, degree of cementation). Experimental sandstone grinding implements were used primarily to process organic and inorganic materials, documented ethnographically. Upper and lower stones were used together to grind or pound seeds and bone; and abrading stones were used to file bone, stone and wood, and to grate haematite. The experiments provided insights into the wear formation on sandstones of different hardness and degree of cementation. Examination of ground surfaces indicated that the use-wear patterns were distinctive of the broad categories of processed material (seed, bone, stone, haematite and wood). Key use-wear features relating to activity and processed material are reflected in the degree of grain-rounding and grain-levelling, the presence of macroscopic surface striations and the occurrence of micro-fractures, polish and striations observed at high magnification. Residues were also distinctive of the broad categories of processed material. Residues included collagen and cellulose fibres, starch granules, bone fragments and pigment and other mineral crystals. Stained cellular structures provide a reliable basis for distinguishing the investigated plant and animal tissue subjected to mechanical damage, resulting from grinding and pounding. The residue and use-wear experiments build on previous studies and help form the basis of a systematic and collaborative use-wear and residue reference library for ground-stone tools in Australia. Future experiments will focus on the wider range of plant taxa processed by grinding and documented ethnographically.



Exchange of Items or Ideas? Implications of the Torres Strait Pottery

Catherine Hays, *James Cook University*

Pottery sherds have been discovered in the Torres Strait Islands, North Queensland, in the last 15 years. They were recovered during excavations at Mabuyag Island and Pulu Islet in the west, and the islands of Mer and Dauar in the east. This investigation involves a review of the evidence for the pottery. It is relevant for several reasons, including the fact that it is the first pottery discovered in Torres Strait, and indeed Australia. This evidence of new technology is exciting, as its existence was not previously recorded in the repertoire of technology and skills in the Torres Strait. In addition, at present no published works have considered the Torres Strait pottery as a whole. Published data regarding physical characteristics, archaeological context, and

interpretations of 44 pottery sherds were examined. The majority of the sherds are from thin-walled vessels, suggesting sophisticated techniques for a region that had no history of pottery-making. A major complication in the interpretation of the Torres Strait sherds is the quantity and size of the individual sherds. In addition, different interpretations of the pottery have been made, including horticulture in the Eastern Islands and ritual use in the Western Islands. The presence of this pottery provides further support for the strong relationship between Torres Strait Islanders and Papua New Guinea.



The Long-Necked Spearthrowers of Northeast Kakadu

John Hayward, *Australian National University*

The long-necked spearthrower is a class of artefact which has some unique qualities amongst those depicted in the rock art of the northeast Kakadu region of northern Australia. Unlike other spearthrower types which display a certain sense of uniformity, long-necked spearthrowers are distinctive in their individuality. Of the 110 long-necked spearthrowers recorded during three survey seasons of the Djawumbu Madjarrnja massif area, 78 can be classified as being totally idiosyncratic in design with the remaining exhibiting degrees of difference with others. Their elaborate designs appear to have no functional benefit for improved spear-throwing efficiency and are therefore considered as socio-ideological artefacts which convey intangible significance within the symbolic realm of rock art. This poster illustrates the diversity of designs recorded for this enigmatic rock art symbol.



Quantitative Identification of Stone Tool Heat Treatment Technology in the Archaeology of Australia

Andy Herries, *La Trobe University*
Rhiannon Stammers, *La Trobe University*
Alex Blackwood, *La Trobe University*

The heat treatment of stone to improve its flaking quality has its origins at least 72,000 if not 160,000 years ago in southern Africa. Evidence for the heat treatment also exists in Australia based on ethnographic evidence, but the documentation of heat treatment in the archaeological record has often been based on visual identifications that can be misleading and subjective. Moreover, heat treatment has only been suggested for the past few thousand years and a question remains as to whether this is a technology brought into Australia with the first settlers, or one that was reinvented. Moreover,

a more scientific, quantitative approach needs to be taken in its identification in the archaeological record. Here we present data from South Africa, Queensland and the Willandra Lakes based on non-destructive Mass Gloss Analysis and Archaeomagnetism to enable such identifications. The Archaeomagnetic Analysis includes work on both the archaeological stone tools themselves and the sediments from which they have been recovered to build a fire history for the sites and help identify accidental versus deliberate heating.



Ancient DNA and the Problem with Modern Contamination

Tim Heupink, *Griffith University*

Jo Wright, *Griffith University*

Michael Westaway, *Griffith University*

David Lambert, *Griffith University*

Analyses of the ancient DNA (aDNA) of human populations can provide valuable information on past human migrations and evolutionary processes. However working with aDNA can be extremely challenging. DNA extracted from ancient human remains consists of both endogenous (low levels of degraded DNA derived from the sample itself) and exogenous DNA (essentially contamination from outside sources such as microbes, animals or modern humans). Modern human DNA can be introduced at any point of the chain of custody: from the time of archaeological excavation, handling by anthropologists, right through to the extraction process completed by genetic researchers. This contamination can, when the target DNA and contaminant DNA are from the same species, be particularly problematic and difficult to detect. A number of high profile publications in the past have come under criticism with their findings considered inaccurate due to modern contamination. As such, this contamination can introduce major biases in phylogenetic and population studies putting into question the authenticity of any recovered sequences. This paper will discuss the implications of this type of contamination specifically with a focus on current aDNA studies of the remains of people from the Willandra Lakes World Heritage Region.



Gothic Themes and Pseudo-Science Content in Cinema

Peter Hiscock, *University of Sydney*

Close analysis of modern movies reveals – yet archaeologists and historians have failed to understand – that representations of archaeology and archaeologists emphasise moral ambiguity. Archaeologists are not

heroic saviours; they are agents of social disintegration who imperil the modern world. The negative imagery of archaeology reflects Gothic concerns with the power and goal of science that have been reflected throughout the history of movie-making. One consequence of this theme is that cinematic archaeology today tends to be mythic rather than realistic in focus. Movies frequently present images of the human past that are pseudo-archaeological in the sense that these films tell the same stories as ‘alternative archaeology.’ This pattern is documented through a review of films employing the ancient astronaut model in which visiting aliens changed human development in the past, and through an examination of the work of writer/director Roland Emmerich who has specialised in those films. Pseudo-scientific content has a long cinematic history, and importantly cinema does not merely reproduce popular pseudo-archaeological research, it has also contributed to the growth of those stories.



Who are you Calling a Philistine? The University of Melbourne Excavations at Tell Es-Safi/Gath

Louise Hitchcock, *University of Melbourne*

Aren Maeir, *Bar-Ilan University*

Brent Davis, *University of Melbourne*

To be a ‘Philistine’ has entered our language to mean uncouth or barbaric, a perception deeply situated in biblical thought. Just as the Greeks described non-Greek neighbors as ‘Barbarians,’ so too did the biblical writers describe people settled along the southern coast of the Levant in derogatory terms. Recent scholarship regards them as Sea People migrating from Greece (c.1177 BCE) and violently colonising the coast of southern Canaan. We will present a summary of the results from the University of Melbourne’s seven years of excavations in the early Philistine levels at Tell es-Safi/Gath (Israel), undertaken in collaboration with Bar-Ilan University. Tell es-Safi/Gath is located in the Shephelah (transition from the coastal plain to the central hill country) and is associated in the biblical texts with the legendary giant Goliath. It will be suggested that the archaeological remains of the Philistines reveal them to be a mixed and entangled culture that resulted as an outcome of limited, multiple migrations that settled among the local Canaanite population creating a socially and economically advanced, technologically innovative (iron production), artistically sophisticated (decorated Mycenaean-Greek style pottery), and cosmopolitan culture. Our findings suggest a complex sequence of habitation with a multigenerational reuse of architecture and use of open spaces to promote cultural identity in the early centuries of Philistine habitation, followed by a reorientation of the community in the ninth century BCE.



The Development and Implementation of the South of the Embely Communities, Heritage, and Environment Management Plan by the Wik-Waya People and Rio Tinto Alcan

Eloise Hoffman, *Rio Tinto Alcan / University of Auckland*

Scott Goodson, *Rio Tinto Alcan*

Justin Shiner, *Australian Cultural Heritage Management*

The South of the Embely (SoE) Project area of Rio Tinto Alcan's (RTA) Weipa mining leases (ML6024 and ML7024 between the Embely River and Aurukun in western Cape York) has currently not been significantly altered by mining. Resource drilling has demonstrated that the SoE Project area contains an extensive bauxite deposit upon which RTA is proposing to construct and operate a new mine significantly changing the areas physical landscape. The Project area incorporates a portion of the traditional lands (referred to as country) of the Wik-Waya people. The Wik-Waya people maintain a strong sense of cultural identity and spiritual connection to their country. Associated with this is an inherited personal responsibility as Traditional Owners, and especially for Elders, to look after their country. This paper will present on the development of the SoE Cultural Heritage Environment Management Plan (CHEMP), its proposed operational model, and the results of current implementation. The concept of developing a CHEMP emerged during Environment Impact Statement consultation with Traditional Owners. The CHEMP was conceived to capture the aspirations and formalise the involvement of both Traditional Owners and Rio Tinto Alcan Weipa (RTAW) for land, sea and cultural heritage management. A commercial fee-for-service model is proposed as a sustainable model for the implementation of the SoE Project Land Management Programme. The plan aspires that Wik-Waya Traditional Owners be engaged as land and sea advisors to undertake works outlined in the Land and Sea Management Programme and be employed through an Aurukun-based Indigenous business. While Wik-Waya people accept that mining will forever change the bauxite plateau, they are also resolute in their conviction that mining must not impact their significant sacred sites. They wish to work with RTA to better protect these places. A phased implementation of the CHEMP linked to key SoE Project milestones is underway.



Mapping the Murray: Reconstructing Archaeological Landscapes

Jeannette Hope, *River Junction Research*

Travis Gottschutzke, *South Australian State Records*

Early surveyors did not merely draw lines across the country, they mapped landform and vegetation, Aboriginal placenames and sites, homesteads, huts, graves, yards, tracks, fence and telegraph lines. We discuss two remarkable surveys for the Murray River between Wentworth, at the Murray-Darling Junction, and the New South Wales-South Australia border: Francis MacCabe, 1850 (10 map sheets, 2 field books, letters, accounts and employment records), and the South Australian Government, 1912-1914 (35 map sheets, 60 field books). This area also has several sets of modern aerial photography coverage. We are using these maps to reconstruct archaeological landscapes along the Murray, and the changes over the significant 80 year period 1850-1914.



Archaeological Artefacts in Museums and Galleries: Aesthetic Presentation and the Compromise of Meaning

Caroline Hubschmann, *Federation University*

Material culture, the physical evidence of human cultural activity, has acted as a cornerstone attraction for visitors to public museums and art galleries since their inception. The manner in which it is displayed and interpreted in these institutions determines significantly how the visitor ascribes meaning to the artefacts and, by extension, the peoples who created them. It can be argued that contemporary museology favours style over substance; a potentially detrimental state for the archaeological material whose historical, cultural and environmental understanding lies in its often complex interpretation. To examine how archaeological practice is understood within museum contexts, this poster examines the manner in which material culture, specifically that which has been obtained from archaeological investigations, is displayed within the framework of contemporary museology. In addition, how museums and galleries have maintained the artefacts' contextual function and meaning is also addressed. Three case studies will be examined: the Classics and Archaeological Collection on display in the Ian Potter Museum of Art in Melbourne, the North and Central American Archaeological Collections on display at the Smithsonian National Museum of the American Indian in Washington DC, and a small wall case display at the Northern Territory Gallery and Museum in Darwin. By examining the ways in which these museums exhibit their archaeological material – both indigenous

and foreign to the city in which the museum is located – it will be possible to address the following questions: (a) is it appropriate to display the archaeological material culture for predominantly aesthetic purposes (in contrast to their original function); (b) does changing the state and function of the items matter once they have been removed from their original contexts; and (c) is it possible to achieve satisfactory balance between scholarship and accessibility in museum displays?



Political Correctness in Archaeology and History

Jennifer Hughes, *Independent Resercher*

Political correctness, what is it really? Is it a purely well-intended mechanism for ending prejudices? Is it the means by which people can promote their own causes by unfairly labelling others as racist, bigoted or sexist? Or is a mix of the two? What does politically correct mean for academia? Should we assume that if something is politically correct, it is therefore right? Should using it be the automatic response in all discussions, debates and discourses? Some believe it to be invaluable and infallible, others the exact opposite. Indeed some have reacted so violently to the presence of political correctness in their disciplines that they have contributed to a book series called *The Politically Incorrect Guides*, covering subjects from Darwinism, Islam, and American History to Science and Global Warming. These books aim to defy convention and present their subjects without the sugar-coating of political correctness. What does political correctness mean for archaeology and historical investigation? Will it help or hinder the interpretation of the past? Many have issues with political correctness being applied to history. But what do you think? My poster will attempt to define political correctness, explain its origins, the benefits and the pitfalls. While also freely admitting my belief that there is a very real danger that political correctness has and continues to go too far. My aim here is to spur debate and discussion about the issue of political correctness in Australian archaeology.



What of those Wallabies? The Zooarchaeology of Gebe Island, Moluccas

Jennifer Hull, *Australian National University*

In the mid-1990s Peter Bellwood and Geoff Irwin excavated several archaeological sites on Gebe, Halmahera and Kayoa Islands in the Moluccas, eastern Indonesia that produced varying depths of stratigraphy and chronologies from the late Pleistocene to late Holocene. As well as recovering a wealth of material culture that informed on the antiquity of

human occupation of the various islands, many caves and rockshelters produced relatively large vertebrate assemblages. First studied by Tim Flannery *et al.*, the vertebrate remains from the cave sites of Golo and Siti Nafisah were particularly significant as they contained the remains of a now extinct species of *Dorcopsis* (wallaby). In their original study, and based on the morphometric analysis of the *Dorcopsis* dentition and occurrence within the archaeological record from Gebe Island, Flannery *et al.* (1998) argued that this species had probably been introduced about 8000 years ago from Misool Island. They also considered the absence of wallaby from the upper horizons of the stratigraphic sequences from Golo and Siti Nafisah to imply extinction by c.4000 years ago. As part of an ongoing project to complete to post-excavation publication of the Moluccan study, an opportunity arose to reinvestigate these bone assemblages. A particular focus was placed on bone taphonomy and spatial and temporal distributions of *Dorcopsis* remains as well as the direct dating of the earliest occurrence of wallaby in the archaeological record of Golo. The analysis also applied biometry and age profiling to determine the age and possible sex ratios of the population. The results suggest that the *Dorcopsis* recorded on Gebe most likely represented a natural, wild breeding population. The wallaby was indeed present by 8000 cal BP, but the archaeological record at Golo and Siti Nafisah do not inform on either the first, or last appearances of this species on the island.



Widespread Holocene Forest Management in Southeast Asia: Evidence from Disturbance Floras?

Chris Hunt, *Queen's University Belfast / Liverpool John Moores University*

Disturbance floras are incredibly widespread across Island and Mainland Southeast Asia, often from the earliest Holocene. Where recent detailed palaeoecological work exists, the disturbance floras are associated with indicators of burning and of translocated and thus likely propagated economically-important plants, suggesting a very protracted version of wild plant food production *sensu* Harris. Ethnographic accounts suggest a huge variety of indigenous forest management and food-extraction strategies. The palaeoecological data suggest that these and related practices have great time-depth, comparable to those better known from New Guinea. It might be concluded that much of the great rainforests of Southeast Asia are, to all intents, cultural artefacts.



Investigating the History of Bandicoot Bay through Glass Artefacts

Philippa Hunter, *University of Western Australia*

This research aims to discover the history and archaeology of an Indigenous and settler contact site at Bandicoot Bay, Barrow Island, through the analysis of glass artefacts. The use of bottle glass by Aboriginal people as a material is of interest to archaeologists as it potentially provides evidence of the continuation of stone knapping technologies with new introduced materials. Bandicoot Bay is thought to be a settlement site for pearlsharers around the nineteenth century, but this is not well-documented, nor has there been much research into the island's archaeology. It is known that Aboriginal men, women, and children were forced into the pearling industry in the northwest of Western Australia. Barrow Island is depicted in historical literature as being a good location for the pearling industry, but little is known of the people that stayed on the island. Glass artefacts have been found in abundance at the Bandicoot Bay site, and they will be analysed to see if they are of Aboriginal origin and the date range of the artefacts. The site is relatively undisturbed, despite the island being a mining lease, meaning that the majority of worked glass on the site has been modified by the people that inhabited the island. An analysis of the artefacts themselves will contribute to the growing knowledge of glass artefact manufacture and characteristics, and add to the history of Barrow Island.



Big Questions about Small Pigments: Geochemical Indices of Pleistocene Ochre Use in Sahul, a Northwest Kimberley Case Study

Jillian Huntley, *University of New England*
Mark Moore, *University of New England*
June Ross, *University of New England*
Michael Morwood, *University of Wollongong*

Archaeological pigments are an important part of the unique record of Pleistocene Australia, indeed ground ochre nodules are the earliest reported evidence for colonisation. The first Australians consistently collected and used pigments and evidence for this is present in more than 60 Pleistocene sites across Sahul. Yet the archaeological potential of pigment geochemistry, so clearly demonstrated during pilot studies in the 1990s, remains unrealised. In this presentation we (1) discuss the implications of the unique archaeological record of Australia for recognising the material correlates of modern human behaviour; (2) question the often assumed symbolic connotation attributed to Pleistocene pigment

use; (3) examine the reasons that more archaeometric ochre studies have not been carried out in Australia or worldwide; and (4) outline the archaeological insights provided by a recent geochemical study of Pleistocene ochres recovered from excavated contexts in the northwest Kimberley. With a focus on readily available, inexpensive techniques we propose accessible methods for archaeometric analysis. The complementary behavioural and chronological evidence generated are discussed with a particular focus on northern Australian prehistory and the taphonomic challenges posed working in the tropics.

I



Evaluating Analytical Resolution by Non-Destructive pXRF: A Cypriot Ceramic Case Study

Anna Ingham, *University of New England*
Peter Grave, *University of New England*
Matthew Tighe, *University of New England*

Portable X-ray Fluorescence (pXRF) is a non-destructive technique that provides a quick and immediate assessment of elemental composition of non-organic materials, both in situ and in the laboratory. Little sample preparation is required and as a non-destructive technique access may be allowed to otherwise prohibited assemblages, for example, heritage-listed archaeological sites and museum collections. The primary aim of this study was to assess the precision and accuracy of pXRF in relation to Neutron Activation Analysis (NAA), using Cypriot sediments. The secondary aim was to compare the relationship between the geographic locations of the sediments and the different ceramics to determine the most likely production regions on the island.

J



Digital Field Recording at Integrated Landscape and Site Scales: FAIMS in Action in Central Africa

Emma James, *University of Queensland*
Jessica Thompson, *University of Queensland*
Rykene Sander-Ward, *University of Queensland*
Jacob Davis, *University of Queensland*

Since 2009 the Malawi Earlier-Middle Stone Age Project (MEMSAP) has documented open air sites in the

Karonga District of northern Malawi. The project aims to understand Stone Age human occupation of the area relative to major late Pleistocene palaeoclimatic events, and as such has worked at scales ranging from landscapes to surface scatters to excavated sites and individual artefacts. A persistent logistical problem has been the integration of survey and site data, which have been collected using at least 10 different paper forms, hand-held GPS, differential GPS, total station, photography, and field notes. These materials are all scanned, typed in, downloaded, or otherwise manually transferred, renamed, entered, and backed up so that they eventually all exist in digital format, a time-consuming process that does not automatically yield an integrated dataset. In addition to streamlining this process, Federated Archaeological Information Management System (FAIMS) infrastructure has provided the opportunity to integrate data collection across scales of analysis while in the field. This provides flexible real-time viewing of relevant datasets and transforms data entry from a passive recording procedure to an active one that can better guide decision-making in the field. This paper discusses how the two models of data recording compare in terms of time, effort, difficulty, accuracy, and data security.



In Situ $\delta^{18}\text{O}$ Analysis of Human Tooth Enamel

Hannah James, *Australian National University*

Oxygen isotopes are a provenancing tool for human migration. Measuring $\delta^{18}\text{O}$ values in human tooth enamel provides a direct indication of the local environment during an individual's childhood. This information can form pictures of prehistoric and historical human migration. Conventional $\delta^{18}\text{O}$ measurements of tooth enamel involve analysing the carbonate fraction of bound oxygen, which accounts for less than 10% of the overall oxygen in the enamel. Use of the Sensitive High Resolution Ion Microprobe (SHRIMP) allows for analysis on all bound oxygen and the small sample size allows for multiple measurements across the thickness of the enamel. Variation in the $\delta^{18}\text{O}$ values is seen across the tooth enamel and is a remnant of the tooth enamel formation process. This two-stage process involves the layered formation of a mineral-poor matrix structure then an increase in the inorganic content to create a highly mineralised structure. In situ analysis allows for investigation of this phenomenon, which may indicate seasonality in $\delta^{18}\text{O}$ values, migration, cultural changes or diagenesis. This poster will discuss the use of in situ measurements in archaeological and modern tooth samples and compare these analyses to conventional carbonate analysis.



Slavery in the Caribbean: Isotopic Evidence of Forced Migration

Hannah James, *Australian National University*
Malte Willmes, *Australian National University*

Isotopic analysis of human tissues is being increasingly used in archaeological studies as tools for identifying human migration. Oxygen isotopes in precipitation differ according to temperature and precipitation intensity and strontium isotopes differ in bedrock both forming geographical profiles. This information can be used to form pictures of historical human migration. The African slave cemetery, Anse Sainte Marguerite (ASM), on Grand-Terre island, Guadeloupe, contains the remains of 278 individuals. Cultural dental modification, known to be present only in enslaved individuals transported from Africa, was present at the site suggesting its use by both enslaved individuals and subsequent generations. Historical records show that the majority of the 70,000 arrivals in Guadeloupe were shipped from European ports (SlaveVoyages.org). Previous work on carbon and nitrogen isotopes (Sparkes et al. 2012) identified migrants based on a change between childhood and adult diets. Individuals without a shift are taken to represent locals to the Caribbean region. Oxygen and strontium isotopes were employed to confirm the status of migrants and Caribbean locals and also to suggest a possible European or African origin of migrants. O and Sr isotopes split the individuals into two groups, migrants and locals, agreeing with the C and N results. Locals showed values slightly offset from Guadeloupe, indicating they were Caribbean in origin, but not necessarily from Guadeloupe. Migrants showed O isotopes results that indicated an African origin and Sr results that excluded the Caribbean region. This talk will discuss the use of a multi-proxy approach in analysing unfree populations and in identifying individual histories which otherwise would be unknown.



Ditch the Spreadsheet: We are not Accountants!

Ian Johnson, *University of Sydney*
Adela Sobotkova, *University of New South Wales*

The introduction of digital methods in Archaeology – from multivariate statistics in the 1960s through GIS in the 1990s to 3D modelling and simulation in the last decade – has generally been characterised by the adaptation of tools from other disciplines. Although these tools have contributed much to the discipline, they also constrain and deform our thinking. This has been particularly noted in relation to the inflexibility

of GIS tools to represent fuzziness and uncertainty, and the easy creation of attractive maps which present seductive, simplified or misleading messages. Spreadsheets also seduce by their low entry barrier and instant results. However they were developed as tools for financial data (on paper long before they became digital). Despite many novel capabilities – statistics functions, macros, pivot tables, graphics and limited database controls – they remain, essentially, a means of manipulating numbers and categories. The spreadsheet's essential row/column structure encourages descriptive reduction to a set of attributes for a single entity type (artefacts, samples, graves, sites ...). They discourage modelling of related entities and good data management practices. The recently developed integration of Heurist (HeuristNetwork.org), as a data modelling/management tool, and FAIMS (FedArch.org) as a distributed data collection platform on Android tablets, puts effective data modelling and integrated data collection and management within easy reach of even the smallest team. The flexible (and similar) structure of both platforms is applicable across all types of archaeological project, from excavation and fieldwalking surveys to thematic surveys and museum/archive based studies. In this paper I will show how a range of archaeological projects can be modelled in the Heurist-FAIMS ecosystem and the benefits of using a generic platform of this type. In particular, the use of a common core allows the development of analysis, visualisation and archiving tools to be leveraged across many projects.



Australia's Indigenous Heritage and its Management: Does our Past have a Future?

Dave Johnston, *Aboriginal Archaeologists Australia*
Rob Williams, *Australian National University*

Australia has a wonderfully rich, unique and ancient Indigenous heritage record. From an archaeological perspective, each year we continue to discover and learn more about our Indigenous story and how our people have adapted over the millennia to this large continent and its varied landscape and environmental settings. We hear often that family, heritage, land and country are important to Indigenous people, and we hear of Indigenous people standing up and fighting for their sites and special places under threat. In fact, we've been hearing about such fights for decades. So what's the fuss about, what's new about these Aboriginal protests, and why should we care? Indigenous archaeologists Dave Johnston and Rob Williams argue that Australia's recognition, management and protection of its Indigenous cultural heritage sites is, more than ever, in crisis. This crisis stems partially from the Australian

Government's failure to maintain minimum standards for Indigenous site protection and management policy. The resultant varied state and territory legislation has meant Indigenous communities regularly have had to fight to protect important sites under threat. In this paper the authors present their vision for a National Indigenous Heritage Commission and a national strategy for Indigenous cultural heritage management. Australia's heritage, they argue, is something we should all be proud of; it should not be ignorantly thrown away during resource booms to abide the greedy.



A Review of the Dynamic Figure Chronology and a Dynamic Figure Guide for Mirarr Country, Northern Territory, Australia

Iain Gray Johnston, *Australian National University*

This paper will evaluate the phases of the Dynamic Figure style presented by Chaloupka for his west Arnhem Land rock art chronology. Formal analysis of the Dynamic Figures recorded in Mirarr Country during 2012–2014 field seasons, as part of the Mirarr Gunwarddebim (Rock Art) project, will demonstrate the issues of this broad chronology. The second part of the paper will present an alternative theory for explaining the variation in motif form and specifically the cultural activities depicted in Dynamic Figure scenes in Mirarr Country. Finally, it will consider whether a west Arnhem Land chronology is the best way to analyse and record motifs in the field. It will be proposed that further targeted regional chronologies should be the preferred guide to accurately analyse motifs and sites in the field.



Early Domestication and Exploitation of Pigs, Dogs, and Goats in Bali and Evidence of Trans-Asiatic Exchange

Rebecca Jones, *Australian National University*,
Philip J. Piper, *Australian National University*,
Ambra Calo, *Australian National University*

The sites Sembiran and Pacung on the northern coast of Bali were centrally located long a major trans-Asiatic maritime route during the Late Prehistoric Period (200 BC–500 AD). Several seasons of excavations have produced critical evidence to reassess the timing and impact of Island Southeast Asia's (ISEA) early contact with India and Mainland Southeast Asia (MSEA) (Calo *et al.* in press). Current archaeological discourse on trans-Asiatic networks has focused on MSEA, while ISEA has been severely under-represented. This is particularly true for zooarchaeological research in the region. Faunal analysis of the Pacung and Sembiran excavations show that domesticated pigs, dogs, and goats were present in the

lowest burial layer while cattle seem to have arrived later. The presence of *Capra hircus* offers the first securely dated evidence for goats in MSEA or ISEA (excluding India or China). This evidence, combined with material culture, strongly points to trade with India or southern China.



Deciphering Anthropogenic Signals in Tropical Rainforests during the Mid-Late Holocene: A Multi-Proxy Investigation from the Kelabit Highlands of Sarawak, Malaysian Borneo

Samantha Jones, *The Catalan Institute of Human Paleoeology and Social Evolution*

Chris Hunt, *Queen's University Belfast / Liverpool John Moores University*

Tropical forests are not the easiest places to find evidence of cultural antiquity; inaccessibility, poor preservation and lack of modern reference collections are just some of the major obstacles. Furthermore, signals left by past hunter-gatherers may be weak. For example, a random scattering of seeds or sporadic burning to encourage wild animals, would give a weak anthropogenic signal, in contrast to the anthropogenic signal given by intense agricultural practices. How do we determine what is a natural fire and what is anthropogenic? What economically useful plant is naturally growing in an area and what is the result of arboreal practices? How far do these signatures go back? And how do we interpret weak signatures? The answers lie in both multidisciplinary and in multiproxy analysis. In 2005, the International Timber Trade Organisation (ITTO) mapped c.50 archaeological sites around the Kelabit Highlands of Sarawak, Malaysian Borneo, with the purpose of identifying key sites for protection before logging. This coincided with the establishment of an interdisciplinary project in 2007, directed by Professor Graeme Barker from the McDonald Institute at Cambridge University and sponsored by the Arts and Humanities Research Council (AHRC). The project was entitled 'The Cultured Rainforest Project' and combined anthropology, archaeology and palaeoecology to investigate the long-term and present-day interactions between people and the rainforest in the interior Highlands of Borneo, with an aim of better understanding past and present agricultural and hunter-gatherer lifestyles and landscapes. This paper presents a 6000 year palaeoecological record of potential human activity; a 3000 year record of palm cultivation/manipulation and much later, the establishment of rice cultivation from 400 cal BP. The palaeoecological results are complemented (and vice-versa) by the archaeological record, which shows evidence of potential settlement 4000 cal BP and securely dated settlement from at least 2000 cal BP.



Picturing Pictures: Exploring Concepts of Research Methodologies, Subjectivity and Interpretation in Rock Art Studies

Tristen Jones, *Australian National University*

Rock art creates a visual experience for the observer, an experience that is both powerful and problematic. For the archaeologist to study rock art they must generate an artefact – the photographic archive. An artefact that is itself a subjective visualisation of the visual experience made by the observer. This paper explores how we as archaeologists have visualised the study of rock art in the past, and how those 'visualisations', that have become artefacts themselves, continue to impact how archaeologists, Indigenous custodians and the wider public interpret and reinterpret the meaning and cultural significance of both rock art sites and photographic collections. This research was funded by the George Chaloupka Fellowship 2013–2014.



Archaeology in the Funny Pages

Darran Jordan, *AECOM Australia Pty Ltd*

Popular culture representations of archaeology proliferate through various genres and media types. Comic books have a consistent history of archaeological representations from the 1930s onwards. Examination of the ways in which archaeology has been represented throughout the history of comics illustrates changing societal attitudes towards, and ideas about, the discipline. Recent use of comic book publications as a storytelling format capable of communicating archaeologically-specific messages, demonstrates ways of engaging with the general public through this popular communication medium. This poster provides a visual analysis of the history of representations of archaeology in comic book publications.



Strange Adventures in Ficto-Archaeology: Narrative Forms, Academic Intentions and Fictocritical Outcomes

Darran Jordan, *AECOM Australia Pty Ltd*
Rocco Bosco, *J J Cahill Memorial School*

Imaginative and creative tools can be used to great effect in archaeology, but fiction yields varying types of 'truth'. Popular culture representations of archaeology are often more telling of wider cultural mythologies than of any intrinsic truth about the discipline. Representations of archaeology in popular forms can work against, rather than for, the communication of archaeological messages

and information to a wider audience. This is contrasted by the argument that creative forms may be those most likely to succeed in communicating such content to the widest audience possible. Following previous work examining the tensions in relationships between popular culture and academia, the short film 'Voices from the Black' was produced in 2014 for the Blacktown Arts Centre. The film presented historical and archaeological content about the suburb of Blacktown in New South Wales in a narrative form. The decision was made to represent multiple time periods and scales of time through a story that focused on geographic location, but detached it from a temporal anchor, allowing for the narrative presentation of deep time as separated from the human scale. The film utilised the unique abilities of archaeology as a discipline to interrogate narratives of material objects as separate from human interaction. This resulted in a narrative presentation of material meaning as well as verbal meaning. A loose narrative was structured around the concept of the land as a living story, with viewers invited to read it like a palimpsest where elements of the past ghosted through into the contemporary landscape. The process of creative development included consultation, background research and field survey. This paper explores the potentials of utilising creativity and narrative forms in archaeology. This is discussed in relation to the recent short film production, contextualised within the milieu of past fictocritical approaches to archaeology.

K



The Containment of Wayward Females: The Buildings of Abbotsford Convent

Edwina Kay, *La Trobe University*

Institutions have been used as sites of punishment, reformation, containment and refuge in Australia from colonial times to the present-day. The built form of institutions is particularly meaningful in expressing the relationship between the ideology of the institution and the practices implemented to meet its aims. Examination of the physical structures provides insights into their operations that may both illuminate and undermine knowledge of institutions drawn from the documentary record. For more than a century Magdalen Asylums in Australia took in women and girls who were deemed to be 'fallen' and required them to give penance for their sins through work and prayer. Examination of the built form of the largest and longest operating Magdalen Asylum in Australia at Abbotsford Convent in Melbourne offers rich and complex data with which to examine the processes and practices of institutionalisation through which the Sisters of the Good Shepherd sought to

fulfil their mission. The Good Shepherd Convent at Abbotsford was a massive institution that contained the Magdalen Asylum and laundry, as well as an industrial school, a reformatory, and a day school for children. The institution housed thousands of women and girls from the 1860s until the 1970s. In this paper I discuss the characteristics of isolation, segregation and self-sufficiency evident in the physical structures of the Convent as a reflection of both the reformatory aims of the institution and its role in Melbourne society in the nineteenth and early twentieth centuries.



Using Geological Data, Maps, and GIS Technology to Predict New Archaeological and Fossil Sites: An Example from the Wallacean Islands of Southeastern Indonesia

Shimona Kealy, *Australian National University*

Maps depicting the surface geology of an area have excellent potential for predicting new palaeontological and archaeological sites and interpreting existing or prospective ones. Geological maps provide data on the presence of particular rock types (e.g. igneous vs sedimentary), strike and dip approximations, and the age of formations. This information can be imported into GIS programmes such as ArcGIS, and overlain with additional geospatial information such as topographical and satellite imagery. Information from field surveys, including GPS coordinates and trackways, can then be superimposed on this geological data and used to characterise the locations of identified fossil and archaeological sites. This information can then be used to predict the locations of new sites. Here I present how the application of these methods were used to characterise sites identified through physical surveys in the Wallacean island of Alor, Indonesia, and present predictive results for possible new archaeological and palaeontological sites in similar, nearby islands.



Landscape of Colonialism and Conflict

Matthew Kelly, *AHMS Pty Ltd*

The World War II battle along the Kokoda Track has achieved iconic status as a crucible in the forging of modern Australian identity – on a similar level to that of Gallipoli. From August to November 1942 the Australian Imperial Force (AIF) battled the forces of the Imperial Japanese Army along this narrow 90km foot pad while both, in turn, also fought the demanding jungle landscape. For two short periods, numbering only in days, this conflict passed across the area around Eora Creek, Oro Province. This land includes the homes and hunting grounds of the people of Alola. The short and bloody conflict, significant as it was in the lives of the locals, was also

situated within a longer period of Colonial incorporation and management. This process in turn located within the longer span of local habitation of the Eora valley. The recent work undertaken by AHMS to archaeologically survey and record this landscape of recent conflict has also been able to draw upon colonial accounts and oral history to highlight the compelling relationships between material culture, people's understanding of the significance of events and their related timescales within this colonial and military context.



Kaiadilt Country, Kaiadilt People: Reflections on Kaiadilt History and Futures

Roger Kelly, *Kaiadilt Aboriginal Corporation*
Christopher Loogatha, *Kaiadilt Aboriginal Corporation*

Kaiadilt people are the owners of the South Wellesley Islands in the southeast Gulf of Carpentaria. They were removed from their country to Mornington Island by missionaries in the North Wellesley Islands in 1947–1948. Except for brief visits in the intervening years, Kaiadilt people only began to return to Bentinck Island since 1984. Senior Traditional Owner Roger Kelly speaks to his own life experience, being born on Bentinck and taken to the Mission as a young boy and how this has impacted on his understanding of his culture. Senior Traditional Owner and Chairperson of the Kaiadilt Aboriginal Corporation Christopher Loogatha then talks about how the younger generations of Kaiadilt experience their culture and how it is preserved.



Multimethod Geophysical Survey of Large Shell Matrix Sites: A Case Study from Thundi, Bentinck Island, Gulf of Carpentaria

Selene Kenady, *James Cook University*
Sean Ulm, *James Cook University*
Peter Ridd, *James Cook University*
Kelsey Lowe, *University of Queensland*
Daniel Rosendahl, *Willandra Lakes Region World Heritage Area / James Cook University*

The large size of many coastal shell matrix sites raises complex sampling issues for archaeological excavation. Prior research has suggested that up to 50% of shell matrix sites needs to be sampled to adequately characterise internal structure and diversity. However the extensive nature of many sites makes this level of sampling both impractical in terms of time and resources, and undesirable owing to the destruction of the archaeological record. Instead of extensive excavation, limited test pits are typically undertaken, covering only a small portion of the deposits. For a large site, these test pits represent a tiny sample, making it difficult to know

how truly representative they are of the whole. By utilising geophysical surveys a much larger proportion of buried shell matrix deposits can be characterised, allowing for a greater understanding of the overall nature of the site. This paper presents preliminary results of a multimethod geophysical survey (magnetometry, ground-penetrating radar, magnetic susceptibility, and electrical resistivity) conducted on a large shell matrix site on Bentinck Island in the Gulf of Carpentaria. Results of the geophysical surveys are compared to results obtained from standard test pit excavations.



Environmental Archaeology of Spinning, Weaving and Dyeing in Ancient Thailand

Puangtip Kerdsap, *James Cook University*

The domestication of plants and animals and the appearance of intensive agriculture have changed forever the relationship between humans and their environments, wherever they have appeared worldwide. When considering the implications of agriculture, archaeologists often concentrate on the obvious crops, such as wheat, barley, rice, and maize, however, plant and animal products have been important for other reasons beyond subsistence. This paper will address what impact the domestication and farming of native and introduced fibre-producing plants might have had on the local environment and people's lives in prehistoric Thailand. I will discuss what fibres we have evidence of (including silk – produced by the silkworm)? How many are native? Where do the introduced species come from and when do they first appear in Thailand? I will also consider plants used in the dying process. The aim is to broaden the conversation about human-environment relationships beyond subsistence practices to a wider social and cultural context.



New Evidence of Last Glacial Environments and Expansion of Rainforest during Termination 1 on the Atherton Tableland, Northeast Queensland

Peter Kershaw, *Monash University*
Simon Haberle, *Australian National University*
Phil Roberts, *Australian National University*
Mark Burrows, *Australian National University*
Susan Rule, *Australian National University*

Although there is a lack of evidence for permanent human settlement in the current Wet Tropics of Australia until about 8000 years ago, the region does contain the most substantive evidence for early human influence on the environment relating to megafaunal extinction and sustained vegetation change in response to

increased biomass burning, around 40,000 years ago. Consequently, it is valuable to examine further the palaeoenvironment record to, hopefully, shed light on this apparent paradox. We focus on the palynology of a recently collected core from Bromfield Swamp on the Atherton Tableland that is extending the existing record here from the base of the Holocene to about 40,000 years ago. The comparison of this record with that from Lynch's Crater will provide a spatial picture of changing climate and vegetation gradients and shed light on the debate over the causes of millennial-scale variability during the last glacial period by utilising different climate proxies. These records, in combination with those from other sites, will also be employed to refine and explain the pattern of expansion of rainforest from glacial refugia and provide guidance to future archaeological research on the pattern and timing of rainforest settlement.



Folk Healers' Local Knowledge Transfer before Angkor in the Upper Mun River Catchment: A Case Study of the Pholsongkram Community, None Soung District, Nakhon Ratchasima Province, Thailand

Netchanok Khongthon, Nakhon Ratchasima Rajabhat University

The research concerns the study of local folk healers' knowledge transfer in Nakhon Ratchasima Province, Thailand. The study area covered 207 rai of community forest (15 villages). The research gathered qualitative data by surveying the forest and then interviewing the folk healers. Secondary data was gathered from documents, journals, websites and from government and private organisations. A focus group was conducted with the folk healers. The final stage of the research was managing the knowledge in consultation with the community. The purpose was to create the health stability and to sustain the community forest. We found that local folk healers used local knowledge transferred from their ancestors and 'herb savants'. Plants in the community forest could be used for primary medical care. It was found that there were 13 medical plant categories. The folk healers also transferred their knowledge of nine categories of plants, among the 13, that are commonly eaten but also have medicinal uses. The communication policy for transferring the folk healers' knowledge should be formulated to strengthen the sustainable health in the community with the collaboration of the schools, the communities and the temples.



Ancient Australia Unearthed: A New Resource for Schools

Alethea Kinsela, La Trobe University

In this paper, I will discuss my book *Ancient Australia Unearthed*, the first stand-alone secondary textbook to address the Australian Curriculum: History topic Ancient Australia, which is embedded in the Ancient World unit for Year 7. Until recently, many school textbooks have perpetuated long-held myths about the Indigenous past. Today, current texts often brush over Ancient Australia, or else ignore it entirely. Many teachers struggle with the topic due to a lack of resources, and therefore fail to address it with the respect, authenticity and depth it requires. *Ancient Australia Unearthed* helps to fill this gap. The text collates available research and sources in an accessible format for students and teachers, exploring Australia's ancient past through the lens of archaeology, which for many readers is a new experience. It responds to the requirements of the Australian Curriculum: History by first introducing archaeology and the role that archaeologists and Traditional Owners play in the historical enquiry process, then navigates through some significant archaeological evidence and chronological points of Ancient Australia. Inquiry questions are shaped according to current education theory, and case studies encourage readers to investigate topics further, creating learning experiences for both students and teachers. By specifying Ancient Australia as a required unit of study, the Australian Curriculum: History goes some way towards ensuring that this history is taught to all young Australians. Dedicated Ancient Australia resources are imperative to further cement the topic within a broader framework of Australian history and to encourage the thinking that this is a topic of national importance, deserving of a status equal to that of other giants of Australian history, such as Gallipoli and Eureka. Providing students and teachers with accessible, quality and accurate information about Ancient Australia is a step towards creating long-term cultural change in Australian citizens of the future.



Obsidian Chopping Tools, Woodworking and Forest Management in West New Britain, Papua New Guinea

Nina Kononenko, Australian Museum
Robin Torrence, Australian Museum

The early-mid-Holocene archaeological record of West New Britain, Papua New Guinea has a puzzling absence of tools suitable for clearing gardens and manufacturing boats, houses etc. A small number of flaked stemmed artefacts with shapes resembling axes or adzes have

been identified, but they are made from obsidian, a volcanic glass generally considered too brittle for tasks requiring tough, long-lasting edges. We report experimental replication that refutes this assumption by demonstrating that obsidian tools can be surprisingly effective for percussive woodworking. Subsequent use-wear/residue analyses have identified both light and heavy duty woodworking tools dated to the early-mid-Holocene. Despite confirmation that obsidian was used to chop wood, the scarcity of these tools and the relative rarity of later ground stone axes raises intriguing issues about the nature of forest management and woodworking throughout prehistory in this region.



Separating the Behavioural from the Post-Depositional: Amino Acid Racemisation and its Application in Behavioural Archaeology

Brent Koppel, *University of Wollongong*

Kat Szabó, *University of Wollongong*

Mark Moore, *University of New England*

Michael Morwood, *University of Wollongong*

Shell mounds and middens are a ubiquitous feature on the Australian archaeological landscape with significant potential to inform on past human behaviours. Isolating behavioural practices within midden assemblages is problematic, as formation processes and post-depositional influences in midden sites obfuscate interpretations. Despite being a recognised dating method consistently used in geomorphological studies, amino acid racemisation (AAR) has rarely been applied to archaeological contexts despite offering significant potential as both a relative and numerical dating technique. Using AAR, a high-resolution relative dating methodology has been applied to material excavated from a large shell midden located in northern Western Australia. The potential of AAR in archaeological contexts is highlighted in this research as midden-building practices such as gathering and depositional behaviours through time are disentangled from post-depositional processes so frequently observed in midden archaeology.



Egyptian Red Sea Port of Berenike Troglodytica and its Role in the Red Sea: Indian Ocean Maritime Trade – Using Geoarchaeological and Palaeoenvironmental Proxies for Landscape and Seascape Reconstruction

Anna Kotarba-Morley, *University of Oxford*

Berenike was the most important harbour on the Egyptian Red Sea during the Ptolemaic and Roman

periods and was a major hub connecting trade between the Indian Ocean and the Mediterranean. Berenike's geographical position was extraordinarily propitious owing partly to its natural harbours, protected against the prevailing northern winds, as well as its location on the large peninsula of Ras Benas, which was an ancient viewshed. This paper will discuss how multifaceted geoarchaeological approaches to the study of ancient ports can contribute to a better understanding of the mechanisms and logistics of maritime trade, as well as fluctuations in its quality and quantity. The paper will also disseminate the latest results of laboratory analyses from coring campaigns in Berenike's harbours, which aim to shed light on the significance of local and regional palaeoclimatic, landscape, seascape and environmental changes on the development and decline of the port, and the impact these factors had on the Red Sea – Indian Ocean connectivity and maritime trade.

L



Nassarius Shell Beads from Jerimalai, East Timor: Use-Wear and Residue Results

Michelle Langley, *Australian National University*

Sue O'Connor, *Australian National University*

Personal ornamentation manufactured from marine shell plays an increasingly important role in the investigation of symbolic social behaviours practiced by late Pleistocene and early Holocene communities. Nassarius shell beads, in particular, have been central to these discussions. Here we report on recent use-wear and residue analyses completed for Nassarius shell beads recovered from Jerimalai (East Timor) as well as examples from the nearby sites of Matju Kuru 1 and 2. These artefacts will be compared to Oliva cone shell beads and Nautilus disc beads retrieved from these same sites, as well as examples of Nassarius beads recovered from several international sites located further afield.



A Glacial Cryptic Refuge in Southeast Australia: Human Occupation and Mobility from 36,000 Years Ago in the Sydney Basin, New South Wales

Michelle Lau, *Archaeological and Heritage Management Solutions*

Alan Williams, *Archaeological and Heritage Management Solutions*

Fenella Atkinson, *Archaeological and Heritage Management Solutions*

Excavations of a source-bordering dune near the Hawkesbury River (Sydney Basin, Australia) reveal early

regional populations forming by 36,000 BP at the onset of the Last Glacial Maximum (LGM). Results suggest that colonisers followed the main coastal fringe, and utilised associated rivers for access inland. Occupation was maintained and intensified during the height of the LGM – the site forming one of several known refugia during this intensely cool and arid period. We re-explore the nature of the refugium using recent ecological concepts and mobility indices. Human activity persisted through a climatically variable terminal Pleistocene until the early Holocene, when river aggradation through sea-level rise inundated several critical resources, leading to reorganisation of social and spacial patterns.



Water, Landscape Change and the Victorian Mining Industry

Susan Lawrence, *La Trobe University*

Peter Davies, *La Trobe University*

Jodi Turnbull, *La Trobe University*

Victoria's nineteenth-century mining industry used vast quantities of water for processing gold. In the process it created significant landscape change by removing topsoil through sluicing activities, churning up river valleys in the process of dredging, and depositing large amounts of sludge in waterways and floodplains downstream. This paper uses archaeological evidence to begin to map the extent of mining-related landscape change in Victoria.



Palaeodemographic Studies of Early Hominins at Drimolen Palaeocave, South Africa

Angeline Leece, *La Trobe University*

Jacopo Moggi-Cecchi, *University of Florence*

Justin Adams, *Monash University*

Colin Menter, *University of Johannesburg*

Andy Herries, *La Trobe University*

Demography is a well-known technique widely used across a number of fields including both zoology and anthropology. Demographic studies are used to determine information such as population size, mortality rates, and gender ratios. This information allows researchers to interpret behavioral patterns of their subjects. Demographic studies have been applied to fossil collections in an attempt to broaden the understanding of early hominins. Unfortunately, the size and fragmentary nature of these assemblages limit the usefulness of these studies. Collections often consist of a very small sample size and fail to represent intraspecies variation or even intragroup variation. As this offers a minute amount of information, many assemblages do

not provide the means necessary for a demographic interpretation. Drimolen is a hominin-bearing palaeocave site in Gauteng Province, South Africa, dated to between 2.0 and 1.4Ma. It has produced over 126 hominin specimens of both *Paranthropus robustus* and early *Homo*. Based on modern estimates, it would appear a wide 'age-at-death' range is represented within the assemblage, i.e. adults, juveniles and neonates. These features of the assemblage provide a unique opportunity to examine the palaeodemography of these species, particularly the more abundant *Paranthropus robustus*. Age-at-death has been established for nine teeth of varying ages using synchrotron analysis. These data have been used to seriate the remainder of the assemblage based on comparative morphology, crown formation, and wear patterns to determine an accurate age profile and minimum number of individuals (MNI) for the site. This information will be used to interpret palaeodemography of the Drimolen assemblage compared to data from other hominin sites and the preliminary results will be discussed here.



A Stratified Site of Possible Pleistocene Age on the Swan Coastal Plain, Perth, Western Australia

Orlaith Lenihan, *Waru Consulting Pty Ltd*

Joe Mattner, *Waru Consulting Pty Ltd*

Tristan Bergin, *Waru Consulting Pty Ltd*

Perth Airport commissioned Waru Consulting to conduct excavations at a registered archaeological site, Department of Aboriginal Affairs #17502 'Adelaide Street'. These excavations represent the largest single programme of test excavations conducted to date in the Perth region and the results are commensurately important. Test excavations at artefact scatter DAA #17502 'Adelaide Street' have revealed potentially stratified archaeological deposits within a Bassendean sand dune. Artefact-rich deposits occurred within spatially discrete layers, with little material above or below and no sorting by size or weight down the deposit. These artefact-rich deposits represent discrete occupation layers, whose extent and distribution did not correlate with the surface expression of the site. Thermoluminescence dating of quartz sand from two test pits returned dates that are in reasonable chronological order, suggesting the presence of possible stratified deposits within Bassendean sands. The preliminary dates suggest the dune was intermittently occupied between 12,000 and 35,000 BP. On typological grounds the excavated assemblage of almost exclusively quartz pieces would be assigned to the mid-Holocene or later. Further dating to resolve this question is needed. Nonetheless, these results confirm the potential for significant stratified sites to survive on Perth Airport

land and elsewhere on the Swan Coastal Plain where dunes with Bassendean sands are close to reliable water sources, potentially including sites with evidence of Late Pleistocene occupation.



Radiographic Imaging in Sembiran

Philip Liro, *Australian National University*
Ambra Calo, *Australian National University*
Tim Denham, *Australian National University*

This poster shows how modern radiographic imaging techniques can highlight alluvial deposition/coastal aggradation in a site whose stratigraphy is non-distinct allowing for detailed geoarchaeological landscape reconstruction. The Holocene sites in Sembiran, Bali have alluvial and river estuary areas underlying active volcanic mountains on the coastline of Indonesia. This complex geological system creates pedologies and depositional elements that meld into one another forming a stratigraphy that appears to be a single deposit at times. This creates contextual and chronological issues for archaeologists when artefacts and burials are discovered within such landscapes. Radiographic methods can go a long way to helping unpack the stratigraphy of a site and define geomorphological aspects and processes of interest such as the changing shore line. By utilizing X-radiography and Computed Tomography we can break down unseen geomorphological aspects within a complex site stratigraphy to tease out the processes enacting upon an archaeological site. Coastal changes, alluviation and potential tephra layers can become apparent and provide valuable archaeological information about chronology and habitation. These are non destructive techniques and allow further analysis and alternate research goals by other archaeologists. Unfortunately radiography is not largely used within archaeology, however the technology can provide fast, effective and non-destructive analysis of samples and stratigraphy in complex sites such as Sembiran.



Archaeomagnetism: A Promising Dating Tool for Australian Archaeological Science

Agathe Lise-Pronovost, *La Trobe University*
Andy Herries, *La Trobe University*
Nicola Stern, *La Trobe University*
Ilya Berilov, *Biosis Pty Ltd*
Will Anderson, *Vincent Clark and Associates*
Ben Watson, *Vincent Clark and Associates*

Dating archaeological sites is a primary step for understanding the human past and it remains one of the

great challenges in archaeology. While archeomagnetism is powerful dating tool widely used in other parts of the world such as in Europe, it has never been used in Australia. The reason for this is because past variability of the Earth's magnetic field in Australia is critically under-documented relative to the Northern Hemisphere. Therefore virtually no reference data is available for regional archaeomagnetic dating. Yet there are burnt deposits likely suitable for archaeomagnetic studies in Australia, including fireplaces, heat retainers, heat treated stone tools, and in the historical period, bricks, kilns, pottery and ovens. Here we present archaeomagnetic results from southeastern Australia as a first step towards the development of a new dating technique for archaeological science in Australia. Baked sediment, hearths and heat retainers from Victoria and New South Wales covering the time periods from c.25,000 to 15,000 cal BP and since 4000 cal BP were analysed. Standard procedures of alternating field and thermal demagnetisation, as well as Thellier-Coe archaeointensity determinations with partial thermoremanent magnetisation checks were followed. The results reveal generally strong and stable remanent magnetisation, with some samples displaying single components that are ideal for palaeointensity determinations, and others displaying complex heating histories that provide valuable insights on the formation, firing conditions and usage of the campfires. The new archaeomagnetic direction and intensity data from southeast Australia are compared with global reference curves, geomagnetic field models and the nearest available records. Altogether the results highlight the great potential of archaeomagnetic research in Australia for better understanding past behaviour of the Earth's magnetic field in the Southern Hemisphere and for building the first Australian Archaeomagnetic Dating Reference Curve.



Tracing Personal Ornaments in Thailand

Ashlee Litfin, *James Cook University*

Stone bangles are personal ornaments characteristic of the Bronze Age in Southeast Asia. Commonly recovered from contexts dating c.3000–2500 years ago, their origins, manufacture and crafters remain a mystery. This project aimed to determine the type of stone used to make the bangles recovered from Ban Non Wat, Thailand, as well as possible trade routes along which the raw stone travelled from its geological source. This initial analysis determined the stone to be either limestone or marble. Previous chemical composition analysis of the bangles determined that they came from one source, probably Ban Rai quarry, in the southwest corner of the Khorat Plateau. Visual analysis of Ban Rai quarry stone samples established the probable link between Ban Rai and Ban

Non Wat, where most samples were identified as marble. This analysis made it possible to rule out certain areas from which the bangle stone may have been sourced. In combination with relevant palaeoenvironmental, geological and archaeological data this allowed the creation of an initial model of potential areas in Southeast Asia and southern China from which the bangle stone may have been sourced. Results identified three potential stone sources within reach of the Khorat Plateau. Likely trade routes for each of these sources, both overland and by waterway, have been mapped. Understanding the route of trade from the geological source to Ban Non Wat, as well as all possible links between, is important to understanding the inter-relationships between the communities of Southeast Asia.



Impacts of Prehistoric Copper Mining in Laos: A Case Study of the Vilabouly Ge

Catherine Livingston, *James Cook University*

Several bronze Ge have been recovered from the prehistoric copper mining complex (the Vilabouly Complex) in mountainous Vilabouly District, Lao PDR. Current dating estimates indicate these artefacts were buried as grave goods prior to 300 BC, roughly coinciding with bronze to iron technological transition in the region. These finds are new to the archaeological record, and to date little research has been undertaken on Ge in this region. This paper argues that comprehensive investigation of the Ge found here contributes to understanding mining processes at Vilabouly, the level of environmental impact and the nature of feedback cycles between environment and the ancient mining community over time. The presence of Ge (artefacts associated with standing armies of early states and complex chiefdoms of what is now China and Vietnam) suggests that ancient copper mining at Vilabouly was undertaken or controlled by an equally complex society, on a large-scale, impacting significantly on the environment. However, other evidence argues against such conclusions. To develop a clearer picture of the size and intensity of mining operations, this paper considers the nature and variation of Vilabouly Ge in addition to other archaeological evidence, including the type of mining conducted and the likelihood of changing conditions over the more than 1000 years of mining evident at the Vilabouly Complex (at least 500 BC-700 AD). The aim is a better understanding of the complex relationships between society and environment engendered by the first international industrial enterprise in Laos.



North Head Quarantine Station and the Institutionalisation of Infection

Peta Longhurst, *University of Sydney*

The North Head Quarantine Station was established in 1828 in order to prevent the spread of contagion from the outside world to the colony of Sydney. As Alison Bashford (1998) has argued, the quarantine line also acted as the border of the colony, and later the nation. However, quarantine was not simply a boundary line, separating the healthy from the potentially diseased. Rather, it was a boundary space that was internally differentiated on the basis not only of health status but also of class, race and gender. In this sense, quarantine can be seen as a place of intersection and entanglement between changing medical understandings of disease and contagion, definitions of citizenship and belonging, and attitudes towards sociocultural identities. This paper is concerned with the material traces of this entanglement, with the North Head Quarantine Station understood as an archaeological assemblage and cultural landscape through which its institutional strategies can be explored. While quarantine is in theory about the management of contagious diseases, what this means in practice is the management of something far more tangible – vessels, people and objects. An archaeological analysis of quarantine reveals objects that embodied disease, landscapes shaped by knowledge of disease transmission, and material absences that act as a testament to the fear of contagion. Through institutional processes of exclusion, isolation and confinement, quarantine institutionalised the threat of disease, and in the process pathologised the identities of those people that sought to come to Australia.



Managing Cultural Values: Whose Responsibility?

Scott L'Oste-Brown, *Cultural Heritage Systems and Strategies / James Cook University*

Luke Godwin, *Cultural Heritage Systems and Strategies / James Cook University / University of New England*

Cultural heritage management, in the form of archaeology, has been a standard part of the environmental impact process for more than 30 years. Other forms of cultural heritage, such as the management of places of traditional, historical and contemporary significance, have also been added to the mix. Some of this includes so-called 'intangible' heritage. We are now also seeing the emergence of EIS conditions and requirements that require consideration of what are being loosely referred to as 'cultural heritage values'. These seem to range from elements that have do have a cultural

heritage dimension to other matters, that while clearly important to a community, do not easily fit within the heritage paradigm or have substantial overlap into other disciplines, perhaps more so than heritage management. One example of this includes the management of culturally important plants: should they be managed exclusively as cultural heritage or more as part of natural environmental management and biodiversity? Another would be employment history and one's association with an area through this. This can lead to a desire and demand for jobs in some other industry as a means of maintaining association with an area. Some of these values have no geographical referent at all. While these may all be reasonable concerns that demand attention as part of the environmental impact process, the question must be asked: are they cultural heritage? Is there now a concept of 'heritage' that is so broad as to be almost undefinable where pretty much anything can be tossed into that basket? Is greater precision required of regulators or others when using the term 'heritage'? Which discipline, or range of disciplines, need to address these issues?



Ecological Modelling as a Means of Determining the Environmental Impacts of Human Migration through Wallacea

Julien Louys, *Australian National University*
Shimona Kealy, *Australian National University*
Sue O'Connor, *Australian National University*

The first humans arrived in Australia sometime in the late Pleistocene by crossing through and living on a number of small islands that would never have been connected to either Sunda or Sahul. These islands, situated in a region known as Wallacea, provide the ideal context in which to investigate the effects that early modern humans have had on insular ecosystems, whether directly or indirectly. To date, inferences regarding human subsistence strategies, introduction of commensal species, and local environmental changes have been made on the basis of archaeological records from a handful of Wallacean islands. The archaeological records of East Timor and Flores have been particularly important for such studies. In this study, we take a different approach, and examine how modern ecological theory might be useful for understanding the effects of humans on island ecosystems. We explore a number of ecological modelling techniques and describe how these might be used to determine whether scenarios of widespread extinction and environmental alteration can be expected following initial colonisation. The data underlying these models rely not just on archaeological deposits, but also on natural accumulations of faunal material (palaeontological deposits), as well as modern

biological and ecological records of isolated and relatively little-studied islands.



Public Archaeology Working Together with Archaeological Research: A Multiple Method Geophysical Survey of an Early Historic Period Inn at Drayton, Queensland

Kelsey Lowe, *University of Queensland*
Aaron Fogel, *Griffith University*
Bryce Barker, *University of Southern Queensland*
Lara Lamb, *University of Southern Queensland*

The Royal Bull's Head Inn was originally built in 1847 and functioned as a hotel in Drayton, Queensland. Through its life the hotel served the local population on the Darling Downs as well as those travelling through as a hotel, bar, livery and general meeting place. In 1973 the National Trust of Queensland purchased the property, and subsequently renovated the hotel and surrounding buildings before opening it to the public in 1985. Today the two-storey timber and brick building encloses several rooms (10 downstairs and 5 upstairs) and is surrounded by gardens and agricultural structures. Recently, a joint public archaeology research programme has been developed to investigate the subsurface remains associated with the hotel property, specifically to raise awareness of early non-Indigenous habitation in the general public. As part of this programme a multiple method geophysical survey was conducted to develop a better understanding of spatial aspects of the site, estimate levels of preservation across the property and assist in identifying suitable locations for future excavations. This paper presents results of this research to date and highlights its importance for understanding historical landscapes in this region.



Investigating Plant Exploitation and Use in the PNG Highlands during the Mid Holocene

Sindy Luu, *University of New South Wales*
Judith Field, *University of New South Wales*
Glenn Summerhayes, *University of Otago*
Herman Mandui, *National Museum and Art Gallery of Papua New Guinea*
Anne Ford, *University of Otago*
Matthew Leavesley, *James Cook University*
Michael Lovave, *Forest Research Institute*

The Ivane Valley, in highland PNG, has produced evidence of the earliest human settlement across Sahul. The archaeological record has accumulated in open site deposits and the stratigraphic sequence is largely consistent across time and space. The middle Holocene

sequence from a number of these sites has been investigated for evidence of plant use and exploitation as it relates to settlement. This paper presents the result of a detailed study of stone tools and sediments in order to reconstruct a picture of highland settlement and plant use at a time when agriculture was emerging some 400km to the northwest in the Wahgi Valley. The results will be compared and contrasted with developments observed elsewhere.

M



Chinese Temples of Colonial Victoria

Paul Macgregor, *Melbourne Chinese Studies Group*

During the Australian goldrushes, Chinese temples – and other buildings with semi-religious functions – proliferated in colonial Victoria. At least 40 are believed to have been built, possibly many more, yet only three still stand: the See Yup Temple in South Melbourne, the Num Pon Soon Clubhouse in Melbourne's Chinatown and the Bendigo Joss House at Emu Point. However, artefacts from at least another nine temples remain in several rural museums and in private collections; there are photographs, sketches and newspaper accounts of other temples; and there is archaeological potential on the sites of some of the lost temples. Temples could be built in canvas, from timber, and in brick; in some cases, temporary structures which moved with the gold finds, more often permanent buildings which lasted for decades or longer. In some major centres of Chinese goldmining, such as Beechworth, Castlemaine and Bendigo, there could be from four to eight temples in each town. This paper reviews what the evidence can tell us about the material culture of these temples: with a particular focus on locations, sizes, site contexts, design, decoration, and contents. The paper will also review the efforts over the years by local historical groups to preserve, interpret, research, conserve and display temple remains and sites. Finally, this paper will consider what could be learned from undertaking archaeological investigation at selected sites.



Late Holocene Swamp Development and Human Occupation across the Wellesley Archipelago, Gulf of Carpentaria, Northern Australia

Lydia Mackenzie, *University of Queensland*
Patrick Moss, *University of Queensland*
Craig Sloss, *Queensland University of Technology*
Sean Ulm, *James Cook University*

Daniel Rosendahl, *Willandra Lakes Region World Heritage Area / James Cook University*
Lynley Wallis, *Wallis Heritage Consulting*

We present four sediment records from Late Holocene freshwater swamps across Bentinck and Albinia Island in the South Wellesley Archipelago, Gulf of Carpentaria, northern Australia. Geochemical analysis of sediment cores reveals phases and timing of swamp development while pollen, macro- and micro-charcoal records provide a proxy of human and environmental change across the region. This research explores the dynamic environmental context encountered by the Kaiadilt people during the late Holocene and highlights the benefits of coupled archaeological and palaeoecological research.



Heritage in the Hunter: Conserving Springwood Homestead

Holly Maclean, *Environmental Resources Management*
Tina King, *Environmental Resources Management*

ERM and Rio Tinto are working together to conserve a piece of the Hunter Valley's horticultural and pastoral heritage. Springwood Homestead was once the home of early pioneering brothers William and Alfred Watts. Constructed in the mid-1800s, it was part of the Springwood Estate which was renowned in the region for its vineyards and splendid orchard of stonefruit, the fruit of which was sold by the Watts brothers in the Hunter region, and also exported to New Zealand. As a result of recent land acquisitions, Springwood Homestead became the responsibility of Rio Tinto. The building, lying unoccupied for decades, has been weathered over time. However, it has a number of intact, original features such as wallpaper, slab construction, timber shingled roof and a fine sandstone chimney. Through Rio Tinto's ongoing consultation with its local Community Heritage Advisory Group (CHAG), the Springwood Homestead has been brought to Rio Tinto's attention as being of significance to the local community. In conjunction with the CHAG and structural engineers with specialist skills in heritage place management, ERM is providing specialist conservation advice to assist Rio Tinto with the ongoing care and management of the Homestead.



47,000 Years of Lithic Technology in the Southern Kimberley

Tim Maloney, *Australia National University*

The southern Kimberley region of northern Australia has now revealed multiple archaeological assemblages spanning the earliest presence of Indigenous Australia's,

around 47,000 BP, to the present-day. Despite this deep history, large dated assemblages of flaked and edge ground lithic artefacts have seldom been subjected to detailed technological analyses. Lithic artefacts provide crucial evidence of the overall technological and subsistence practices of the people who lived in this dynamic environment, often with the complete absence of other preserved cultural material. The changing morphology and reduction intensity of lithic artefacts found in multiple archaeological deposits evidences technological change through time previously not detected. Quantitative data from five excavated sites showcases change in core reduction, flake production and retouched flake reduction, which is used to model the underlying causes of this variation. These data include the earliest evidence of edge-ground axe technology in the world, shifting Pleistocene and Last Glacial Maximum reduction strategies and a dynamic Holocene record that overwhelms existing models of a two-phase cultural sequence.



Bush School and Traditional Stories from Gooniyandi Country

Tim Maloney, *Australia National University*
Mervyn Street, *Elder of Gooniyandi*
June Davies, *Elder of Gooniyandi/Bunuba*
Rose Whitau, *Australian National University*

This poster presents a narrative of several field trips throughout Gooniyandi country in the southern Kimberley from 2011 to 2013. Mervyn Street, a Gooniyandi elder and well-known artist, educates his young grandson Jai in 'bush school' and records Gooniyandi stories for future generations. In bush school, by following traditional story lines, Jai learns where and how to find food and water, and about the formation of Gooniyandi country. Jai also learns where Mervyn's grandfather made Kimberley Points from local chalcedony and hunted wallaby. We aim to publish the stories that we have recorded at numerous Gooniyandi sites in both English and Gooniyandi, the latter will be translated by linguist June Davis. These dual language books will provide a written record of traditional knowledge, for future generations of Gooniyandi and any non-Gooniyandi person who is interested in learning more about traditional Gooniyandi knowledge. This poster showcases these 'bush school' field trips, the story-recording process, and the importance of incorporating Indigenous perspectives and stories into archaeological investigations.



Methodological Challenges in Tropical Zooarchaeology

Tiina Manne, *University of Queensland*
Jillian Garvey, *La Trobe University*
Ken Aplin, *Australian National University*
Richard Cosgrove, *La Trobe University*

Zooarchaeological research in the tropical north offers exciting prospects of revealing new dimensions of prehistoric human behaviour in these environmentally diverse areas. However, current research is limited by a range of issues, including incomplete taxonomic and distributional knowledge of most groups of vertebrates, limited information on the behavioural ecology of many species, and for all but a few regions, scant knowledge of Quaternary environmental history. More practical issues derive from the aggressive chemical environment in many sites and low sedimentation rates in others, both factors leading to highly-fragmented assemblages, with the key taphonomic processes often not well-understood. Access to inclusive reference collections also inhibits our capacity to analyse these assemblages. The embryonic state of vertebrate zooarchaeological research in the north stands in contrast with its mature state in the south, most notably in Tasmania where studies of ageing, seasonality, economic and nutritional indices have provided much insight into understanding prehistoric human behaviour. In this paper we explore the prospects and challenges of carrying out similar kinds of zooarchaeological research in the north and in the process, highlight some contrasting but equally exciting potential areas of research for the tropics.



Losing your Marbles: The Archaeological Investigation of Domain House and the Hobart High School

David Marcus, *Austral Tasmania Pty Ltd*
Kieren Watson, *Austral Archaeology Pty Ltd*

In direct response to the opening of the Anglican-funded Hutchins School in 1846, many of Hobart's leading citizens combined to fund a rival, non-sectarian educational institute and the Hobart High School was born. Constructed 'on a commanding site ... conspicuous from every point of view, and ... so imposing as to dwarf by contrast every other public building', the three-storey Gothic Revival building of Domain House was purpose built in 1850 overlooking Hobart town in such a way as to dominate the skyline. Behind a forbidding Gothic frontage, the building contained both classrooms for education and residential quarters for the teaching staff and, from 1859, boarding facilities. The school operated until 1885, when the building was leased to Christ's

College, before eventually being passed to the newly funded University of Tasmania in 1892. Prior to proposed conservation and refurbishment works in which the floors are due to be repaired and replaced, Austral Tasmania was commissioned to archaeologically investigate the subfloor deposits. This paper examines the results of the archaeological excavation which revealed insights into the daily interaction between the pupils, the teachers and their families who lived in the school. We are interested in examining how the archaeological evidence differentiates between the institutional context of the building and the domestic life which occurred within. Through an analysis of artefactual material, including toys, we attempt to describe the contrasting evidence representative of the pupils compared to their custodians.



Rock Art Conservation and Management: Results of Doctoral Research into Contemporary Approaches

Melissa Marshall, Australian National University

The conservation and management of rock art sites has long been an area of concern for rock art researchers as they seek ways to work with and support Indigenous communities to protect and preserve these special and sacred places. With changes occurring exponentially in the world around us, from increases in global population, associated development and resource requirements, the use of the internet to share information, as well as increasing environmental pressures related to climate change, challenges to look after this precious resource are increasingly presenting themselves in ways not experienced or previously foreseen. The 1970s to 1990s saw a great deal of research into methods of physical conservation as well as the practicalities of managing sites. Most rock art research journals at this time contained articles on the subject. In the past 20 years however, this type of research has dwindled and most rock art conservation and management is undertaken in response to urgent issues and impacts on sites. The doctoral research presented here investigates current trends, as well as the important role that monitoring is yet to play. Four case studies have been conducted in Northern Australia and an analysis provided of both environmental and human impacts to rock art sites in a contemporary environment. A National Framework has thus been developed that encompasses an acknowledgement of the history of disempowerment and cultural interruption that has occurred for Aboriginal people in Australia. Through the combination of traditional Indigenous techniques for caring for country and Western scientific approaches, the most appropriate strategies identified during this research for the ongoing protection, conservation and

where necessary, management, of rock art sites across Australia are discussed.



Kakadu National Park's Reinvigoration of Rock Art Monitoring and Maintenance as Part of a Pilot Program in 2014

Melissa Marshall, Australian National University
Gabrielle O'Loughlin, Kakadu National Park
Jeffrey Lee, Djok Traditional Owner / Kakadu National Park
Glen Maclaren, Environmental System Solutions

Kakadu National Park contains some of the most iconic rock art in Australia and is one of the few places listed as World Heritage for both natural and cultural values. Over 5000 cultural places, mostly rock art sites, have been recorded. Site data is currently managed within a database. It is hypothesised that 10,000-15,000 sites are still unrecorded. The documentation, protection and maintenance of these sites in a rugged landscape is an enormous task that requires well thought out planning and efficient prioritisation methods. While Kakadu previously had a dedicated rock art team, the past 20 years saw the focus shift from rock art to recording oral history and language. Tourism, visitor support and natural heritage management also became major priorities. In 2014 a revised rock art monitoring programme was developed to aid the reintroduction of site recording and maintenance into work plans. In August staff from each district were introduced to methodologies for site recording and maintenance. Archive information and site histories were extracted from the Cultural Information Management System (CIMS) and taken into the field. Mobile devices were used for recording new sites, conservation issues and scheduling site maintenance activities. Staff were trained to identify site types and impacts, and were shown various site maintenance techniques. Data recorded was synchronised into the CIMS data repository for future use. An evaluation of the programme was completed and the exercise considered a success. Plans are now underway for further implementation including a review process over the next 2-5 years with suggested areas of further research to compliment the programme. The resurgence of rock art conservation is one that is extremely important to Traditional Owners, custodians and Park staff. This programme will continue to protect and preserve the wealth of significant rock art as part of a living, dynamic culture.



The Application of Archaeological Chemistry to Residue Studies and the Study of Change

Carney Matheson, Lakehead University

The application of chemistry to the archaeological sciences has been expanding over the last decade, in particular, techniques in chromatography and spectroscopy. These techniques have been used to study everything from resins and poisons to cooking and manufacture residues. The information being generated from these studies is providing the resolution to examine variation and change over time. Presented here is the analysis of manufacturing residues and how the selection of materials is influenced by the environment, changes in the environment and preferences based on the properties of the materials and the desired properties required for tool manufacture.



Seer Seen, Maker Made: A Relational Perspective on the Archaeological Manufacturing of Deep Time Knappers

Jacqueline Matthews, University of Western Australia

All research practice is socially embedded and context-dependent. By doing archaeology as culture critique we can, in a sense, render the archaeological seer seen. In this paper I extend a self-reflexive critique to the way that archaeology deals with stone artefacts, questioning how the representations of this aspect of the past largely reflect our own modern values and engenders the way the deep past is perceived. The dominant approach of archaeological research on stone artefacts is wedded to the concept of technology. Such research typically features a language of economics, utility and organisation, and despite critiques, an overwhelming focus on end-products, and the forms and functions of tools. While these approaches have value and indeed allow us to answer certain questions about the past, there is a striking disconnection between the archaeological representation and how Aboriginal people would generally describe and explain the same materials. I argue that the language we use to represent stone artefacts is more than just convenience or convention but in reality is a powerful tool that creates a certain version of the past imbued with rigid certainty and academic authority. The assumed scientific authority of typical archaeological representations overwhelms alternative perceptions, which could be valuable in reconciling some of the inconsistencies and tensions of current approaches. We 'make' the Aboriginal makers of stone artefacts in the past in our own modern image, but how could this be otherwise? Through critically deconstructing current representations of

stone artefacts, I seek to understand the ways that they operate and what they represent about our own perceptions of the past. I will then make reconstructive suggestions towards enlarging our representations of the past by embracing relational ontology and replacing a language of economics, organisation and utility with a language of material engagement, skill development and learning.



Aboriginal Occupation around Tropicana in the Great Victoria Desert, Western Australia

*Joe Mattner, Waru Consulting Pty Ltd
Nicolas Grguric, Waru Consulting Pty Ltd*

Almost no archaeological research has been conducted in the Great Victoria Desert, a very extensive area north of the Nullabor Plain comprised mostly of dune fields and sand plains. Ahead of development of the Tropicana Gold Mine, joint-venture partners AngloGold Ashanti Australia and Independence Gold commissioned a series of widely distributed archaeological surveys. Contrary to the expectation of little Aboriginal activity in this sandridge desert, more than 60 archaeological sites have been recorded in the Tropicana tenements. The artefact scatter sites range from basecamps to satellite campsites to very small overnight camps. The stone procurement sites range from very large and intensively exploited quarries to small knapping centres. A number of rockshelters and an ochre quarry have also been identified. There is strong patterning in the distribution of sites and the use of certain types of stone at the artefact assemblages. A significant part of the archaeological signature are the large basecamps at rockholes and along a creek system, as well as very large quarries showing intensive exploitation of stone resources. Ethnographic evidence of important ceremonial places located near some of the major archaeological sites indicate a long tradition of Aboriginal occupation. The results of the archaeological work to date have established that past occupation of the Great Victoria Desert was a complex affair, and not limited to visits by small groups 'chasing rain'. Rather, there has been regular and repeated occupation by groups relying on widely distributed but well-known rockholes to extensively exploit the sparse resources of the Tropicana region. Further research of the Great Victoria Desert region is warranted as it has the potential to contribute answers to questions surrounding the methods and timing of Aboriginal colonisation of the sandy deserts, and the adaptations required to subsist in this most arid of environments.



Maritime and Coastal Archaeological Landscape in Sicily-Italy: Understanding the Sea-Human-Landscape Relationship through the Study of the Ancient Maritime and Coastal Landscape

Alba Mazza, University of Sydney

Despite the fact that the global sea bed has been widely investigated and the coasts have been intensively exploited to allow for development in modern times, very little attention has been devoted to understanding ancient coastal and maritime landscapes. As a result, harbour location, maritime structures, landing places, infrastructure related to the waterfront and the ancient maritime and coastal landscape in Sicily are barely known. As a consequence, the maritime archaeological landscape and its evolution is often not considered as part of an archaeological investigation. This lack of knowledge about ancient maritime and coastal landscapes and their changes through the time has led to a poor understanding of the evolution of the territory of many coastal sites. My poster tries to fill these gaps by presenting the first results of my PhD research that is based on a multidisciplinary approach to the study of the ancient maritime and coastal landscape of Sicily, and its changes through time. I will demonstrate the potential of a multidisciplinary approach to understanding topography, site evolution and the land-sea connection. The nature, chronology and processes of geomorphological changes on the coasts of Sicilian cities will be considered, with some preliminary conclusions presented concerning the past maritime and coastal landscape of Sicily and subsequently on the relation between humans and the sea in the past. In conclusion, I will show how a better knowledge of ancient maritime and coastal landscape could help to plan and to better manage our coasts.



'One Size Does Not Fit All': The Art of Tailoring Community Engagement for a Good Fit

Anne McConnell, Consultant

Models of public participation generally recognise linear progressions from low-level engagement to full community empowerment, and assume that citizen control is always the most desirable form of engagement. Experience of community engagement in the area of archaeology and heritage however suggests that community engagement is much more complex and nuanced, and that for positive productive engagement it is important to tailor the community engagement to fit the resources, needs and aspirations of both the researchers and managers, and the community; to fit

the 'activity' that the engagement is for; and also to recognise that there is not one community with one view. Diverse approaches to appropriate community engagement and essential elements for successful engagement are examined through select, largely Tasmanian case studies.



Mining Knowledge: Bringing Heritage Information Home

Pamela McGrath, Australian Institute of Aboriginal and Torres Strait Islander Studies

For over 60 years miners and other resource developers have been commissioning heritage surveys on the traditional lands of Aboriginal groups around Australia. The cultural information legacies of these activities are potentially huge. Countless days have been spent out on country and hundreds of thousands of sites have been recorded and reported. And yet very little is known about the total size or potential value of heritage archives held in the filing cabinets and computers of mining companies, and to date no sustainable mechanism has ever been developed to provide for their return to Traditional Owner groups. AIATSIS has been collaborating with a Western Australian Native Title group and a major iron ore miner to develop a three year project that would result in four decades of cultural heritage materials being returned. The concept is not without its challenges, but if successful will deliver the technology, protocols, language resources and training required to enable the group to own and control this information legacy now and into the future. Moreover, it will provide a model that other Indigenous groups in Australia and around the world can use to do the same.



Aboriginal Vegetation Management in Northwest Tasmania: When Did It Begin?

Peter McIntosh, Forest Practices Authority, Tasmania
Patrick Moss, University of Queensland
Emma Watson, University of Queensland
Robert Onfray, University of Queensland

Since 1827, when Henry Hellyer first found tracts of grasslands among the rainforest and 'wet' eucalypt forests of Surrey Hills, northwest Tasmania, questions have been raised about the grasslands' origin. At Blythe Bog, Cosgrove (2004) found that forest replaced grassland soon after 10,560 cal BP. Evidence from Yellow Marsh indicates regular large fires occurred before 9600 cal BP; one interpretation of these results is that as forests expanded in the early Holocene attempts were made to keep part of the Surrey Hills area clear of

forest. But dated evidence of Aboriginal presence at this time is absent: at Parrawe chert quarry oldest artefacts are dated only 3770 cal BP and an artefact found in an *in situ* charcoal deposit on Surrey Hills was dated 3625 cal BP (Cosgrove and Murray 1993). On the coast Aboriginal habitation sites date from about 8900 cal BP (Jones 1977, 1978). However, at Parmerpar Meethaner, 30km southwest of Surrey Hills, the oldest habitation layer is dated 39,310 cal BP (Cosgrove 1995), and the presence here of artefacts of likely Parrawe origin dated c.28,000 cal BP is evidence that Aborigines were traversing Surrey Hills at this time. In conclusion, while the pollen record and vegetation pattern suggest that human-lit fires have been used to manage vegetation for at least 10,000 years on Surrey Hills, and the charcoal records indicate a history of earlier fires, dated physical evidence for Aboriginal presence in the Surrey Hills area before 4000 cal BP is lacking, though it may be inferred from the transport of local materials to sites elsewhere.



Cultural Heritage Issues, Archaeological Research and Heritage Challenges in Cape York Peninsula

Susan McIntyre-Tamwoy, *Archaeological and Heritage Management Solutions / James Cook University*

Archaeological research in Cape York has a long but sporadic history and there remain significant gaps in both the range of work undertaken and its geographic coverage. This paper provides a brief overview of work undertaken and discusses some of the current and emerging issues faced by Aboriginal communities, government regulators and other stakeholders. As Aboriginal landowners and/or Traditional Owners struggle with continually shifting government goal posts for the future development objectives for Cape York Peninsula, how can cultural heritage generally and archaeology in particular, assist or hinder the effective management of this important region? Indeed, what are the threats and opportunities which are shaping the cultural heritage legacy which will be inherited by future generations of Traditional Owners?



Aboriginal Perspectives on the Message in the Theory: An Interview with Mick McKenzie

Mick McKenzie, *BHP Billiton*
Alice Gorman, *Flinders University*

Archaeologist Mick McKenzie (Kuyani, South Australia), in conversation with Dr Alice Gorman (Flinders University), talks about the theoretical contexts in which archaeological results are framed. We propose to cover topics such as how well these typically

academic pursuits (such as AusTAG) sit with Aboriginal perspectives, implicit assumptions in archaeological communications, and the inclusion and communication of alternative meanings.



Enigmatic Potsherds: A Summary of Field Investigations at Mangrove Beach, Lizard Island, 2006–2013

Ian McNiven, *Monash University*
Matt Felgate, *James Cook University*
Jim Specht, *Australian Museum*
Carol Lentfer, *University of Queensland*
Bill Dickinson, *University of Arizona*
Ulrike Proske, *Australian National University*
Simon Haberle, *Australian National University*
Jim Feathers, *University of Washington*
Clair Harris, *University of Queensland / James Cook University*
Samantha Aird, *James Cook University*
Alison Fitzpatrick, *James Cook University*
Sean Ulm, *James Cook University*

Ongoing research at Lizard Island seeks to establish the extent, condition, formation processes and cultural affinities of an intertidal pottery site at Mangrove Beach. This paper presents an update on 2012 intertidal fieldwork and 2013 terrestrial fieldwork at Mangrove Beach, with discussion of analyses in progress. 2012 intertidal fieldwork consisted of suction dredging between tides to recover seven additional potsherds and a multitude of lithic artefacts. Initial dating results (luminescence and radiocarbon) suggest the assemblage is pre-contact. Additional work is in progress including petrographic sourcing and luminescence dating on the materials recovered in 2012 to develop more robust information on production source locales represented, age of the ceramics, and duration of occupation represented. Analysis of lithic artefacts is in progress. Investigation of a nearby terrestrial midden in 2013 did not recover ceramics.



Exploring Cultural, Linguistic and Environmental Changes amongst the Tangkic People of the Southern Gulf of Carpentaria

Paul Memmott, *University of Queensland*
 Daniel Rosendahl, *Willandra Lakes Region World Heritage Area / James Cook University*
 Erich Round, *University of Queensland*
 Sean Ulm, *James Cook University*

In 2006, a team of interdisciplinary researchers commenced a project to investigate change amongst the Tangkic language group of the Southern Gulf of Carpentaria, propelled by an ARC Discovery grant DP0663047 (2006-2010) and continuing in DP120103179 (2012-2014). A series of research strands that have been diversifying independently over recent years are to be reconnected in this paper. Most importantly, the ongoing work on collecting material for the Tangkic Etymological Dictionary by Round has resulted in his arguing from linguistic evidence for a more dynamic understanding of linguistic change. However there needs to be an intertwining of linguistic changes with the processes of migration, territorialisation, emergence of group identities, the broader cultural changes and environmental changes in the Southern Gulf which was undergoing sea-level fluctuation as well as accompanying tectonic and sedimentation processes. In the interests of stimulating debate about the nature of these change processes, this paper takes an exploratory and speculative approach outlining a series of hypotheses drawn from the available, albeit limited evidence, some of which is drawn from a wider region but which informs us of the real possibilities that may have happened. Areas we will consider are localised environmental change such as sea-levels, land formation events and vegetation development; intergroup conflict, trade and exchange and the role of middlemen in island societies. Finally we speculate on the significance of the proto-Yangkaal group who were to emerge as powerful 'middlemen' between the mainland and island Tangkic groups. Our analyses are intended to promote ongoing interdisciplinary investigation on these dimensions of change.



Low-Level Aerial Reconnaissance in the Willandra Lakes World Heritage Area

Tony Miscamble, *University of Queensland*
 Aaron Fogel, *Griffith University*
 Michael Westaway, *Griffith University*

Most aerial imagery widely available to archaeologists is not at a resolution suitable for site mapping and

assessment. Further, attempting high-resolution imagery from manned aircraft can be cost prohibitive with significant health and safety risks. Recent advances in Unmanned Aerial Systems (UAS) have made high-resolution aerial image technology available at much lower costs and with significantly less risk than traditional data collection methods. We have surveyed several sites in the Willandra Lakes World Heritage Area to test the efficacy of this survey method for (1) spatial mapping, (2) temporal monitoring and (3) site visualisation. We will review legal and ethical issues related to image collection, present field results and assess various methods of data processing and image display.



Aerial Reconnaissance and Survey in the Willandra Lakes World Heritage Area using Unmanned Aerial Systems (UAS)

Tony Miscamble, *University of Queensland*
 Aaron Fogel, *Griffith University*
 Michael Westaway, *Griffith University*
 Philip D. Lowe, *Disney / ABC Television Group*

The benefits of aerial imagery have been apparent to archaeologists since the early twentieth century. Contemporary aerial imagery that is widely available to archaeologists is not at a resolution suitable for site mapping and assessment. Further, attempting high-resolution imagery from manned aircraft can be cost prohibitive. Combined with recent advances in Unmanned Aerial Systems (UAS), camera technology (such as GoPro), open source photogrammetric software and visual editing tools have made high-resolution aerial image technology available at much lower costs and with significantly less risk than traditional data collection methods. We have surveyed several sites in the Willandra Lakes World Heritage Area to test the efficacy of these technologies for (1) spatial mapping, (2) temporal monitoring and (3) site visualisation. These technologies enable not only improved survey and analysis, but also captivating presentation of archaeological data to non-specialist stakeholders. We will review technical, legal and ethical issues, as well as the costs related to using UAS for aerial reconnaissance in archaeology. Images, survey mapping and other field results will be presented. Data processing and image display methods will be discussed.



A Taphonomic Signature for Quolls in the Archaeological Record

Tony Miscamble, *University of Queensland*
Tiina Manne, *University of Queensland*

Faunal bone material in Australian archaeological assemblages is often heavily fragmented, with the origin of fragmentation difficult to discern. Attributing the reduction of such assemblages to human or non-human activity has proved difficult and at times controversial. Nonetheless, identifying the accumulators of highly-fragmented bone assemblages is imperative to accurate interpretation. Few taphonomic studies have been conducted to distinguish human from quoll-generated bone assemblages, with quolls largely unconsidered as potential bone accumulators by archaeologists. This study evaluates the potential of three quoll species (*Dasyurus maculatus*, *Dasyurus viverrinus*, and *Dasyurus hallucatus*) to contribute to archaeological bone assemblages. Methods are developed to identify quoll damage to bone through the examination of scat-bone obtained from feeding trials and from wild populations of these species. Following this, dasyurid coprolites are examined using similar criteria. Quantitative and statistical methods are applied to detect variations in the fragmented scat-bone produced by these quolls. The research demonstrates that bone accumulated by *D. viverrinus* and *D. hallucatus* are unlikely to be confused with human-generated assemblages, and that the smaller quolls can be taphonomically differentiated from the larger *D. maculatus*. While there is potential for confusion of *D. maculatus* with human-generated bone assemblages, this research supports previous studies that suggest damage to bone by *D. maculatus* may be distinguished by bone fragment length in combination with characteristic marks.



An Analysis of Aboriginal Fish Traps on Yorke Peninsula, South Australia

Adrian Mollenmans, *Flinders University*
Amy Roberts, *Flinders University*
Jeffrey Newchurch, *Narungga Community*

This poster outlines recent research in relation to Aboriginal coastal fish traps on Yorke Peninsula, South Australia. This study presents the first attempt at a thorough analysis of these features and considers their manufacture, use and economic place within the land/seascape. The project also seeks to situate the analysis within broader research relevant to Australian archaeology by considering what the Yorke Peninsula

fish traps can tell us about issues such as climate change, intensification and technological innovation. While fish traps have an economic function in Aboriginal Australia, prior ethnohistorical research in areas beyond Yorke Peninsula reveals that they often have numerous other levels of cultural significance. As such, in collaboration with community members, this research also seeks to meaningfully incorporate existing Narungga traditional knowledge about Yorke Peninsula fish traps as well as to understand contemporary perspectives on significance.



Use of Different Environmental Zones in Contemporary and Prehistoric Northeast Thailand

James Moloney, *James Cook University*
Netchanok Khongthon, *Nakhon Ratchasima Rajabhat University*
Wassana Phanurak, *Nakhon Ratchasima Rajabhat University*
Nigel Chang, *James Cook University*

Understanding prior resource use and environmental relationships can involve looking at current use and projecting back through time, taking into account natural (climatic) and human changes to the environment. The major objective of this project is to understand the relationships between humans and the natural environment in Tambon (Subdistrict) Phonsongkhram in northeast Thailand. This study is placed both in the present context and in relation to what we know about past social/environmental interactions from detailed archaeological studies in the area. Phonsongkhram is located on the Khorat plateau (170m asl) and experiences a strongly seasonal climate with a pronounced dry season. Covering an area of approximately 75km², the Tambon is currently mostly under rice, and dry-land crops such as cassava, as well as plantation timber. In addition, local communities use a range of traditional gathered resources including mushrooms, herbs, ants, medicinal plants, wood for charcoal production and other resources. Based on number of mounds, we estimate roughly same amount of villages ~2000 BP (Iron Age). Social surveys throughout the Tambon (and particularly around the periphery) including formal and informal interviews and participatory mapping address questions of who uses the community forests, how they use them, where users come from, and what forms of governance exist to manage the forests. By describing the spatial and seasonal use of resources and how access to them is negotiated between communities at different political levels, we have created a model that may help increase our knowledge of interactions between prehistoric communities and the surrounding environment.



An Archaeological and Palaeoecological Investigation of Caladenia Cave, Northern Swan Coastal Plain, Western Australia

Carly Monks, *University of Western Australia*
 Kailah Thorn, *Flinders University*
 Alexander Baynes, *Western Australian Museum*
 Joe Dortch, *University of Western Australia*

Environmental and sociocultural systems play a fundamental role in influencing the dietary, habitation and behavioural choices made by the people who operate within them. A crucial step in developing a better understanding of the roles of past individuals and groups involves identifying responses to changes in these systems and the complex ways in which they inter-relate. This study uses the zooarchaeological and palaeontological record of Caladenia Cave to investigate the visibility of these responses in archaeological contexts, including dietary choices made by the site's Noongar occupants. Located in the lower Moore River catchment, north of Perth, Caladenia Cave was excavated in the 1970s by amateur palaeontologist Robin Roe, with guidance from the Western Australian Museum. The small, single-chambered cave contains evidence of repeated Noongar visitation throughout the midto-late Holocene, while the mammalian faunal remains accumulated by owls and other predators provide a substantial palaeontological assemblage reflecting the cave's Holocene environment. Recent palaeoecological investigations have indicated that the region experienced a trend towards higher winter rainfall from c.4800 cal BP, resulting in the local disappearance of the more arid-adapted mammal species. In this study, we situate the zooarchaeological record within this environmental context, with the aim of investigating the nature and role of sociocultural systems on the Swan Coastal Plain.



'Basin Quarries' in the Northwest Kimberley Region, Australia

Mark Moore, *University of New England*
 Kimberley Newman, *University of New England*

The northwest Kimberley is a rugged terrain dominated by block-weathered flat-lying sandstone with abundant rockshelters. Much of the sandstone is extremely hard and suitable for the manufacture of stone tools. The stone is technically a form of quartzarenite but is referred to as 'quartzite' by prior convention. Aborigines in the Kimberley often procured relatively coarse-grained quartzite by striking flakes directly from the edges of the shelving bedrock, or from blocks broken from bedrock

edges (sometimes using fire). Recent fieldwork revealed that Kimberley stoneworkers also extracted fine-grained quartzite from 'case-hardened' patches that sometimes occur on the undulating horizontal surfaces of flat-lying sandstone. The unusual extraction techniques left behind shallow depressions in the bedrock, referred to as 'basins', and an archaeological expression unique to this form of quartzite procurement.



Geoarchaeology in Tropical Southeast Asia: Current Status and Future Challenges

Mike Morley, *University of Wollongong*

In broad terms, geoarchaeology is an Earth Science that aims to link elements of geography, geology and archaeology, to situate humans within their contemporary environmental context and to better understand the nature of human-environment interactions. Geoarchaeological studies are becoming routinely employed in some areas of the globe (e.g. Western Europe, North America, South Africa), but there is a relative paucity of such studies in tropical regions. A 'hot' archaeological topic that is beginning to act as a catalyst for change in this respect is the timing and nature of modern human dispersal into and out of Southeast Asia. In this paper, I briefly touch on the current state of geoarchaeological science in the Southeast Asian tropics, focusing on three broad geomorphological settings and depositional environments: caves and rockshelters; rivers; and coasts and continental shelves. I assess the analytical techniques used to interrogate sites in these settings, and the questions that these techniques aim to address. While some techniques (e.g. micromorphology) have a proven track record in temperate regions, they are not always systematically employed in tropical environments. This can result in a lack of understanding of exactly how well (or poorly) these analytical techniques perform in such environments, and does not allow for refining methodologies or for identifying issues that may not arise in other climatic zones. I evaluate how questions arising from the study of modern human population movements in the region have been tackled, to see what has been successful, what has been less so, and what changes of direction or focus might need to be adopted in the short and long terms. Finally, I look to the future of the discipline in the region, and identify the challenges likely to be faced, and the burning questions that new advances in geoarchaeological science may be able to address.



Accidental Middens? The Function and Symbolism of Northern Australian Late Holocene Shell Mound Sites

Mick Morrison, *Flinders University*

For over five decades shell mounds have represented a key focus of research investigating the characteristics of late Holocene Aboriginal use of north Australian coastlines. Increasingly detailed comparative datasets on mound composition, distribution and chronology from a range of study areas have allowed the development of new explanatory models for the role of shellfish – particularly *Anadara granosa* – within late Holocene economies. As numerous researchers have noted though, one key question with important implications for these models has received remarkably little attention to date: why mounds? Do they represent the classic ‘accidental midden’ or were they intentionally constructed to serve particular purposes? What, if anything, do these sites reveal about food preparation methods and living arrangements during periods of mound formation? Can archaeological investigations discern some sense of social organisation, symbolism and cultural preferences linked to mound formation and use? In this paper I explore these questions through consideration of ongoing research into the role of shell mound sites at Weipa, Cape York Peninsula.



Where are the People? The Environmental Context for Human Occupation of the Subtropics of Eastern Australia

Patrick Moss, *University of Queensland*
 John Tibby, *The University of Adelaide*
 Cameron Barr, *The University of Adelaide*
 Lynda Petherick, *Xi'an Jiaotong-Liverpool University*
 Craig Sloss, *Queensland University of Technology*
 Allen Gontz, *University of Massachusetts-Boston*
 Dilva Terzano, *University of Queensland*
 Felicity Shapland, *University of Queensland*

Evidence has emerged from recent palaeoecological research that the subtropics of eastern Australia, particularly the coastal sandmasses along the coast, may have been a ‘sweet spot’ for human occupation over the last +40,000 years. The presence of extensive water resources in the form of lacustrine systems and a forested landscape over this time period is likely to have provided abundant resources suitable for human use. However, this does not accord with the archaeological data, with only one site (Wallen Wallen Creek) on North Stradbroke Island extending back to the Last Glacial Maximum (LGM) (~22,000 years ago) and most records within the region only dating to the mid-to-late

Holocene. This paper will discuss the large numbers of palaeoecological records, dating to the LGM and beyond from North Stradbroke Island, in relation to the archaeological record, as well as examining a new record from Moon Point on Fraser Island, which dates to ~40,000 years ago. In particular, the Moon Point record provides evidence of a significant environmental change (i.e. increased burning and associated vegetation change) that occurs within the window for the initial settlement of Australia and potential causes of this alteration will be discussed.



Pollen Analysis of a Midden Archaeological Site: Thundi, Bentinck Island, Gulf of Carpentaria, Australia

Patrick Moss, *University of Queensland*
 Sean Ulm, *James Cook University*
 Daniel Rosendahl, *Willandra Lakes Region World Heritage Area / James Cook University*
 Lynley Wallis, *Wallis Heritage Consulting*
 Craig Sloss, *Queensland University of Technology*

A key issue in archaeological research is the integration of site-specific archaeological data with broader regional palaeoecological datasets. Potential problems in scaling and local environmental variability can be overcome by examining palaeoecological evidence (i.e. pollen, charcoal and phytoliths) directly from archaeological deposits and then linking results to the broader regional record. This approach has been undertaken at the extensive Thundi midden site, with human occupation dating to 800 cal BP, on the north coast of Bentinck Island, South Wellesley Archipelago, Gulf of Carpentaria. The main result of this research is that palynological analysis of midden deposits does provide a good record of environmental change and provides the opportunity to directly examine potential human impacts from an archaeological site, which in turn can provide insight into the scale of human occupation on the local vegetation and fire regimes.



The Complexity of Ancient Murujuga Rock Art

Ken Mulvaney, *Rio Tinto*

Obtaining reliable dating for the Murujuga rock art is only one of the thorny issues relating to the Dampier Archipelago petroglyphs, Pilbara region, Western Australia. However, there exists a credible sequence for this rock art corpus which suggests the production of images that spans several tens of millennia. The earliest of these representations were possibly done in the period preceding the Last Glacial Maximum.

This ancient Murujuga rock art shows a sophisticated artistic tradition present in this area comparable in time and far more elaborate than the early Palaeolithic cave art of Europe. Images that appear to be faces, human and animal, along with intricate geometric patterns are imprinted into the rock surfaces. These carved abstract designs and faces are found elsewhere, but no other place displays such complexity of design at such an early phase in rock art production.



Travelling through History: The Pacific Highway, New South Wales

Karen Murphy, *Jacobs*

While heritage management has been a key consideration of the Pacific Highway Upgrade Program in New South Wales (NSW), the Pacific Highway as an item of cultural heritage itself has often been overlooked. This paper will present a more regional-scale approach to examining the heritage values of the Pacific Highway which was developed during heritage assessment for the Woolgoolga to Ballina Pacific Highway Upgrade. It will examine the history and development of the Pacific Highway from its growth out of early coach roads and its association with the increasing popularity of the motor vehicle in the twentieth century. The paper will look at the physical remains of the earlier routes and components of the highway such as bridges, culverts, and pavement surfaces, as well as heritage sites associated with its use and development including coach stops, tick gates and tourist attractions. The paper will demonstrate the Pacific Highway's important contribution to the expansion and development of NSW and the value of taking a broader approach to understanding heritage values.

N



Understanding the Tests of Time: Using Foraminifera to Refine Knowledge of Archaeological Site Formation Processes

Texas Nagel, *James Cook University*

Daniel Rosendahl, *Willandra Lakes Region World Heritage Area / James Cook University*

Quan Hua, *Australian Nuclear Science and Technology Organisation*

Sean Ulm, *James Cook University*

This project employs foraminiferal analysis to refine understandings of site formation processes using

the key archaeological shell midden site of Thundiy, Bentinck Island, southern Gulf of Carpentaria, as a case study. Foraminifera are single cell, protozoa that are abundant in all marine environments. Although the hard casings, or tests, of foraminifera are commonly studied in the natural sciences, they have been rarely used in archaeological applications, despite their potential to contribute to understandings of coastal archaeological site formation processes and palaeoenvironments. Foraminiferal density studies have been established as a reliable criterion for distinguishing between natural and cultural shell midden deposits; however, the wider potential of foraminiferal analyses to contribute to palaeoenvironmental reconstruction and our understanding of foraminifera transport and depositional processes remains underdeveloped. Direct AMS dating of selected foraminifera samples provides the basis for constraining the chronology of beach ridge formation and the sediment transport system reservoir ages of foraminifera represented in both cultural and natural deposits at Thundiy. Taphonomic study of individual foraminifera – classifying damage to test morphology and sculpture – provides the basis for inferences about foraminifera transport and depositional processes. Site-specific foraminiferal analysis contributes to the advancement of foraminiferal analysis in archaeological applications and knowledge of site formation processes in coastal archaeological research.



Reconfiguring the Past: Engaging with an Archaeology-Friendly Curriculum in the Twenty-First Century

Stephen Nichols, *Department of Aboriginal and Torres Strait Islander and Multicultural Affairs / James Cook University*

Daniel Rosendahl, *Willandra Lakes Region World Heritage Area / James Cook University*

With the inclusion of Ancient Australia in a Foundation to Year 10 national history curriculum for the first time, archaeology is poised for a major structural reconfiguration within the teaching and learning environments of our schools. Such a change effectively ushers in a new era of educational engagement for Australian archaeologists. Our focus must now shift from arguments about the need to include Australia's archaeological past in school curricula, to the development of specific strategies for engaging with an 'archaeology-friendly' curriculum. In pursuing such strategies, archaeologists must seek meaningful collaborations with the teachers and other educational specialists who are responsible for translating archaeology into the wider culture of our school education system. One approach that aims to foster collaborative partnerships between archaeologists

and teachers is the TARDIS model of school engagement (Teaching Archaeology Research Design in Simulation). Drawing on an established concept used in a variety of undergraduate university teaching contexts, the TARDIS model involves archaeologists and teachers working together to plan and construct a simulated archaeological site which can then be excavated and analysed by students. The implementation of this approach at two schools in southeast Queensland suggests the TARDIS model is a potentially powerful pedagogical tool, not only for enhancing educational outcomes across a variety of key learning areas, but also for promoting new and reflexive understandings of our world.



Narrative, Archaeology and the Australian Curriculum

Helen Nicholson, Powerhouse Museum

Archaeology and the diverse narratives it reveals about past human activity can have a profound role to play in meeting outcomes in the Australian curriculum. The discipline sits within the new history syllabus and its required incorporation into classroom teaching and opens the way for wider engagement with schools and the public. At all levels of the syllabus there is a place for archaeology which can range from mandated site studies for secondary students to three overarching cross curriculum priorities – Aboriginal and Torres Strait Islander histories and culture, Asia and Australia's engagement with Asia, and thirdly, sustainability. These are embedded in all learning areas. There are a multitude of narratives in archaeology that link to the Australian curriculum but these are just starting to be told. For many archaeology is part of history, yet history and archaeology are distinct disciplines with different theories, methods and practices. The differences and nature of archaeological and historical evidence Australia's history from 60,000 years ago to the present-day is part of the new Australian curriculum. In this changing educational environment archaeologists are well -placed to engage and enthuse students so Australian history is not considered boring and something they have already studied in primary school. One way of engaging with students in the process and methods of archaeologists is through enquirybased learning where students are given tasks that provide real world learning experiences. This paper unpacks the narratives of archaeology with regard to what is taught in primary and secondary schools and what could be taught with the roll out of the Australian Curriculum. This goes beyond history into all learning areas. Archaeology now has an increasing landscape of choice in what it chooses to share with schools.



Modelling Sea-Level Oscillation and Landscape Transformation for the Site of Madjedbebe: An ArcGIS Approach

Kasih Norman, University of Queensland

ArcGIS was utilised to investigate sea-level oscillation and landscape transformation impacts through the Pleistocene and Holocene on the environment surrounding Madjedbebe (MJB), throughout the site's occupation period. MJB is an archaeological site in Kakadu National Park, Northern Territory, positioned at the base of the Arnhem Land Escarpment. MJB's importance, as one of Australia's oldest sites, potentially dating to ~50ka, places the region of study at the centre of the debate on the chronology of the initial colonisation of Australia, and the timing of the human migration out of Africa. Local and global temporal sea-level height data and regionally specific geomorphological field data were modelled onto Australian Geoscience bathymetric (sea floor) and continental digital elevation maps (DEMs), via ArcGIS software and original raster calculator scripts. This provided temporal sea-level heights throughout the site's occupation period. The raster calculator scripts and regionally specific field data were used to adjust the height of the region's DEM to approximate the ancient landscape height around the site, and more accurately model the processes that occurred upon it. This was performed for MJB's entire occupation period, from ~50ka to the late Holocene, and demonstrated that during the late Pleistocene the coastline oscillated across the continent to the north and west of the site. This process exposed and submerged a series of shorelines, archipelagos, brackish basins, plains, and river and gorge systems, with the site fluctuating between being deeply landlocked at the height of the Last Glacial Maximum, and located near a coastline in the mid-Holocene.

O



Utilising Beachrock and Aeolianite Deposits to Determine Sea-Level and Climate Change during the Holocene Highstand in the South Wellesley Islands, Gulf of Carpentaria

Shoshannah O'Connor, Queensland University of Technology

Craig Sloss, Queensland University of Technology

Luke Nothdurft, Queensland University of Technology

Sean Ulm, James Cook University

The South Wellesley Islands, Gulf of Carpentaria are a key site in Australia to observe sea-level and climate change through the last glacial cycle due to its position on the Australian-Indonesian Plate and its relative tectonic stability over the late Quaternary. Holocene sea-level has been the main focus of work conducted in the Gulf of Carpentaria, with a number of pilot studies yielding results from beach ridges and intertidal claypans, however coastal beachrock and aeolianite deposits are under-represented when reconstructing the sea-level history of the Gulf. There is a distinct lack of knowledge associated with the age, composition, formation and diagenesis of beachrock and aeolianite deposits in the South Wellesley Islands deposited during the Holocene highstand. Numerous techniques including U-series dating on late Holocene corals, radiocarbon dating, scanning electron microscopy and x-ray powder diffraction are being used to constrain the formation age of beachrock and aeolianite deposits. Another outcome of the project is to also provide more information on the formation and geochemistry during early diagenesis of beachrock, with the current state of knowledge suggesting it forms under either physico-chemical or biological mechanisms. Preliminary findings have shown the beachrock deposits are composed of siliclastic and bioclastic grains including foraminifer, red algae, mollusks and ooids. The base of these units on Sweers and Bentinck Islands have been dated to 4656±29 BP and 4657±29 BP respectively. Coral skeletons, deposited in the youngest aeolianite deposits, contain relic structures of internal aragonite, and some original fibrous aragonite is preserved, allowing for U-series dating to be conducted to roughly constrain the conclusion of deposition. Results from this research will provide an insight into beachrock formation and assist in constraining palaeoclimate and sea-level change over the late Holocene.



Characterising the Intensity of Macassan Activities across Northern Australia: A Regional Model of Core and Periphery

Annette Oertle, *James Cook University*
Matthew Leavesley, *James Cook University*
Sean Ulm, *James Cook University*
Geraldine Mate, *Queensland Museum / James Cook University*

Over 100 archaeological sites exhibiting Macassan attributes have been recorded from Cape Leveque in the west to Bentinck Island in the east, spanning a coastline length of over 13,000km. Various interdisciplinary studies have been undertaken on Macassan artefacts and features as well as studies on the impact and influence of Macassans on Aboriginal culture and society. This

paper introduces a regional model characterising the intensity of Macassan activities across coastal northern Australia. This model is used to characterise the nature of Macassan activities as well as to explore cross-cultural relationships between Macassans and Aboriginal people in various subregions. The dataset underlying this regional model is based on archaeological, anthropological, ethnographical, historical, linguistic and biological studies of Macassan presence in northern Australia. The presence and absence of Macassan attributes were recorded at sites throughout northern Australia with specific attributes categorised as present, observed or shared elements correlating with low, medium and high degrees of intensity and cross-cultural interaction. Results show a core of Macassan intensity at the core subregions: the Cobourg Peninsula and Arnhem Land. These subregions contain the entire suite of the Macassan elements whereas the quantity and diversity of elements recorded at the other subregions decrease towards the peripheries. This model highlights common signatures between the core and peripheral as well as the cross-cultural intensity at different subregions.



European Explorers and the Australians: Observations and Interaction with People along the Northeast Coast of Queensland during the Eighteenth and Nineteenth Centuries

Ashley O'Sullivan, *Archaeological and Heritage Management Solutions*

People of the northeast coast of Queensland had extensive interaction with early European explorers, beginning with Captain Cook in the eighteenth century through to numerous expeditions during the nineteenth century. Many of these explorers spent weeks or months with local groups, sometimes through choice but at other times through necessity due to the need for supplies or repairs. While these explorers discussed the Aboriginal people they encountered and generally suggested that they were local to each area, was that always the case? The paper describes the analysis of journal entries from many of these explorers identifying observations of Aboriginal people, canoes or associated material culture. It reveals that as the explorers travelled along the east coast, they identified people they considered to be 'local' to the areas they visited and 'non-local'. For example, there is evidence to suggest that people of Torres Strait Islander description were observed as far south as the Burdekin River and that their influence was present even further south than this. Haddon (1912-1935) and McCarthy (1939) both discuss exchange networks that were present along the east coast between Torres Strait Island groups and coastal Australian people. Observations recorded in the area of

the Sir Charles Hardy Islands further support the claims of Haddon that this island group was part of an exchange network, which he suggested involved the exchange of stone for clubs and ochre to the Torres Strait Islanders. The question here is why did Torres Strait Islanders feel the need to travel so far south for something that was accessible closer to home. This paper buildings on Greer, McIntyre-Tamwoy and Henry (2011) who emphasise the importance of ritual practice as part of exchange processes and it is likely that exchange in these networks involved far more than the physical.



'I Swear I Saw This': A Genealogy of Rock Art Recording in Australia's Kimberley over the Last 176 years

Sven Ouzman, *University of Western Australia*

Rock 'art' is routinely miscategorised as a visual medium. This stems largely from a colonial mindset that privileges certain ways of seeing and certain technologies of vision. I construct a genealogy of such visions and technologies using the rock arts of Australia's Kimberley as case study. Starting with Grey's 1838 drawings of Wanjina, through Bradshaw's 1891 Gwion Gwion field sketches, Frederick House's 1901 photographs, Father Emo's 1910 sketches, the 1938–1939 Frobenius expedition's gendered copies, through to the late twentieth century fine art photographs of Grahame Walsh and also modern archaeological enhancements of a variety of image capture technologies. These recordings are all encumbered with problems and they have potentials. I juxtapose them with other media such as field notes and spoken word and then compare them to a variety of Indigenous visualisations of Kimberley rock art past and present. This analysis helps better situate notions of 'accuracy', 'authenticity', 'representation' and 'art' and how archaeological knowledge and knowledge of archaeology is produced and consumed.



Disease, Diet, Mobility and Evolution in Southeast Asia: Through the Lens of Archaeological Science

Marc Oxenham, *Australian National University*
Hallie Buckley, *University of Otago*

Arguably the most significant and far-reaching events in recent human prehistory have been the development of farming and the colonisation of virgin lands. Southeast Asia and the Pacific are somewhat unique in hosting both of these world-changing events within a relatively short time of each other: the Southeast Asian Neolithic revolution and the Lapita colonisation of the Pacific. A growing amount of research into the health, disease

loads, diet, mobility and recent evolutionary history of mainland Southeast Asia has taken place over the last decade, which has unsurprisingly led to more questions than answers. This paper re-examines these key questions within the overarching context of human bio-cultural adaptation in the region over the Holocene. We illustrate our approach with several key sites (including pre-Neolithic Con Co Ngua and transitional Neolithic Man Bac in northern Vietnam, as well as two examples of recently excavated Neolithic sites in southern Vietnam: An Son and Rach Nui). Our purpose here is present a series of hypotheses relating to bio-cultural adaptation (e.g. disease, mobility, evolution) and generate discussion on ways in which archaeological science can both test, and generate new, questions, theories and analytical approaches.

P



The Four Ts in Indigenous Hunting in Papua: The Role of Traditional Ecological Knowledge in Translating Human-Environmental Interactions

Freddy Pattiselanno, *James Cook University*
Andrew Krockenberger, *James Cook University*

The majority of the indigenous people of Papua are dependent on traditional use of plants and animals from tropical forests. Customary 'adat' law although unwritten, regulates the rights and duties of indigenous communities towards their natural resources and plays an important role in natural resource management. It includes the four Ts that directly promote sustainable use of wildlife resources among indigenous communities in Papua. These are Target, Technique, Tenure and Timing and act to limit the impact of traditional hunting. Regrettably, other traditional practices combined with increase in human population and greater access to tropical forests has created significant impacts on wildlife populations in tropical forests. This paper discusses the important Ts on indigenous hunting in Papua and a promising programme of Majelis Rakyat Papua (MRP) – Papuan People's Assembly supporting socio-cultural empowerment policy through endeavors to enrich local wisdom and values, which has the potential to greatly assist co-management for sustainable customary management in wildlife conservation in Papua.



Feedback between Networked Infrastructure and the Impact of Climatic Variability at Angkor, Cambodia (14-15th Centuries CE)

Daniel Penny, *University of Sydney*

Angkor was the capital to the Khmer kingdom from the middle of the first millennium CE to the middle of the second millennium CE. During that time, the kings of Angkor undertook an infrastructural building programme that had no equivalent on earth, covering an area of nearly 1000km² by the end of the eleventh century CE. By the middle of the sixteenth century, however, European observers describe Angkor as a ruined city, overrun by the enveloping jungle. Some time between the last dated Angkorian inscription at the end of the thirteenth century and the written accounts of European visitors three centuries later, the city of Angkor collapsed, and was abandoned. The demise and eventual abandonment of Angkor was closely coincident with a period of weakened summer monsoon rainfall and increased interseasonal variability. I propose that the unique scale and design of Angkor as a massive, low-density settlement, played a significant role in amplifying the effects of climatic variability. In particular, the massive, complex and interdependent network of water management infrastructure allowed relatively small impacts to propagate throughout the network, leading to systemic problems that could not be resolved. This model suggests that networked infrastructures can play a significant role in amplifying the effect of systemic change, including climatic change.



Functional and Stylistic Attributes of Ethnographic Bone and Wire Pressure Flaking Tools from the Kimberley Region, Northwest Australia

Yinika Perston, *University of New England*
Mark Moore, *University of New England*

The majority of modern flintknappers use pointed wire tools for the pressure-flaking technique. The sharpness of the tool's tip is discussed among flintknappers, but the necessity of an acute, pointed shape is rarely disputed. However, Aborigines in the Kimberley region historically hammered and filed their wire pressure flakers into a spatulate shape rather than a pointed one. Here we describe traditional Aboriginal pressure flakers made from kangaroo ulnas and demonstrate that the tips of these organic tools also had spatulate-shaped tips. Replication experiments suggest that bone pressure flakers wear naturally into this shape, perhaps augmented by grinding. We propose that Aboriginal stoneworkers transferred the shape of the spatulate-

shaped tip from bone to wire tools as a stylistic convention rather than technical necessity.



Radiocarbon Dating the Teouma Lapita Cemetery, Efate, Vanuatu

Fiona Petchey, *Waikato University*
Matthew Spriggs, *Australian National University*
Stuart Bedford, *Australian National University*
Frederique Valentin, *Centre National de la Recherche Scientifique*
Hallie Buckley, *University of Otago*

A number of radiocarbon dates have been obtained from archaeological deposits across the Teouma site on the island of Efate in Vanuatu. These are on a range of materials from the midden and associated nearby cemetery including charcoal (13) and shell (7) as well as a number of relatively novel ¹⁴C sample types including bone from two terrestrial giant tortoises (*Meiolania damelipi*), eight pigs (*Sus scrofa*), two chickens (*Gallus gallus*) as well as 36 human bone collagen dates and five *Conus* sp. shell ring artefacts from the cemetery context. In this presentation, we evaluate the radiocarbon data according to observed contextual associations and established understandings of ¹⁴C offsets, and collate all available information in a Bayesian framework to establish the age and duration of the settlement at Teouma.



The Fraser Island Patterned Fens: Development and Persistence over the Past >35 kyr

Lynda Petherick, *Xi'an Jiaotong-Liverpool University*
Patrick Moss, *University of Queensland*
Felicity Shapland, *University of Queensland*
Craig Sloss, *Queensland University of Technology*

The patterned fens of the Great Sandy Region, coastal subtropical Queensland, are globally unique environments. These low-lying patterned fens occur as an elaborate series of peat ridges ('strings') and pools ('flarks'), providing important habitats for numerous threatened species. Patterned fens are typically found in the high latitudes and/or high altitudes of the Northern Hemisphere, forming following the termination of the Last Glacial Maximum. By contrast, the Ramsar and World Heritage-listed Great Sandy Region patterned fens are located in the subtropics, near sea-level. Preliminary dating of sediments from the fens indicates that they have persisted over the past >35 kyr, significantly longer than their Northern Hemisphere counterparts. Here we present a continuous late Quaternary record of palaeoenvironmental variability from the fens reconstructed from multiple

proxies (viz. pollen, charcoal, inorganic sediment flux and grain size). Insight into the development and persistence of the Great Sandy patterned fens through periods of significant climatic change provides information crucial for the future management of these unique environments.



Late Holocene Environmental Variability and Sea-Level Change in the Gulf of Carpentaria, Northern Australia

Lynda Petherick, *Xi'an Jiaotong-Liverpool University*

Craig Sloss, *Queensland University of Technology*

Patrick Moss, *University of Queensland*

Lydia MacKenzie, *University of Queensland*

Alison Sternes, *Queensland University of Technology*

Daniel Rosendahl, *Willandra Lakes Region World Heritage Area / James Cook University*

Sean Ulm, *James Cook University*

Shoshannah O'Connor, *Queensland University of Technology*

We present a high-resolution record of late Holocene palaeoenvironmental variability from Bentinck Island in the South Wellesley Group, Gulf of Carpentaria, northern Australia. Pollen, charcoal and inorganic sediment flux records from coastal mangrove sediments provide insight into changes in past landscape change, reflecting variability in sea-level and/or the strength of the Australian summer monsoon. Such research indicates that mangrove sediments can provide continuous records of past environmental variability. Furthermore, this research shows that climate during the Holocene was not as stable as traditionally thought with environmental conditions fluctuating on subcentennial scales.



The Changing Evolution of the Community Forest and the Human Settlement: A Case Study of Pholsongkram Subdistrict, Nonesoung District, Nakhonratchasima Province, Thailand

Wassana Phanurak, *Nakhon Ratchasima Rajabhat University*

Sarochinee Kaewthaneer, *Nakhon Ratchasima Rajabhat University*

Natenapha Rattanaphothanan, *Nakhon Ratchasima Rajabhat University*

The research examined the changing evolution of the community forest of Pholsongkram Subdistrict, Nonesoung district, Nakhonratchasima Province, Thailand. The study combines the social dimension, archaeology and geographic information. The study revealed that there was a continuous relationship between 'the Before Angkor human society' until the

present time. According to the archaeology evidence of the forest community usage in the area, there was an evolution of the community-settlement expansion. Based on geographic information analysis, we concluded that there was a community expansion during 32 years (1980–2011). In 1980 there was 0.88km² but in 2011 there was 1.97km². There was also an increase in the intensity of land usage while the area of the community forest decreased. In contrast, there was a little change of the agriculture area. It was discovered that there was a relationship between the community economy and the environment. People in the community consumed the resources from the forest such as herbs, food plants, mushrooms, animals, fresh air and wood for fire. In addition, the forest was also a productive resource, including the land and water resources, which were important factors for agriculture and the animal husbandry in the community.



Technological Adaptations during Pleistocene Migrations across Wallacea

Elena Piotto, *Australian National University*

This poster presents my PhD research which centres on the adaptations to island life that people in the Wallacean archipelago needed to make during Pleistocene migrations through the area. My primary focus is on the analysis of shell tool technology, little studied for the research area and time, and particularly on full midden assemblages. I will be looking to contextualise Southeast Asia's regional perspective within the wider global narrative.



Do Roots Remain? Diet Change and Cultural Heritage in Marovo Lagoon, Solomon Islands

Heidi Pitman, *University of Queensland*

The predominance of starchy foods, particularly root vegetables, is a Pacific Islands-wide trend, with these foods being of upmost importance and forming the basis of most Melanesian, Polynesian and Micronesian societies. Replaced more recently, largely by sweet potato and cassava, taro was the dominant staple food in Marovo Lagoon in western Solomon Islands, up until successive taro diseases from the 1930s onward largely wiped out this crop. The people of Marovo Lagoon traditionally acquire food through a mixture of subsistence swidden agriculture and wild harvesting. Imported foods have increasingly become a part of the Marovo diet as a result of a range of external influences

such as missions, coconut plantations and logging. This poster will explore the changing diet of the people of Marovo Lagoon since European contact to the present-day. The increasing reliance on imported foods, particularly white rice, and its impact on the associated cultural heritage of food plant resources will be a focus. Do starchy root vegetables remain the main food staple in Marovo Lagoon? To what extent? How are root crops valued and viewed by Marovo people?



Marovo Lagoon Cultural Heritage: An Ethnobotanical Exploration of Diet Change and Changing Relationships between People and their Land and Seascape, Solomon Islands

Heidi Pitman, University of Queensland

Food is at the heart of cultural heritage throughout the Pacific. It is a symbol of status, an object of exchange, a means of expressing social relationships, and a receptacle of many symbolic representations including land tenure. For thousands of years the people of the biodiversity hotspot of Marovo Lagoon, Solomon Islands, have explored, experimented, learned and invented to create a vast repertoire of knowledge surrounding food plants. Through subsistence swidden agriculture and wild harvesting, this society has developed a unique method of environmental stewardship of their land and seascape. The Marovo Lagoon subsistence economy and its inextricably intertwined heritage management system is becoming increasing less part of local livelihoods, due to a growing reliance on imported food stuffs, amongst other influencing factors. This paper will explore the connection between a traditional food system and the management of tangible and intangible cultural heritage. What does the intensifying change in diet and the resulting changing relationship with the environment mean in terms of Indigenous knowledge, environmental stewardship and cultural maintenance for the people of Marovo Lagoon?



Putting Rose Hill on the Map

Nicholas Pitt, Casey & Lowe Pty Ltd

The British settlement at Rose Hill in November 1788 formed the nucleus of modern Parramatta. Yet the location of the first structures built by the British remains hotly debated, as there is no accurate, scale map of the area pre-dating the first formal street grid made in July 1790. Instead the contemporary historical material consists of two sketch plans, a handful of pictorial views and verbal descriptions, which all have been subjected to conflicting interpretations. This talk will outline an interpretation of these

sketch plans as historical mud-maps. Using a combination of archaeological excavations, later historical maps, aerial photographs and contemporary accounts, a convincing account of the initial layout of the Rose Hill settlement can be made. This in turn will allow an interpretation of the implications contained within this landscape.



Speleothem-Based Climate Reconstructions from Barrow Island

*Christa Placzek, James Cook University
Kane Ditchfield, University of West Australia
Peter Veth, University of Western Australia*

Barrow Island (~20.7°S) is ideally situated to register the first coastal occupations in Australia as well as peoples' responses to major changes in sea-level, climate and eventual isolation from critical resources on the mainland. Its location in the arid region between monsoonal and extratropical rainfall belts also imply that Barrow Island may have experienced dramatic changes in precipitation over the period of human occupation. In January 2014, three speleothems were collected from Barrow Island; these provide unique opportunities for climatic reconstruction. Cave carbonates are proven archives of terrestrial climate variation and such records are among the most useful records of past climate as the isotopic proxy data preserved in the carbonates evidence changes in rainfall and surface vegetation data at high-resolution. Ledge Cave on Barrow Island is a large subterranean cave with high relative humidity (>98%) and abundant speleothems. The carbonates collected from this cave are dated radiometrically using the U-Th method. The potential of Barrow Island to provide both a recent a deep-time perspective on tropical/subtropical climate variability suggest that it will add to critical understanding of the local, regional, and global drivers of climate change. Development of these climate archives will offer insights into climate that is directly applicable to the human occupation history of the site.



The Sands of Angkor: A Revised Model for the Development of the Angkorian Water Management Network

Sam Player, University of Sydney

The contemporary configuration of surface hydrology around the relict city of Angkor is a direct consequence of extensive past human modifications to the Cambodian landscape. The most striking evidence is the diversion of the Siem Reap River from its prior course, the eponymous township since centring upon

the new canalised route. The diversion of the river is commonly placed early in the sequence of development of an Angkorian water management system, as it is thought to have been the primary supply for one of the earliest epigraphically dated reservoirs. New evidence from a broad-ranging study of the system, incorporating geophysical, sedimentological and micromorphological analyses, indicates alternatively that the Siem Reap River diversion occurred later in the sequence. The strong implication is that the northern region of the water management system was constructed in order to ameliorate loss of supply to a western reservoir. Encroachment of the system to the north during the later Angkorian Period effectively opened up the rainforested landscape to more intensive human activity, supporting previously suggested hypotheses that upstream deforestation released sediments that may have blocked the system.



Degrees of Decontextualisation: On the (Im)possibility of Representing Rock Art

Martin Porr, University of Western Australia

Rock art remains one of the most popular subjects for the representation of humanity's deep past and Indigenous lifeways and culture. Rock art is a popular cover motive for professional and popular publications. It is also one of the most popular themes for popular and occasionally lavish coffee table books to celebrate human ingenuity, aesthetic sensibility and cultural achievements. This paper will argue that the representation of rock art in books or articles can only ever be an act of appropriation and a reflection of Western classificatory and essentialist ontology. The main reason for this assertion is that the book – with its photographs and printed text – is the strongest reflection of Western thinking and ontology itself. The possibility of the book contradicts the very logic of rock art itself as well as many Indigenous ontologies and epistemologies. Most recent publications on rock art in the Kimberley are characterised by a concentration on classificatory schemes that alienate the rock art from its present and former contexts. In contrast, they integrate the rock art into formal taxonomies, which are reflections of essentialist thinking that prioritises form over process. This fundamental orientation makes the idea of reproduction possible, an idea that appears alien to many Indigenous ontologies, which prioritise narratives, context and transformations over finalised forms and patterns. While the book itself is not able to represent rock art as such and might even be detrimental to the preservation of rock art (by creating the illusion of reproduction), differences in perception can be illustrated through an analysis of recent publications on Kimberley rock art from Indigenous and non-Indigenous

authors. The insights from this analysis will inform suggestions for the future position and role of books in relation to research, communication, management and preservation of Indigenous rock art.



Six Degrees of Separation: Networks and Linkages in the History of Archaeology in Australia

Judy Powell, University of Queensland

This paper looks at the history of academic and applied archaeology in Australia. In a rush through the twentieth century, it will discuss the role that individuals have played in this story – using the Near Eastern Archaeological Foundation (NEAF) and excavations at Pella in Jordan as a case study. It will highlight the relationships developed across disciplines and recognise the role of non-academic enthusiasts as well as those more formally connected to institutions.



More than a Landscape of Labour: The Role of Documents in the Interpretation of the Social Landscape of the Ipswich Railway Workshops

*Jonathan Prangnell, University of Queensland
Geraldine Mate, Queensland Museum / James Cook University*

The archaeology of industrial landscapes is often limited to small-scale mining and milling operations. Even fewer industrial landscapes have been explored in Australia for evidence of social relationships between the company, the workers and families. Our research combines material, documentary and oral evidence to develop an understanding of the social dimensions of the historical landscape of labour represented by the Ipswich Railway Workshops. The Railway Workshops, built in the late nineteenth century in North Ipswich was a major employer for thousands of workers over at least four generations. These workers were drawn from across North Ipswich and the surrounding suburbs. The research centres on the social and spatial relationships between the Workshops and the families of the workers. These relationships were shaped by a variety of factors including job status, economic status, ethnicity, gender and age. Initial research demonstrates that the social hierarchy within the Workshops had a spatial correlate. We explore whether or not this spatial and social hierarchy extended beyond the tin fence and can be seen, for example, in land lot size, architecture and architectural elaboration, location in the landscape, movement through the landscape, and how these changed through time with changes in Workshops labour organisation. Oral histories and documentary evidence are used to

provide links between families, workers and their roles in the Workshops, and reinforce the spatial relationships within an industrial landscape influenced by elements such as paternalism, class and ethnicity.



Investigating Human-Megafaunal Interactions in Late Quaternary Tropical Australia

Gilbert Price, *University of Queensland*

Humans are increasingly implicated as a driving force behind the extinction of Australia's Pleistocene megafauna. It is commonly argued that all megafaunal species became extinct sometime immediately or very soon after the arrival of the earliest peoples, some 50,000 years ago, at a time when climate has been described as being relatively 'benign'. If climate change can be ruled out, and the megafauna really did disappear immediately after the time of earliest human arrival, it is entirely conceivable that there was an anthropogenic driver of the extinctions. Thus, reliable and comprehensive geochronological datasets of both the last megafauna, earliest human arrival, and past climate change events, are particularly critical for testing the leading extinction hypotheses. This talk will discuss the existing datasets that are currently available, as well as new evidence from field and laboratory work on megafauna of northern tropical Australia, the landing point of the first humans on the continent. While proxy evidence has previously been used to argue for a sudden extinction of megafauna in the tropical north at around 41ka, a paucity of direct, reliable geochronological data for the extinct species makes that hypothesis difficult, if not impossible, to test. Recent excavations in the region have revealed numerous new megafaunal-bearing fossil deposits, some of which are incredibly diverse and preserve the remains of both extinct and extant species. A rigorous U-series and optically stimulated luminescence (OSL) dating programme of the new fossil records demonstrates temporal range extensions for some species, but have not yet provided evidence to suggest a concentrated extinction event of megafauna at 40–50ka in the tropics, nor at any one time in the Pleistocene more broadly.



War of the Worlds: The Present Past on the Island Battlefields of the Pacific, 1941–1945

Neil Price, *University of Aberdeen*
Rick Knecht, *University of Aberdeen*

World War II was arguably the most traumatic complex event in human history. Its troubled legacies have left a global mark, but nowhere more so than in the Pacific, with today's unresolved tensions between Japan, China, Korea and other former combatant nations. The island battlefields of the region formed a zone of cultural

interaction and conflict for all the peoples of the Pacific and many from outside. Both directly and thematically, causal links can be traced back from the War to the colonial contact period, and literally underlying the wartime landscapes (but often overlooked) are the earlier settlements and sacred sites of the indigenous islanders. The properly contextualised study of the conflict therefore involves a chronological range and complexity that extends from the 1500s to today. Themes of death and memory naturally take centre stage, perceived differently over time among the multicultural actors of the Pacific. Using examples from the Palau islands and elsewhere, drawn from published and ongoing project work by the authors, this paper presents a programme of archaeological investigation that promotes the preservation of the battlefields as places of reflection and commemoration, and the innovative role of archaeology as a medium of reconciliation.



Using Stable Isotopes to Differentiate between Lapita and Chieftom Period Diets in Tonga

Lauren Prossor, *Australian National University*
Jack Fenner, *Australian National University*
Geoffrey Clark, *Australian National University*
Frédérique Valentin, *Le Centre National de la Recherche Scientifique*

To date, there has been relatively little stable isotope research into past dietary habits in Oceania (Vanuatu, Tonga, Samoa, New Caledonia and Fiji). This is particularly evident in Tonga. This study reports on J28 (c.250±100 BP), TO-AT-36 (not dated by original study) and Talasiu (c.2700 BP). It was conducted as part of the Masters of Archaeological Science coursework (ANU) to determine, using stable isotopes, whether (a) there was dietary variation within the J28 burial mound located in the Lapaha chiefly district; (b) the diets within the J28 and commoner burials in mound TO-AT-36 are different to those in Lapita burials (Talasiu); and (c) the diets of the individuals interred at J28 (elite) and TO-AT-36 (commoner) are different. Collagen extraction was based on the Longin procedure. Dr Jack Fenner and all class members prepared the samples. Samples were analysed at the Isotope lab at ANU RSES. Samples that did not pass diagenesis tests were excluded from subsequent interpretation. A -5‰ diet to collagen carbon offset and a 5‰ nitrogen trophic level was assumed. The results show the diets of the individuals at Talasiu are carbon enriched in comparison to J28 and TO-AT-36. There was a correlation of decreasing $\delta^{15}\text{N}$ values as the $\delta^{13}\text{C}$ values decrease at J28 and TO-AT-36. It can be concluded that the majority of individuals at all three sites consumed C3 plants. The carbon-enriched diet at Talasiu indicates the consumption of more marine-sourced

protein, while the stable isotope analysis indicates the diets at J28 and TO-AT-36 comprised terrestrial protein. No statistically significant dietary difference within the chiefly J28 burial mound or between J28 and TO-AT-36 were identified. These results clearly show a dietary shift sometime after the end of the Lapita Culture in Tonga.

R



Examining the Overseas Chinese Landscape of Historic Cooktown

Kevin Rains, Gold Coast City Council

In 1873 alluvial gold was discovered on the remote Palmer River in Cape York Peninsula and this initiated a rush of miners and businesses into the area, with Cooktown being established on the coast as a supply port. The influx included a large number of Chinese and the Palmer River goldrush was to be a major event in Chinese migration into Queensland. Within Australian history narratives overseas Chinese have been subject to stereotypes portraying them as transient, insular sojourners with little socioeconomic connection with the host country. They have been perceived as communities isolated from broader society by their cultural conservatism and desire to return to China, as well as the experience of European racism. Perspectives of the overseas Chinese in northern Queensland have been limited further by the promotion of a European history that stigmatises or ignores the Chinese participation in colonial expansion. More recent studies have, however, begun to recognise the diversity, social complexity and dynamism within the Chinese diaspora, and to highlight the important roles Chinese played in the socioeconomic development of Australia. It is within the context of this new approach that this paper is presented. It adopts a framework based on current theories of social networks, power and landscapes to look at overseas Chinese social relations. The social landscape of Cooktown is examined from data collected from archival material and an analysis of the physical landscape, including archaeological deposits. What emerges is a social landscape of many complex and layered relationships between the Chinese, European, Indigenous and other communities of the region.



Journeys to Sugaropolis: The Australian South Sea Islander Story of the Gold Coast Region

Kevin Rains, Gold Coast City Council

2013 marked 150 years since the first arrival of indentured South Sea Islanders to southeast Queensland to work cotton and sugar plantations. Between 1863 and 1904 over 50,000 South Sea Islanders were recruited to work in Queensland. They faced harsh conditions and treatment in an alien land but they worked hard and adapted. They were vital to the success of various industries yet ultimately most were excluded from Australian society and forced to return home. A few managed to stay. This paper presents the historical and archaeological research undertaken for the exhibition 'Sugaropolis', which looked at the lives and contributions of Australian South Sea Islanders – those early labourers and their descendants – to the Gold Coast region. The project included oral histories of families involved in the banana and development industries, the mapping of the early plantations of the region, and an archaeological investigation of the former Ageston Plantation on the Logan River. This project was launched 20 August 2013 as part of the ASSI 150 programme, a regional commemoration of the first arrival of South Sea Islanders.



The Importance of Freshwater Access in Successful Island Colonisation: New Results from Excavations in Palau

*Christian Reepmeyer, Australian National University
Geoffrey Clark, Australian National University*

Subsistence strategies of early colonisers in the Pacific and settlement locations of Lapita sites in close vicinity of freshwater streams have been employed to develop predictive models about potentials of different geomorphological settings to produce archaeological sites. It was concluded that islands with depauperate environments might have been actively avoided by the earliest colonisers because of lack of access to surface freshwater. This paper presents results from recent excavations on the Rock Islands of Palau where two ceramic containers with broken bases were found in stratigraphic levels associated with freshwater lenses in a beach setting. Radiocarbon age determinations of around 2800 cal BP place the vessels into the early colonisation phase of the Rock Islands of Palau. It is suggested that these containers might have functioned as sumps tapping the freshwater lens, providing evidence that colonising populations were able to sustain settlements on small islands without surface freshwater. More importantly, can this evidence be interpreted as technological competence of early colonisers assessing environmental attributes of small island hydrology?



Environmental Risk and Toolkit Variability in Australian Contexts

Emma Rehn, *James Cook University*
Sean Ulm, *James Cook University*
Mark Collard, *Simon Fraser University*

In the last three decades, risk of resource failure has been increasingly cited as a cause of variation in hunter-gatherer subsistence toolkits, both historic and archaeological. The risk hypothesis holds that groups living in areas of higher risk of resource failure will create increasingly varied and complex subsistence toolkits. This study examines toolkit data obtained from ethnographies of several Australian groups, using Wendell Oswalt's toolkit quantification method, and compares the data with a range of environmental variables. The study includes a critical assessment of Oswalt's method and explores the benefits and limitations of the risk hypothesis with reference to alternative hypotheses including population size.



3D Terrestrial Scanning and Complementary Technology

Darrell Rigby, *RPS*
Nick McKelvey, *RPS*
Aaron Fogel, *RPS*
Tessa Boer-Mah, *RPS*

Archaeological investigation and interpretation takes many forms, as do the deliverables associated with them. Over the past six years the application of 3D terrestrial scanning has increased and largely been accepted by archaeological practitioners. But what are the applications and where are they best suited? Our paper discusses several projects that demonstrate the application of 3D terrestrial scanning across Indigenous and historic projects. It also shows some of the outcomes associated with it which can include safe work practice, 3D printed models, community empowerment, education and of course archival recording. Furthermore, the use of 3D terrestrial scanning is demonstrative of multidisciplinary interaction between archaeology and what many may have thought were unrelated disciplines. Not only is new technology useful on archaeological sites it can also open up new avenues of work generation. We will discuss some of these experiences as part of the paper.



Chinaman's Wall or Chinese Whispers? The Overshot Dam of Western Queensland

Sandi Robb, *CHINA Inc*

'Chinamans Wall' they are called; 'constructed by cheap Chinese labour'; 'built by overlanding Chinese'; 'built for the Chinese station gardener'; a 'Chinese construction method', these are the words used to describe the northwestern Queensland overshot dam. Is this true ... or a case of Chinese Whispers? The 'overshot' dam is associated with many pastoral stations throughout central and northwest Queensland. Great lengths of stone pitched bunds, topped with large flagstone capstones were constructed wide enough to drive a mob of sheep over and banked the water hundreds of metres upstream to provided water source all year round. Overshots watered livestock, were used by the Chinese station gardener and supplied water for the main house. They created a micro-oasis which supported flora and fauna enhancing food resources in the parched western environment. But for all their purpose, and for all their supposed association with Chinese settlement patterns, very little is substantiated about the overshot dam to solely attribute it to Chinese settlers. This paper will unpack some of the myths surrounding the overshot and reveal the real archaeological potential behind the dam.



Seasonal Isotopic Variation in Archaeological Wombat Dental Enamel: Implications for Aboriginal Hunting Patterns in Pleistocene Southwestern Tasmania

Georgia Roberts, *La Trobe University*
Colin Smith, *La Trobe University*
Richard Cosgrove, *La Trobe University*
Michael Gagan, *Australian National University*

Assessing the seasonality of archaeological site use is difficult within the Australian context, as seasonal climatic variation is not as distinct as other regions around the world. Tasmania presents an exception, having warm summers and cold winters often associated with heavy snow falls. Fortuitously, southwestern Tasmania is also associated with archaeological sites featuring exceptionally preserved faunal remains. Assemblages at these sites are dominated by two species – Bennett's wallaby (*Macropus rufogriseus*) and the Common Wombat (*Vombatus ursinus*). Two of these sites have been assessed as part of this study: Warreen Cave (34,790±510-15,960±10 BP) and Bone Cave (29,000±520-13-700±860 BP). Stable isotope analysis of tooth enamel carbonate has been integrated into many studies to investigate palaeoenvironments

and palaeoecology. As the Common Wombat has continuously growing, rootless teeth, a high-resolution record of local climate variability is preserved for the last 18–24 months of the wombat's life. This allows not only an assessment of season of site use, but also the identification of site specific climate at the time of occupation, giving us insight into the climatic conditions Aboriginal people were living through during the late Pleistocene. Season of wallaby hunting at these sites has been previously assessed using odontochronological analysis (Pike-Tay *et al.* 2008). This study aimed to compare wombat and wallaby hunting patterns to further interpret seasonal movements by Aboriginal Tasmanians at this time. Both modern and archaeological wombat teeth were used for this study. An extensive modern dataset was developed using wombats killed on Tasmanian roads between 2013 and 2014. Analysis of the modern samples confirmed the capacity of wombat enamel to capture very high-resolution records of local climate variability through $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ analyses. Using the modern data for comparisons, seasonality of wombat hunting was assessed and compared to seasonality data for the Bennett's wallaby.



The Dinner is in the Detail: Assessing Seasonality through High-Resolution Stable Isotope Analysis on Archaeological Wombat Dental Enamel

Georgia Roberts, *La Trobe University*

Colin Smith, *La Trobe University*

Michael Gagan, *Australian National University*

Richard Cosgrove, *La Trobe University*

Sequential isotopic analysis of dental enamel is an established technique used to research seasonality within the archaeological and palaeoecological records. Several studies have established that this technique can be successfully applied to modern marsupial species, including kangaroos (Brookman and Ambrose 2012, 2013), koalas (Fraser 2005) and wombats (Fraser *et al.* 2008). What has not yet been tested is the applicability of carbonate analyses on archaeological specimens in Australia. This study presents the results of high-resolution stable carbon and oxygen isotopic analyses of archaeological wombat teeth from southwestern Tasmania. The research has demonstrated not only that the technique is applicable to the Australian archaeological context, but also that wombat enamel records data at a resolution much higher than previously recorded.



Continuity and Change in the Use and Value of Caves in Tropical Lao PDR

Nicholas Roberts, *James Cook University*

This paper will report the results of archaeological and ethnographic research of three caves within the MMG-LXML Sepon Gold and Copper Mine, Vilabouly District, Lao PDR. Like many regions of the Lao PDR, the Vilabouly District is abundant in natural resources with the natural landscape containing many caves that are culturally meaningful and economically valuable for local populations. Two language groups – the Phou Tay (Tay/Lao) and Brou (Mon-Khmer) – are identified to interact with up to 13 caves in the district. Three of these caves were chosen for further research to understand in more depth their natural and cultural uses and values. Findings indicate that caves vary geologically, each performs a function in conjunction with hydrological systems, and each provides essential ecosystem services that support populations of local flora and fauna. Findings also indicate each cave has been incorporated within cultural landscapes in more than one time-period as part of local and/or regional socio-cultural systems and economic activities that included mining, gathering/hunting, and spiritual/religious practices. Potential uses of caves include prehistoric human activity, with identified uses comprising ongoing activity from the historical Buddhist period through to the Indochinese Wars and the present-day. Most recently natural resource extraction (mining and logging) and economic development activity in the district has introduced new ideas, uses and values for caves, challenging traditional Phou Tay and Brou uses and values, bringing into consideration the role of caves in the future. Increasingly heritage legislation and practices are being incorporated in support of community needs for cultural and environmental management. This current context represents a new phase in the ongoing interaction between human society and natural landscapes/places in the region, where caves now find new and competing use, value and meaning in response to emerging pressures from natural resource extraction and economic development.



An Australian Research Cluster for Archaeological Science: Opportunities and Options

Richard (Bert) Roberts, *University of Wollongong*

Richard Fullagar, *University of Wollongong*

Few institutions in the world possess the necessary resources to sustain more than a handful of archaeological science facilities and research personnel. Australia is no different. Since the 1980s, Australia's

interest and expertise in archaeological science (or archaeometry) has grown steadily and 'organically', resulting in pockets of technical know-how and research infrastructure scattered around the continent. But there are some key pieces missing from this emergent picture: (1) an overarching strategy to maximise the use of the Australia's resources for the benefit of the broader community; and (2) a coherent plan to build the nation's capacity for archaeological science research and to safeguard its long-term survival. In this presentation, we will review some options of how best to address these two critical deficiencies, focusing on an ARC-backed proposal to develop an Australian (or a broader regional) research cluster for archaeological science. We have started to reach out, within Australia and overseas, to researchers in academia, government, private practice and industry for feedback on its design and implementation. Among the issues to consider are: (1) the challenges of sustaining or increasing current levels of funding for major facilities and associated technical support; (2) the opportunities to create new synergies for collaborative projects, workshops, data-sharing and digital archiving of reference collections; and (3) the merits of establishing an extended online 'network' to coordinate training courses, exchange programmes and public outreach activities. Together with Peter Grave (UNE), Shawn Ross and Adela Sobotkova (UNSW), we recently conducted a 'stocktaking survey' of current archaeological science expertise and facilities around Australia and some of the initial findings will be included in our presentation.



How to Make an Archaeologist Glow in the Dark: New Techniques to Shed Light on Some Old Questions in Cognitive Archaeology

Natalie Rogers, *University of New South Wales*
Simon Killcross, *University of New South Wales*
Darren Curnoe, *University of New South Wales*

For decades it has been assumed that the increasing complexity of stone tools through time was largely due to increases in hominin cognitive abilities. But what exactly were those abilities? Although the cognitive processes involved in the manufacture of stone tools have been speculated upon, very little experimental work has been undertaken to test these ideas empirically. The present study has begun to rectify this by investigating whether the manufacture of different stone tools actually requires the cognitive abilities proposed in the literature. The cognitive abilities and brain circuits required to perform evolutionarily relevant behaviours, including knapping, are investigated through neuroimaging and psychological experiments.



What you Lookin' at? An Archaeological Analysis of Graffiti and Inscription at Fremantle Prison Western Australia

B'geella Romano, *University of Western Australia*

Archaeological Analysis of Graffiti and Inscription at Fremantle Prison investigates the relationship between space and people following previous studies of places of confinement. Graffiti offers testament to prisons being about people, furthermore, graffiti as an indicator of the inmate experience is a contributing element to the significance of Fremantle prison as a UNESCO World Heritage Site. This project investigates how inmates and other prison inhabitants experienced and negotiated confinement at Fremantle Prison through the lens of an archaeological analysis of their graffiti and inscriptions. An archaeological analysis of inscription at Fremantle Prison approaches graffiti and other marks as artefacts to be mapped categorised, dated and contextualised, using a hybrid of rock art and historical archaeology methodologies. It addresses how graffiti was used by prisoners as a means of expression and messaging and determines what the spatial positioning of graffiti within the cells and other areas tells us about public and private space within the prison. Employing an archaeological perspective allows graffiti to be viewed as 'text as material culture' and as a primary evidence of inmate's and other's experience and negotiation of confinement.



Late Holocene Changes in Shellfishing Behaviours from the Gulf of Carpentaria, Northern Australia

Daniel Rosendahl, *Willandra Lakes Region World Heritage Area / James Cook University*
Sean Ulm, *James Cook University*
Helene Tomkins, *James Cook University*
Lynley Wallis, *Wallis Heritage Consulting*
Paul Memmott, *University of Queensland*

Dramatic changes in shellfishing behaviours occurred across northern Australia during the late Holocene, marked most conspicuously by the cessation of large shell mound construction in some areas, and the reorganisation of shellfishing behaviours towards more intensive production in the last 1000 years. Excavations reveal rapid and widespread changes within coastal sites, an increasing diversification in overall subsistence resources and patterns of increase in site establishment and use. Some of these changes have been argued to be associated with increasing climate variability and a trend towards increasing aridity during the late Holocene, accompanied by transformed coastal ecosystems and mollusc availability. However, when

these hypotheses are tested at the local level, more nuanced patterns of human-environment interaction emerge, which call into question interpretations based on broad-scale climate records. We suggest that disjunctions in the timing of the cessation of shell mound construction noted between the west and east of the Gulf of Carpentaria may be related, at least in part, to the timing and intensity of external cultural contacts with Macassan seafarers, associated with reorganisation of mobility and production strategies, rather than as yet undemonstrated environmental changes impacting on shellfish availability.



Stewardship and Human-Prey Interactions: The Challenge of Indigenous Knowledge of Natural Resources Management to Environmentally Deterministic Zooarchaeological Models

Annie Ross, University of Queensland

Since the 1980s there has been a rise in the use of environmentally deterministic foraging models derived from behavioural ecology (e.g. Lupo 2007) to explain patterns in faunal assemblages in the archaeological record. Such models are based on the premise that all organisms, including humans, 'are designed by natural selection to optimize lifetime reproductive success and are capable of rapid adaptive shifts in behavior to contemporary environmental conditions' (Lupo 2007:146). Foraging models based on this premise purport to explain resource choice, patch selection, and resource transportation (Lupo 2007). In this paper I examine the evidence for prey and patch selection seen in the Peel Island shell midden in Moreton Bay, southeast Queensland. I demonstrate that variation in shellfish species over 1200 years is unlikely to be related to environmental change, seasonal variation in resource abundance, species rank and diet breadth, resource stress due to overexploitation of local resources, or changes in foraging efficiency. Similarly, the choice of local shellfish banks for resource collection is unlikely to have resulted from resource distribution and patterning in Moreton Bay. Instead, I argue that Aboriginal stewardship of oysters produced artificial resource intensification, and that resource stewardship, along with the requirements of ceremony, informed resource selection and patch exploitation preferences. I conclude that an Indigenous archaeologies methodology, that incorporates social and cultural explanations for prey and patch choice, produces a more elegant and sophisticated explanatory model for changes in faunal distribution over time than does a behavioural ecology model.



To Follow in their Footsteps: An Examination of the Burial Identity of the Elderly from Non Nok Tha

Ken Ross, Australian National University
Marc Oxenham, Australian National University

Archaeologists examine age, based on skeletal age, as a key criterion to discuss individual identity and consider broader mortuary behaviour of populations in prehistory. Identity studies in archaeology have begun to recognise and demonstrate the significance of the elderly as a separate cohort for analysis. Archaeological research in Southeast Asia is yet to engage with this broader movement to consider the potential for examining the elderly as a unique cohort within prehistory. This discussion examines mortuary data from the mainland Southeast Asian site of Non Nok Tha to explore the identity of the elderly in this population. Mortuary evidence suggests that individuals who were 'old' (biologically or socially) at their time-of-death were afforded selective burial treatment based on the subject's age and sex.



Going Digital: What does it take? Lessons from FAIMS Field Deployments

Shawn Ross, University of New South Wales
Adela Sobotkova, University of New South Wales
Brian Ballsun-Stanton, University of New South Wales
Penny Crook, La Trobe University

During 2014 the Federated Archaeological Information Management System (FAIMS) customised and deployed our mobile platform at eight projects or organisations, including archaeological excavation, surface survey, artefact processing, and industrial archaeology, as well as projects in other domains (soil geochemistry, ecology, heritage management). As hoped, these deployments have improved FAIMS software significantly, allowing us to identify and correct problems, improve performance, refine implementation processes, and guide new feature development. For example, archaeological recording, particularly for excavations, proved even more complex than anticipated, with entailed workflows and many related entities. Improvements to navigation in the user interface and fuller exploitation of Android UI features were added to accommodate this complexity. More broadly, proper elaboration of the details of the project – quality of local infrastructure, ability to share data remotely, the integration of multiple activities on large projects – is critical to successful deployment. While some issues has been ameliorated through improvements to the software (e.g. new synchronisation

strategies and other performance improvements), clear communication of requirements, expectations, limitations, and risks has been the single most important factor in successful deployments. This paper discusses how field deployments have shaped FAIMS software, and reviews what is necessary for successful transition from paper to digital recording.



Unconventional Proxies: Using Archaeological Measures of Occupation Intensity to Infer Holocene Climatic Variability in Inland Southwestern Australia

Alana Rossi, Edith Cowan University

Archaeological data are frequently interpreted within a framework of palaeoenvironmental information, but in an area where those records are lacking – inland southwestern Australia – can cultural remains be used as a proxy for climatic conditions? The inland southwest is entirely devoid of freshwater lakes and rivers; Indigenous occupation was wholly dependent on more ephemeral sources of water, such as gnammas and pans, which form on exposed granite bedrock, and intermittent creeks. Drawing on ethnographic analogies from the Western Desert, equally devoid of permanent water bodies, it is clear that Aboriginal people exploited the more short-lived sources first (pans and intermittent creeks), only relying on the more reliable sources (gnammas) when all others were exhausted. The five gnammas at Mulka's Cave have an estimated combined capacity of 10,000 litres, making this site the largest and most reliable water source known in the area. Therefore, occupation at this regional refuge site can provide insight into Holocene climate variation – when rainfall was higher and surface water was more easily accessible in the landscape, the reliable sources at Mulka's Cave would have been exploited less frequently; during times of reduced rainfall, groups would be forced to fall back on these more reliable sources. Based on archaeological indices of occupation intensity (artefact accumulation rates, intrasite spatial organisation, stone reduction intensity), it is evident that from 8000 cal BP the site was visited fairly infrequently, possibly indicating more favourable conditions in the wider area. Occupation peaked after 1500 cal BP, reflecting a trend to drier conditions that continue into the present. Similar patterns are evident in palaeoenvironmental records from other parts of southwestern Australia, though the records for the southwest as a whole are far from coherent.



Blocks of Time: Using Lego to Reconstruct Occupation and Activity Patterns at Mulka's Cave, from 8000 cal BP until the Present

Alana Rossi, Edith Cowan University

Since 2006 Mulka's Cave has been the focus of intensive archaeological research, which is otherwise entirely lacking in the wheatbelt of inland southwestern Australia. Sixteen radiocarbon dates and over 2500 stone artefacts have been recovered from several areas of the site complex, permitting analysis of spatiotemporal variation in occupation intensity, as well as the identification of specific activity areas. Several detailed Lego models were constructed and photographed, each depicting the events that likely occurred at major areas of the site complex – the decorated rockshelter, the 'Camping Area', the Humps outcrop, and the gnammas – at various intervals from 8000 cal BP until the present. While not directly explored within this poster, this method could potentially be used to make archaeological data more accessible to a broader audience, engaging the interest of children, the general public and Lego-lovers alike.



The Tangkic World on the Eve of the Kayardild Offshoot: Linguistic Evidence for a Strikingly Dynamic Mainland

Erich Round, University of Queensland

Deeper insights into who settled Bentinck Island, and especially why, will flow from improved models of contemporary circumstances on the adjacent mainland. Advanced analysis of linguistic data is now suggesting a highly dynamic period leading up to the Bentinck settlement event. First, recent archival finds hint that Yangarella, previously believed a dialect of Ganggalida, was a distinct language, forming an Eastern Tangkic (E.Tgkc) clade along with Yangkaal and Kayardild. Second, Bayesian phylogenetic analysis of vocabulary suggests an age of 1500-2000 BP for proto-Tangkic, 500-1000 BP for proto-Southern Tangkic, and even less for E.Tgkc, which is very recent given the significant grammatical innovation that occurred in the E.Tgkc branch. Third, the Tangkic tree contains a millennium during which no language diversification is visible. An explanation may be thus: (1) until around a millennium ago, Lardil was neighboured on the mainland by Lardil-like sibling languages; (2) then, a language which has descended as the E.Tgkc branch rapidly expanded, erasing this older diversity while incurring significant, contact-induced changes in the process; (3) the outcome of this E.Tgkc expansion was a dialect chain running down the Nicholson then up the coast and out to Denham Island; (4) only after the mainland expansion of E.Tgkc had run its course did Kayardild branch off from Yangkaal. This relative chronology is required by the fact that there is almost no grammatical divergence between Kayardild and Yangkaal, in stark contrast to the magnitude of grammatical change implied during the mainland expansion pulse. So, was Kayardild the first Tangkic language to be carried to Bentinck? Quite

possibly not. The Yangkaal-Kayardild split may be only a few centuries old. Earlier visitors and settlers on Bentinck may have spoken old dialects of Yangarella. More generally, the impulse to explore Bentinck may have been but one symptom of a general climate of intense geographic dynamism characterising the mainland around that time.



Dead, Buried and Almost Forgotten: Lonely Unmarked Graves in the Great Barrier Reef Province

Mike Rowland, *James Cook University*

In October 1981, I took up the position of Archaeologist with the Queensland Government. Within days I found myself on the Gold Coast with officers of the Queensland Police Service looking for the remains of missing person Simone Vogel. We did not locate her. However, it was clear to me that the methods used by the Police on this and other occasions left much to be desired. I therefore subsequently used sections of the *Criminal Code Act 1899*, *Coroners Act 2003* and the various cultural heritage acts to develop a policy and set of guidelines on the discovery and handling of human remains which continue in use today. I also held annual training sessions for Scenes of Crimes Officers. The focus was on the discovery and handling of Aboriginal remains. Recently, I have had the opportunity to revisit the journals of early explorers on the Queensland coast and early newspapers via Trove online. Through these sources I have become aware that I overlooked a significant number of Europeans buried in unmarked graves on the coast and offshore islands of Queensland. In this paper I discuss why these people should not be forgotten.



Edict Come, Edict Go: An Overview of Legislative Approaches to the Conservation of Aboriginal Archaeological Heritage Sites in Australia

Ian Ryan, *Gavin Jackson CRM*
JJ McDermott, *Gavin Jackson CRM*

In this paper the authors critically review variation in how Aboriginal archaeological sites are defined in federal and state legislation in Australia. We discuss the movement away from a 'relics' approach, characteristic of laws introduced throughout Australia in the 1970s designed to protect Aboriginal heritage, towards legislation with more holistic definitions of heritage values. We explore the impact that this has had on the recording, assessment and conservation of Aboriginal archaeological sites. We also discuss the impact of the removal of archaeologists and anthropologists from some of the Committees required under many of these Acts to assess Aboriginal

heritage places. We explore if this has been concomitant with a greater representation of Indigenous views in defining what constitutes Aboriginal archaeological sites. We also focus on the potential consequence of change in some heritage legislation in Australia leading to a significant decline in the number of Aboriginal archaeological sites, based on our understanding of the archaeology of Aboriginal Australia, being defined as 'sites' in legislative terms. Finally, we explore what we see as potential opportunities for the archaeological consulting community to connect the sometimes rarefied world of archaeology with the primary custodians of that archaeology, Indigenous Australians, in such a way that may lead to the conservation of more archaeological sites than is presently the norm.

S



All You Can Eat

Sofia Cristina Samper Carro, *Australian National University*

Faunal composition in Wallacea islands has been studied from a palaeontological point of view, remarking on the presence or absence of species. Regarding human adaptations to these environments, subsistence strategies have been described based on the relative abundances of species, building up subsistence systems through quantitative units. These studies have provided clues of prehistoric human interaction with insular biota. However, issues with regards to equifinality and the formation of cultural deposits within cave environments have yet to be addressed. Formation processes reflected in bone modifications, both natural and cultural, on zooarchaeological assemblages have deserved minor attention. This study emphasises the importance of taphonomic studies in the interpretation of human behaviour in Wallacea islands. The application of taphonomic studies in the analysis of assemblages from Alor and East Timor cave/rockshelter sites is likely to provide data to understand the formation of cultural versus natural deposits and distinguish more directly human influence on deposition histories, so as to provide a more accurate account of human subsistence in these insular environments. Despite the depauperated fauna documented on these environments, which constrains the type of analysis that can be carried out, we propose a methodology that focuses on the analysis of bone preservation, bone modification, skeletal representation and prey demography. This methodology will provide a benchmark for the analysis of zooarchaeological deposits to obtain insights about human adaptation and impacts on insular tropical island ecologies.



The Western Polynesia 'Long Pause' and the Ideal Free Distribution

Tom Sapienza, *Ironbark Heritage and Environment*

After the Lapita people colonised Western Polynesia, it took another 1500 years until their descendants continued the tradition and began to colonise Eastern Polynesia. While the reasons for the intermission between colonisation periods – known as the 'Long Pause' – are uncertain, researchers have explored many possibilities. Recently, a number of researchers have begun to use concepts from ecology to explain the pause, focusing in particular on a concept known as the 'ideal free distribution'. The Ideal Free Distribution (IFD) is a concept taken from entirely outside archaeology, and was originally developed to explain the way birds distribute themselves among habitats. This paper will explore whether the IFD is a suitable model for understanding the movement of humans through the Pacific and the patterns of colonisation in Polynesia. The question of why people stopped colonising once they arrived in Western Polynesia is an interesting one, and its answers would help understand better aspects of the Lapita colonisation and colonisers. To investigate the suitability of the IFD in explaining the Long Pause, I will explain the underlying theory of the model and demonstrate my conclusions using time series GIS analysis with case studies involving both Western Polynesia and individual islands.



'My Country is Like My Mother ...': The Importance of Social Research into Indigenous Ecological Values in Indigenous Heritage Management

Cassandra Schill, *Flinders University*
Darlene McNaughton, *Flinders University*

Social research into relationships and interactions between people and place has re-emerged in recent years an important field of enquiry in many disciplines, particularly philosophy, ecology and anthropology. However, it remains a relatively unexplored area within Cultural Heritage Management, which often tends to rely on archaeological survey and assessments that often engage temporarily and/or loosely with Aboriginal people. In this paper we report on the results of long-term, collaborative qualitative research into the Indigenous ecological values (IEVs) of the Alngith people from western Cape York Peninsula and their implications for CHM. We demonstrate that IEVs are deeply enmeshed with Alngith notions of country and the presence of the 'Old People'; underpin how Alngith People young and old want to manage cultural heritage on their homelands; and highlights the prominence

of the social in Alngith aspirations and responses to heritage management. This study demonstrates how long-term, systematic qualitative research and engagement can contribute to the development of more culturally appropriate and locally comprehensible approaches to heritage management – where IEV's and Indigenous voices at the forefront of heritage discourse. This in turn can contribute to building rapport and trust between researchers and community, while also creating opportunities for revitalising knowledge transfer and the practices and values that underpin Alngith human-environment relationships. We argue that these approaches can support the development of more holistic approaches to heritage management, focusing on whole of country stewardship and co-management approaches and provide a more culturally appropriate alternative to existing site-based approaches that treat problematically, cultural heritage, ecological and other heritage values quite separately.



Lake Kutubu Palaeo-Environmental Research Project

Larissa Schneider, *Australian National University*
Simon Haberle, *Australian National University*
Jan Finn, *Australian National University*
Andrew Henderson, *Newcastle University*

Lake Kutubu, the largest lake in New Guinea, lies at the foothills of the southern highlands of Papua New Guinea where sago production is the dominant staple crop supporting sparse population densities across the region. Phytoliths, diatoms, pollen and charcoal preserved in the lake sediments provide an insight into the prehistoric development of sago production in the region. The area is also sensitive to fluctuations in major climate phenomenon such as ENSO, the Monsoon and the Southeast Tradewinds, all contributing to the high rainfall received by the lake. Preliminary palaeoecological and geochemical research on cores extracted from the lake suggest that the site holds the potential to provide a >350ka record of environmental change for the Papuan-Australian tropics and that future efforts to extract deep cores from the lake may produce one of the most significant palaeoclimate records for our region.



Reconstructing Historical Trends in Sediments from Lake Kutubu, Papua New Guinea

Larissa Schneider, *Australian National University*
Simon Haberle, *Australian National University*
William Maher, *University of Canberra*
Brent Alloway, *University of Wellington*
Frank Krikowa, *University of Canberra*

Conservation and restoration goals are often defined by historical baseline conditions that occurred prior to human and/or naturally induced disturbance. The need to understand past environmental changes is especially critical in Papua New Guinea (PNG) where oil and mining reserves have been developed in the last 30 years as a profitable contribution to its economy. In this study, we assess metal concentration variations over the last 8000 years within sediment cores retrieved from Lake Kutubu as a proxy for human disturbance of the surrounding catchment and to determine baseline conditions against which the current situation and future change can be assessed. The chronological framework underpinning these down-core metal variations are provided by a series of ^{210}Pb and ^{14}C dates as well as the occurrence of widespread tephra interbeds within the core sediments. An increase in metal concentrations at the top of cores were related to mining, with an increase of 55% Zn, 128% Se, 139% Ba and 90% Pb. Change in trace element ratios in sediments have shown to be useful proxies for changes in precipitation. The overall metal concentration variations within cores appear to be related to a range of drivers including climate change (major precipitation events), volcanic activity (tephra deposits) and more recently anthropogenic activities associated with oil and gas extraction in the region. A long-term perspective on lake geochemistry increases our knowledge of the stability and resilience of the PNG environment in the face of population growth and increased associated industrialisation.



Towards a Prehistory of the Louisiade Archipelago, Massim Region, Papua New Guinea

Ben Shaw, Australian National University

The Massim region encompasses the islands located off the eastern tip of the New Guinea mainland, with the Louisiade Archipelago comprising a group of over 200 volcanic and coral islands in the regions southeast. Within the last 50 years or so, a great deal of archaeological work has been undertaken along the Papuan south coast, in the Bismarck Archipelago and the Solomon Islands. From this work our knowledge of prehistoric cultural development in these areas is relatively well-known. The Massim region, however, is often overlooked or ignored when it comes to narratives of regional prehistory. For the most part, this is due to a lack of archaeological coverage in the region. Only a handful of archaeological projects have so far been undertaken, of which several remain unpublished. Archaeological research on two islands in the Louisiades (Rossel and Nimowa) has therefore been undertaken to develop a prehistoric cultural sequence of the archipelago for the first time. The majority of work was undertaken on Rossel

Island, whose population is linguistically and genetically distinct from all other islands in the region and is the most remote island in the archipelago. Work on Nimowa Island, 80km to the west of Rossel, was less extensive but was useful in this study for developing a comparative archaeological record to better define cultural diversity within the Louisiades and throughout the Massim. This paper will look at the changing position of Rossel Island in the prehistory of the Louisiade Archipelago and the Massim. Several aspects of Rossel culture will be explored archaeologically to provide insight into how such a unique island culture might have developed. The paper will then look briefly at how the archaeology on Rossel fits into what is already known about the prehistory of the Massim.



Panga Ya Saidi: An MIS5-3 Site on the Coast of East Africa

Ceri Shipton, University of Queensland
Alison Crowther, University of Queensland
Jimbob Blinkhorn, Universite de Bordeaux
Richard Helm, Canterbury Archaeological Trust
Nicole Boivin, Oxford University

Panga ya Saidi is a large newly-discovered, cave complex on the Nyali coast of East Africa that preserves evidence of human occupation spanning the critical MIS5-3 period, when we see the emergence of *Homo sapiens*' behaviour and the dispersal of our species out of Africa. Debates on both these issues has been dominated by the South African record, which has produced models in which both the emergence of human behaviour and the dispersal of our species have been linked to coastal adaptations. However, until now there have been no sub-Saharan coastal sites north of South Africa against which to test these hypotheses. Here we present the results of three seasons of excavations at Panga ya Saidi 15km from the coast of Kenya. The results indicate several distinct facies of stone technology during this period, the use of marine resources and a gradual proliferation in symbolic artefacts. A rich palaeoenvironmental record provides the backdrop for these changes in technology and burgeoning symbolism. We discuss the demographic circumstances under which behavioural traits characteristic of our species are first manifested at the site. We then assess whether the evidence from Panga ya Saidi supports or undermines the coastal dispersal hypothesis.



Identifying Aboriginal Hearths in Late Quaternary Northwest Victoria: An Experimental Study to Replicate the Production of 'Clay Ball' and Calcium Nodule Heat Retainers

Chris Silvester, *La Trobe University*
 Emily Dillon, *Australian National University*
 Sara Lombardo, *La Trobe University*
 Adam Valka, *La Trobe University*
 Anthony Romano, *La Trobe University*
 Ada Dinckal, *La Trobe University*
 Alex Blackwood, *La Trobe University*
 Maurizio Campanelli, *La Trobe University*
 Jeffrey Clarke, *La Trobe University*
 David Clark, *La Trobe University*
 Anthony Dall'Oste, *La Trobe University*
 Darren Perry, *La Trobe University*
 Jillian Garvey, *La Trobe University*

The Late Quaternary cultural record of northwest Victoria consists of a very rich and diverse archaeological assemblage. One component of this landscape is isolated heat retainers and hearths utilised by Aboriginal people to cook a variety of foods. In the absence of suitable heat retainers it is assumed that clay and carbonate nodules were used. Recent surveys at Neds Corner Station and the adjacent Murray-Sunset National Park, as part of an ARC-funded project, highlighted the difficulty in distinguishing between culturally and naturally fired clay. During fieldwork, when weather conditions interrupted surveying, student volunteers undertook firing experiments using different mediums and heating conditions in order to try and replicate what had been seen in the field. This poster presents the results from these four experiments which form the basis of ongoing research. The fired clay produced during these experiments was then compared with the natural, anthropogenic and ambiguous baked clay that had been observed in the field. Ethnographic and previous experimental studies are also compared to these recent experiments. This also helps to distinguish between Aboriginal heat-retainer hearths, and 'pseudo-hearths', which result from lightning strikes and bushfire. While further studies are required, these preliminary experiments provide a baseline to which the archaeological record can be compared, and have important implications for future research and cultural heritage management in this region.



Archaeological Outreach and Cross-Curriculum Learning at The University of Queensland's Archaeological Teaching and Research Centre (ATARC)

Dale F. Simpson Jr., *University of Queensland / College of DuPage*
 Chris Clarkson, *University of Queensland*
 Andy Fairbairn, *University of Queensland*
 Tiina Manne, *University of Queensland*
 Rohan Fenwick, *University of Queensland*
 Heather Dixon, *University of Queensland*
 Emilija Nicolosi, *University of Queensland*

In 2013 The University of Queensland (UQ) developed and hosted multiple Archaeology Experience activities at the newly-constructed Archaeological Teaching and Research Centre (ATARC) (Simpson *et al.* 2013). These one-hour, hands-on activities are part of a larger UQ Outreach Program which has the objectives of increasing the awareness of tertiary study as a post-school option and raising the educational aspirations of students from lower socio-economic status (SES) target schools. The Archaeology Experience incorporates into outreach pedagogy first developed in Australia at UQ's former archaeology teaching centre, the TARDIS (Hall *et al.* 2000, 2005; Nichols 2010; Nichols *et al.* 2011; Ross 2006). This example demonstrates how carefully planned archaeological outreach activities focused on real field methods, including excavating, mapping, sieving, sorting, and interpretation, in appropriately-designed facilities can contribute to addressing wider issues in social exclusion and education participation.



Exploring Visual Organisation of Rock Art at Oomarri, Northeast Kimberley

Annieka Skinner, *Terra Rosa CRM*
 Martin Porr, *University of Western Australia*

Stylistic studies in Australian rock art have traditionally focused on understanding how formal features and patterns of motifs intersect or diverge across a neutral geographic space in order to decode social information such as ethnicity and cultural boundaries. Although these works may provide useful research frameworks, they effectively decontextualise the rock art, separating the art from the landscape it was produced upon/within. Recently, researchers have engaged with this de-contextualisation, and begun to treat space as a central investigative theme in rock art studies. This has coincided with broader trends in archaeology to recontextualise rock art as part of socially and contextually constituted landscapes by examining phenomenological attributes

such as visibility, accessibility etc. This paper engages with these themes, examining the visibility, visual organisation and accessibility of rock art in the landscape at Oombarri in the east Kimberley. Through a quantified statistical analysis of motif attributes related to visibility and accessibility, the investigation presented in the paper attempts to understand how the rock art was employed to visually choreograph the landscape in this particular context, and how this may have changed through time. The investigation aims to provide a systematic spatial contextualisation of a specific assemblage of Kimberley rock art with particular reference to notions of perception and bodily engagement.



Post-Glacial Settlement of the Central Hamersley Ranges: West Angelas

Michael Slack, *Scarp Archaeology / James Cook University*

Annabelle Davis, *Rio Tinto Iron Ore*
Trent Hamersley, *Rio Tinto Iron Ore*

This paper examines the timing and nature of Aboriginal settlement within the West Angelas Region in the central Hamersley Ranges, Western Australia. Based on the results of extensive survey and the excavation of over 10 rockshelters, we show how Aboriginal people moved into this area directly after the Last Glacial Maximum, and the nature of their settlement and subsistence thereafter as they adapted to different climatic alterations.



Holocene Sea-Level Change in the Southern Gulf of Carpentaria, Australia

Craig Sloss, *Queensland University of Technology*
Luke Nothdurft, *Queensland University of Technology*
Daniel Rosendahl, *Willandra Lakes Region World Heritage Area / James Cook University*
Alison Sternes, *Queensland University of Technology*
Shoshannah O'Connor, *Queensland University of Technology*

Lydia McKenzie, *University of Queensland*
Lynda Petherick, *Xi'an Jiaotong-Liverpool University*
Patrick Moss, *University of Queensland*
Sean Ulm, *James Cook University*
Rachel Nanson, *University of Adelaide*

Recent research on Bentinck Island in the South Wellesley Islands provides insights into the influence of late Quaternary sea-level change on coastal landscape evolution. Previous research on submerged coral reefs indicates that the Gulf of Carpentaria basin was inundated by rising sea-levels during the most recent post-glacial marine transgression between 10,000 and

8000 years ago. Previous research, in combination with recent coring in beach ridges, sandflats and beachrock outcrops in the South Wellesley Islands, indicates that sea-level continued to rapidly rise to an elevation between 2.5m and 3m above PMSL close to 7000 cal yr BP, resulting in the formation of beachrock and aeolinite, the initiation of chenier plains and beach ridge deposition, as well as initial mudflats and mangrove swamp environments. Results also indicate that sea-level fell from the +3m highstand to present levels over the last 6000 years, with at least three main phases of coastal progradation of chenier and beach ridge deposits. The reconstructed sea-level for the southern Gulf differs to previous research showing a maximum sea-level of 2m APMSL was reached by 6000 years ago, and therefore provides additional data to reconstruct the influence of isostatic adjustment during the mid-to-late Holocene.



African Archaeology Today

Benjamin Smith, *University of Western Australia*

African archaeology has changed beyond recognition over the past century. During colonial times, there was generally only a single individual, at most a handful, working on archaeology in each region. These researchers worked across the entire gamut of prehistory, developing regional chronologies and coming together every four years at the PanAfrican Congress to compare field notes and to standardise terminology. While the governments of newly-independent Africa focused on obvious social need such as healthcare, education and housing, archaeology began gain importance in service of African nationalism and PanAfricanism. Today the discipline has never been stronger and some countries, such as South Africa, are implementing national policies and strategies to develop and promote archaeology. One country, Mali, has had an archaeologist as president; another, Malawi, sent an archaeologist to be ambassador to the United Nations. Thousands of archaeologists now work across Africa, many in private companies as well as in more traditional heritage agency, university, and museum positions. In terms of research priorities, the regional chronologies are now well-established (though always amenable to refinement), and social interpretative approaches assist in ensuring the social and political relevance of the discipline. In this paper I aim to provide an overview of current approaches and major research foci.



GitHub for Archaeology: FAIMS and Beyond

Adela Sobotkova, *University of New South Wales*
Penny Crook, *La Trobe University*
Brian Ballsun-Stanton, *University of New South Wales*
Shawn Ross, *University of New South Wales*

GitHub (<http://github.com/>) is a web-based hosting system for code (and therefore text). In GitHub multiple parties can use, change, and repurpose code or text while maintaining clear authorship and responsibility. GitHub retains the history of all the versions and allows owners of the code to accept or reject suggested changes. GitHub has applications far beyond software development. It has become a leader in peer-based production of all sorts, from urban planning to law to university courses and research outputs. The Federated Archaeological Information Management System (FAIMS) project is using GitHub as a means of promulgating and modifying 'definition packets' used to customise our data collection application. This paper discusses how FAIMS is using GitHub to share and redeploy customisations of the FAIMS mobile platform, and explores other potential uses of the system in archaeology.



FAIMS Mini-Workshop I: FAIMS 2.0 Mobile Application Basics

Adela Sobotkova, *University of New South Wales*
Penny Crook, *La Trobe University*
Shawn Ross, *University of New South Wales*

Federated Archaeological Information Management System (FAIMS) mobile software has been under development for 3 years, with version 2.0 (a significant revision) released in November 2014. This hands-on mini-workshop will provide a guided tour of system basics aimed at helping archaeologists and archaeological scientists assess the utility of the software for their fieldwork. Participants will be guided through installation and operation of a simple field recording module, including synchronisation and data export. A limited number of devices will be available; bring your Android 4.1+ device if you have one.



FAIMS Mini-Workshop II: New Features in FAIMS 2.0

Adela Sobotkova, *University of New South Wales*
Penny Crook, *La Trobe University*
Shawn Ross, *University of New South Wales*

Federated Archaeological Information Management System (FAIMS) mobile software development in 2014 was guided by feedback from users in the field. Some features were added as a result of shortcomings observed by the FAIMS team, while others were suggested directly by users. User-driven development included: improvements to the interface, improved performance and responsiveness, automated export of data, and management of files produced outside the system (e.g. dSLR photos). This hands-on mini-workshop will walk users through some of these new features. A limited number of devices will be available; bring your Android 4.1+ device if you have one.



Digital Teaching and Learning in Australian Archaeology: Project Archaeohub

Melissa Sorial, *Archaeohub*

For too long Australian archaeology has been undervalued. Archaeologists and educators must seize the opportunities presented by the new Australian curriculum to engage students with their long, rich and diverse cultural heritage, and the work of those who bring it to life. In packaging and delivering Australian archaeology for an educational context, what we are going to say, and how we are going to say it is key. In this paper, I explore the 'what' and the 'how' in the framework of a dynamic new digital project – Archaeohub. Embedded in Archaeohub will be a weft of archaeological narratives of people, time, and place, creating an engaging pedagogical foundation upon which teachers and students construct knowledge and understandings. A richness of interpretation and meaning in these narratives will result from collaboration with the users themselves, exemplifying the principles of multivocality and inclusivity that underscore the project. Though a degree of tension may develop between the professional and non-professional and their roles and expectations in this context, this can be resolved to deliver a multilayered, collaborative 'what' for Archaeohub. The 'how' is achieved by immersing all parts of the archaeological process in the realm of the digital native, utilising the full gamut of interactive digital tools. The end product will be a virtual explosion of archaeological material to stimulate and excite twenty-first century learners about Australia's past.



A Changing Landscape: Current Challenges in Heritage and Archaeology in the Lao PDR and the Role of the Department of National Heritage

Viengkeo Souksavatty, *Department of National Heritage, Lao PDR*

Samlane Luangaphay, *Department of National Heritage, Lao PDR*

Thonglith Luangkhot, *Department of National Heritage, Lao PDR*

Under the Lao 'Law on National Heritage (2005)' the Department of National Heritage is responsible for the management of cultural, historical and natural heritage across the country. This is becoming an increasingly complex job as the rate of economic change and the types and levels of impact on the environment and heritage is increasing. This paper discusses some current projects under the care of the Department of National Heritage and the Department's future plans and challenges. This carries the story of human society and environment interactions from the deep past to today and into the future.



Possible Stilt Structures before Lapita Pottery at the Apalo Site, New Britain, PNG

Jim Specht, *Australian Museum*

Carol Lentfer, *University of Queensland*

Chris Gosden, *University of Oxford*

Geraldine Jacobsen, *Australian Nuclear Science and Technology Organisation*

Sue Lindsay, *Australian Museum*

Peter Matthews, *National Museum of Ethnology*

One of the major contributions of the Lapita Homeland Project in 1985 was the recognition of stilt structures at the Talepakemalai site on Eloaua Island, to the north of New Ireland, Papua New Guinea. Lapita-age structures built over water in the intertidal zone have since been identified at many other localities in the New Guinea Island Provinces (Bismarck Archipelago) and Solomon Islands. The origin of this structural form remains obscure, though a claim for such a structure of pre-Lapita age has been made for the Apalo site on Kumbun Island, in the Arawe Islands of southwest New Britain. This claim has been queried and contested. The paper will examine the issue through a recent dating programme at ANSTO, funded by AINSE.



Investigation of Hearths with Stone Heat Retainers in Arid Northern South Australia

Katarina Sporcic, *Australian National University*

Heat retainer hearths are ubiquitous in semi-arid and arid regions of Australia. They manifest in the archaeological record as a cluster of thermally broken rock. Hearths are useful in constructing chronology because of their potential to yield datable charcoal but their potential to inform aspects of human behaviour, up to now, has not been fully realised in Australia. My research focuses on part of the Roxby dune field near Olympic Dam in northern South Australia. It includes extensive field descriptions, including mapping and excavation of 20 heat retainer hearths. Preliminary results on how hearths were built, the types of stones selected for use as heat retainers, where they are found and their chronologies will be presented in this seminar.



LiDAR Survey and Earlier Archaeological Survey of Traditional Agricultural Infrastructure: New Use for Old Data in Assessing Climate Change

Matthew Spriggs, *Australian National University*

Early in 2014 results were made available of a Vanuatu government-sponsored LiDAR survey of coastal areas of three major islands in Vanuatu to address potential impacts of climate change. Matthew Spriggs then approached the Ministry of Climate Change with a proposal for a LiDAR survey of the entire island of Aneityum to address changes to the traditional agricultural infrastructure of the island over the last 34 years since he conducted a 1978–1980 archaeological survey of the island, directed at prehistoric agricultural systems which recorded over 800 sites and covered most of the island. The agricultural infrastructure consists of canals, terraces and ditched swamps. It is 'prehistoric' in that most of it was abandoned in the wake of population decline of over 90% during the historic period because of introduced diseases. But it is also 'permanent' in that the stone-lined infrastructure remains and parts of it are brought back into agricultural use as needed, by a growing population. There have been noticeable changes in the last few decades that would appear to be caused by ongoing climate change. Some of the previously perennial streams in leeward areas that fed the irrigated agricultural systems have now become seasonally intermittent and considerable damage has been caused to the agricultural infrastructure by flash floods. Thus systems which had been abandoned but were intact after 80 or more years of non-use in 1980, have in the last two decades in particular been destroyed

or badly damaged by extreme weather events. Much of the agricultural infrastructure of the leeward half of the island appears to have been irreparably damaged. The LiDAR survey proposal has been approved and strongly supported by the Vanuatu Government's National Advisory Board on Climate Change to allow donor funding to be sought. Archaeological survey can have uses much beyond that for which it was conceived, and can contribute to creating awareness of problems of food security in Pacific Islands caused by climate change.



A Re-Evaluation of a Pitchstone Artefact Assemblage from Pamwak Rockshelter, Manus Island, Papua New Guinea: Changing Ideas about Stone Tool Technology in Melanesia

Caroline Spry, *La Trobe University*
Christina Pavlides, *La Trobe University*

Melanesian stone tool technology is often described as unsystematic, characterised by low-cost strategies to procure raw material, and expedient tool use. A unique collection of early Holocene pitchstone artefacts from Pamwak Rockshelter on Manus Island, which was occupied intermittently from the late Pleistocene, challenges these ideas. While the original excavators interpreted this assemblage as a cache, a recent reanalysis suggests that these artefacts represent a collection of provisional discards – refuse that was occasionally recycled. The implications of these results for current understanding of stone tool technology in Melanesia are discussed.



3D Scanning as a Tool to Quantify Use-Wear on the World's Oldest Bone Tools from the Early Hominin Bearing Cave Site of Drimolen, South Africa

Rhiannon Stammers, *La Trobe University*
Andy Herries, *La Trobe University*
Justin Adams, *Monash University*
Colin Menter, *University of Johannesburg*

The visualisation of use-wear on archaeological materials has commonly been portrayed through Scanning Electron Microscopy (SEM) pictographs and the analysis of these marks using visual interpretations of micrographs. Although an extremely reliable and accurate way of analysing materials, SEM is invasive in nature and, therefore, can be limited in its application to sensitive materials. Here we describe two non-invasive and non-destructive scanning techniques, the Artec Spider Scanner and White Light Confocal Profilometry (WLCP), for the 3-dimensional visualisation and analysis

of use-wear located on the working ends of the purported bone tools from the Oldowan and early hominin (early *Homo*, *Paranthropus robustus*) bearing palaeocave of Drimolen, South Africa. With a resolution of up to 0.1mm and a point accuracy of up to 0.03mm, the Artec Spider Scanner is one of the most accurate 3D scanners available. It has the ability to capture the texture and colour of the object it is analysing and was utilised in this study to capture the whole tool morphology. Microdetail analysis of the purported tools was conducted using WLCP. WLCP provides a detailed representation of microsurface morphology that can be analysed both qualitatively and quantitatively. 3D representations of the purported bone tools were studied with metrological software employing standardised computations of surface texture and profile roughness. Preliminary scan results of the purported bone tools from Drimolen will be presented here with a discussion of the application of the two techniques on the materials.



Legacy, Sustainability and Engagement: Community Heritage Projects in Northwestern Australia

Ross Stanger, *BHP Billiton Iron Ore*

The completion of meaningful, long-lasting and sustainable community cultural heritage projects in northwestern Australia is faced with a series of challenges. These include the conflicting interests of stakeholders, the engagement of suitable partners and the identification of projects that will be supported by and add value to the broader community. In 2011 David Bunting of BHP Billiton Iron Ore proposed a 'Sustainability Model' in which sustainable theory is applied to identify synergies between potential conflicting interests of heritage practitioners, researchers, community groups and industries. The aim of the model was to facilitate meaningful and effective partnerships which centre on common concerns and improve the ongoing management of the heritage landscape in northwestern Australia. A Sustainable Heritage Strategy was developed from the model, with a Legacy Pillar established within the strategy to identify and execute community cultural heritage projects. Since the inception of the Sustainable Heritage Strategy in 2011 a number of community projects have been undertaken within the Legacy Pillar that have involved partnerships with academic institutions, Indigenous groups and community organisations. The aim of this paper is to present the results of two community projects undertaken within the Legacy Pillar of the Strategy – Warrawandu Walking Trail and the Wanamanna Rock Art Research Project. The paper will focus on the community engagement completed and will include a discussion of how engagement on the projects was undertaken, its

impact on the host communities and reflections on the opportunities taken by communities seeking economic outcomes from the projects. The concepts that inform the interactions and communication portions of the community engagement will also be considered along with a discussion on subsequent evaluations that were undertaken to ascertain success or otherwise of the broader strategy and projects.



Subsistence Strategies in Pre-Angkorian Communities: Comparing the Zooarchaeological Record of Ban Non Wat and Ban Salao, Northeast Thailand

Gordon Stenhouse, *James Cook University*

Over the last five decades, significant progress has been made in the study of subsistence strategies in pre-Angkorian agricultural communities of mainland Southeast Asia. The analysis of animal remains recovered from the recent excavations at Ban Non Wat and Ban Salao, northeast Thailand, has broadened our understanding of human-animal interactions and the role that animals play in the subsistence economies of these sites. Ban Non Wat and Ban Salao are located within 6km of each other and encompass a time span of 1650 BC-700 AD. Their zooarchaeological assemblages show two different subsistence strategies. Ban Non Wat has large amounts of pig remains, illustrating the importance of animal husbandry at this site. However, hunting and fishing is also represented by the sizeable amounts of deer, fish, and turtle remains identified, particularly during the Neolithic occupation layers. At Ban Salao bovid remains make up over 60% of the assemblage, and pig a further 20%, with only a small number of deer, fish, and turtle remains identified. These findings show that the subsistence role of domestic animals in pre-Angkorian communities can vary in a localised area. At Ban Non Wat, the meat from hunting and fishing supplemented the meat from domestic animals, and at Ban Salao, domestic animals were the major subsistence staple. This research contributes to our understanding of subsistence strategies in early agricultural societies in mainland Southeast Asia and highlights the role that wild and domestic resources played in pre-Angkorian communities.



Stains, Stones and Broken Bones

Birgitta Stephenson, *In the Groove Analysis Pty Ltd / University of Queensland*

Biochemical staining approaches in residue analysis are becoming increasingly recognised for highlighting and

identifying damaged residues that are often unrecognised by conventional microscope residue studies. In addition to damaged residues, intact residues such as plant fibres, phyloliths, starches, minerals, barbules and the like remain unaffected and are clearly observed. The addition of biochemical staining permits definitive assessments of similar plant and animal residues. As such, these staining approaches allow for more inclusive assessments of past function and contribute to more informed understandings of past behaviour. While these approaches can be used to investigate a variety of archaeological material, this poster demonstrates the utility of uncomplicated biochemical staining methods to investigate the function of grindstones from Australian contexts. The wide array of residues and their preservation is fascinating and supports suggestions of multiple and contrasting uses. Biochemical staining represents an inexpensive, simple, value-adding, non-destructive additional residue approach that is being applied successfully in Australia and overseas. If you thought Masterchef was cool then you need to view the colourful world of staining and see the residues associated with the kitchens and preparation areas of the past.



The Influence of Late Quaternary Sea-Level Change on Coastal Landscape Evolution: The Gulf of Carpentaria, Australia

Alison Sternes, *Queensland University of Technology*
Craig Sloss, *Queensland University of Technology*
Lynda Petherick, *Xi'an Jiaotong-Liverpool University*
Sean Ulm, *James Cook University*

Recent research in the South Wellesley Islands provides a pilot study into the influence of late Quaternary sea-level change on coastal landscape evolution. The South Wellesley Islands are located on a tectonically relatively stable portion of the Australian plate which means a record of sea-level and geomorphological change can be more easily deciphered than areas that are affected by significant tectonic changes. Beach ridges and salt pans have been used in combination with data from previous research into submerged coral reefs, to reconstruct the sea-level history and landscape evolution of the Gulf of Carpentaria over the last 7000 years. Beach ridges and their subsurface deposits are able to record past coastal processes, and are indicators of past shoreline position and shape and sea-level. A sequence of beach ridges and intervening swales provides a relative chronological palaeoenvironmental record which is analogous to tree rings and stratigraphic succession. This study uses a series of auger transects and pits across dune profiles, and respective salt pans to produce a record of sedimentological, lithostratigraphic,

and geomorphological change. In order to develop the most accurate and functional facies scheme both lithofacies and biofacies were utilised. Radiocarbon dating and Real Time Kinematic (RTK) mapping has been used to constrain timing and elevation respectively. Initial results indicate that sea-level fell from a +3m highstand to present levels over the last 6000 years, with at least three main phases of coastal progradation of beach ridge deposits. Beach ridges are composed of six well-defined facies with a distinct predominantly consolidated basal layer. Distinct form and process relationships can be made between older facies and their modern counterparts. This study will investigate sea-level change, as well as climatic and environmental variability during the late Quaternary. Additionally, this research will provide a schematic model for beach ridge evolution and claypan development.



Disembodied and Displaced: Investigating the Australia-South Africa Trade in Indigenous Artefacts and Human Remains

Tahlia Stewart, *University of Western Australia*

Iziko Museums of South Africa hold six Indigenous Australian crania accessioned between 1908–1916. These remains are partial, badly-provenanced and represent a three-fold conundrum. First, how were they collected and via which circuits did they reach South Africa? Secondly, how may archaeology contribute toward finding the communities to whom these people belong? Thirdly, how can these people not only be repatriated, but also rehumanised? What I suggest is that trade in Indigenous artefacts and human remains between Southern Hemisphere extensions of the British Empire, was much larger than has previously been acknowledged. McGregor Museum of Kimberley, South Africa holds two more Indigenous Australian crania, for which it may have traded an Indigenous South African. My research has uncovered instances additional to these through contact with Australian-based institutions, such as Museum Victoria and the West and South Australian Museums. To provide context to the ‘Iziko six’, I perform archival research of museum records, genealogical databases and relative historical records to identify likely areas of collection via the biographies of key private collectors. This is the least physically invasive research. Non-contact, physical anthropological and lithic analysis also offer worthwhile avenues in determining provenance. Subject to proper consultation with relevant Indigenous and government bodies, these modes of analysis and other scientific archaeological techniques may be useful identification tools for repatriation purposes. Finally, I use the ‘Iziko six’ to investigate both how to repatriate, but especially

how to rehumanise partial and badly provenanced people. Initial indications are that the south-south trade was significant enough to merit further research and especially establishing where such displaced persons are currently held. This will help ensure that Australia continues contributing to cultural restitution and rectifying nineteenth and twentieth century colonial excesses.



Young Archaeologists’ Program: A School Engagement Initiative at La Trobe University

Andrew Stocker, *La Trobe University*
 Susan Lawrence, *La Trobe University*
 Thea Kinsela, *La Trobe University*

In 2013 La Trobe University launched the Young Archaeologists’ Program (YAP), an education initiative aimed at introducing archaeology to primary and secondary school students. All YAP activities are designed to address particular topics in the Australian Curriculum: History and AusVELS (Victorian Education Learning Standards). The YAP draws on a combination of qualified teachers and undergraduate Education and Archaeology student volunteers for its delivery. Initially, the activities on offer targeted historical Australian topics specified in the Australian Curriculum: History, with new units on Aboriginal archaeology being developed in collaboration with Traditional Owner groups. Structured using a cross-disciplinary and enquiry learning approach, YAP activities directly address history topics and units of study from both the primary and secondary school curricula, such as the goldrush, life in Melbourne, and community/local histories. Students draw on skills from other relevant disciplines, such as maths, science and English, to respond to archaeology enquiry questions. The on-campus setting in the La Trobe Wildlife Sanctuary also presents an ideal opportunity to engage with issues of environment and sustainability, in addition to conventional archaeological narratives. In identifying clear links between the disciplines, and particularly between history and archaeology, the YAP aims to create opportunities for students to participate in and gain an appreciation for a variety of historical narratives and perspectives as well as to engage in rich cross-cultural exchange that they may not otherwise experience.



A Vast Land in Need of Improvement

Iain Stuart, *JCIS Consultants*

This paper discusses the concept of improvement – in a landscape concept this us the bringing of ‘waste’

land into cultivation and occupation, as an agent of landscape change and/or creation. The paper traces how the ideology of improving was the underpinning of the various Land Acts and regulations in Australia (but using New South Wales examples) which required land to be improved to a certain value as a condition of ownership or occupancy. Improvements included the obvious items such as dwellings, sheds, woodsheds and yards as well as clearing and ring-barking which acted to transform the landscape and create familiar settlement patterns. The paper outlines the ideology of improvement, demonstrates how it was embedded in statutory controls and how it was implemented using an example from my work on the Cuppacumbalong squatting run near Canberra. The paper comments on questions of unintentional consequences of improving as well as concluding on the value of understanding the impact of improvement at a local level of analysis.



Stage 2 Geophysical and Anthropological Investigations at the Mapoon Mission Cemetery, Queensland

Mary-Jean Sutton, *Virtus Heritage*
Lawrence Conyers, *University of Denver*
Chester P. Walker, *Archaeo-Geophysical Associates, LLC*
Ian Moffat, *Precipice Training*
Julian Travaglia, *Virtus Heritage*
William Busch, *Mapoon Interim Land and Sea Advisory Committee*

The Mapoon Mission Cemetery at Cullen Point is historically believed to be established by the Moravian missionaries in 1891 as part of Mapoon Mission. Mapoon is located in western Cape York, Queensland, approximately 100km north of Weipa. European-style headstones and crosses adorn a small number of the known graves with local Aboriginal Elders of Mapoon advising that the small piles of coral and shell scattered throughout the cemetery were also likely grave markers. Preliminary geophysical investigations of the Mapoon Mission Cemetery in December 2010 (Sutton and Conyers et al. 2013) lead to the identification of a much greater area of unmarked graves identified than remembered in living memory in the cemetery, with potential mission time burials and pre-contact interments. This poster presents the results of a second stage of more detailed geophysical and anthropological investigations of the Mapoon Mission Cemetery led by Conyers, Sutton and team in collaboration with Mr William Busch, Chairperson, Mapoon Interim Land and Sea Advisory Committee and Elder, Mapoon, Mapoon Elders, Mapoon Aboriginal Shire Council and Mapoon Land and Sea Rangers. These results include the

identification of 105 previously unidentified burials and the significance of the Mapoon Mission Cemetery as one of the few intact burial grounds in Cape York with Indigenous burials dating to pre-contact to the twentieth century. This poster also presents the aspirations of Mapoon Elders for the construction of a memorial at the Mapoon Mission Cemetery incorporating its cultural and historical mission time values. The Mapoon Aboriginal Shire Council managed the Cemetery project and GPR investigations utilising funding from the Northern Sub-Regional Trust, Western Cape Communities Trust.



Climate and Culture Change: ENSO Modelling of the South Papuan Cultural Sequence

Nick Sutton, *University of Otago*
Glenn Summerhayes, *University of Otago*
Anne Ford, *University of Otago*

The south Papuan coast has seen a rapid transition in cultural changes during the late Holocene. Colonisation by the Austronesian-speaking Lapita people almost 3000 years ago is the earliest evidence of ceramic-producing people in the region. Subsequent cultural development in the region led to highly-specialised ethnographic exchange systems along the Papuan coast, such as the Motu hiri trade. A poorly understood period during the sequence is the so-called 'Papuan Hiccup' (c.750 AD–1150 AD), during which a series of abrupt, regionalised socio-economic changes occurred along the entire coast. The Papuan Hiccup separates the 'early ceramic period', in which the Lapita-derived Early Papuan Pottery (EPP) tradition is found at sites right across the region, and the more recent phase of localised and separate ceramic sequences associated with long-distance trading voyages. A correspondence between its timing and a period of peak El Niño-Southern Oscillation (ENSO) activity suggests that perhaps there is a link between cultural and climate change along the south Papuan coast. This paper will explore this relationship further, through an examination of changes in the occupation history at the site of Taurama, a prehistoric coastal village site located 21km southeast of Port Moresby that was occupied both prior to and after the Papuan Hiccup. Changes in the lithic technology, including access to raw material sources and technological organisation, have been mapped using the methodological approaches of chemical characterisation (portable X-ray Fluorescence; pXRF) and technological analysis. The results of the analysis suggest that peaks in ENSO frequency during the last 2000 years are discernable at Taurama and the nature of the data corroborates previous hypotheses and data from south Papua.



pXRF Sourcing of Obsidian Artefacts from Apalo, Arawe Islands, Papua New Guinea

Phillip Sutton, *University of Sydney*

This study makes use of the significant methodological and practical advantages of Portable X-ray Fluorescence spectrometry (pXRF) to comprehensively determine the geological provenance of the obsidian artefact assemblage from Apalo (FOJ), a coastal stilt village site located in the Arawe Islands, West New Britain, Papua New Guinea. The assemblage has previously been partly characterised using the PIXE-PIGME technique (Summerhayes 2010). By increasing the sample size analysed, this study has been able to significantly improve the chronological resolution of obsidian sourcing patterns in the Arawes, as well as correlate changes in provenance with diachronic variability in other site data, including subtle trends in the morphological attributes of the assemblage. This has also allowed the exploration of links between the character of long-distance lithic exchange networks in Melanesia over time and major cultural and environmental changes, such as volcanic activity, the Pleistocene/Holocene transition and the emergence of the Lapita Cultural Complex.



Keeping Pace with Rapidly Changing Landscapes: The Pleistocene/Holocene Sequence from Leang Pasaung, Maros, Sulawesi

Kat Szabó, *University of Wollongong*
Kira Westaway, *Macquarie University*
Michael Morwood, *University of Wollongong*
Budianto Hakim, *Balai Arkeologi Makassar*

Excavations from 2003–2007 in a rockshelter named Leang Pasaung ('Cock Fighting Cave') at the base of a limestone tower karst in the Maros region, south Sulawesi, uncovered a Pleistocene/Holocene archaeological sequence spanning over 60ka. Stone artefacts, vertebrate and invertebrate faunal remains were found throughout the sequence. While there are the expected transformations in local habitats and faunas at the transition from the Pleistocene to the Holocene, Leang Pasaung is remarkable in revealing a fine-grained record of Holocene changes. Moving past the omnibus ecological terms of 'mangrove' and 'marine', we consider here the multiplicity of habitats covered by these terms, and how the occupants of Leang Pasaung transformed their economies in periods of rapid environmental change.

T



Changing Depictions of Women and Power in Arnhem Land Rock Art

Paul Taçon, *Griffith University*
Ronald Lamilami, *Namunidjbuk Estate Pty Ltd*

In world rock art, depictions of men are a common research focus and the theme of hunting has long haunted interpretation. Early Arnhem Land rock art of the Dynamic Figure style is dominated by paintings of men but in recent styles it is the reverse with paintings of women common. In the contact period, new internal hatch and cross-hatch designs were added to paintings, with some on women interpreted as depictions of sarongs obtained through trade from visiting Macassan sailors. We challenge this, arguing instead for a more parsimonious view grounded in Aboriginal ethnography. This new interpretation focuses on fertility, female Ancestral Beings and changing power relations before and during the Asian/European contact period as evidenced by archaeology, history and ethnography.



Valuable and Vulnerable: A Research and Awareness Strategy for the Future of Rock Art

Paul Taçon, *Griffith University*
Sharon Sullivan, *Sullivan Blazejowski and Associates*
Nicholas Hull, *Australian National University*,
Melissa Marshall, *Australian National University*

Undeniably one of the world's greatest treasures, rock art sites contain some of the most important expressions of the human mind. These are special, often spectacular places that reflect past experience, identity, history, spirituality and relationships to land. Rock art consists of paintings, drawings, stencils, prints, engravings (petroglyphs), bas-relief and beeswax figures. It is found in caves and rockshelters, on rock platforms and boulders. One of the most significant aspects of rock art is that it is fixed in place – an enduring feature of significant cultural landscapes. However, many sites are increasingly under threat from natural forces and human interference. Industrial and urban development has long impacted rock art sites and continues at a quickening pace. Graffiti and vandalism are a growing problem and now climate change is taking a toll. Even well-intended tourism is damaging some sites. Throughout Australia there are tens of thousands of known sites and many unrecorded sites are located each year. How do we protect and manage these places so that future generations may also enjoy and

learn from them? How do we address the concerns of Indigenous Australians? In August 2014, a group of rock art conservation, management and tourism specialists were brought together with Indigenous Australians by the Getty Conservation Institute in Kakadu National Park to share knowledge and experience relating to these issues. A strategy to assist in the ongoing protection and preservation of rock art sites as part of a holistic programme within living cultural landscapes has been developed. This poster illustrates the resulting strategy and identifies key principles to guide conservation efforts globally in the future.



Rediscovering the Chinese Settlements in the Upper Ovens

Diann Talbot, *Bright and District Historical Society*

The Chinese started arriving on the Upper Ovens Goldfield, in northeast Victoria, in 1855. The majority were gold-seekers who were industrious and worked in highly-organised groups, and most settled in government-designated areas referred to as 'Chinese Camps'. A small percentage of the Chinese were merchants and artisans who were quick to establish their business houses within these settlements. The Chinese population for the Beechworth district, which included the Upper Ovens, peaked at just over 7000 in 1863. Some of these settlements were abandoned after a few years but others became thriving communities that were still a functioning in the early 1900s albeit now in a state of decay, serving as a sad refuge for the old and frail men who were the last surviving remnants of their race. There are at least 10 known settlement sites in the Upper Ovens most of which now present as significant, unexamined archaeological sites. Talbot (2004) has undertaken comprehensive historical research but, other than a geophysical survey of the Buckland Cemetery (Links and Lawrence 2004) and some site mapping (Swift 2009), none have been the subject of an archaeological survey. Various artefacts have found their way into local museums and private collections. This paper details the circumstances surrounding the establishment of many of these settlements documents many of the artefacts recovered from various sites and, in the process, provides an insight into the region's archaeological resources.



Understanding Shellfish Exploitation at Lapita Sites from Caution Bay, Papua New Guinea: Wider Implications and a Model for Change

Eddie Thangavelu, *University of Southern Queensland*
Bryce Barker, *University of Southern Queensland*
Bruno David, *Monash University*
Ian McNiven, *Monash University*
Helene Tomkins, *James Cook University*
Sean Ulm, *James Cook University*
Brit Asmussen, *Queensland Museum*
Patrick Faulkner, *University of Sydney*

Different models explaining spatial and temporal changes in relation to the movement and colonisation of the Lapita culture complex have been proposed for different regions throughout Melanesia and the Pacific. At Caution Bay, on the southern coast of Papua New Guinea (PNG), excavations of Lapita sites accompanied by rich faunal assemblages (McNiven et al. 2011) provides a unique opportunity to document changes in the archaeological record for this area. The aim of this paper is to investigate the exploitation of shellfish and its use spanning the three major occupational periods comprising of pre-Lapita, Lapita and post-Lapita horizons in order to understand the impacts of migration by Lapita peoples on natural mollusc resources. In turn, changes in mollusc resource-use, especially in levels of exploitation, range of targeted species and use of shell artefacts will be discussed together with important environmental changes so as to analyse the impact of this incoming migration and also understand how/why molluscs were exploited after this event. Unlike other known areas in the Pacific where Lapita colonisation has been characterised as having a 'founder' effect, the unique 'contact' scenario at Caution Bay with the presence of people before the arrival of Lapita culture allows for an in-depth investigation into the complexity of this 'contact' scenario as evidenced from shellfish assemblages from three sites. Understanding 'change' using mollusc remains in Lapita contexts is particularly important since majority of attention is often focused on the highly-distinctive Lapita ceramics, in particular stylistic changes over time. This paper will present final results from PhD research undertaken on these shellfish assemblages by discussing key changes in relation to all three major occupational sequences, the environment and 'contact' between two groups of people and what this means for wider archaeological implications for pre-European occupation of the southern coast of PNG.



Ancestral Remains: Return to Country: Sharing Responsibilities

Jamie Thomas, Museum Victoria

Museum Victoria has a good track record having repatriated over 2000 ancestral remains to Indigenous communities in Australia and overseas since the mid-1980s, and while this work continues, it remains an area of contention with Aboriginal communities. At the same time, the capacity of communities to take full responsibility and rebury their ancestors on country has been somewhat fraught and continues to be. In the past 18 months in my role as the Senior Project Officer, Repatriation and Community Engagement, a particular focus has been on trying to unravel what is happening out in Aboriginal communities in Victoria and what is getting in the way of returning home those last 374 ancestors who are still at the museum. A major issue has been the lack of understanding of processes within Museum Victoria, but more importantly confusion and lack of clarity and overlapping responsibilities of various agencies in this arena. Further the changes brought about by the *Aboriginal Heritage Act 2006* that established Registered Aboriginal Parties in Victoria as well as the determinations around Native Title in Victoria have thrown up new challenges in terms of who is responsible for country and so who will take these ancestors home. An important shift however in this somewhat complex process has been to shift repatriation away from what is essentially a political dialogue to one that deals with healing and taking responsibility for these Old People into the future. Another major issue is also where to rebury these Old People to ensure as much as possible that they will not be unnecessarily disturbed again and be at rest for many generations to come. In this paper I will discuss how the museum is seeking to work together with communities and other relevant government agencies to ensure that decisions made now can ensure that.



Gender and Agency: Organising Principles in the Interpretation of the Archaeological Record in Coastal and Island Regions of Melanesia

Karen Thornton, James Cook University
Matthew Leavesley, James Cook University
Sean Ulm, James Cook University
Geraldine Mate, Queensland Museum / James Cook University

The aim of this study is to investigate the complexity of gender and agency within the archaeology of time and space. Archaeologists and anthropologists have long-explored the concepts of social structure in past

societies. However, there remain serious limitations and gaps within the gendered landscape of men and women. Consequently, this has affected our understanding of people in the past and how the division of labour may have been organised between men and women in terms of gendered relations, sex, economies, power and prestige. Within the coastal and island regions of Melanesia this paper explores the notion of gender and power and how it is expressed between men and women. Through the process of trade and gift exchange objects pass from person-to-person. This process negotiates gendered roles and social behaviour within the fluid nature of exchange as men give meaning to women and women give meaning to men.



Community Specialisation and Production at Moondarra, Northwestern Queensland

Kevin Tibbett, GTK Heritage Services

A model is advanced suggesting that two types of raw material procurement operated simultaneously, at Moondarra in northwestern Queensland from the late Holocene. Embedded procurement for subsistence is clearly demonstrated in the hunter-gatherer tool kit at Moondarra (see Binford 1979). In addition, it is argued that a specialised procurement system for exchange also operated. It is also suggested that specialisation and standardisation were present to achieve collective or group economic benefit in obtaining both social and utilitarian items. This paper relates to specialised stone axe and drug production as a method of obtaining short-term economic and social gain, and as a long-term risk-minimisation strategy to limit the effects of stress during times of severe drought.



Quantifying Hunter-Gatherer Impacts on Marine Resources: A Zooarchaeological Case Study from the South Wellesley Islands

Helene Tomkins, James Cook University
Sean Ulm, James Cook University

Globally there is growing interest in the role that humans have played in altering habitats and contributing to the extinction of animals and plants, particularly in island settings that tend to be more ecologically sensitive than large continents. Despite marine habitats being actively exploited for millennia there are few reported human-induced extinctions in marine ecosystems, however this may simply reflect the relative invisibility of anthropogenic impacts on fisheries versus terrestrial environments. The recent timing for human settlement of the South Wellesley Islands provides a

unique opportunity to investigate Aboriginal impacts on undisturbed Australian ecosystems against a backdrop of natural environmental change. This research focuses on high-resolution analysis of marine fauna assemblages, using an evolutionary ecology framework. This paper presents the preliminary results investigating archaeomarine fauna found through time at occupation sites spanning up to 1500 years. Results are considered in the contexts of broader changes in Aboriginal lifeways in Northern Australia during the late Holocene. Preliminary analyses identify evidence for human subsistence strategies, in particular the diversity and range of marine species exploited (diet breadth) and patterns of habitat exploitation through time. Temporal changes in the biomass contribution and population structure of particular species are characterised through development of taxa size/age profiles (resource depression). This approach identifies, for example, declining efficiencies in marine exploitation and human harvest pressure on resources.



Attacking Entrenched Biases: Challenges for Archaeological Science in Melanesia

Robin Torrence, *Australian Museum*

A key challenge for Melanesian archaeology is to overcome long-entrenched biases that underpin the scarcity of creative research effort. Ever since Captain Cook visited the Pacific, the region later called Melanesia has been conceived as a backwater, particularly when compared to Polynesia. Sahlins' highly influential paper contrasting the Big Men of Melanesia with the chiefs of Polynesia helped consolidate the way prehistory has been conceptualised and practiced in the two regions. These views were cemented and accentuated by Jared Diamond's influential book *Guns, Germs and Steel*. Creative voyagers with dynamic, complex societies in Polynesia vs stable, uninventive, egalitarian groups in Melanesia. Consequently, discoveries of significant innovations like long-distance transport of goods, plants and animals, early cultivation and domestication, stone monuments etc in Papua New Guinea have been downplayed in favour of ceramic technology and decoration, assumed to have been brought by more clever immigrants from the west passing through enroute to better places. To overcome limitations in the way human history is conceived and researched in the Pacific and more widely, this paper proposes major shifts towards new questions and explores the developments in the archaeological science demanded by them.



Is that a New Headdress you're Wearing? Exploring Stylistic Transitions in the Rock Art Assemblage of the Northwest Kimberley and the Varying Contexts of Rock Art Production

Meg Travers, *University of New England*
June Ross, *University of New England*

The rock art sequence of the northwest Kimberley, inferred from studies of superimpositions and relative weathering, shows that there have been associated changes in stylistic conventions, subject matter, context of production and function through time. Previously, it has been posited that such changes within the art assemblage were often abrupt, and associated with periods of stylistic discontinuity. Such an argument has implications for the cultural context of the art, as any disruption in the rock art record would assumedly be associated with disruption in the cultural sequence. This presentation provides new evidence to counter this argument. Based on an analysis of over 3000 anthropomorphic figures, this presentation discusses new evidence for transitional rather than abrupt changes within the art assemblage, implying cultural continuity from the Gwion Period through to the modern Wanjinia Period. Furthermore, the clinal variations in the art assemblage have been set against a backdrop of social, economic, environmental and climatological change in order to discuss how the people of the northwest Kimberley inscribed the land with rock art at different times with different purposes, and ultimately, the factors likely to be driving such changes,



Ancient Copper Mining in Upland Laos: A Study into Iron Age Mining in a Tropical Environment

Antonino Tucci, *James Cook University*
Nigel Chang, *James Cook University*
Thongsa Sayavongkhamdy, *Department of National Heritage, Lao PDR*
Viengkeo Souksavatdy, *Department of National Heritage, Lao PDR*
Samlane Luangaphay, *Department of National Heritage, Lao PDR*
Thonglith Luangkho, *Department of National Heritage, Lao PDR*

In early 2009 the remains of wooden structures supporting ancient mining shafts were discovered during modern-day industrial copper mining in Savannakhet Province, Laos. Subsequent 'rapid-response' archaeological excavations within the Khanong A2 mining pit revealed over 130 tightly-clustered vertical shafts measuring between 1.5m and 2.5m in diameter,

and dating to around 2000 BP. In 2012 another nearby ancient mining site was discovered at Tengkhamb South D which displayed many similar qualities to the Khanong site. Other sites have also been previously uncovered in the area comprising of both burial and smelting sites, known as Dragon Field and Peun Baolo (2008). This poster examines these sites, and the data gathered from subsequent excavations in later years, within the context of human interactions with the environment. What has been revealed through these excavations is an interesting insight into how upland communities engaged in mining practices in especially mountainous environments. Further research is still needed to better understand the society that created these structures; however these sites do provide some insight into how the environment might have impacted how these activities were conducted. Several possibilities are presented in this poster including seasonal mining within smaller upland communities along with post-state societies that were seeking to maintain distance from state institutions. While further excavations are still ongoing these sites have so far revealed fascinating insight into upland copper mining in remote mountainous tropical environments.



Exploitation of Noxious Tree Nuts as an Aboriginal Subsistence Strategy in Queensland's Wet Tropics

Anna Tuechler, *Ochre Imprints*

Åsa Ferrier, *La Trobe University*

Richard Cosgrove, *La Trobe University*

The archaeological and historical records from Queensland's Wet Tropics region suggest a major focus of the Aboriginal rainforest economy was the collection and processing of a number of noxious tree nuts. Archaeologically, tree nut exploitation on the Atherton Tablelands has an antiquity of at least 1500 years. Previous research suggests that the focus of tree nut exploitation was on the extraction of carbohydrates, it is however of some considerable interest that unprocessed samples of these nut species contain a high percentage of indigestible starch. In an investigation into rainforest Aboriginal diets in the Wet Tropics region, experiments and chemical analyses were performed on modern samples of the yellow walnut (*Beilschmiedia bancroftii*), black walnut (*Endiandra palmerstonii*), black pine nut (*Sundacarpus amara*) and the black bean (*Castanospermum australe*) as part of Tuechler's honours research. These tree nuts were examined in terms of their energy values and potential dietary benefits through replication experiments, following traditional Aboriginal processing techniques. The results suggest that in Australia's tropical rainforest region, the processing of tree nuts was a high energy – high

return subsistence strategy. From this, we propose that despite the relatively high-energy input required for their preparation, they would have provided an important and reliable source of starchy food within a varied rainforest diet. In this talk, we present the results for two of the species; the yellow walnut and the black bean. The findings support a previous proposal made that noxious rainforest nuts may have played a significant role in the late Holocene permanent settlement of the rainforest region and in the development of a unique Aboriginal rainforest culture recorded at the time of Aboriginal-European contact.



A View from the Temperate Zone: The Browns Creek Community Archaeology Project

Jacqueline Turney, *La Trobe University*

Ilya Berelov, *Biosis Pty Ltd*

Andy Herries, *La Trobe University*

Ron Arnold, *Gadubanud and Gulidjan Traditional Owner Group*

Steven Falconer, *La Trobe University*

Pat Fall, *La Trobe University*

Libby Riches, *Southern Otway Landcare Network*

Kasey Robb, *Biosis Pty Ltd*

Martin Lawler, *Biosis Pty Ltd*

Tya Lovett, *Office of Aboriginal Affairs Victoria*

Christine Keogh, *Office of Aboriginal Affairs Victoria*

Jillian Garvey, *La Trobe University*

Emmy Frost, *La Trobe University*

The Browns Creek Shell Midden is an intact, stratified archaeological deposit located near Apollo Bay, approximately 200km southwest of Melbourne. The extensive midden contains a broad range of faunal and artefactual material, yielding important information on subsistence strategies. Preliminary findings indicate a continuous occupation sequence spanning some 1000 years up to the contact period. This project represents collaboration between industry, academia and Traditional Owners and was initiated by the Traditional Owners in order to explore the research potential of the site and further enhance the understanding of the Aboriginal cultural values of the place in a regional context. The excavations have provided an opportunity for Traditional Owners and university students to experience different methods of excavation and recording, and the excavated material is presently the subject of an Honours project. The site has also provided an opportunity for the testing of archaeomagnetic methods on the Victorian coast, and for the comparison of radiocarbon dating of different materials.



Mapping Nineteenth Century Goldfields

Jodi Turnbull, *La Trobe University*
Susan Lawrence, *La Trobe University*
Peter Davies, *La Trobe University*

The goldfields of Victoria are heavily-modified landscapes that bear little resemblance to their pre-European condition, having had millions of tons of soil removed and redeposited in creeks and rivers. Officials mapped the goldfields of Victoria, often with great accuracy, for administrative and economic purposes. At the Public Records Office Victoria (PROV), many of these nineteenth century maps survive, still bearing the mud of the goldfields. These archives, used in combination with modern technology such as LiDAR and Geographic Information Systems (GIS), provide detailed information for archaeologists to assist in interpreting gold mining landscapes and have implications for interpreting Aboriginal landscapes.



Labour Relations and Landscape: Slave Built Agricultural Retaining Walls on the Quill, St. Eustatius

David Tutchener, *Flinders University*

In 1732, at the height of the slave trade on St. Eustatius in the Caribbean, the Dutch shipped more than 2700 people from Africa, making the island integral to the Second West India Trading Company's influence in the Caribbean. This site consists of a series of 10 dry built stonewalls that run down a large valley on the side of the Quill (602m in height) which is a dormant volcano located within a National Park of the same name. The walls were built either to assist in the minimisation of erosion or flood damage to plantations below. There are a number of these walls scattered over the Quill, all in various states of decay. This site is significant within an island-wide landscape context in that it demonstrates the interaction of plantation culture and labour relations with the environment and the deep impact that slavery had on the small island of St. Eustatius. Within the context of slavery, these retaining walls demonstrate a political purpose, as they are clear extensions of colonial power. This site was selected due to its unique location on a very steep volcanic hillside, its aesthetic appeal, and its structural integrity. Many if not most of the stonewalls that exist on the island of St. Eustatius were constructed during the plantation era utilising slave labour. At the time of this publication very few of these walls have been systematically surveyed and recorded. Much of the previous work on slave built heritage on St. Eustatius has focused on the main living areas of plantations and in particular slave houses within this environment.



High-Resolution Scleroisotope Analysis: Preliminary Stable Isotope Values from the South Wellesley Islands, Gulf of Carpentaria

Robin Twaddle, *James Cook University*
Sean Ulm, *James Cook University*
Christopher Wurster, *James Cook University*
Jane Hinton, *University of Queensland*
Michael Bird, *James Cook University*

Detailed understandings of local environmental conditions and their impact on growth and isotopic fractionation in constituent molluscan taxa are required to accurately contextualise archaeological results. Molluscs have long been recognised as sensitive recorders of local environmental conditions. Aspects of the environment, including temperature and water constitution, imprint a chemical signal within the shell matrix. Archaeologists use stable oxygen and carbon isotope profiles derived from archaeological shellfish assemblages to address questions related to palaeoenvironments, including extending instrumental records, characterising subannual environmental oscillations, and determining the timing and periodicity of resource collection and site-use. This paper reports preliminary findings of research characterising subannual environmental cycles and their effects on extant shellfish taxa from Bentinck Island, southern Gulf of Carpentaria using subannual stable isotope profiles. Distinct shifts in local environmental conditions owing to the Australian Monsoonal Cycle are reflected within observed environmental data and molluscan isotope profiles, suggesting similar patterns will be present within archaeological assemblages from this region. These results form the basis for modern analogues through which archaeological data can be accurately contextualised.

U



Naïve Island Landscapes: Recent Research in the South Wellesley Archipelago, Southern Gulf of Carpentaria

Sean Ulm, *James Cook University*
Lynley Wallis, *Wallis Heritage Consulting*
Patrick Moss, *University of Queensland*
Craig Sloss, *Queensland University of Technology*
Daniel Rosendahl, *Willandra Lakes Region World Heritage Area / James Cook University*

The recent creation and colonisation of the South Wellesley Islands provides a useful opportunity to

investigate cultural and environmental change on undisturbed Australian ecosystems against a backdrop of natural environmental change. This paper overviews results of multidisciplinary research in archaeology, history, material culture studies, archaeology, palaeoecology, geomorphology and palaeoclimatology to identify the impacts and trajectories of human arrivals on the islands of the Wellesley archipelago in the southern Gulf of Carpentaria.



Hearing from Bones: The Archaeology of Human Hunting Influence on Dugong Demographics over the Past 1000 Years at Mabuyag, Western Torres Strait

Christopher Urwin, *Monash University*
Ian McNiven, *Monash University*
Lachlan Macquarie, *Monash University*

Dugong hunting has a rich history in Torres Strait, dating to at least 4000 years ago. The traditional fishery remains one of the most significant Indigenous marine mammal harvests in the world, legally enshrined since 1985. Recent times have seen the practise come under fire from zoologists, lawyers and mainstream media, all couching the harvest as cruel and unsustainable. However, a lack of historical dugong population data has significantly hindered any reliable investigation of long-term human impacts on the mammals. This paper adds empirical data to the debate by accessing ancient dugong demographic hunting profiles from Mabuyag Island, western Torres Strait. It was hypothesised that long-term hunting impact would be expressed as decreasing dugong size through time. This hypothesis was tested by investigating chronological changes in the size of dugong ear bones as a proxy for dugong size. Three sites were selected for comparison on the basis of function and chronology – a village site (Goemu) and two ritually-constructed dugong bone mounds (Dabangai Bone Mound and Moegi Sibuy), which span c.1000 years up to 1900 AD. Statistical analysis revealed that ear-bone measurements from each site have complex and varied relationships with their respective chronologies. At Goemu village site, dugong ear-bones increased slightly in size through time, whereas Moegi Sibuy and Dabangai bone mounds both show non-significant relationships between chronology and ear-bone size. Overall, mean ear-bone sizes from the three assemblages provide no support for human-induced predation pressure on dugongs at Mabuyag. Alternatively, these new data support the inference that Mabuyag Islanders practiced sustainable dugong hunting over the 1000 year period prior to European contact.

V



High-Resolution Geoarchaeology: Exploring the Discontinuities in Archaeological Sequences in Northwestern Australia

Dorcas Vannieuwenhuysse, *University of Western Australia*

Human occupation patterns in arid Australia, particularly during the Last Glacial Maximum (LGM), continue to be a major discussion area in Australian archaeology. In order to investigate the discontinuities found in several archaeological sequences in northeastern Australia, a high-resolution geoarchaeological approach using micromorphology was undertaken to better understand site formation processes and found possible explanations for the missing archaeo-stratigraphical records. Examples from the ongoing research will be presented to demonstrate the benefits that a micromorphological analysis can bring to the understanding of an archaeological sequence in terms of site formation processes, palaeoenvironmental signals and anthropogenic signatures within the sediment.



Putting FAIMS to Use on Peru's North Coast

Parker VanValkenburgh, *University of Vermont*
Penny Crook, *La Trobe University*
Adela Sobotkova, *University of New South Wales*

In 2014, the Proyecto Arqueológico Zaña Colonial worked with Federated Archaeological Information Management System (FAIMS) project to develop a customised module for paperless recording of excavation data at two adjacent maritime sites in Peru's north coast region, where our research has focused on understanding the effects of Spanish colonial period forced resettlement on indigenous domestic life. Challenging field conditions including security concerns, as well as difficulty installing the FAIMS server on our available hardware, led us to opt for syncing tablets to the fedarch.org cloud server, rather than bringing a server to the field. We also continued to use paper and pencil for recording for illustrations and some note-taking. Initial results suggest, however, that FAIMS has greatly improved both the richness and integrity of our data, while only moderately increasing the time required for recording field data. However, more effective usage in future seasons will require a series of changes in our labour organisation and hardware.



Maritime Research in the Prehistoric Aegean: Australians Working Abroad

Steven John Vasilakis, *University of Sydney*

Twenty years may seem to be a good length of time to reflect on how Australians working abroad have contributed to global studies. In the Mediterranean, for example, there are an increasing number of Australian archaeologists taking part in numerous excavations, regional surveys, and research. At the core of many of these archaeological approaches is the utilisation of a cross-disciplinary fertilisation of knowledge production and dissemination. The three streams of archaeology that have developed in Australia enable Australian archaeologists to make unique contributions to archaeological research overseas. This paper will demonstrate how my own research, exploring for evidence of prehistoric maritime cultural landscapes on the island of Chios in the eastern Aegean, has used anthropological perspectives to tease out seafaring behaviours, experiences, and perspectives to develop a better understanding of past cultural seafaring practices. My research builds on these anthropological methods, as well as, the related streams of Aboriginal archaeology (e.g. Ian McNiven) and Historical archaeology (e.g. Martin Gibbs, Brad Duncan). While these methods have not been adequately employed in the Mediterranean context, I argue, that they provide new insights into past human behaviour and social activity in the region. The application of cross-disciplinary approaches using these three streams of archaeology overseas positions us more towards an association of archaeologists of Australia.



Excavating the *Aboriginal Heritage Act*: A Cross-Disiplinary Investigation of Heritage Protection in Western Australia 1972–2014

Elizabeth Vaughan, *University of Western Australia*

There seems to be a radical shift since the introduction of the Western Australian (WA) Aboriginal Heritage Act (AHA) in 1972, from a mechanism aimed at protecting Aboriginal heritage, to what has been described as a 'statutory mirage' that has the effect of legitimising its destruction. This presentation will report on honours research that aims to investigate the complex factors that have led to the present state of identified heritage management problems in WA, in order to address the need to reconcile differing views within the community on what heritage places are considered worthy of protection in a developing WA which has competing interests for land-use. The WA government is in 2014

considering changes to the AHA, having released the Amendment Bill for public comment in June this year. Therefore this timely investigation is important because of the potential threat of destruction of places and sites that may hold tens of thousands of year's worth of archaeological knowledge and cultural heritage.



Deeply Disturbed: An Investigation of Termite Activity in Modern Sediments

Cassandra Venn, *University of Wollongong*

The stratigraphic integrity of archaeological sites in Australia has been debated for decades. Termites are most frequently at the centre of this debate, although any scientific investigation of their impact on archaeological deposits in Australia has been neglected. The likelihood that termites have had some impact on archaeological deposits in northern Australia is considerable. At least 350 species of termite are found in Australia with more than 150 found in northern Australia. The first step required to determine the extent of their impact on archaeological deposits is an investigation of modern termite nests. This will enable identification of the characteristics of termite-modified deposits through micromorphology and the movement of quartz grains through single grain optically stimulated luminescence (OSL). There have not been any previous studies using single grain OSL to examine grain movement within a modern termite nest. Single grain OSL will allow researchers to quantify the extent of grain movement within deposits and provide more definitive age estimates associated with cultural activity. Micromorphology is a particularly useful method for detecting bioturbation within deposits due to its use of microscopic techniques to identify features and signals that cannot be seen at the macro-scale. These techniques are applied to samples taken from active and abandoned termite mounds and subsurface deposits in an attempt to better understand the impact of termites on the formation of archaeological deposits.

W



Cultural Heritage Management at Brockman 4, Pilbara, Western Australia

Victoria Wade, *Rio Tinto*
Michael Slack, *Scarp Archaeology*

Over recent years Rio Tinto, collaboratively with Puutu Kunti Kurrama and Pinikura Traditional Owners, has been

managing cultural heritage in the vicinity of the Brockman 4 operational mine site. This has involved numerous programmes of survey, site recording, excavation and salvage. A constant challenge faced throughout this process is finding creative and meaningful ways of managing salvaged material, preserving and sharing memories of sites into the future. This poster presents some of the collaborative management strategies employed at Brockman 4, including interpretive artefact and scarred tree displays, latex peels of excavation trench walls and aerial videography.



Northern Origins: Genetic and Archaeological Investigations with the Thankawith Traditional Owners

Thomas Wales, *Griffith University*

Jo Wright, *Griffith University*

Michael Westaway, *Griffith University*

Tim Pietsch, *Griffith University*

Tim Heupink, *Griffith University*

Steve Nichols, *Department of Aboriginal and Torres Strait Islander and Multicultural Affairs / James Cook University*

David Lambert, *Griffith University*

An invitation to investigate the remains of an Aboriginal woman eroding out of a foredune at Duyfken Point has resulted in an expanded project to study the local population history of the Thankawith coastal people in western Cape York. In recent years there has been a suggestion that significant migrations occurred into the north of Australia. This grass roots project, initiated by the Napranam Rangers from Weipa, has significant ramifications for understanding the later population history of northern Australia.



Gilberton Explored and Enthralled

Jacinta Warland, *On Common Ground*

Zuni Drake, *On Common Ground*

GB01, local name 'Mushroom Rock' is a complex of 5 sites with extensive hand stencils and assorted features including motifs, symbols and collective of unique petroglyph panels. The French family knowledge of the sites was handed down from past generations, keeping a promise to the ancestors of the current Ewamian people, to keep the sites safe. The Native Title holders for the area have agreed that the Martel/French families on Gilberton have a legacy of preservation of the sites for future generations. Access to the sites is via a vertical climb of 350m, through a pathway interspersed with evidence

of past use. Artefact scatters, mined rock outcrops and scarred trees mark significant places as the path ascends onto the plateau. Approximately 130m into the area, the pathway leads to a complex of several rockshelters. The largest is GB01 'Mushroom Rock'. This main site holds multiple panels of hands, from juvenile through to the 'big man' hands, with one 1m panel showing no less than 27 individual hand stencils made through the overspray style. The large alcove 3.5m up into the shelter holds the 3.2m length of petroglyphs, with 1cm deep engravings with detailed shaping and unknown symbology. The floor of the shelter is undulating, and has evidence of grinding and alcoves quarried into the wall. An abundance of lithic tools were located through surface investigations. As a result, the archaeological traces preserved in the GB01 site present an unparalleled opportunity to investigate the evidence of past occupation and changing environmental conditions over the past 10,000 years in Ewamian country. Sixty-five metres away from the shelter, a mined outcrop has been located upon a water soak that still produces water at the end of the dry season, which are a part of the complex of 5 sites.



Impact of Cyclone Yasi on the Wreck of the SS Yongala Documented by Comparative Multibeam Bathymetry Analysis

Paddy Waterson, *Department of Environment and Heritage Protection*

Thomas Stieglitz, *James Cook University*

David Wachenfeld, *Triggerfish Images*

Geoff Hewitt, *Geoff Hewitt Archaeologist*

In February 2011 Severe Tropical Cyclone Yasi hit the Queensland coast, with a devastating impact on communities and the environment. The cyclone also had a major impact on many archaeological sites, including the historic shipwreck *SS Yongala*. A grave to the estimated 122 people on board when it was lost, the 110m-long *Yongala* has since become an internationally-renowned dive site, as well as a rare archaeological snapshot of life in the early twentieth century. The force of the cyclone did extensive physical damage to the wreck, which required a multidisciplinary approach to effectively assess the impacts and make recommendations for future management. This process incorporated bathymetric multibeam, dive inspections, underwater photography and comparisons with archival data. Through this process new insights into the *Yongala* were also obtained, with the subsequent potential for improved visitor interpretation.



Holocene Environmental Change for the Surrey Hills Region, Northern Tasmania

Emma Watson, *University of Queensland*
Patrick Moss, *University of Queensland*
Peter McIntosh, *Forest Practices Authority, Tasmania*
Robert Onfray, *University of Queensland*

The Surrey Hills region has been a key location behind the development of the fire-stick farming hypothesis in the 1960s and 1970s, with the theory being developed from ethnographic accounts of the region. This study will discuss a 10,000 year palynological record that has been developed from Yellow Marsh – a sphagnum/heath/buttongrass wetland located within Surrey Hills. Four distinct vegetation patterns have been observed in the record, with a subalpine heath dominating the region during the mid-to-late Holocene, which then transitions to a moorland/heath environment between 6000 to 3000 years ago that is replaced by a eucalypt forest until European arrival ~180 years ago, which sees the development of a more open landscape that characterises the region today. Alterations in fire regimes, as well as increased soil erosion are linked to each vegetation transition and may reflect both climatic and human influences.



Weeds and Settlement in Tropical Queensland

Jan Wegner, *James Cook University*

The presence of weeds indicates landscape disturbance, related to patterns of colonial and later settlement and the cultures involved. Grazing and agricultural practices, gardens, transport, clearing for settlement and cultural origins of settlers determine the distribution and type of weeds to be found in affected landscapes. This study examines the history of a number of weeds as markers of environmental change in tropical Queensland, and the settlement patterns behind them.



Potency of Firearms: Visual Displays of Power and Technology in Western Arnhem Land

Daryl Wesley, *Australian National University*

Firearms are part of the historic period of painted rock art in Arnhem Land. These paintings have been generally discussed in terms of peripheral encounters on the frontier. Firearms form a very recognisable class of contact rock art imagery, like sailing vessels. Firearm paintings present a very strong visual medium that invoke deeply embedded meanings for European and

Indigenous people. The assemblage of Arnhem Land firearm paintings uniquely tracks the trajectory of culture contact and interactions between European colonial and settler societies and Indigenous groups. Historic records provide an account of European and Indigenous contact from 1827 in western Arnhem Land with large amounts of detail on Indigenous people, their life, belief systems, and interactions with European economies. Written evidence regarding the interaction Indigenous people had with firearm technology is subtle. Therefore this study has relied on serendipitous finds captured in photographs to elicit further understanding of the role firearms played in Indigenous society, and why one type of firearm in particular came to be painted across western Arnhem Land. It also required a technological analysis. This distinctive class of painting presents an Indigenous perspective of their participation in the colonial economies of Arnhem Land. Indigenous communities experienced firearms in a variety of ways, progressing from early conflict through to ownership during the buffalo industry. Firearm paintings demonstrate the influence on Indigenous society arising from the introduction of a powerful technological innovation. Firearms could greatly influence Indigenous social organisation and became incorporated into the traditional customary systems as demonstrated in the act of painting them in conventional designs. Finally, firearm paintings reveal Indigenous perceptions of introduced technology and can inform on changes in settlement and mobility and advocates for a model of painting equals ownership.



Establishing a Connection between the Evidence for Occupation and Modern Human Behaviour in Australia: OSL Dating of Kimberley Occupation and Rock Art

Kira Westaway, *Macquarie University*
June Ross, *University of New England*
Michael Morwood, *University of Wollongong*
Mark Moore, *University of New England*

Optically-stimulated luminescence (OSL) dating provides the time since sediments and their associated artefacts and fossils were last exposed to sunlight prior to deposition. Its application to a wide range of materials that contain quartz grains such as rock surfaces and wasp nests means that it can provide the chronological link between the signs of modernity in the rock art and the evidence for occupation in the sediment column. No other dating technique of this age range (100 yrs-200ka) provides this intimate connection between the sedimentary processes and the evidence for human behaviour. In this paper, we demonstrate the use of OSL dating techniques on the rockshelters of northern

Kimberley, Western Australia. OSL dating has proved to be the key to understanding how the geomorphological and geological processes within the rockshelters of northern Kimberley are intimately related to human activity. Furthermore, the OSL dating of the sand sheets within the occupation sites and mud wasp nests over the rock art is critical for understanding the behaviour of the first Australians. This framework is of particular importance as these locations may contain some of the oldest signs of modernity on the continent.



Revising the Taxonomic Status of 'Meganthropus', Sangiran, Indonesia

Michael Westaway, *Griffith University*
Mark Collard, *Simon Fraser University*
Julien Louys, *Australian National University*
Christine Hertler, *Senckenberg Museum*
Susanne Haupt, *Senckenberg Museum*

The 'Meganthropus' specimens from the lower Sangiran Units are amongst the earliest hominin remains in Asia. These fragmentary fossils have been the subject of some controversy and have been attributed to a number of different hominin taxa including *Australopithecus*, *Paranthropus* and *Homo*. The discovery of *Homo floresiensis* raises the strong possibility that pre-erectus hominins were in fact present in Southeast Asia. In this study we consider the palaeoecological context of the 'Meganthropus' specimens during the early Pleistocene, and with a particular focus on the Sangiran 6 specimen, we reassess the taxonomic status against an expanded fossil data set.



Archaeology for Social Change: An Examination of the Relationship between Indigenous Archaeologies and Local Land Management Desires and Aspirations

Isabel Wheeler, *Flinders University*
Mick Morrison, *Flinders University*

Little previous research has explored the intersection between Indigenous archaeologies and cultural heritage management within the context of evolving or established Indigenous land and sea management programmes. This paper presents results of ongoing research that is exploring the potential relationships between 'Indigenous archaeologies' methodologies and community desires and aspirations, drawing on the experiences and views of members of the Alngith community, whose country is near Weipa in western Cape York Peninsula. Building on this material, we consider the role of community archaeology in an Indigenous context, and situate it within a dynamic and politically-contested

domain structured around an enduring colonial legacy. Interviews with Alngith community members reveal their ambitions for greater control over research conducted on their country, including ownership of information, and a desire for a stronger voice in the decision-making processes around how their country is used. Cultural heritage research in this case has the potential to be a powerful mechanism for the assertion of Alngith rights and interests as Traditional Owners in the context of broader land stewardship and co-management aspirations. An 'Indigenous archaeologies' methodology, designed on a local level, has the potential to reorient the archaeological process to support the ambitions and priorities of Indigenous communities.



Late Quaternary Vegetation Change in Gooniyandi Country: Archaeological Wood Charcoal Analysis from Riwi Cave

Rose Whitau, *Australian National University*

Anthracological analysis of wood charcoal excavated from Riwi (Gooniyandi country) has enabled the reconstruction of the site's surrounding woody vegetation in relation to archaeological occupation. Preservation of organic proxies in monsoonal Australia is characteristically poor, and the stability of the ancient landscape limits the creation of depositional archives for analysis. With the exception of archaeobotanical investigations conducted at Carpenter's Gap 1, palaeoenvironmental reconstruction of the Kimberley region has relied largely upon sedimentological analyses, in conjunction with the extrapolation of palynological data from wider Australia. Such studies tend to be of a scale, both temporally and spatially, that defy any direct interpretation with the archaeological record. Wood charcoal, when excavated in direct association with other cultural material, can potentially inform questions surrounding mobility and resource exploitation.



Archaeology, Coerced Labour Control, and the Invisible Institution

Thomas Whitley, *University of Western Australia*

As a discipline which focuses on material culture, archaeology has often had a difficult time dealing with the more abstract concepts of social control and manipulation. Approaches to the understanding of such ideas instead fall to the more ephemeral realm of theory; naturally Foucault (1975) springs immediately to mind. Identifying the material expressions of torture, punishment, discipline, and imprisonment are key factors in addressing the ways in which society exerts

its control over the individual; particularly the non-conformist, the criminal, and the slave. With respect to the spatial expression of coerced labour control, the emphasis has been upon the idea of the 'panopticon' or the mechanism by which the labourer can never know if he or she is being watched, and therefore cannot shirk her/his responsibilities. This may be seen as a direct control mechanism; one in which the social power imbalance is immediately visible and obvious to both parties involved. The panopticon model has limitations, however, and they are proportional to the availability of immediate restraint, observation, and punishment; i.e. viewsheds, physical barriers, and active observers. Another form of coerced labour management, though, is that of information control. This is perhaps more subtle in the visible archaeological landscape, and may be considered an indirect form; as it may be invisible, or unconscious, to one or both parties. By comparing the ways in which coerced labour was managed in a slavery context (at several eighteenth century rice plantations in the southeastern US), in a virtual prison (during the late nineteenth century on Barrow Island, Western Australia), and in a literal prison (at Fremantle Prison between 1852 and 1991), we may yet build an interpretation of the spatial expression of 'invisible' boundaries, their application as tools for manipulating coerced labourers, and the archaeological clues that may point us towards them.



Hopes for an Improved Ethical Archaeological Discipline and the Emergence of Effective Indigenous Heritage Protection in Australia

Sam Wickman Jupurulla

This paper presents a perspective on archaeological practice and Cultural heritage management in Australia, through the eyes of an Aboriginal 'Lore Man' (Wati) who is also a qualified and long practicing archaeologist. It presents the hopes of many of our community's for greater site protection legislation and the need to review archaeological consultancy practice in this country.



The Rock Art of the Chillagoe-Mungana Limestone Belt North Queensland: The Wakaman Perspective

Nicola Winn, *Griffith University*

Carol Chong, *James Cook University*

While the Chillagoe-Mungana limestone belt in north Queensland has been the subject of archaeological investigation for more than 30 years, being the focus of Professor John Campbell, Dr Mireille Mardaga-Campbell and others' excavations and research, little

was known by archaeologists and ethnographers about the Wakaman Aboriginal community whose traditional estate borders the limestone karst towers. Previous archaeological research in the limestone caves and rockshelters of the region lacked Wakaman context and input. Recently, however, the Wakaman people have begun to share their history and traditional knowledge of the area, greatly enhancing the archaeological findings. The rock art of the Chillagoe-Mungana limestone belt has been resurveyed, in collaboration with the Wakaman Traditional Owners, as a part of a new project, finding multiple new sites and additional motifs. This paper details some initial results of this joint research, and it has a dual purpose. First, Wakaman Traditional Owner, Carol Chong (BA in Anthropology JCU), discusses the history of the Wakaman, providing perspective on the significance of the limestone belt to the Wakaman people and their ongoing commitment to the cultural heritage management of their traditional country. Second, the stylistic characteristics of the stencils and painted rock art found in the limestone towers are examined to illustrate the cultural links with the broader Wakaman rock art tradition and the association between particular motifs and Wakaman totems, beliefs and practices. This new research in the Chillagoe area builds on the legacy of Professor Campbell and Dr Mardaga-Campbell's pioneering work in the limestone belt, and the invaluable addition of the Wakaman perspective allows for a more nuanced understanding of the region and its place in the larger socio-cultural context of the semi-arid interior of Queensland.



The Two Tiered Institution: Reform and Labour in Convict Western Australia

Sean Winter, *University of Western Australia*

The implementation of the convict system in 1850 recreated the Western Australian colony as an institutional space. Convicts were incorporated into all levels of society and in the words of the Comptroller General Edmund Henderson 'Western Australia was to be transformed into a gaol', implying that the same treatment would be extended to all convicts throughout the colony. Archaeological research however, shows this to be an oversimplification of the organisation of the system. Rather, the penal system operated on two spatial tiers. The first tier extended a strict institutionally based regime of reform and punishment to a minority of convicts in Fremantle Prison and Perth Gaol. These places were similar to other prisons throughout the Empire and the lives of convicts within them were strictly controlled, lived within regimes that exemplified reform through labour. However, the majority of convicts, released into the regions on ticket-of-leave, were subject to a much

more relaxed second tier of operation. Archaeological analysis of ticket-of-leave depots demonstrates that they were open sites, with limited surveillance structures or systems of reform and punishment. The labour of ticket-of-leave convicts was essential for the colony, but this labour was to be productive rather than reformatory. Once released from Fremantle Prison convicts were considered by the system to be already 'reformed' and essentially on parole. Rather than being subjected to totalising institutional structures, ticket-of-leave men had significant personal agency and freedom.



The Chronology of Riwi, Kimberley

Rachel Wood, *Australian National University*
Zenobia Jacobs, *University of Wollongong*
Jane Balme, *University of Western Australia*
Sue O'Connor, *Australian National University*
Dorcas Vannieuwenhuysse, *University of Western Australia*
Rose Whitau, *Australian National University*

An extensive series of radiocarbon and OSL dates have been obtained from the site of Riwi, south-central Kimberley. Charcoal has been pretreated with both ABA and ABOx-SC methods. Consistency between these two methods suggests that contamination is easily removed and the Pleistocene-aged dates are likely to be accurate. Single grains have been dated with OSL. The results of the two techniques are compared and evaluated within a Bayesian model, demonstrating human occupation at this site from 45ka cal BP.



Exploring Ritual Activity across a Torres Strait 'Men's Meeting Place' through Oral Histories and Lithic Residues

Duncan Wright, *Australian National University*
Birgitta Stephenson, *In The Groove Analysis Pty Ltd / University of Queensland*

This poster presents oral histories and residue analyses for lithics excavated across the Wagedoegam Kod site ('mens meeting place') on Mabuyag, western Torres Strait. Results suggest discrete areas of artefact use including modification of bone, plant-processing and 'symbolic' activities that required treatment of artefacts involving red and yellow ochre. This case study is put within a broader context of late Holocene ceremonial activities observed across western Torres Strait.



Archaeology of a Ceremonial Men's Meeting Area ('kod') on Mabuyag, Torres Strait

Duncan Wright, *Australian National University*
Sean Ulm, *James Cook University*
Paul Taçon, *Griffith University*
Cygnet Repu, *Goemulgaw Kod*
Dimple Bani, *Mabuyag*
Gabriel Bani, *Mabuyag*

In 2013, a team of archaeologists visited a ceremonial mens' meeting area on Mabuyag in western Torres Strait. The aim was to assess rock art, stone arrangements and a dugong bone mound and to provide the Goemulgaw community with information about a site which they considered the earliest site of its kind. This paper presents site survey and excavation results and considers the transition between secular-sacred site use.



Science, Archaeology and the AAA

Nathan Wright, *University of Queensland*
Andrew Fairbairn, *University of Queensland*
Cemre Ustunkaya, *University of Queensland*

Globally, archaeology has increasingly drawn on a range of scientific techniques and approaches to understanding the material past over the last 50 years. Applied by interested scientists from physical, chemical, biological and geological sciences, as well as archaeologists who have taken up specialist expertise in areas of scientific enquiry, science is no longer an add-on to the main game of archaeology. Not strictly derived from the 3A's in this session's title, but perhaps more derived from the world prehistory tradition of Graeme Clarke and his students, Australia's archaeological science community continues to grow in size, diversity and influence. That community is necessarily connected in both theory and practice to the global scientific community and commonly works both at home and overseas, yet has been relatively poorly-represented in past AAA conferences, where conference themes have commonly simply excluded studies of a scientific perspective. This paper argues that the seemingly ambivalent position of archaeological science is in part a reflection of inaccurate anti-science views that are still commonly held in a discipline with a strong attachment to currents of thought in social anthropology. Furthermore, it argues that exclusion of archaeological science approaches from AAA activities leaves the association to represent only certain aspects of archaeological practice and part of its community. Rather than restarting a separate archaeological science conference, it is hoped that, as with more recent conferences, archaeological science contributions are encouraged to allow the AAA to reflect its membership

and more strongly foster these subdisciplinary areas within the mainstream of archaeology rather than outside it.



Was there a Savanna Corridor in Southeast Asia? Evidence from the Stable Carbon Isotope Composition of Cave Guano with Implications for Early Human Dispersal

Christopher Wurster, *James Cook University*
Rifai Hamdi, *State University of Padang*
Jordahna Haig, *James Cook University*
Michael Bird, *James Cook University*

Past environments of equatorial Southeast Asia must have played a critical role in determining the timing and trajectory of early human dispersal into and through the region. However, very few reliable terrestrial records are available with which to contextualise human dispersal events. This circumstance, coupled with a sparse archaeological record and the likelihood that much of the archaeological record is now submerged, means we have an incomplete understanding of the role that geography, climate and environment played in shaping human prehistory in this region. Here, we show using carbon isotope composition of bat guano deposits, that there was substantial rainforest reduction compared with today in peninsular Malaysia and southern Borneo, but that rainforest was maintained in northern Borneo. We conclude there was likely a N-S corridor of open non-forest vegetation, and its existence may have encouraged the rapid dispersal of early humans through the interior of Sundaland and on to Sahul.

Y



Radiocarbon-Dating Plant Residues from Stone Tools by Accelerator Mass Spectrometry: Challenges and Insights

Andrea Yates, *Southern Cross University*
Andrew M. Smith, *Australian Nuclear Science and Technology Organisation*
Fiona Bertuch, *Australian Nuclear Science and Technology Organisation*
Birgit Gehlen, *University of Cologne*
Bernhard Gramsch, *Potsdam Archaeological Museum*
Martin Heinen, *Artemus GmbH*
Anja Scheffers, *Southern Cross University*
Jeffrey Parr, *Southern Cross University*
Alfred Pawlik, *University of the Philippines*
Renaud Joannes-Boyau, *Southern Cross University*

AMS radiocarbon dating of archaeological residues on a carbon microgram scale is a relatively new field in archaeological chronometric research. Successful applications of the method demonstrate its feasibility when working with such small sample sizes, but also reveal challenges and problems arising around contamination. In this paper we present a case study on testing the feasibility of radiocarbon-dating putative adhesive and wooden residues from archaeological stone tools which contain also contaminants. Methods applied include: (1) optical residue interpretation; and (2) experimental designs in which we address contamination by testing the affectivity of removal techniques. Furthermore, we examine how SEM-EDX analyses assists in residue interpretation, conducted as the final step to avoid sample contamination during analyses. Even though this methodological sequence was in general successful in dating some lithic residues within the anticipated age range, difficulties were encountered with other artefacts. We found that the alkaline surfactant Decon 90 is a useful solution for the removal of skin scales and fabric fibre but has limited effect on graphite contamination, introduced by pencil lead. While some artefact residues attained AMS dates which appear effected by modern contaminants, other residue radiocarbon dates were seemingly affected by fossil shell derived from flint stone, plasticizers, graphite or from a fixative substance older than fabrication and use of the artefact. One outcome from this study is that early non-destructive residue identification in the method sequence would guide the choice of residue treatment and improve the reliability of the age determination. Specific sampling protocols, would assist in enhancing residue AMS dating.



A Preliminary Sampling Protocol for Residue Radiocarbon Dating

Andrea Yates, *Southern Cross University*
Andrew M. Smith, *Australian Nuclear Science and Technology Organisation*
Fiona Bertuch, *Australian Nuclear Science and Technology Organisation*
Anja Scheffers, *Southern Cross University*
Renaud Joannes-Boyau, *Southern Cross University*

Radiocarbon dating of microgram residues is a relatively new field in archaeological science, so far limited by analytical protocols and instrumentation. While successful applications using Accelerator Mass Spectrometry (AMS) have demonstrated the potential of the technique on such small samples, the analysis revealed challenges and problems, especially with

contamination. Frequently, the presence of contaminants on the residue sample induces radiocarbon ages offset. Therefore, both residue identifications and contaminant removal protocols are keystone to achieve accurate dating. Along with this consideration, several other important steps in the sampling protocol sequence can influence the results and need to be carefully assessed. A constant improvement of sampling strategies and extracting methods to avoid contaminants compromising AMS dates is essential. Here we propose strategies for artefact handling (e.g. field work and archive) favorable for accurate AMS dating of stone tools residue.

Z



The New Australian History Curriculum: Reconceptualising Australia's Ancient Past

Louise Zarmati, University of Western Sydney

The inclusion of the topic 'Ancient Australia' in the Australian Curriculum: History is causing educators to reconceptualise the teaching of Australian history in schools. The next generation of Australians will learn that the 'history' of Australia began with the arrival of the First Australians around 50,000 years ago, not with the arrival of the First Fleet in 1788. The topic requires a radical change in thinking that challenges the eighteenth century rise-of-civilisations metanarrative of linear progress from nomadic Palaeolithic hunter-gatherers to modern industrial societies. It introduces a more inclusive interpretation of the past that situates Indigenous Australians in a global geographical narrative of human evolution in the temporal context of deep-time. Two problems have emerged for teachers required to teach this new topic. First, 12 and 13 year-olds will need to understand the concept of deep time, question the reliability of written sources, and accept 'archaeologically invisible' artefacts and oral cultural traditions as admissible forms of evidence. How will teachers present such complex knowledge and difficult concepts at an appropriate cognitive level to Year 7 students? Second, practising and pre-service teachers have themselves been schooled in the traditional rise-of-civilisations grand narratives that privilege the Old World civilisations of ancient Egypt, Greece and Rome. How can they access current and accurate information about ancient Aboriginal cultures and archaeology that does not propagate cultural stereotypes and offend Indigenous Australians? In this presentation I will discuss the implications of this reconceptualisation of Australian history, and explore potential opportunities for archaeologists and Traditional Owners to provide accurate and current research about the archaeology

and material culture of ancient Australia to teachers and students.



Women's Presence: Perceptions of Gender in Rock Art Research

Leslie Zubieta Calvert, University of Western Australia

Little is known about the role of Aboriginal women in the creation and use of a substantial component of Australian heritage: Aboriginal rock art. In this paper I explore and suggest some avenues for research by using as a comparison my own experience in south-central Africa, a study which involved working with Indigenous Chewa women and their knowledge on the role that rock paintings had for their girls' rites of passage in the recent past. I will elaborate and discuss the methodological and theoretical framework employed during my research, and the challenges that this kind of study might have in the Australian context of the Kimberley.

Radiocarbon Dating with Accuracy and Precision



BETA

Beta Analytic
Radiocarbon Dating
www.radiocarbon.com

Beta Analytic Provides:

- ISO 17025 accredited measurements
- Quality assurance reports
- Over 30 years of experience

Results in as little as 2-3 days

Australia Brazil China India Japan Korea UK USA



Archaeological Science

Journals from Maney Publishing

Science and Technology of Archaeological Research (STAR)

A new open access journal

www.maneyonline.com/STAR

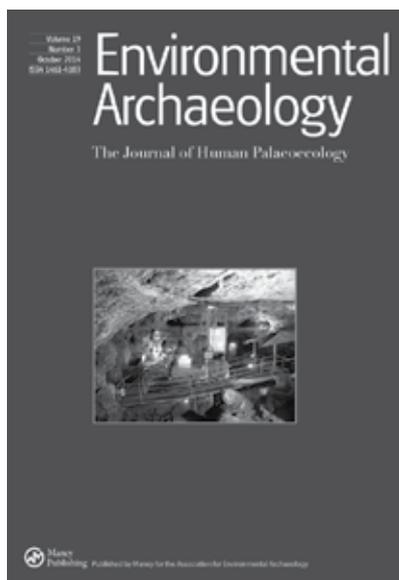
STAR accepts papers utilising any of the array of scientific and computational techniques available to archaeologists.

SUBMISSION NOW OPEN!

Submit your paper at www.edmgr.com/star

Meet the editorial team at

www.maneyonline.com/page/star-editorialboard



Environmental Archaeology:

The Journal of Human Palaeoecology

Volume 20 (2015), 4 issues per year

www.maneyonline.com/env

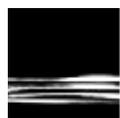
Environmental Archaeology aims to publish contributions on all aspects of environmental archaeology, from methodology to synthesis and theory that consider the interaction between humans and their environment in the archaeological and historical past.

Submit your paper at www.edmgr.com/env

For a full list of the journals we publish visit
www.maneyonline.com/archaeo

www.maneyonline.com/archaeo

Platinum Sponsors



AACAA

CENTRE FOR
ARCHAEOLOGICAL
SCIENCE

CAS

UNIVERSITY OF
WOLLONGONG



TESS
Centre for Tropical
Environmental and
Sustainability Science



JAMES COOK
UNIVERSITY
AUSTRALIA

Gold Sponsors



TERRA ROSA
CULTURAL RESOURCE
MANAGEMENT



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

THE CAIRNS INSTITUTE
Research in tropical societies



URRAGH



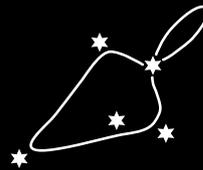
HOST



CONFERENCE PARTNERS



Australian
Archaeological
Association



Australasian
Society for
Historical Archaeology