

# Chacmool at 50: The Past, Present, and Future of Archaeology

## Chacmool conference, November 8-12, 2017



The 2017 Chacmool conference of the University of Calgary Archaeology Association will celebrate 50 years of Calgary's leadership role in Canadian archaeology. Through the years, Chacmool conferences have pushed the boundaries of archaeological method and theory, bringing together renowned international experts in an intimate conference setting with students and emerging scholars. The progressive themes of the conference have helped define the directions taken by the discipline as a whole, while the opportunities to present in an informal gathering has contributed to the launch of innumerable professional careers. Chacmool conferences are unique for the prominent role of both undergraduate and graduate students in the conceptualization and organization of the events, and for the subsequent conference volumes also edited by students.

We propose that the 2017 Chacmool conference combine both a retrospective on past conferences, as well as continuing the tradition of presenting state of the art research on current topics. A special panel will be proposed to look into the future in order to direct the course of innovations in the discipline. These and many other themes will be considered for what we hope will be the best Chacmool ever!

Our email is [Chacmoolconference@ucalgary.ca](mailto:Chacmoolconference@ucalgary.ca) / [Chacmool50.com](http://Chacmool50.com)

### PLENARY SPEAKERS:

Dr. Roland Fletcher (University of Sydney) *Low-density Cities: Past and Future*

Dr. Ian Hodder (Stanford University) *Towards a non-biological human evolutionary theory*

Dr. George Nicholas (Simon Fraser University) *Reconciling Heritage: Doing Archaeology at the Intersection of Indigenous Heritage, Intellectual Property, and Human Rights*

Dr. Joanne Pillsbury (Metropolitan Museum of Art) *Archaeology and the Future of Museums*

### BANQUET KEYNOTE

Dr. Rosemary A. Joyce (University of California, Berkeley) *Responsible Archaeology: Reflections on Practice in the Age of Chacmool*

### PROPOSED SESSIONS:

*Urban Commerce in the Ancient Americas* (Organized by Elizabeth Paris)

*Cross-cultural approaches to costume and identity* (Organized by Sharisse McCafferty)

*The 'Other Grand Challenge': Archaeological Education & Pedagogy in the Next 50 Years* (Organized by Meaghan Peuramaki-Brown and Matt Saunders)

*Central American Archaeology: The Next Generation* (Organized by Adam Benfer and Elisa Fernandez-Leon)

*Recent Investigations at Olduvai Gorge* (Organized by Julien Favreau)

*On the Eve of a Calendar Round Cycle: Reflections and Advancements in Mesoamerican Studies* (Organized by Karen Bassie and Christina Halperin)

*The Legacy of Calgary Archaeology and Chacmool* (Organized by Scott Raymond)

*Not Just Punching Nazis Anymore: Archaeological Activism for the 21<sup>st</sup> Century* (Organized by Jessica Manion)

*The Archaeology of Gender at Thirty-something* (Organized by Robyn Crook)

*Radical Archaeological Theory for the New Millennium* (Organized by Jeremy Cunningham)

*Advances in Biomolecular Archaeology* (Organized by Ana Morales Arce)

*Forerunners, Fantastic Finds, and Future Directions: Cultural Resources Management Yesterday, Today and Forever* (Organized by Laura Nuttall and Elizabeth Robertson)

*The Archaeology of Western Canada* (Organized by Dan Meyer and Dale Walde)

*The Future of Archaeology: How Technology Can Influence a Discipline* (Organized by Kelsey Pennanen and Dr. Peter Dawson)

*Learning from the Ancestors: Collaborative Work in the Management and Repatriation of Archaeological Human Remains* (Organized by Laure Spake and Chelsea Meloche)

Student poster competition for undergraduate and graduate students

## PRELIMINARY SCHEDULE

### Thursday AM

**Dr. Roland Fletcher (University of Sydney)** *Low-density Cities: Past and Future*

**Dr. Ian Hodder (Stanford University)** *Towards a non-biological human evolutionary theory*

**Dr. George Nicholas (Simon Fraser University)** *Reconciling Heritage: Doing Archaeology at the Intersection of Indigenous Heritage, Intellectual Property, and Human Rights*

**Dr. Joanne Pillsbury (Metropolitan Museum of Art)** *Archaeology and the Future of Museums*

### Thursday PM

*On the Eve of a Calendar Round Cycle: Reflections and Advancements in Mesoamerican Studies* (part 1)

*The 'Other Grand Challenge': Archaeological Education & Pedagogy in the Next 50 Years* (part 1)

*Cross-cultural approaches to costume and identity*

**OPENING RECEPTION** (Earth Science Bldg)

### Friday AM

*On the Eve of a Calendar Round Cycle: Reflections and Advancements in Mesoamerican Studies* (part 2)

*The 'Other Grand Challenge': Archaeological Education & Pedagogy in the Next 50 Years* (part 2)

*The Future of Archaeology: How Technology Can Influence a Discipline*

*The Legacy of Calgary Archaeology and Chacmool* (part 1)

### Friday PM

*On the Eve of a Calendar Round Cycle: Reflections and Advancements in Mesoamerican Studies* (part 3)

*Recent Investigations at Olduvai Gorge*

*The Legacy of Calgary Archaeology and Chacmool* (part 2)

*Advances in Biomolecular Archaeology*

**CHACMOOL PARTY** (McCaffertepec)

**Saturday AM**

*Central American Archaeology: The Next Generation* (part 1)

*Urban Commerce in the Ancient Americas*

*Current Archaeological Research in Western Canada* (part 1)

*Çatalhöyük: Then and Now*

**Saturday PM**

*Central American Archaeology: The Next Generation* (part 2)

*Urban Commerce in the Ancient Americas* (workshop)

*Not Just About Punching Nazis Anymore: Archaeological Activism for the 21<sup>st</sup> Century*

*Current Archaeological Research in Western Canada* (part 2)

**CHACMOOL BANQUET**

**Dr. Rosemary A. Joyce (University of California, Berkeley)** *Responsible Archaeology: Reflections on Practice in the Age of Chacmool*

**Sunday AM**

*Forerunners, Fantastic Finds, and Future Directions: Cultural Resources Management Yesterday, Today and Forever* (part 1)

*The Archaeology of Gender at Thirty-something*

*Radical Archaeological Theory for the New Millennium*

*Central American Archaeology: The Next Generation* (part 3)

**Sunday PM**

*Forerunners, Fantastic Finds, and Future Directions: Cultural Resources Management  
Yesterday, Today and Forever* (part 2)

*Learning from the Ancestors: Collaborative Work in the Management and Repatriation of  
Archaeological Human Remains*

*Open*

*Open*

Thursday AM	Plenary papers			
Thursday PM	Maya	Olduvai	Costume	DNA
Friday AM	Maya	Pedagogy	Technology	Legacy
Friday PM	Maya	Pedagogy	WestCan	Legacy
Saturday AM	CenAm	Urban	WestCan	Catalhoyuk
Saturday PM	CenAm	Urban	WestCan	Activism
Sunday AM	CenAm	CRM	Gender	RATS
Sunday PM	Ancestors	CRM	Open	Open

## PLENARY ADDRESSES

**Roland Fletcher** (University of Sydney)

*Low-Density Cities: past and future*

Present-day urban growth is rapidly trending towards gigantic low-density cities. The previous trajectory to large, low-density cities, between the late 1st millennium BCE and the mid 2nd millennium CE, tells a disturbing story for our future. That previous trajectory, led to agrarian-based, dispersed, low-density urbanism in the tropical world with sizes up to 1000 sq km, like Angkor. But this form and scale of urbanism did not survive after the 16th century CE. The long-term story of large, low-density settlements is not an encouraging indicator of the long-term viability of the giant, low-density, industrial-based, urban agglomerates of the 21st century. The diverse histories and economies of the great agrarian, low-density cities of the Maya and the Khmer and perhaps also in Sri Lanka, displayed a vulnerability to severe climate change which is of some concern. These cities, which had cleared their natural landscapes and were dependent on massive material infrastructure, such as great reservoirs, were then hit by periods of extremely unstable climate change that picked out their basic operational vulnerabilities. When these low-density cities ceased to function their entire urban heartland regions, covering thousands of square kilometres, reverted to village-scale life. Low-density urbanism never recovered. Over several centuries, a new network of small, more compact towns re-formed far out on the periphery of the former heartland regions.

Circumstances today are disturbingly similar - extensive landscape modification, dependence on massive infrastructure, huge populations in giant low-density cities and now severe unstable climate change. The example of the old agrarian, low-density cities is of some concern because their economies, socio-political organisation and cultures were very different yet the outcome was similar and terminal. We should beware if the same outcome were to happen to our present-day, giant low-density cities.

**Ian Hodder** (Stanford University)

*Towards a non-biological human evolutionary theory*

In recent decades archaeology has increasingly turned to biological evolutionary theories in an attempt to understand past social dynamics. I argue that this move is unhelpful for two reasons. First, developments within biology such as the Extended Evolutionary Synthesis, have challenged the focus on gene-centered approaches and allowed a greater role for cultural and social processes. Second, human evolution has become directional in ways that are not found in biological evolution. I argue that this human exceptionalism is because of the human entanglement with things. I will outline the ways in which bio-socio-material entanglements can be theorized using a non-teleological framework, and allowing an approach more appropriate to archaeological evidence.

**George Nicholas** (Simon Fraser University)

*Reconciling Heritage: Doing Archaeology at the Intersection of Indigenous Heritage, Intellectual Property, and Human Rights*

When descendant groups are denied direct and meaningful engagement in decision

making, heritage management policies are ineffective at best and harmful at worst. Access to and control over one's own heritage is a basic human right essential to identity, wellbeing and worldview. The historic separation of Indigenous peoples from their heritage not only results in considerable economic and cultural harms, but is arguably a form of violence. Community-based heritage initiatives are capable of challenging colonial structures in the research process without compromising the integrity of archaeology. I discuss opportunities to move heritage research and management in more satisfying ways through a discussion of local and international collaborations developed by the Intellectual Property Issues in Cultural Heritage (IPinCH) Project, which I directed for eight years, and my involvement in the realm of Indigenous Archaeology over the past 25 years.

**Joanne Pillsbury** (Metropolitan Museum of Art)  
*Archaeology and the Future of Museums*

#### **KEYNOTE ADDRESS:**

**Rosemary A. Joyce** (University of California, Berkeley)  
*Responsible Archaeology: Reflections on Practice in the Age of Chacmool*

In *The Languages of Archaeology*, published in 2002, I drew on concepts developed by Mikhail Bakhtin to argue that archaeology should be self-conscious of its inherently dialogic nature. In particular, I drew on Bakhtin's concept of "responsibility" or "answerability", arguing that it pointed to both the responsibility that archaeologists have as they engage with materials created by people no longer present to contradict representations of their lives, and the way that archaeological representations seek affirmation from others, increasingly including others who are not archaeologists but have an interest in the images of the past that we create.

Today, most archaeologists operate self-conscious about such ethical and sociopolitical dimensions of our work. We have the benefit of analyses rooted in indigenous archaeology, decolonizing research, and a host of other engaged perspectives, from queer theory to theories of whiteness to anarchist archaeology. It is a heady time to be talking and thinking about the ways archaeology can be used to create understandings of humans engaged with materials, nonhumans, landscapes, and forces beyond the human.

But it remains necessary for us to be reflective on what has actually changed in our practice, and particularly, in those aspects of practice validated within the academy, in hiring and promotion for tenure-track jobs, in peer-reviewed publications, and even in the kinds of media representations of archaeology that we as a discipline encourage and reward.

As Chac Mool celebrates 50 years of pushing the boundaries of archaeology, it seems timely for me to reflect on the trajectory I have witnessed over my own four decades of practice. Using case studies from the contemporary archaeology of Honduras, I sketch out a trajectory moving toward a fully responsible position as community-engaged scholars, requiring repudiation of the remaining echoes of our disciplinary origins as a colonialist practice dominated by discourses of discovery, and calling for us to fulfill our as-yet unrealized potential to contribute to understanding of the serious impacts humans are having on a planet that will

survive us, and the non-human life it shelters, too much of which may not.

## ORGANIZED SYMPOSIA

### *Urban Commerce in the Ancient Americas*

Organized by Elizabeth Paris

There has been a long-standing recognition in archaeological research that early urban centers played important roles in the development of craft specialization, large-scale exchange networks, and media of exchange. An increasing archaeological interest in pre-industrial urbanism, particularly the development of public spaces, neighborhoods, and social organization, is paralleled by a renewed interest in ancient markets, merchants, and exchange networks. In this session, part of the 50th anniversary of the Chacmool Archaeology Conference, we seek to develop a comparative framework for the analysis of urban commercial institutions in the ancient Americas. How were merchants, marketplaces, crafts, and currencies embedded within the public spaces, market/producer neighborhoods, administrative buildings, and/or households of ancient cities?

We invite session participants to consider the following topics as appropriate to their urban center(s) of study:

How were markets and marketplaces geographically situated with respect to urban centers? Were they associated with permanent public spaces, and where were market spaces located with respect to administrative and residential spaces? Did the market have any sort of administrative facilities associated with it that placed it entirely or partially under political control? Did any sort of "market neighborhood" exist in the spaces adjacent to the market, and if so, what was their socioeconomic composition?

How were currencies and/or media of exchange integrated into particular urban centers? Did any aspect of currency or media production take place at urban centers, and if so, with which residential/administrative/workshop spaces are they associated?

How did early urban commercial institutions either mitigate or exacerbate social differences and inequalities? How were these institutions used to reinforce or subvert regulation of these spaces by political authorities? How were merchants socially positioned within urban centers, and can their activities, facilities and residences be identified within urban centers? Under what conditions do merchants support or undermine the authority of political rulership?

### Session and Working Group - Issue of *World Archaeology*

Instead of the typical conference papers, we propose an electronic symposium format. Papers will be 10 minutes each, given in groups of three or four, and followed by a general discussion for 20 minutes. Authors will be asked to circulate written versions of the papers in advance. Papers will be grouped with others that discuss urban centers within similar regions, and authors will be encouraged to compare patterns in urban commerce with other authors in their group, and to forward a hypothesis regarding regional patterns or trends, if any are apparent. The general discussion will also allow other authors and audience members to respond



to the papers.

We would like to plan for a half-day session of presentations in the morning, and host a working group in the afternoon to develop a Call for Papers and comparative framework for an issue of *World Archaeology*.

Els Barnard (University of Bonn)

*Market Systems and Household Economy: Wealth Distribution at Uxul, Campeche*

Bernadette Cap (University of Texas at San Antonio)

*The Landscape of Classic Maya Marketplaces in the Mopan River Valley, Belize*

Sarah C. Clayton (University of Wisconsin-Madison)

*Contextualizing market economics at Teotihuacan: a consideration of the material evidence for regional and neighborhood-scale exchange*

Scott Hutson (University of Kentucky)

*A Market Is not a Market Is not Market: Incongruous Consumption in Mesoamerican Cities*

Eleanor M. King (Howard University)

*The Marketplace and Merchants at Maax Na, Belize*

Roberto López Bravo (Universidad de Ciencias y Artes de Chiapas)

*Commerce in urban and rural settings at the end of the Late Classic period: a case study in the Palenque polity*

Marilyn Masson (State University of New York, Albany)

*From the bottom up: Rural household economies in the Terminal Classic and Postclassic Periods of northern Yucatan*

Geoffrey McCafferty (University of Calgary)

*Cholula: The Mall of [Meso]america*

Tatsuya Murakami (Tulane University)

*Reconfiguring Market Economy: Dimensions of Exchange and Political Actions in Early Mesoamerican Cities*

Alanna Ossa (SUNY Oswego)

*Comparing the Association of Centers and Commerce in Preclassic and Late Classic Settlements in south-central Veracruz*

Elizabeth H. Paris (University of Calgary) and Roberto Lopez Bravo

*Urban Commerce in the Jovel Valley of Highland Chiapas*

Kathryn Reese-Taylor (University of Calgary) and Armando Anaya Hernández

*Locating peri-urban marketplaces in ancient Maya cities*

### ***Cross-cultural approaches to costume and identity***

Organized by Sharisse and Geoffrey McCafferty

This symposium will consider the role of body adornment and its cultural ramifications. Textile production and exchange, body decoration, jewellery, headdresses, footwear, physical modification, etc. will provide background and will be integrated into a cross cultural web of examples from around the greater Mesoamerican world. Papers from historians, archaeologists, ethnohistorians, art historians, bioarchaeologists, and anthropologists will be welcomed.

- Helen R. Haines (Trent University) and Aaron Shugar  
*Rings on Her Fingers and Bells on Her Toes: Objects of Adornment from Chultun C-1 at Ka'Kabish*
- Christina T. Halperin (Université de Montréal), Zachary X. Hruby (Northern Kentucky University), and Ryan Mongelluzzo (San Diego Mesa College)  
*Wearing Down the Royal Body: Classic Maya Jade Ornaments*
- Sharisse McCafferty and Geoffrey McCafferty (University of Calgary)  
*Puttin' on the Glitz: Costume and Ornamentation from Pacific Nicaragua*
- Virginia Miller (University of Illinois, Chicago) and Ruben Maldonado  
*What the Chacmool Wore: Deciphering an Enigmatic Mesoamerican Stone Sculpture*
- Karen O'Day (University of Wisconsin-Eau Claire)  
*Caniniform Pendants of Greater Central America & Mesoamerica*
- Lisa Overholtzer (McGill University)  
*Spinning and Weaving Time: Women's Cloth Production in Aztec and Colonial Central Mexico*
- Stacy B. Schaefer (California State University, Chico)  
*The Threads of Life: Huichol Indian Textiles Over Time*
- Cara Grace Tremain (University of Calgary)  
*Ancient Maya Fashion Faux Pas*
- Laura Wingfield (Nasher Museum of Art, Duke University)  
*Lenca Costume in Honduran and El Salvadoran Art: In Between Mesoamerican and Chibchan Cultures*
- Karon Winzenz (University of Wisconsin-Green Bay)  
*Transgendered Garments worn by Maya Kings and Queens*

### ***The 'Other Grand Challenge': Archaeological Education & Pedagogy in the Next 50 Years***

Organized by Meaghan Peuramaki-Brown and Mat Saunders

The now well-known “Grand Challenges” of archaeology article (Kintigh et al. 2014) featured in *American Antiquity* was based on a crowd sourced survey of archaeologists regarding their views on the next great challenges facing our discipline. Two major groups of issues were identified: 1) targeted scientific questions and 2) methodological issues and needs. The article focused on the former, with the ‘Other Grand Challenge’ consisting of issues such as deficiencies in training and the need for more public education. In this session, part of the 50th anniversary of the Chacmool Archaeology Conference, we ponder the future of archaeological education and pedagogy. What it could be like or will be like are two different things—both in need of exploration.

- What are the goals of archaeological education, and do they require updating or revision?
- Who (what) will be the student demographic of the next 50 years?
- Where does graduate training stand when so little is available for academic careers?
- What are the roles and, more importantly, responsibilities of Cultural/Heritage

Resources Management (CRM), museums, and journalism/story telling?

- How should the recommendations of the Truth and Reconciliation Commission of Canada (TRC) impact education and pedagogy?
- Do we add more technology or keep things hands on, or can we do both?
- Do Web 2.0/3.0 and virtual/extended/augmented reality help or hinder our goals?

One of the most important capacities of any discipline is the ability to adapt to relevant forces: internal forces—such as emerging skills, visions, conflicts, resources, etc.—and external forces—such as changing demographics, societal values, new technologies, etc. Being responsive to the critical issues of our day in ways that bring prehistory and history into a vital relationship with the present while actively engaging citizens, helps to justify the public funding of archaeology and its teachings.

Kevin Brownlee (The Manitoba Museum), William Dumas (Manitoba First Nation Education Resource Centre) and Myra Sitchon (Government of Manitoba)

*Six Seasons of the Rocky Cree: Collaborative Education model based on archaeological research*

Christine Cluney (McMaster University)

*Revisiting the Role of Experiential Learning Through the Archaeological Laboratory*

Mike Corbishley (Institute of Archaeology, University College London/University of Kent/Athens University of Economics and Business)

*Archaeology in Education: Where do we want to be in fifty years?*

Christie Grekul (Yukon Beringia Interpretive Centre) and Cynthia Zutter (MacEwan University)

*The value of experiential education: Developing collaborative internship opportunities for archaeology students*

Joanne Hammond (Pacific Heritage Research & Consulting)

*A Thousand Ways Forward: Teaching decolonization in the CRM industry*

Meigan Henry (Hakai Magazine & Hakai Institute)

*Media and the Role of Storytelling in Archaeology*

Todd Kristensen and Courtney Lakevold (Historic Resources Management Branch, Alberta Culture and Tourism)

*Outreach, Protection, and Legislation: The role of heritage managers in archaeological education*

Shawn Morton (Northern Arizona University) and Peter Dawson (University of Calgary)

*Digitally Preserving Heritage Through Virtual Tourism: Case studies from Belize and Canada*

Adrian Praetzelis (Sonoma State University)

*Archaeological Theory Without Tears*

C. Mathew Saunders (Davidson Day School, North Carolina) and Meaghan

Peuramaki-Brown (Athabasca University)

*Hands Back, Hands Forward: Learning and Sharing Archaeology Through Education and Pedagogy*

Oula Seitsonen (University of Helsinki, Finland)

*Archaeology, National Identity and Globalization*

Christopher Sims (University of Louisville)

*Taught Yet Malleable: Presenting Research-Based Knowledge as Content in Digital Media*

Kisha Supernant (University of Alberta)

*Archaeological Pedagogy, Indigenous Content, and the TRC Calls to Action: An Indigenous archaeologist's perspective on the next 50 years of teaching Indigenous archaeology*

John R. Welch, David Burley, Erin Hogg, Kanthi Jayasundera, David Maxwell, George Nicholas, and Janet Pivnick (Simon Fraser University), Christopher D. Dore (Heritage Business International and SFU), Joanne Hammond (Pacific Heritage and SFU), and Michael Klassen (Klahani Research and SFU)

*An Online Professional Master's Program in Heritage Resource Management: Digital bridges across disciplinary, practical and pedagogical divides*

Danny Zborover and Ran Boytner (Institute for Field Research)

*Archaeology Field Schools: Where have we been, where are we going?*

***Central American Archaeology: The Next Generation***

Organized by Adam Benfer and Elisa Fernandez-Leon

For the past ~160 years, Central American archaeology has largely been in the hands of refugee scholars who began their careers in other regions. Despite the richness of the prehistory, they tended to dabble for a few years before moving on. Consequently, the archaeological literature is filled with sporadic publications by some prominent scholars, but only rarely with a consistent presence and more often with lengthy gaps when little was done. A renewed interest in Central America began in the 1980s, although again the leaders in this movement tended to be transplants from other culture areas. Two significant differences, however, have been: 1) the development of regional schools of archaeology training nationals, many of whom have continued into international graduate programs; and 2) international programs training 'next generation' archaeologists who are developing within a scholarly tradition focusing specifically on Central America. This session brings together prominent members of this next generation to present research that goes beyond the traditional culture historical approaches of their predecessors and mentors to fully embrace 21st century methods and theories. The presentations will establish the 'state of the art' and, importantly, produce a trajectory for future developments.

Matthew Abtosway (University of Calgary)

*Exploring the Viability of Geochemically Sourcing Elaborate Metates through XRF Spectroscopy*

Benjamín Acevedo Peralta (Universidad de Costa Rica)

*Alluvial Geoarchaeology and Site Formation Processes at the Nuevo Corinto Archaeological Site, Costa Rica*

Claudia María Alfaro Moisa (Museo Nacional de Antropología, El Salvador)

*Chacmool del Museo Nacional de Antropología. Puesta en Valor de las Colecciones Fundacionales*

Adam Benfer (University of Calgary)

- Simulated Travel Routes for Late Pre-Hispanic Nicaragua*  
 Fernando Camacho M. (Independent, [fercamachomora@gmail.com](mailto:fercamachomora@gmail.com))  
*Managua Polychrome: pre-Columbian influence in colonial ceramics, Nicoya, Costa Rica*
- Carolina Cavallini M. (Universidad de Costa Rica, [cavalliniorama@gmail.com](mailto:cavalliniorama@gmail.com))  
*Un acercamiento a las sociedades cacicales prehispánicas en el Volcán Irazú, Costa Rica: el caso del sitio Alto del Cardal C-304 AC*
- Franziska Fecher and Markus Reindel  
*Settlement Archaeology in Northeast Honduras*
- Juan Carlos Fernandez-Diaz (University of Houston, [jfernan4@central.uh.edu](mailto:jfernan4@central.uh.edu)), Anna Cohen (Utah State University), Christopher Fisher (Colorado State University)  
*Digging for Digital Artifacts: Old Lidar Data Yields New Insights into NE Honduran Archeology*
- Lucy Gill (University of California, Berkeley)  
*Beyond the Bones: A Holistic View of Human-Animal Relationships in Chontales, Nicaragua*
- Mikael J. Haller (St. Francis Xavier University, [mikaelhaller@gmail.com](mailto:mikaelhaller@gmail.com), [mhaller@stfx.ca](mailto:mhaller@stfx.ca))  
*Methodological and Theoretical Trends in the Archaeology of the Central Region of Panama: A Case Study from the Parita River Valley*
- Roberto Herrera (Hunter College, CUNY, [rherr@hunter.cuny.edu](mailto:rherr@hunter.cuny.edu))  
*Moving Forward: Investigative and Conservation Strategies in the Diquís Subregion*
- Rocío María Lourdes Herrera Reyes (Dirección Nacional de Patrimonio Cultural, El Salvador)  
*Archaeological studies and development in El Salvador*
- Michelle Jones (Universidad de Costa Rica)  
*Los sistemas de información geográficos aplicados en la zona de Turrialba y Jiménez en Costa Rica*
- Marie Kolbenstetter (McGill University, [marie.kolbenstetter@live.fr](mailto:marie.kolbenstetter@live.fr))  
*Technological Choices and Embodied Practice in the Gulf of Fonseca, Honduras (AD. 350-1400): Giving the Potter Agency*
- Emilie M. LeBrell (University of Calgary) and Sharisse D. McCafferty (University of Calgary)  
*Ceramic Figurines of Pacific Nicaragua: What Ornamentation, Standardization, and Bodily Conventions Reveal about Indigenous Life and Culture*
- María López-Rojas (Universidad de Costa Rica)  
*Preliminary Results on Anthropogenic Disturbances in Vegetation of the Pre-Columbian Settlement Nuevo Corinto, Costa Rica*
- Miriam Mendez (Dirección de Patrimonio Cultural, El Salvador)  
*The protection of archaeological heritage in a nascent archeology: The role of contract archeology*
- Yahaira Núñez Cortés (University at Albany, SUNY)

- Up the hill and down the river: Lomas Entierros archaeological site*  
 Jason Paling (Plymouth State University), Justin Lowry (State University of New York at Plattsburgh), and Hannah Dutton (New Mexico State University)
- Ceramics from Chiquilistagua, A Chemical Analysis*  
 Nazareth Solís Vargas (Universidad de Costa Rica)
- Prácticas productivas alfareras y tradiciones tecnológicas durante El Bosque (300 a.n.e.-300 n.e.) y La Selva (300-700/800 n.e.) en Nuevo Corinto (L-72 NC), Caribe Central de Costa Rica*  
 Larry Steinbrenner (Red Deer College)
- “Lesser Nicoya?”: Addressing Nicaragua’s Marginal Place in Central American Archaeology*  
 Irene Torreggiani (Oxford University)
- An Environmental Approach to Archaeological Research in Chontales*  
 Madoka Uemurua (Kyoto University of Foreign Studies), Hiroshi Minami (Kyoto University of Foreign Studies), Sagrario Balladares N. (Universidad Nacional Autónoma de Nicaragua), and Leonardo Lechado R. (Universidad Nacional Autónoma de Nicaragua)
- Archaeology and the Public Participation: Creating a Field Museum in the Community of Matiguas, Matagalpa*  
 Daniel Uosukainen (Leiden University)
- A window into past surfaces: Non-systematic archaeological survey data from North Central Nicaragua*  
 Dieuwertje van Boekel (ADC Archeoprojecten in the Netherlands)
- Dead men tell many tales: introducing a new methodology for excavating burial contexts in the Gran Nicoya region of Nicaragua*  
 John Hoopes (University of Kansas)
- Discussant*

### ***On the Eve of a Calendar Round Cycle: Reflections and Advancements in Mesoamerican Studies***

Organized by Karen Bassie and Christina Halperin

The evolution of Mesoamerican studies over the last 50 years has involved not only the development of new theoretical frameworks and technologies, but great advances in the decipherment of indigenous writing systems and art. This session presents a diverse overview of the changes in the Mesoamerican studies and the future direction of the field.

Tim Beach, Sheryl Luzzadder-Beach, Samantha Krause, Colin Doyle, Sara Eshleman (University of Texas at Austin), Duncan Cook (Australian Catholic University)

*The Geoarchaeology of Ancient Maya Wetland Agroecosystems*

Geoffrey E. Braswell (University of California San Diego)

*Jade the Water and Burn the Fire: The Nim li Punit Wind Jewel, Royal Ritual, and Ancient Maya Politics*

Michael Carrasco (Florida State University)

*Large Scale Structures in Classic Maya Poetics*

- Elin Danien (Independent Scholar)  
*A Backward Look: The Little Known Work of Robert Burkitt*
- Kristin De Lucia (Colgate University) and Enrique Rodríguez-Alegría (University of Texas at Austin)  
*Church Archaeology in Xaltocan, Mexico*
- Keith Eppich (Collin College)  
*Lineage and Community at El Perú-Waka', the social dynamisms of a Classic City-State*
- Antonia E. Foias (Williams College)  
*Power and Polity in the Land of the Ik'a Lords of Motul de San José: Reflections on Ancient Maya Politics*
- Jeffrey B. Glover (George State University) and Dominique Rissolo (University of California, San Diego).  
*The Proyecto Costa Escondida: Interdisciplinary Investigations along Quintana Roo's North Coast*
- Christina T. Halperin (Université de Montréal)  
*Maya Architectural Recycling, Aesthetics, and Investments at the end of the Classic period*
- Nicholas A. Hopkins (Independent Scholar)  
*A Language-based Theory of Mayan Origins*
- Kerry Hull (Brigham Young University)  
*Elite Transportation in Ancient Mesoamerica*
- Harri Kettunen (University of Helsinki)  
*Uk'ay ajbuj: Owls in the Maya Culture*
- Heather McKillop (Louisiana State University)  
*Preserving and Communicating the Underwater Maya with Digital Technology*
- John Millhauser (North Carolina State University)  
*The Other Mesoamerica: Or What We Risk by Ignoring Poverty in Archaeological Method and Theory*
- Shawn Morton (Northern Arizona University) and Meaghan Peuramaki-Brown (Athabasca University)  
*Maya monumental 'boom': spatial development, rank ordering, and planning considerations at Alabama, East-Central Belize*
- Michelle Rich ( Los Angeles County Museum of Art)  
*Critical Dialogues: Museums, Archaeology, and Ancient Maya Cultural Patrimony in the 21st Century*
- Yuko Shiratori (The Graduate Center, City University of New York)  
*Spolia as Social Identity: The Reuse of Antiquity for the Late Postclassic Maya*
- Jon Spenard (CSU San Marcos), Terry Powis (Kennesaw State University), Sheldon Skaggs (Bronx Community College), and Christophe Helmke (University of Copenhagen)  
*(Re)membering and Forgetting in Pre-Hispanic Pacbitun, Cayo, Belize*
- Travis W. Stanton (University of California Riverside), Patrick Rohrer (University of

California Riverside), Traci Ardren (University of Miami), Jose Osorio (Instituto Nacional de Antropología e Historia), Francisco Perez ((Instituto Nacional de Antropología e Historia), and Aline Magnoni (USAID)

*The Ties that Bind: An Analysis of Causeways and Urban Planning in the Northern Maya Lowlands*

Brent Woodfill (Georgia State University)

*Salt Strikes Back! Recent Advances in Salt Production and Exchange in the Maya World*

Mark Wright (Brigham Young University)

*The Flower and Song of the Central Mexican Codices*

Andrew R. Wyatt (Middle Tennessee State University)

*The Past and Present of Maya Gardens: A Synchronic Perspective of Household Production*

Cherra Wyllie (Pre-Columbian Society of New York)

*Classic Veracruz Calendric Signs*

### ***The Future of Archaeology: How Technology Can Influence a Discipline***

Organized by Kelsey Pennanen and Peter Dawson

The future of archaeology lies in the integration of technology that can contribute valuable information to archaeological research questions. The incorporation of innovative technology, even those developed within other disciplines, can be applied to of archaeological research questions to explore archaeology in new, unique ways. In this digital age, geospatial tools and technologies are now central to carrying out archaeological research, and this technology can allow for more thorough analytical approaches to archaeological investigation. The inclusion of new technologies or using existing technologies in new and innovative ways can provide a previously unprecedented amount of data that can allow for interpretations that were not feasible in the history of this discipline. These might include the use of near-surface geophysical methods, aerial and terrestrial imaging techniques, virtual reality, and 3D modelling, etc. With this new emphasis on the incorporation of these technologies, the future of archaeology as a discipline will be examined.

Papers should address recent technological advancements and their methodological application in respect to their effectiveness of contributing to comprehension and interpretation within the discipline of archaeology.

Erik Champion (Curtin University)

*Under-exploiting Consumer VR for Digital Archaeology & Heritage*

Maurizio Forte

*Is Cyberarchaeology the Archaeology of the Future?*

Scott Hamilton (Lakehead University)

*Disruptive technologies and their impact on archaeological practise*

Colleen Hughes (University of Calgary)

*Exploration of Sentiment Analysis Application with Inuit Place Names*

Kelsey Pennanen (University of Calgary), Christopher Hamilton and Brittany Moses

*Building a Predictive Model for Archaeological Site Potential using GIS*



J. Jeffrey Werner (University of Alberta)

*Quantifying Lithic Use-Wear Using a Confocal Laser Scanning Microscope*

***Not Just About Punching Nazis Anymore: Archaeological Activism for the 21<sup>st</sup> Century***

Organized by Jessica Manion and Geoffrey McCafferty

Leading the 'March for Science,' organizing for a 'Just Future,' working in alliance with Native groups against threats to heritage sites and the environment, exposing inherent gender biases in historical interpretation: archaeologists are increasingly on the front lines of political activism. What roles do archaeologists play in shaping the current political landscape? Should we aim to keep our research separate from modern political discourse, or is archaeological research inherently political? This panel discussion will consider these and related questions revolving around the practice of archaeologists as advocates for past heritage as well as living populations whose histories are often fabricated based on 'alternative facts' and colonial stereotypes.

Valorie V. Aquino (University of New Mexico)

*Organizing March for Science: From a Moment to a Movement*

Chelsea Blackmore (University of California, Santa Cruz)

*Archaeology, Activism and Social Justice*

Erin A. Hogg (Simon Fraser University) and John R. Welch (Simon Fraser University)

*Archaeological Accuracy, Ambiguity, and Activism in Aboriginal Title Claims*

Amanda Lorenzini and Josue Gomez

*Heritage as a Resource or Heritage as a Source of Identity?: The shifting of official heritage discourses and community reactions against touristic development in Cholula, Mexico.*

***The Archaeology of Gender at Thirty-something***

Organized by Robyn Crook

For 50 years the annual Chacmool Archaeology conference has presented often cutting-edge themes that have shaped the trajectory of the discipline. One of the most notable examples of this is the topic of gender in archaeology, which was first presented in the 1989 conference and then revisited in 2007. The two conferences generated some of the most widely circulated conference volumes, and are often cited as catalysts for ongoing research. In this proposed session, scholars look at the 'past, present, and future' of gender research, emphasizing the global breadth and scope of the conversation.

James Aimers (State University of New York Geneseo)

*Still Que(e)rying archaeology: Recent Research on Non-Heteronormativity in Ancient Mesoamerica and the Andes*

Chelsea Blackmore (University of California, Santa Cruz)

*Queer Feminist Reflections on the Ancient Maya State and Everyday Life*

Sandra E. Hollimon (Santa Rosa Junior College)

*The Antiquity of Nonbinary Genders in Native North America*

Jenna Hurtubise (University of Alabama) and Matthew Helmer (SWCA Environmental Consultants and University of East Anglia)

*Dualism and Sacrifice at Samanco, Nepeña Valley, Peru*  
Diane Lyons (University of Calgary)  
*Gender Archaeology: Shaken but Not Stirred*  
Sarah Milledge Nelson (University of Denver)  
*Gender Studies in Archaeology -Are They Still Needed?*  
Margarita Moran (Dirección de Patrimonio Cultural, El Salvador)  
*The Gender Perspective in Salvadoran Archaeology*  
Lucía Watson Jiménez (Pontificia Universidad Católica del Perú) y Krzysztof Makowski  
Hanula (Pontificia Universidad Católica del Perú)  
*Women Among Fishermen and Shepherds of the Central Coast of Peru in Late  
Periods (1100d.C-1532d.C)*

### ***Recent Investigations at Olduvai Gorge***

Organized by Julien Favreau

Robert Bird (University of Calgary), Julien Favreau (University of Calgary), Makarius Itambu (University of Calgary and University of Dar es Salaam), Patrick Lee (University of Calgary), Robert Patalano (University of Calgary), Laura Tucker (University of Calgary), Enrique Baquedano (Museo Arqueológico Regional de Madrid, Alcalá de Henares), Manuel Domínguez-Rodrigo (Universidad Complutense Madrid), Audax Mabulla (National Museum of Tanzania), and Julio Mercader (University of Calgary)

#### *Modern Phytolith Influx at Olduvai Gorge*

Julien Favreau (University of Calgary), Robert Bird (University of Calgary), Makarius Itambu (University of Calgary and University of Dar es Salaam), Patrick Lee (University of Calgary), Robert Patalano (University of Calgary), Laura Tucker (University of Calgary), Enrique Baquedano (Museo Arqueológico Regional de Madrid, Alcalá de Henares), Manuel Domínguez-Rodrigo (Universidad Complutense Madrid), Audax Mabulla (National Museum of Tanzania), and Julio Mercader (University of Calgary)

#### *Percussion Technology and Preliminary Results from Residue Analysis at FLK N, Olduvai Gorge*

Makarius Itambu (University of Calgary and University of Dar es Salaam), Robert Patalano (University of Calgary), Fernando Diez-Martín (University of Valladolid), Manuel Domínguez-Rodrigo (Complutense University Madrid), Charles Egeland (University of North Carolina), Julien Favreau (University of Calgary), Patrick Lee (University of Calgary), Audax Mabulla (National Museum of Tanzania, Dar es Salaam), Alfredo Pérez González (Centro Nacional de Investigación sobre la Evolución Humana), Manuel Santoja (Centro Nacional de Investigación sobre la Evolución Humana), Laura Tucker (University of Calgary), and Julio Mercader (University of Calgary)

#### *Phytolith Plant Landscapes during Bed II at Olduvai Gorge (Tanzania)*

Patrick Lee (University of Calgary), Robert Bird (University of Calgary), Mariam Bundala (University of Dar es Salaam), Julien Favreau (University of Calgary), Makarius Itambu (University of Calgary and University of Dar es Salaam), Samson Koromo, Charles Mather (University of Calgary), Robert Patalano (University of Calgary), Laura Tucker (University of Calgary), Enrique Baquedano (Museo Arqueológico Regional de

Madrid, Alcalá de Henares), Manuel Domínguez-Rodrigo (Universidad Complutense Madrid), Audax Mabulla (National Museum of Tanzania), and Julio Mercader (University of Calgary)

*Breaking New Ground: Coordination of Maasai and Paleoanthropological Digs and Droughts in Olduvai Gorge, Tanzania*

Julio Mercader (University of Calgary), Enrique Baquedano (Museo Arqueológico Regional de Madrid), Robert Bird (University of Calgary), Mariam Bundala (University of Dar es Salaam), Fernando Diez-Martín (Universidad de Valladolid), Manuel Domínguez-Rodrigo (Universidad Complutense Madrid), Julien Favreau (University of Calgary), Makarius Itambu (University of Calgary and University of Dar es Salaam), Patrick Lee (University of Calgary), Audax Mabulla (National Museum of Tanzania), Joaquín Panera (IDEA, Museo de los Orígenes), Robert Patalano (University of Calgary), Alfredo Pérez-González (Centro Nacional de Investigación sobre la Evolución Humana), Susana Rubio-Jara (IDEA, Museo de los Orígenes), Manuel Santonja (Centro Nacional de Investigación sobre la Evolución Humana), Laura Tucker (University of Calgary), and David Uribelarrea (Universidad Complutense Madrid)

*Acheulean Hominin Ecology: Organic Residues on Lithics as Evidence of Plant Processing at FLK-W and TK (Olduvai Gorge)*

Robert Patalano (University of Calgary), Fernando Diez-Martín (Universidad de Valladolid), Manuel Domínguez-Rodrigo (Universidad Complutense Madrid), Julien Favreau (University of Calgary), Makarius Itambu (University of Calgary and University of Dar es Salaam), Patrick Lee (University of Calgary), Audax Mabulla (National Museum of Tanzania), David Manuel Martín Perea (Universidad Complutense Madrid), Laura Tucker (University of Calgary), David Uribelarrea (Universidad Complutense Madrid), and Julio Mercader (University of Calgary)

*A Multi-Proxy Approach Highlights the Environmental Context of the Earliest Acheulean at Olduvai Gorge, Tanzania*

Laura Tucker (University of Calgary), Julien Favreau (University of Calgary), Makarius Itambu (University of Calgary and University of Dar es Salaam), Patrick Lee (University of Calgary), Robert Patalano (University of Calgary), Enrique Baquedano (Museo Arqueológico Regional de Madrid, Alcalá de Henares), Manuel Domínguez-Rodrigo (Universidad Complutense Madrid), Audax Mabulla (National Museum of Tanzania), and Julio Mercader (University of Calgary)

*Bioavailable Strontium ( $87\text{Sr}/86\text{Sr}$ ) and Assessment of Diagenesis at Olduvai Gorge, Tanzania: Preliminary Results*

***Forerunners, Fantastic Finds, and Future Directions: Cultural Resources Management Yesterday, Today and Forever***

Organized by Laura Nuttall and Elizabeth Robertson

Over the past 50 years cultural resources management (CRM) has grown into a booming industry, employing thousands of archaeologists around the globe. It has a rich history full of "believe it or not" adventures, tall tales of local heroes and heroines, and artifacts that would make Indian Jones green with envy. To celebrate Chacmool's golden anniversary, this two-day

session will show case papers from archaeologists who work as industrial consultants, those who working at government agencies, and academics with background and/or research interests which intersect with CRM. The session will be split between regular 20-minute papers focusing on stories and sites from our early years to the present, as well as our future directions, and shorter 5-minute presentations concentrating on a specific artifact, intriguing anecdote, promising or problematic method or other topical issue, which would be belaboured during a full time slot.

Kyle Belanger and Matt Rawluk (Circle CRM Group)

*A Stash near Grande Cache: The Skinny on a Newly Discovered Reworked, Basally Thinned Projectile Point*

Braedy Chapman (Circle CRM Group)

*CRM and Lithic Raw Material Procurement in the Central Interior of British Columbia: Future Research Questions*

Corey Cookson (Treetime Services)

*LiDAR Doesn't Lie: Using LiDAR to Improve the Efficiency of Forestry Archaeology Survey*

Jason Gillespie (Ghostpine Environmental Services)

*Economic Realities and the Future of CRM in Alberta*

Eugene Gryba, Calgary, Alberta

*Suggestive Evidence from the Boreal Forest Region of Northeastern Alberta of Two Family Unit Archaeological Sites*

Kendra Kolomyja (Lifeways of Canada)

*Engaging the Casual Observer: CRM Archaeology in Public Parks (AKA - No, We Aren't Digging for Gold)*

Tommy Ng (Bison Historical Service)

*A Special Tribute to Bob Steinhauser, Gentleman Archaeologist*

Sean Pickering (Bison Historical Services)

*A Bridge too Far: Recent Investigations at EePk-38*

Matt Rawluk (University of Saskatchewan, Saskatoon, Saskatchewan/Circle CRM Group)

*Advancing Boreal Forest Archaeology: Intrasite analysis of the Eaglenest Portage Site*

Elizabeth Robertson (Stantec Consulting Ltd./University of Saskatchewan)

*Fifty Shades of Untillating Grey Literature: Getting Tied Up in Knots by Alberta's Corpus of Consulting Archaeology Reports*

Elizabeth Robertson (Stantec Consulting Ltd./University of Saskatchewan)

*If You Like It, Then You Better Put a Shovel Test in It: Expanding and Characterizing Targeting and Sampling Strategies in Alberta's Boreal Forest Region*

Sarah K. Smith (Amec Foster Wheeler Environment & Infrastructure)

*Archaeological Investigations at the Stó:l? Cultural Site Uwqw'iles - the Restmore Caves Site (DiRj-34)*

Michelle Wickham (Bison Historical Services)

*Notable Finds along the Red Deer River Valley*

***The Legacy of Calgary Archaeology and Chacmool***

Organized by Scott Raymond and Geoffrey McCafferty

2017 marks the 50<sup>th</sup> anniversary of the Chacmool conference and the University of Calgary's Archaeology program. Within the conference theme of 'past, present, and future,' this symposium is designed to highlight some of the important achievements of the program. As one of the only 'pure' archaeology programs in North America, the University of Calgary's program offered unique advantages over more generalized Anthropology programs. This was, in part, the result of the vision of the Department's founders: Richard (Scotty) MacNeish and Richard (Dick) Forbis. These pioneers sought to develop a cohort of students who were both theoretically robust but also technically adept, arguing that the graduates of more 'watered-down' Anthropology programs often lacked the practical skills needed to conduct professional-level archaeological research. This concept attracted strong students from across Canada and around the globe, with the result that University of Calgary graduates are now leading scholars in a diverse array of archaeological realms. This session will bring together faculty and former students to discuss these varied contributions.

William Byrne

*A Babe in the Woods*

Jerimy J. Cunningham (University of Lethbridge) and A.C. MacWilliams,

*Jane Kelley and the Chihuahua Archaeology Projects*

Nicholas David (University of Calgary) and Diane Lyons (University of Calgary)

*Calgary in Africa*

Robert R. Janes (University of Leicester)

*Reflections of a Grateful Graduate Student*

M. Anne Katzenberg (University of Calgary)

*The Legacy of Biological Anthropology at the University of Calgary*

Alice B. Kehoe (University of Wisconsin, Milwaukee)

*Chacmool's, and Calgary's, Anthropological Archaeology: Jane Kelley Writ Large*

Brian Kooyman (University of Calgary)

*The Technical Challenge: Opening Minds and Windows through Archaeological Science at the University of Calgary*

Geoffrey McCafferty (University of Calgary)

*Greatest Hits of the University of Calgary's Central American Archaeology Program*

Lesley Nicholls (retired Department Administrator, Department of Archaeology)

*Behind the Front Lines: Memoirs of 35 years Behind the Trenches*

Gerald A. Oetelaar (University of Calgary)

*Graduate Alumni of the Department of Archaeology: Where are they Now?*

Scott Raymond (University of Calgary)

*Archaeology of the "Least Known Continent"*

Michael C. Wilson (Douglas College)

***Advances in Biomolecular Archaeology***

Organized by Ana Morales and Meradeth Snow

Biomolecular methods have become popular in answering a variety of archaeological questions because of the unique and complex information that can be derived from their application. This session is focused on methods that can analytically elucidate issues related to past populations' interactions. The intended emphasis of this session is ancient DNA, but can also include protein, lipid, and carbohydrate analyses. Ancient biomolecules are well suited to investigations of interaction and exchange between populations, in addition to understanding the patterns of past migrations and disease. The papers presented need not be limited to human specimens, as the molecular ecology of archaeofauna and other associated taxa is equally important in developing understandings of past environments, which are inherently essential to any robust archaeological analysis.

Christina I. Barron-Ortiz (Royal Alberta Museum), Antonia T. Rodrigues (Simon Fraser University), Jessica M. Theodor (University of Calgary), Brian P. Kooyman (University of Calgary), Dongya Y. Yang (Simon Fraser University), and Camilla F. Speller (University of York)

*Late Pleistocene horses from the Western Interior of North America: tooth morphology and ancient mitochondrial DNA*

Nasreen Broomand

*Drills and the Dead: An Overview of Various Sampling Techniques*

Ana Morales Arce (University of Calgary)

*Ancient Mesoamerican groups and their multiple faces: From Cholula and Tlatelolco to an ancient genetic landscape in Central Mexico and beyond*

Selig

*Evaluating Old Methods with New Data: How Ancient DNA Can Improve Radiocarbon Dating*

Meradeth H. Snow

*Genetic Identity and Relationships in the Southwest United States and Mexico*

***Learning from the Ancestors: Collaborative Work in the Management and Repatriation of Archaeological Human Remains***

Organized by Laure Spake and Chelsea Meloche

In recent decades, repatriation has become a complex and essential reality for archaeologists and museum professionals around the world. Early collection practices saw the alienation of living Indigenous communities from their ancestors and histories, leaving a legacy of distrust towards anthropologists and researchers. Discoveries like Kennewick Man, or the Ancient One, in the United States have highlighted the continued tensions existing between researchers and Indigenous communities. The development of protective legislation and policy in the late 20th century has not eased these tensions. However, collaborative work with ancestral human remains like Kwäday Dän Ts'ınchi in Canada, or the On Your Knees Cave site in the US, indicate the potential for mutually beneficial relationships between researchers and Indigenous

communities. Many tribes and nations now initiate scientific research on ancestral remains, valuing the knowledge gained and its potential application to land claim cases and other social justice endeavours. This session explores examples of collaborative work with Indigenous communities in the care, scientific study, and repatriation of ancestors. What strategies have been successful in developing these relationships? What benefits can result from collaboration, and do both parties benefit equally? In what areas can we continue to improve our practices to ensure mutually beneficial experiences?

### ***Radical Archaeological Theory for the Future***

Organized by Michelle Turner and Lucy Gill

In the 50 years since the first Chacmool conference, archaeological theory has undergone significant and surprising changes. Post-processualism and radical political archaeologies including Marxism, feminism, and indigenous archaeology have increasingly made their mark on quite mainstream archaeological thought, if not always on its praxis. Yet we are also seeing the rise of new relational archaeologies that radically challenge settled understandings, along with a renewed archaeological activism. How do archaeologists continue to push the theoretical envelope today? We welcome papers from various theoretical viewpoints, investigating how theory illuminates our archaeological practices and our understandings of the past.

Jeremy J. Cunningham (University of Lethbridge)

*Radicalizing the Posthuman: For Ethnographic Analogy in Archaeology*

Rosemary A. Joyce (University of California, Berkeley)

*Resituating archaeology in transdisciplinary theory*

Michelle Turner (SUNY Binghamton)

*On the Matter of a Great House*

### ***Current Archaeological Research in Western Canada***

Organized by Dan Meyers and Dale Walde

As we contemplate the 50th anniversary of Chacmool, we are reminded of the pivotal role the conference played in the development of archaeological practice in western Canada. Although many later conferences covered broader themes, some early conferences focused on topics of particular interest to western Canada. In all cases, western Canadian archaeologists have always been a critical driving force in the important archaeological dialogue fostered by the Chacmool Conference. This session provides an opportunity for western Canadian archaeologists to rejoin us in Calgary to present the results of their latest fieldwork and other research efforts, including laboratory and specialized analyses, to their colleagues. Papers are invited from all of western Canada and adjoining areas, all associated culture areas, and from all practicing archaeologists whether university, cultural resource management, or government-based working in western Canada. These papers will not only demonstrate the conference influences of the past on archaeological practice, but will also indicate the future directions of archaeology in western Canada.

Matthew Abtosway (University of Calgary)

*Closing the Circle in Public Archaeology*

Lindsay Amundsen-Meyer (Lifeways of Canada Limited)

- Spatial is Special: Using Geographic Information Systems to Study Blackfoot Social and Spiritual Landscapes*  
Robert Bird, Dale Walde, and Margaret Patton (University of Calgary)  
*Oh Snap: Proper Photographic Technique and Image Quality as an Archaeological Tool*
- Shawn Bubel (University of Lethbridge)  
*Hunting, Butchering, and Ceremony at the Fincastle Site*
- Katie Burdeyney (University of Saskatchewan)  
*So Much Archaeology, So Little Paleoenvironmental Analysis*
- Shalcey Dowkes (University of Calgary)  
*The Story Continues...: Phytolith Analysis at the Cluny Fortified Village (EePf-1)*
- Shalcey Dowkes and Margaret Patton (University of Calgary)  
*Prehistoric Shell Bead Production at Cluny Fortified Village (EePf-1)*
- Tatyanna Ewald (University of Calgary)  
*A New Method for Dental Microwear Analysis*
- Daniel A. Meyer (Lifeways of Canada Limited)  
*New Light on the Protohistoric Period in Southern Alberta as Revealed by the 2013 Floods at Margaret's Site on the Bow River*
- Gerald A. Oetelaar, University of Calgary  
*Niche Construction Theory in Plains Archaeology: A New Perspective on Subsistence and Settlement Strategies*
- Trevor Peck (Archaeological Survey of Alberta)  
*Anthropomorphic 'Napi' Effigies on the Northwestern Plains: A Petroform Record of Nitsitapii (Blackfoot) Belief*
- Kelsey Penman and Shalcey Dowkes (University of Calgary)  
*Excavation, Education, Engagement: The University of Calgary Aboriginal Youth Engagement Program*
- Heinz W. Pyszczyk (University of Lethbridge)  
*The Many Faces of Fur Trade Archaeology - As Seen from Research at a Northern Fur Trade Site, Fort Vermilion, Alberta*
- Joshua Read (University of Lethbridge)  
*Diet of a Fur Trader: Preference or Necessity?*
- Jason Roe and Derrick Foster (Lifeways of Canada Limited)  
*Historic Forestry Practices in the Coal Branch Region*
- Dale Walde (University of Calgary)  
*Mortlach and One Gun: A Reconciliation*
- Michael C. Wilson (Douglas College)  
*Hypsithermal Aridity and Landscape Instability in Western Canada: New Geoarchaeological Findings from British Columbia and Alberta*

***Çatalhöyük: Then and Now***

Organized by Lindsay Der

Under the direction of Ian Hodder, excavations at the Anatolian Neolithic tell of



Çatalhöyük have been prolific. The Çatalhöyük Research Project (ÇRP) has spanned more than two decades, generated hundreds of thousands of records of data, comprised an ever-changing international team of researchers, students, staff, and volunteers, and contributed to major theoretical and methodological trends in archaeological practice. Over its long-standing tenure, the project has been simultaneously a source of innovation and controversy. It has also been a site of great transformation since its inception, with shifting recording strategies, research questions and interpretations, community engagement activities, and an increasing emphasis on collaboration amongst various groups of team members. In keeping with the theme of the 2017 Chacmool Conference, this retrospective session will reflect on lessons learned over the years, research currently undertaken during the final phase of the project as compared to earlier approaches, and future directions for the legacy of the ÇRP. Topics that will be explored include: challenges and benefits of managing and conducting research at a large-scale archaeological project, the incorporation of new technologies, the integration of archival and current datasets, and the emergence of new, multi-disciplinary perspectives.

Marek Z. Baranski (Academy of Fine Arts in Gdansk, Poland)

*Towards Change: Late Neolithic Architecture At Çatalhöyük*

Lindsay Der (University of British Columbia)

*Living with Animals: Changing Perspectives on Animal Materializations at Çatalhöyük*

Sean Doyle, McMaster University

*A History of Chipped Stone Research At Çatalhöyük: Old Traditions and New Initiatives*

Lisa Guerre, Çatalhöyük Research Project

*Finders Keepers: Accessibility and Sustainability of the Artifact Archive at Çatalhöyük*

Kathryn Killackey (Çatalhöyük Research Project)

*Keeping Up with The Drones: The Role of Traditional Illustration At Çatalhöyük In the Digital Age*

Ian Hodder (Stanford University)

*Looking Back at The Successes and Failures of A 25 Year Field Project*

### ***Open Sessions***

Kathryn Math (Concordia University)

*Fang & Feather: The Origin of Avian-Serpent Imagery at Teotihuacan and Symbolic Interaction with Jaguar Iconography in Mesoamerica*

Sarah Woodman (University of Leicester)

*Northern Plains Rock Art: An Investigation of Writing-on-Stone's Archaeological Site DgOv-2 using D-Stretch Digital Photographic Enhancement*

## PAPER ABSTRACTS:

**Matthew Abtosway**, University of Calgary

*Exploring the Viability of Geochemically Sourcing Elaborate Metates through XRF Spectroscopy*

The Central American elaborate metate is a perplexing group of ground stone artifacts. Their function continues to be the subject of debate, with interpretations ranging from hallucinogenic and food preparation to ritual seating. It is difficult to deny, however, the substantial labor investment represented and likely symbolic significance. X-ray fluorescence spectroscopy has proven an invaluable tool in the non-destructive geochemical sourcing of archaeological obsidian, providing insights into exchange and the relationships between sometimes distant cultures. Less homogeneous materials, such as basalt and andesite, offer a distinct set of challenges compounded by the size of the artifacts themselves, however the possibility of illuminating the origins and mobility of ground stone merits study. The Archaeology Museum at the University of Calgary offered a unique opportunity to test and perfect a methodology to overcome these challenges prior to application in a less accommodating field environment. A selection of complete flying panel, effigy and elaborate basin metates with little to no provenience were selected for spectroscopy with a portable XRF unit. Cluster analysis was conducted with the produced spectra, as well as those recorded in the Rutgers University Central American Geochemical Database.

**Matthew Abtosway** (University of Calgary)

*Closing the Circle in Public Archaeology*

The University of Calgary Public Archaeology Program operated at the Cluny Fortified Village site (EePf-1) once more this summer, offering students and members of the public the opportunity to experience an authentic archaeological excavation. The program has continually sought feedback from participants since its inception in 2014, prompting improvements to social media engagement and furthering outreach. A Participant Experience Survey has been central to efforts to enhance public awareness and the impact of volunteers' involvement. The direct feedback afforded by the survey is complemented by observations of participant engagement and attitude in the field. The combination promises a qualitative assessment of the current program's ability to engage members of the public while gleaned insights into how perspectives on archaeology in Alberta, and in general, are influenced by public immersion. In addition to following current policy trends, such as SSHRC Insight objectives that include the dissemination of research to both academic and non-academic audiences, public archaeology at its best achieves a bidirectional exchange of information. The etic perspective of volunteers may offer unexpected benefits beyond labour and enthusiasm. Efforts to maximize the effectiveness of public engagement projects are therefore reflexive, and of merit to both volunteers and researchers alike.

**Benjamín Acevedo Peralta** (Universidad de Costa Rica, benjamin.acevedo@ucr.ac.cr)

*Alluvial Geoarchaeology and Site Formation Processes at the Nuevo Corinto Archaeological Site, Costa Rica*

Located between the Central Volcanic Ridge and the Caribbean Plains of Costa Rica, Nuevo Corinto is laterally limited by the Corinto River and the braided Chirripó River. I demonstrate how site formation processes control the spatial distribution of the archaeological record in the northeast part of Nuevo Corinto. Stratigraphical, geomorphological and sedimentological analyses from a geoarchaeological perspective were conducted on the local sedimentary record. Both archaeological and sedimentological records differentiated a sedimentary hiatus associated with channel-fill deposits and the only pottery sherds from El Bosque phase (300 BC - AD 300), without evidence of later sedimentary deposition or settle down. Previously, researchers hypothesized a population concentration related to the development of a chiefdom in Nuevo Corinto. However, hydrological changes in the surrounded area and regional environmental changes during La Unión phase (AD 900-1100) indicate that natural site formation processes more than cultural processes effected the current distribution of the sedimentary and archaeological records.

**James Aimers**, State University of New York Geneseo

*Still Que(e)rying archaeology: Recent Research on Non-Heteronormativity in Ancient Mesoamerica and the Andes*

Since the groundbreaking 2009 Chacmool publication *Que(e)rying Archaeology* a number of scholars have continued to challenge taken-for-granted assumptions about sex, gender, and sexuality in ancient Mesoamerica and the Andes. This paper reviews some of this recent research.

**Claudia María Alfaro Moisa** (Museo Nacional de Antropología, El Salvador)

*Chacmool del Museo Nacional de Antropología. Puesta en Valor de las Colecciones Fundacionales*

Las Colecciones denominadas "fundacionales" juegan un papel importante en la conformación de los museos alrededor del mundo. De acuerdo a su naturaleza, que definen la vocación de las instituciones museales dando las pautas para el futuro incremento de los acervos y el establecimiento de los discursos museológicos expuestos en las salas de exhibición. Tal es el caso del Chacmool del Museo Nacional de Antropología de El Salvador, que junto a la estela de Tazumal y el disco solar de Cara Sucia iniciaron la Colección Nacional de Arqueología; y que en la actualidad se están revalorando como parte esencial de la memoria del Museo y que gracias a las iniciativas de Curaduría y Documentación se están recopilando todos aquellos archivos históricos que se encuentran dispersos que nos ayuden a comprender el pasado, presente y devenir de los museos en El Salvador.

**Lindsay Amundsen-Meyer** (Lifeways of Canada Limited)

*Spatial is Special: Using Geographic Information Systems to Study Blackfoot Social and Spiritual Landscapes*

In the past, applications of GIS in an archaeological context have largely focused on the analysis of environmental characteristics and settlement patterns, leading to a generally processual and environmentally deterministic perspective. This is partly due to the fact that contextual, subjective and experiential aspects of landscape are difficult to represent in a

Cartesian, mathematical framework. However, GIS has the capacity to analyze space according to any variable the researcher wants. Since human action is systematically patterned by ideological and social beliefs and human values are both social as well as spatially constructed, these patterns will be visible in the archaeological record. Using the Blackfoot as a case study, this paper will show how these social and ideological beliefs are spatially patterned. A variety of spatial analysis methods available in GIS are used to analyze Blackfoot social and spiritual use of the southern Alberta landscape, ultimately leading to a greater understanding of human perception and use of landscape in this region during the Late Prehistoric Period.

**Valorie V. Aquino** (University of New Mexico)

*Organizing March for Science: From a Moment to a Movement*

A “secret” Facebook group created in January to organize a march for science exploded from a few dozens to half a million members in fewer than four days since its inception. Almost three months later on April 22, over 600 Marches for Science, which drew over one million marchers around the world, collectively participated in the largest known science event in scale and breadth. This presentation describes the journey of the March from Science from a social media phenomenon to a global moment to a sustained movement. Incorporating data, personal observations, and audience insights, I will discuss lessons learned in helping to organize a popular social movement that activated thousands of new advocates embedded in science communities and its efforts in sustaining coordinated science advocacy.

**Marek Z. Baranski** (Academy of Fine Arts in Gdansk, Poland)

*Towards Change: Late Neolithic Architecture At Çatalhöyük*

The site of Çatalhöyük (Turkey) is seminal for our understanding of the development of Neolithic lifeways. One of the most striking aspects of its archaeology are sequences of densely packed mud-brick houses which were built one upon the other. Interestingly, Çatalhöyük architecture provides evidence for not only strong traditions and repetitive practices, but also spatial and architectural changes through time. Multidisciplinary attempts to understand these processes prove to be crucial for reconstructions and interpretations of social dynamics within the Neolithic community, including the organization of households and neighbourhoods. This paper focuses on the results of research on architecture, which characterizes late Neolithic phases of occupation of the site (ca. 6.400-5.950 cal. BC). It is based on data from both large-scale 1960's excavations and field work undertaken recently within Team Poznan (TP) and Gdansk (GDN) Areas. The differences in the excavation methods within these projects posed a significant challenge in comparing spatial data of architectural character. Nevertheless, this research casts new light on key architectural themes regarding late Neolithic Çatalhöyük and its comparison to lower sequences across a range of characteristics.

**Els Barnard** (University of Bonn)

*Market Systems and Household Economy: Wealth Distribution at Uxul, Campeche*

This paper discusses the economic system of the Classic Maya Lowlands secondary urban center of Uxul, Campeche. In particular, it focuses on identifying and characterizing market exchange in a case-study where physical marketplaces have not yet clearly been

identified. Market exchange tends to result in relatively homogeneous distributions of artifacts and a high diversity across the social spectrum, as well as high degrees of specialization. Furthermore, the ways in which markets are organized, and specifically the roles of elites, influence the spatial organization of urban centers. This paper, based on my ongoing doctoral research, considers: first, a measure of wealth inequality employing the Gini-index; secondly, spatial relationships between elites and commoners; and finally, distributions of artifacts and production activities in Uxul. The paper aims to assess the presence of market exchange and its characteristics at Uxul by taking an approach focusing on the distribution of wealth in domestic contexts.

**Christina I. Barron-Ortiz** (Royal Alberta Museum), **Antonia T. Rodrigues** (Simon Fraser University), **Jessica M. Theodor** (University of Calgary), **Brian P. Kooyman** (University of Calgary), **Dongya Y. Yang** (Simon Fraser University), and **Camilla F. Speller** (University of York)

*Late Pleistocene horses from the Western Interior of North America: tooth morphology and ancient mitochondrial DNA*

Despite their rich fossil record, there is considerable disagreement over the number of horse species that inhabited North America throughout the Pleistocene epoch. More than 40 species have been named. Several authors have attempted to revise the taxonomy of the group, but a consensus has yet to be reached. In this study, we investigated cheek tooth morphology and ancient mitochondrial DNA of late Pleistocene horse specimens from the Western Interior of North America, with the objective of clarifying the species that lived in this region prior to the end-Pleistocene extinction. Based on the morphological and molecular data analyzed, three species of *Equus* (two non-caballine and one caballine) occurred in the Western Interior in the late Pleistocene. The separation into caballine and non-caballine species was observed in the Bayesian phylogenetic analysis of ancient mitochondrial DNA as well as in the geometric morphometric analyses of the upper and lower cheek teeth.

**Tim Beach, Sheryl Luzzadder-Beach, Samantha Krause, Colin Doyle, Sara Eshleman** (University of Texas at Austin), **Duncan Cook** (Australian Catholic University)

*The Geoarchaeology of Ancient Maya Wetland Agroecosystems*

The study of Maya agroecosystems has entered a period of great dynamism with many advances of scientific methods, explosion of LiDAR mapping, and renaissance of excavation. In 2016 we acquired nearly 300 square km of LiDAR imagery that covers large areas of ancient Maya wetland fields for the first time. The coverage indicates both wide-scale wetland canal and field systems and intensive, polycultural complexes of upland terraces and wetland fields. Over the last 15 years, we tested many such systems with excavations and multiple proxies for past formation and cultivation. But, the new imagery allows us to map beneath the canopy and shows we studied only a small spatial sample of these systems. We present the current state of knowledge based on excavations over a 100 km swath of the coastal plain of Belize and the high resolution LiDAR maps. Based on these we present models to understand wetland agriculture both diachronically and synchronically within the framework of Maya History.

**Kyle Belanger and Matt Rawluk**, Circle CRM Group, Calgary, Alberta

*A Stash near Grande Cache: The Skinny on a Newly Discovered Reworked, Basally Thinned Projectile Point*

In 2016, a subsurface lithic scatter (FIQs-35) was identified during an HRIA of forestry blocks for Foothills Forestry Products. This newly identified site is situated on a fluvial terrace overlooking Washy Creek, northeast of Grande Cache, Alberta. From the systematic shovel testing, a broken lanceolate-like, basally thinned projectile point was recovered. The preliminary analysis in this paper will focus on the point base attributes, which compare it typologically to similar point types (such as Goshen and Charlie Lake) manufactured during the early prehistoric period (11,000 BP to 8,600 BP). While thought of as a rarity in Alberta, basally thinned and fluted points have been identified at a variety of find spots and excavations, and this paper will discuss the type and location of the newly recovered lanceolate-like base, in contrast with other locales in the region. While not indicative of fluted technology, the preliminary analysis presented here will attempt to show the significance of the basally thinned point typology within the greater context of the eastern slopes and the early prehistoric period.

**Adam Benfer** (University of Calgary)

*Simulated Travel Routes for Pre-Hispanic Nicaragua*

The villages that surrounded Lake Cocibolca during the later pre-Hispanic periods (AD 300–1550) engaged in dynamic interactions and exchange networks, traveling across the land and canoeing or rafting on the lake and rivers to trade goods and communicate with their neighbors. Evidencing this travel network, archaeological studies have documented an abundance of ceramics and worked stone that these peoples produced and traded widely. However, no pre-Hispanic trails or aquatic routes are well understood in the region. To shed light on this interaction and exchange network, I use geographic information systems to predictively model optimal terrestrial and aquatic communication routes among these settlements. Through these models, travel times and probable routes are estimated. These simulations indicate that dugout canoe or raft navigation in Lake Cocibolca and the larger rivers might have been preferable compared to pedestrian routes to save time and expend less energy while trading goods over longer distances.

**Robert Bird** (University of Calgary), **Julien Favreau** (University of Calgary), **Makarius Itambu** (University of Calgary and University of Dar es Salaam), **Patrick Lee** (University of Calgary), **Robert Patalano** (University of Calgary), **Laura Tucker** (University of Calgary), **Enrique Baquedano** (Museo Arqueológico Regional de Madrid, Alcalá de Henares), **Manuel Domínguez-Rodrigo** (Universidad Complutense Madrid), **Audax Mabulla** (National Museum of Tanzania), and **Julio Mercader** (University of Calgary)

*Modern Phytolith Influx at Olduvai Gorge*

Phytolith analysis is an important analytical tool used by many archaeologists. Phytoliths are used in the reconstruction of paleoenvironments and paleoecology, as well as possible past subsistence strategies when performing residue analysis on stone tools. One of the biggest hurdles in the analytical process of phytoliths is identifying which ones are contaminants and which ones are not; which are modern and which are ancient. This presentation will focus on the

methods that were employed to establish a baseline of modern phytolith influx in the Olduvai Gorge region, and may elucidate possible contamination issues when dealing with residues from stone tools. Fifty off-site modern soil samples from the Olduvai Gorge region were processed and analyzed within a cleanroom laboratory at the University of Calgary (ES 811; Filtered air positive pressure: 0.3?m, HEPA Class H14, Airflow: 26.873m3/min). All samples were subjected to a clay dispersal agent, a series of acid solutions to remove organic and inorganic material, and finally a heavy liquid separation to separate the phytoliths from the sediment. We will discuss the methods and initial results of applying this baseline to the analysis of residues from stone tools and modern soil samples from the Olduvai Gorge region.

**Robert Bird, Dale Walde, and Margaret Patton** (University of Calgary)

*Oh Snap: Proper Photographic Technique and Image Quality as an Archaeological Tool*

Photographic documentation of an archaeological site is a standard practice employed by many, if not all, archaeologists. In recent years, the traditional photographic camera has slowly become an artifact as many archaeologists choose to make use of camera enabled cell phones and tablets. Although both cell phones and tablets do offer a level of convenience, both devices suffer several drawbacks. The traditional camera allows us to deal with the biggest of these drawbacks: image quality. A traditional camera utilizes a larger imaging sensor compared to either a cell phone or a tablet which allows for greater latitude in editing and compositing a mosaic of the site, along with other benefits. Better graphic documentation of a site can be achieved through the use of a photographic stand with attached boom arm along with a leveled traditional camera and remote trigger. This allows for a sharper image with higher resolution allowing for the construction of composite, or mosaic, images of the site. Which can be printed in large format for display purposes, but also help in the identification of patterns at the site. This presentation focuses on the techniques utilised during the 2016 and 2017 field seasons at Cluny Fortified Village at Blackfoot Crossing Historical Park (EePf-1) and presents the results of the imaging and the composite image.

**Chelsea Blackmore** (University of California, Santa Cruz)

*Queer Feminist Reflections on the Ancient Maya State and Everyday Life*

My paper considers the impact of feminist theory on archaeological models of ancient Maya complexity, politics, and the impact of everyday life. Within Maya archaeology, as elsewhere, feminist and poststructuralist approaches to the past have challenged the normalization of androcentric methodologies and as a result have complicated understandings of ancient human practices. Yet pursuit of these topics in Mesoamerican archaeology continue to be intellectually and materially separated from consistently 'more important' discussions of the state, elite ideology, and politico-economic process. Given the extensive conversations and critiques that have attempted to redress this issue both within and outside of anthropology, why does it persist? Using queer and feminist theory, I interrogate the ways in which the normalization and standardization of archaeological evidence ignores social variation and the impact that "queered" identities had in shaping civil society.

**Chelsea Blackmore** (University of California, Santa Cruz)

### *Archaeology, Activism and Social Justice*

The past is invoked all the time. It is the anchor that shapes our identity, our belief systems, and our everyday lives. Politicians and lawmakers invoke the past to justify current policies or practices they deem legitimate, moral, and righteous. As archaeologists, we see the connections between what we do and topics such as climate change, science education, cultural heritage, and preservation. But what of racism, police brutality, or sexual assault (to name a few)? We distance ourselves from these discussions suggesting that archaeology is not a suitable vehicle. But archaeology, both prehistoric and historic, lends itself perfectly to these topics. Understanding how states operate, how gender is constructed across time and space, how colonialism instituted racial hierarchies-these are the contexts and histories that have shaped modern society.

**Geoffrey E. Braswell** (University of California San Diego)

*Jade the Water and Burn the Fire: The Nim li Punit Wind Jewel, Royal Ritual, and Ancient Maya Politics*

In 2015, one of the largest provenienced jadeite artifacts ever discovered in the Maya lowlands was excavated at the small site of Nim li Punit, Belize. The artifact is a pectoral in the shape of the glyph ik' or wind. In this presentation, I briefly present the archaeological context of the the Wind Jewel, as well discuss the long political hieroglyphic text on its reverse. I then turn to the use and meaning of wind jewels in royal rituals from the Middle Formative through the Postclassic periods.

**Nasreen Broomand**

*Drills and the Dead: An Overview of Various Sampling Techniques*

Researchers are always searching for methodologies to maximize authentic endogenous ancient DNA yields of their samples. Because of this, a great deal of variability exists in how samples are collected, extracted, processed, and analyzed. This talk will weigh the benefits and disadvantages of different clean sampling methods. A brief overview will also be given of trusted methodologies for various other processing stages that take place as a sample moves through an aDNA research pipeline.

**Kevin Brownlee** (The Manitoba Museum), **William Dumas** (Manitoba First Nation Education Resource Centre) and **Myra Sitchon** (Government of Manitoba)

*Six Seasons of the Rocky Cree: Collaborative Education model based on archaeological research*

The Manitoba Museum has focused on creating meaningful partnerships with Indigenous communities for over 35 years. During this time, our approach to reaching out to communities and the methods we employ has transformed towards a collaborative effort. This presentation will focus on a particular educational outreach project involving the Asiniskow Ithiniwak (Rocky Cree) communities of northcentral Manitoba and how our work has evolved over the last 25 years. The project began in 1992 with the discovery of ancestral remains of a young woman from the 1600's on Southern Indian Lake. Since then, the community has allowed analysis



inspiring us to tell her story in many ways such a museum publication for the general audience and a children's book with accompanying teachers guide. The project has now transformed into a large partnership endeavor that includes Rocky Cree communities, several universities, educational organizations, government, a publishing house, and the digital gaming industry.

**Shawn Bubel** (University of Lethbridge)

*Hunting, Butchering, and Ceremony at the Fincastle Site*

The Fincastle bison kill site is located in an area of stabilized sand dunes and active blowouts, 4 km south of the Oldman River in Southern Alberta. Excavations unearthed more than 290,000 bison bone fragments, 138 Outlook/Besant projectile points, 129 other lithic tools, 4,115 pieces of debitage, and 1,583 fire-broken rocks. The stratigraphic context of these remains together with radiocarbon and OSL dates denote a single event that took place 2,500 years ago. Kill spots and butchering areas were identified, along with hide working and grease rendering locales. Several ceremonial bone upright features were discovered below the bone bed, pushed into the clay-rich substrate following the kill. Each feature is unique, made up of selected bone elements oriented vertically. The discoveries made at the Fincastle site evidence a successful hunt on the open plains and provide a glimpse of the cultural richness of the groups living in the region during the late Middle Prehistoric Period.

**Katie Burdeyney** (University of Saskatchewan)

*So Much Archaeology, So Little Paleoenvironmental Analysis*

Over the past 30 years, archaeological investigations at Wanuskewin Heritage Park (WHP) have revealed an unusually high concentration of archaeological sites dated to the Middle Precontact Period (6000-2000 BP). Despite extensive documentation and discussion of past human lifeways within the park, to date it remains unclear why WHP was such a favoured locale. It has been suggested that the valley encompassed by the park may have served as an ecological magnet drawing groups in from the surrounding area. This paper aims to present a preliminary paleoenvironmental record based on phytolith data from archaeological sites within the park, along with a summary of how this data aligns with human occupation at these sites.

**William Byrne**

*A Babe in the Woods*

In 1964 I became the first undergraduate student to be accepted into the newly-created Department of Archaeology at what was then the University of Alberta at Calgary. For the first year I was the only undergraduate, sharing space and attention with almost a dozen graduate students who were immediately attracted both by the innovative creation of a university department centered on American archaeology and the dynamic leadership of Richard (Scotty) MacNeish as chair. Over the next four years I was fortunate to be present as the university was transformed into an independent entity in 1966, now known as the University of Calgary. At the same time the Department of Archaeology expanded rapidly in both staff, graduate students and undergraduate students, constantly inventing itself as a unique blend of arts and sciences dedicated to the pursuit of archaeology. It was an exciting - though frequently baffling - time to be a part of it all.

**Fernando Camacho M.** (Independent, fercamachomora@gmail.com)

*Managua Polychrome: pre-Columbian influence in colonial ceramics, Nicoya, Costa Rica*

During the excavations conducted in the years 2015 and 2016 in the church of San Blas in Nicoya, Costa Rica, it was recovered 10 ceramic artifacts of the type Managua polychrome. Due to its contextual location, this ceramics are chronologically associated with the colonial period of the country instead a late Ometepe period, however, their manufacturing techniques, surface treatments but, above all, their context evidences a persistent pre-Columbian influence in the elaboration and use of ceramics.

**Bernadette Cap** (University of Texas at San Antonio)

*The Landscape of Classic Maya Marketplaces in the Mopan River Valley, Belize*

Research focused on the empirical identification of marketplace venues among the Classic Maya has most often focused on architectural centers, in large part due to the challenges of identifying marketplaces archaeologically. Marketplaces in site centers are beneficial because they have the potential integrate society at a broader scale than a hinterland marketplace and could serve as a source of wealth or power for site center elites. To begin to understand the embeddedness of Classic Maya site center marketplaces, I discuss the evidence for Late to Terminal Classic marketplaces at the sites of Buenavista del Cayo and Xunantunich, located 5 km from each other in the Mopan River valley, Belize. The close proximity of these two marketplaces allows for a comparative discussion on the ways in which marketplaces were physically constructed and situated within site centers, as well as their resiliency within Classic Maya society.

**Michael Carrasco** (Florida State University)

*Large Scale Structures in Classic Maya Poetics*

This paper posits the importance of large-scale structures to Classic Maya literature and poetics. Building on discourse analysis, the ethnography of speaking, and ethnopoetics, I analyze a selection of narratives to reveal complex structures that may be divided into stanzas, verses, and framing chiasms based on the internal repetition of parallel structures, some of which are of greater scale than the kenning, couplet, or triplet, so often mentioned in discussions of Maya poetics. These large-scale organizing devices coordinate with the temporal structure of the narrative but are not identical with them, even if both work to frame the central axis of the narrative. The comparison of these large-scale features allows for the identification of an aspect of Maya poetics that has traditionally been understudied, but is nevertheless of critical importance to understanding Classic period literature and verbal art.

**Carolina Cavallini M.** (Universidad de Costa Rica, cavalliniorama@gmail.com)

*Un acercamiento a las sociedades cacicales prehispánicas en el Volcán Irazú, Costa Rica: el caso del sitio Alto del Cardal C-304 AC*

El Alto del Cardal (C-304 AC) es un sitio arqueológico ubicado en las faldas del volcán Irazú, en la parte central de Costa Rica, presenta características significativas en la arqueología de la región ya que son pocos los sitios arqueológicos estudiados cercanos a este volcán. Desde una temporalidad que abarca del 300 a.C-1500 d.C hasta su localización, altitud (2600 msnm) y

los procesos sociales desarrollados en época prehispánica relacionados a las sociedades cacicales; así cómo la presencia de un camino antiguo que comunica las tierras altas del Valle del Guarco con las tierras bajas del Caribe costarricense; que muestra a su vez la apropiación de los recursos de los diversos pisos altitudinales circundantes. La presente investigación pretende mostrar los resultados a partir de los datos recuperados a lo largo de las temporadas de excavación y análisis de la evidencia arqueológica realizado en el Alto del Cardal desde 2011 hasta la actualidad.

**Erik Champion** (Curtin University)

*Under-exploiting Consumer VR for Digital Archaeology & Heritage*

This talk will cover advances and characteristics of current consumer-level Virtual Reality technology and how it compares to traditional research centre-based VR, and specific potential for archaeology and heritage. The central argument will be on the still relatively unexplored possibilities of interactive simulation (rather than visualisation) potential of consumer VR.

**Braedy Chapman** (Circle CRM Group)

*CRM and Lithic Raw Material Procurement in the Central Interior of British Columbia: Future Research Questions*

The western portion of the Cariboo-Chilcotin Natural Resource District, within the BC Interior, has been utilized for millenia by prehistoric peoples. A series of geological formations related to a volcanic hotspot have provided ready access to quality raw materials for the manufacture of stone tools, namely black, transparent obsidian. This presentation documents a preliminary field survey of Obsidian Creek, and introduces future research considerations for the Cariboo-Chilcotin region. In particular, trade routes and travel corridors related to the Grease Trail may have allowed interaction between such dispersed areas as the Baezaeko/Blackwater drainage to the east and the region around the Ranbow Range and Anahim Peak in the West Chilcotin. Site inventories conducted through CRM activities and regional studies in the Baezaeko River valley since the 1970's, as well as observations made by the presenter since 2013, indicate that this drainage system may have played an important role in raw material procurement and transport through the region, with potential implications for the trade relationships established around the Grease Trail.

**Sarah C. Clayton** (University of Wisconsin-Madison)

*Contextualizing market economics at Teotihuacan: a consideration of the material evidence for regional and neighborhood-scale exchange*

Teotihuacan's growth in the first millennium CE represents not just an unprecedented sociopolitical process, but also the evolution of a geographically extensive, dynamic, and complex economic system. Teotihuacan's economy is likely to have included forms of market exchange, making it a crucial focus of research concerning the origins of market economies; however, the mechanisms by which goods changed hands are not well understood. Here, I discuss how socio-spatial contexts of exchange may be reconstructed through the study of domestic artifacts. I focus mainly on ceramics associated with Teotihuacan's neighborhoods and

outlying communities, emphasizing recent data from settlements south of the capital. Compositional analyses are certainly important for tracing interregional exchange networks. Nonetheless, basic quantitative, macroscopic analyses of assemblage content and stylistic variation are needed to estimate the scales at which goods circulated, and by extension, to better understand the social implications of economic transactions. Finally, I consider the spatial contexts in which exchange may have occurred and problematize the application of western concepts of the marketplace to Teotihuacan. Tendencies to view marketplaces primarily as large, architecturally formal, permanent, and centrally located constrain our ability to identify and assess the significance of those that were smaller, informal, or situated within communities.

**Christine Cluney** (McMaster University)

*Revisiting the Role of Experiential Learning Through the Archaeological Laboratory*

As an archaeologist, former high school teacher, and now archaeological lab technician at McMaster University, I present a unique perspective on the role of the student experience in lab-based experiential learning. Students and their families are demanding hands on experience that transfer to skills in the job market. At the same time, most often a university's mission statement centers around greater pursuit of knowledge and democratic values. This would dictate that students need to learn through study, experiences, and hands-on learning. However, the corporatization of universities as economic money makers makes it harder for students to get experience in classroom labs, the preference being a "more butts in seats" modus operandi. So, to ensure student success we need to become more innovative in our approach. In addition to reminding university administration of its own morality and the importance of experiential learning to ensure the continuation of hands-on courses, an extensive volunteer program, paid work within sustainable archaeology, and undergraduate and high school student involvement are part of a community of learners that contribute to a better student experience.

**Corey Cookson** (Treetime Services)

*LiDAR Doesn't Lie: Using LiDAR to Improve the Efficiency of Forestry Archaeology Survey*

The use of Light Detection and Ranging (LiDAR) imagery by CRM practitioners in Alberta has become more prevalent in the last five years. Some consultants in the province criticize the use of the LiDAR as being too target focused and prefer the traditional method of "boots on the ground" survey of entire proposed developments. Other professionals argue that use of LiDAR does not increase site identification rates significantly. Since Tree Time Services incorporated LiDAR into our pre-field screening strategy we have dramatically increased our site returns by at least 100%. Our results demonstrate that the "LiDAR doesn't lie" and it is not the problem; it is the lack of experience and knowledge about site patterning that is contributing to the lower site returns.

**Mike Corbishley** (Institute of Archaeology, University College London/University of Kent/Athens University of Economics and Business)

*Archaeology in Education: Where do we want to be in fifty years?*

While it can be stated that teachers in UK schools in the late 19th and early 20th centuries were encouraged to make use of ancient sites, historic buildings and objects in their

History lessons, it was not until relatively recently that we could claim that archaeology in education has been successfully introduced into schools. This welcome phenomenon can now also be seen in a small number of countries across the world, carried out by museums and heritage organisations with historic sites open to the public and to educational institutions. This paper will discuss a number of specific case studies of curriculum-based projects, from the UK and abroad, where schools are encouraged to see the historic environment in general and individual monuments as unique learning experiences not just in history but in other regular school subjects. The paper will examine whether those who manage our historic environments provide programmes and resources for educational visits for the full range of visitors, from formal education for children to adult learners and from informal learning groups, such as families or clubs. The post-graduate course in Archaeology and Education at University College London will be discussed and its value as part of regular archaeology studies at university will be outlined.

**Jerimy J. Cunningham** (University of Lethbridge)

*Radicalizing the Posthuman: For Ethnographic Analogy in Archaeology*

In recent years, archaeologists have shown a marked ambivalence toward the use of ethnographic analogy and forms of research that explicitly seek to foster it such as ethnoarchaeology. Specifically, the desire to avoid anthropocentrism in the histories produced by posthuman researchers has resulted in a parallel tendency to decenter archaeologists and downplay the import role that standpoints play in the making of archaeological narratives. In this paper, I briefly discuss the history of analogical thought in archaeology and introduce selected critiques. I then look at the epistemic challenges faced by symmetrical archaeologies and suggest that a robust use of ethnographic analogy, anchored in a post-positivist epistemology, allows posthumanism to be radicalized in ways that make archaeology a more explicit form of emancipatory praxis.

**Jerimy J. Cunningham** (University of Lethbridge) and **A.C. MacWilliams**

*Jane Kelley and the Chihuahua Archaeology Projects*

Within the Greater Southwest, the archaeology of the Casas Grandes Region has remained significantly understudied. Charles Di Peso's early work at Paquimé stands as a notable exception and proposed that Casas Grandes was a product of Mesoamerican influences into Northern Mexico. By the late 1980s, however, research programs started by Paul Minnis and Michael Whalen and by the University of Calgary's Chihuahua Archaeology Projects (or PAC) lead by Jane Kelley transformed understandings of Chihuahua archaeology by investigating in great detail local culture histories. In this paper, we outlined the history and significance of the PAC projects and the legacy of Jane Kelley's unique approach to archaeology for scholars still working in Chihuahua. Specifically, we show how her willingness to foster free thought in her projects created the seeds of a pluralism that remains ahead of its time. The PAC projects are perhaps most significant for the way it fostered new independent programs of research in Chihuahua by both Mexican and foreign scholars. Jane Kelley's long term friendships with Mexican collaborators, ranging from local campesinos to students and state officials, is one of the most important legacies of the PAC research program.

**Elin Danien** (Independent Scholar)

*A Backward Look: The Little Known Work of Robert Burkitt*

During the first third of the twentieth century, Robert Burkitt lived in the Alta Verapaz where he excavated ancient Maya sites and collected ethnographic and linguistic material for the University of Pennsylvania Museum. His excavation techniques and lack of proper government license led to a decades-long avoidance of his name in any discussion of his discoveries. This talk highlights some of his major discoveries, and grants him his proper place within the archaeological history of the times.

**Nicholas David** (University of Calgary) and **Diane Lyons** (University of Calgary)

*Calgary in Africa*

From the start the founders of the UC Department of Archaeology envisaged it as embracing World Archaeology ... while realizing that their vision would necessarily be constrained by the resources available and restrictions imposed by the providers. African archaeology became part of our program in 1970 when Peter Shinnie joined the department, continuing after his retirement with the successive appointments of Nic David in 1981 and Diane Lyons in 2002. All three of us established long term research projects respectively in Sudan and Ghana, West and Central Africa and Ethiopia, producing, besides quantities of scholarship and works of outreach, considerable numbers of Africanist — and African! — PhD and MA students. In this paper we summarize highlights of our research in the archaeology of complex societies and chiefdoms, ethnoarchaeology and ethnohistory, and those of long term colleagues and our students, several of whom have continued into careers radiating from African archaeology into development studies, social and medical anthropology. We conclude with reflections on the constraints imposed by the contexts and funding of research, in particular on the areas of community archaeology and heritage studies.

**Shalcey Dowkes** (University of Calgary)

*The Story Continues...: Phytolith Analysis at the Cluny Fortified Village (EePf-1)*

Phytolith analysis is a relatively underutilized method on the Canadian Plains, and has never been attempted at the Cluny Fortified Village site (EePf-1). The primary focus of this research is to determine whether a cultural signature can be distinguished through phytolith analysis. This investigation will be achieved through a comparison of matrix samples from the historic and One Gun occupation components. These samples will then be compared to additional matrix samples from the surrounding offsite area (providing a natural context) and the upper components of the Junction Site, a contemporaneous Old Women's campsite. The results obtained from this research will aid in our understanding of how plants were used at the site, as well as contribute to the overall procedures regarding phytolith analysis. This presentation will discuss the latest results from this thesis project.

**Shalcey Dowkes and Margaret Patton** (University of Calgary)

*Prehistoric Shell Bead Production at Cluny Fortified Village (EePf-1)*

Beads in many forms were used as decorative items on the Great Plains in the historic and prehistoric periods. Excavations at Cluny Fortified Village (EePf-1) have revealed over

1,200 shell artifacts including shell beads, shell bead "blanks," and waste from shell bead production, yet few potential lithic drills have been recovered. Shell artifacts provide insight into prehistoric bead production using local bivalve species *Lampsilis radiata siliquoidea* and *Lasmigona complanata*. Experimental drilling on freshwater and saltwater shell produced distinctive stepping and striation patterns, although connecting these patterns to specific drill materials proved to be unsuccessful. However, these patterns are identifiable to the method of drilling—either holding the drill in the hand or mounting the drill on a shaft). Stepping and striations are largely missing from shell perforations, indicating either missing production stages, bead use, or taphonomic processes. This project examines microwear on shell artifacts to clarify shell bead production at Cluny Fortified Village and contribute to an understanding of craft production activities at the site.

**Kristin De Lucia** (Colgate University) and **Enrique Rodríguez-Alegría** (University of Texas at Austin)

*Church Archaeology in Xaltocan, Mexico*

The past thirty years of archaeology in Xaltocan, Mexico, has led to crucial new understandings of the Postclassic period of (AD 900-1521) central Mexico and household life among commoners, mechanisms of domination and resistance during Aztec rule, and processes of change and continuity following Spanish conquest. Recent excavations in the 16th century church in Xaltocan's town center is now revealing new insights into the long-term history of ritual and daily practice from the Postclassic through recent historical times. Archaeology in colonial churches in large cities, such as Cholula and Mexico-Tenochtitlan, for example, may give the impression that the Spanish aggressively built churches over temples and politico-religious architecture; however, our research at Xaltocan shows that they used different tactics in this rural, hinterland community, where the church was built in space that was not occupied during the Late Postclassic. We will place our recent research in the broader context of previous work on churches in Mesoamerica. Xaltocan, as a smaller rural community in the Basin of Mexico, promises to offer new insights into ritual and religion from Postclassic to modern times.

**Lindsay Der** (University of British Columbia)

*Living with Animals: Changing Perspectives on Animal Materializations at Çatalhöyük*

When the site of Çatalhöyük was first discovered by James Mellaart, he wove a compelling tale of Neolithic religion. He considered many of the Çatalhöyük animal materializations as material substantiation for his narrative of a goddess-bull cult that venerated fertility and the natural world. Yet, current research has moved away from viewing these animal expressions, inclusive of faunal installations in architecture, zoomorphic figurines, plastered reliefs, and wall paintings, as religious symbols or simply aesthetic devices. Recent approaches have instead focused on illuminating the emphatic role of animals in the everyday lives and experiences of the Neolithic residents of the site. In this paper, I consider the various ways humans and animals come together in the material record and trace the legacy of their interpretation at Çatalhöyük. How can these visual expressions can reveal new insights into the complexion of human-animal relations and ontological geographies at Çatalhöyük? Further, how

do these insights reconfigure our understanding of this prehistoric settlement within broader patterns of phenomena related to symbolism, ritual, and social change at the origins of agriculture in the Middle East?

**Sean Doyle** (McMaster University)

*A History of Chipped Stone Research At Çatalhöyük: Old Traditions and New Initiatives*

Fifty-five years of research on the chipped stone at the Neolithic tell site of Çatalhöyük in central Turkey have produced a wide array of results. These have been conducted to fulfill various objectives, and for different purposes. This paper briefly reviews a history of this research, and then presents the objectives and preliminary results from the latest phase of analyses. My primary aim has been to synthesize the material excavated between 2009 and 2017 for the site's final publications, to answer the big picture questions by focusing on spatio-temporal patterns that can be gleaned from the data. I have implemented an updated version of the database to streamline data collection, and to make the records easier to query. Previous studies have tended to bypass intra-site differentiation in favour of chronological patterning by grouping material by level. Of utmost importance to my research is the nuanced identification of technological and typological decision making, and to delineate instances of intentional deposition that can provide information on the unique characters of certain buildings, or the collective identities of the residents within them. This study is foremost contextual in nature, focusing on similarities and differences in depositional patterns spatially and diachronically, both within buildings and across the site.

**Keith Eppich** (Collin College)

*Lineage and Community at El Perú-Waka', the social dynamisms of a Classic City-State*

In order to connect the archaeological present to the people of the ancient past, modern scholars require some understanding of the social and political organization present in Classic Maya cities. The current research attempts to address this need, discussing what Classic society was and what Classic society wasn't, proposing a social model of nested units centered on exogamous lineages and mostly endogamous urban neighborhoods. Mapping such a social organization onto the settlement data from the Classic city-state of El Perú-Waka' reveals an urban landscape in a state of continual flux. Social units rose, fell, prospered, fled, and failed all at the same time. Classic Maya society appears to be a never-settled social dynamic that included river-plain farmers, refugees, noble houses, lineage heads and even considerable social mobility, at least as it was evidenced at El Perú-Waka'.

**Tatyanna Ewald** (University of Calgary)

*A New Method for Dental Microwear Analysis*

The analysis of microwear patterns on teeth has been proven to provide knowledge of an animal's diet immediately before death, and therefore to be useful in the determination of seasonality at the time of death. This type of analysis is based on the recognition that food consumed within general dietary patterns leaves specific signatures on the enamel of teeth. However, this has been limited largely to broader inferences regarding generalized dietary patterns prior to death, such as seasonal grazing and browsing. The analysis of microwear



polishes on stone tools has likewise been demonstrated to portray specific patterns relating to the types of materials it has encountered. Such techniques used in lithic studies can be applied to teeth to assess wear patterns in the form of polish left by certain plants consumed in regards to the content of moisture and presence exogenous grit, which varies seasonally. In animals with relatively uniform diets, such as bison, this will be especially useful in inferring seasonality in comparison to standard microwear techniques. By applying these methods to archaeological bison from the Cluny Fortified Village Site (EePf-1), a narrow seasonality of death for these individuals can be determined and the seasonality of site occupation in addition to length of occupation based on the provenience data for each individual can be inferred. This method should provide an independent means by which to assess seasonality more precisely, and will therefore help to narrow the seasonality of occupation of this important archaeological site.

**Julien Favreau** (University of Calgary), **Robert Bird** (University of Calgary), **Makarius Itambu** (University of Calgary and University of Dar es Salaam), **Patrick Lee** (University of Calgary), **Robert Patalano** (University of Calgary), **Laura Tucker** (University of Calgary), **Enrique Baquedano** (Museo Arqueológico Regional de Madrid, Alcalá de Henares), **Manuel Domínguez-Rodrigo** (Universidad Complutense Madrid), **Audax Mabulla** (National Museum of Tanzania), and **Julio Mercader** (University of Calgary)

*Percussion Technology and Preliminary Results from Residue Analysis at FLK N, Olduvai Gorge*

The reconstruction of the Oldowan paleodiet focuses on meat consumption based on the prevalence of butchered faunal remains and lithic artifacts which show technological strategies designed to obtain cutting flakes. While this behavioural trend is widespread, not all Oldowan occurrences show identical evidence. Such is the case at the terminal Oldowan site of FLK N in Olduvai Gorge which dates to 1.8 Ma, stratigraphically located in Bed I. The site's paleoenvironmental reconstruction suggests that it was a dry promontory with arboreal vegetation surrounded by a wetland environment. The stone tools from FLK N are atypical for an Oldowan assemblage because they are taphonomically unrelated to the faunal remains and are mainly representative of percussion activities. Based on modern analogues, the fundamental ecological niche of Olduvai Gorge in lowermost Bed II is suggestive of plant food availability. In extension, we can assume that some edible plants would have likely been available at FLK N during Bed I times. These converging lines of evidence support the hypothesis that hominins may have been processing plant foods at FLK N using percussion technology. In spite of this, direct evidence for the aforementioned behaviour is still lacking. This presentation will revolve around a recently excavated lithic assemblage from FLK N which was unearthed inside a HEPA ventilated, mobile cleanroom which guards against both modern and ancient contaminants. The stone tools were analyzed inside a cleanroom laboratory (UofC, ES 811; Filtered air positive pressure: 0.3?m, HEPA Class H14, Airflow: 26.873m<sup>3</sup>/min) resulting in a non-contaminated curatorial history. We will discuss our methods for residue analysis and present preliminary results which shed light on the functionality of percussion technology at FLK N.

**Franziska Fecher and Markus Reindel**

*Settlement Archaeology in Northeast Honduras*

Although interest in archaeological investigation in Honduras has increased in the last several decades, there are still many fundamental questions about prehispanic cultural development that remain open. Starting in 2014, research in Honduras was initiated in order to contribute to a better understanding of these questions. Data on archaeological settlements were collected and systemized using a database and various surveys were undertaken. These activities demonstrated that information is especially limited regarding the nature of archaeological sites in the eastern part of the country, a region traditionally considered as belonging to the so called Intermediate Area. Basic research questions like chronology, site function and settlement patterns are little-understood. With the aim of gaining insight into some of these specific research questions, the Guadalupe Archaeological Project in cooperation with the Honduran Archaeological Institute searched for an appropriate archaeological site for excavations. Finally, an extended postclassic settlement in Guadalupe near Trujillo was chosen to realize archaeological excavations. Initial results permit preliminary ideas about the characteristics of the archaeological site and about its relations within an interregional exchange network.

**Juan Carlos Fernandez-Diaz** (University of Houston, [jfernan4@central.uh.edu](mailto:jfernan4@central.uh.edu)), **Anna Cohen** (Utah State University), **Christopher Fisher** (Colorado State University)  
*Digging for Digital Artifacts: Old Lidar Data Yields New Insights into NE Honduran Archeology*

As a response to hurricane Mitch, which caused large scale loss of life and destruction of Honduran infrastructure in 1998, the USGS conducted one of the first foreign large scale lidar mapping projects. The survey executed by the Bureau of Economical Geology of the University of Texas in 2000 covered 15 modern flood vulnerable cities throughout Honduras. Eight of these are located along the coast and within the Aguan and Olancho valleys. In the past two years, a multi-institutional team searched and recovered the original lidar point clouds from old magnetic tapes. These data have been reprocessed using current software and methods. In the new data products, we have identified and mapped multiple archeological sites at close proximity to the modern cities. These new maps add to our understanding of the settlement patterns, site layouts and extent of the NE Honduras cultural area.

**Antonia E. Foias** (Williams College)  
*Power and Polity in the Land of the Ik'a Lords of Motul de San José: Reflections on Ancient Maya Politics*

Motul de San José dominated a swath of the northern shore of Lake Peten Itza in central Peten, Guatemala, during the Late Classic. Recent excavations at two small sites in the periphery of Motul de San José, Kante't'u'ul (approx. 3km northwest) and Chachacklu'um (approx. 5km east) investigated the relations between these secondary centers and their political overlords at Motul de San José. The divergent cultural histories, settlement patterns, architecture, and material culture of these two minor centers will be compared to reflect on ancient Maya politics, and strategies of power used by Motul de San José during the eighth and ninth centuries A.D.

**Maurizio Forte**  
*Is Cyberarchaeology the Archaeology of the Future?*

Cyberarchaeology has completely revolutionized modern archaeology throughout the use of massive digital recording, virtual simulation, data curation and digital transmission. This work can be seen at the intersection between empiricism and simulation. Empiricism by developing tools for data capture and autoptic evaluation in the field, simulation in relation to data processing and modeling in labs and virtual environments. Along with the functionality of VR to enable unique ways to integrate spatial maps and VR renderings through a series of virtual models, a second functionality deals with the ability to find relationality between many different digital media artifacts. Here contemporary search mechanisms and annotation methods enable new forms of interactive juxtaposition of diverse media elements in Virtual Space. Therefore interpretation in cyberarchaeology is characterized by multivocality, collaborative work, networking, new digital media and open digital narratives; it is a fluid and open process. What shall archaeologists do with these kind and amount of data? How can we deal with this hyper-accuracy? What beyond a 3D model? How can we codify and transmit this knowledge to the future?

**Lucy Gill** (University of California, Berkeley)

*Beyond the Bones: A Holistic View of Human-Animal Relationships in Chontales, Nicaragua*

Zooarchaeology within Lower Central America poses many challenges, most notably a lack of reference manuals and collections and a history of inconsistency in collection practices. Within Nicaragua especially, very few zooarchaeological studies have been undertaken. This research represents the first faunal analysis carried out within the Chontales region of Nicaragua, of assemblages excavated by the Proyecto Arqueológico Centro de Nicaragua in 2015 and 2016. Despite often poor preservation, systematic analysis can provide insight into all stages of consumption practices, including species selection, method of preparation, and context of consumption. When combined with representational zoomorphic imagery, and when considered in their depositional context, faunal remains also allow for a reconstruction of human-animal relationships more broadly, including how pre-Hispanic inhabitants of the region conceived of these diverse life forms. Following a historical ecology perspective, faunal remains can be employed in paleoenvironmental reconstructions and elicit information concerning the ramifications of such faunal exploitation for integrated ecological networks. Preliminary results indicate the concurrent maintenance of different communities of practice, as well as constellations of practices operating on an intersite scale, within one valley bounded by the Mayales River sub-basin and the Amerrisque Cordillera. Additionally, while there is some overlap between species utilized based on the zooarchaeological record and species depicted representationally, there are clear divergences as well. Through a cohesive examination of all sources of data concerning fauna in the region, as well as collaboration with specialists in other relevant material studies throughout all phases of research, we can begin to rectify the dearth of zooarchaeological research in Lower Central America and bridge the gap between daily practice and ideologies as they concern animals and the ecologies of which they constitute a fundamental part.

**Jason Gillespie** (Ghostpine Environmental Services)

*Economic Realities and the Future of CRM in Alberta*

The current economic climate in Alberta is very difficult for the CRM industry. Unfortunately, there are several trends which suggest that this may not improve dramatically, even when the oil and gas industry improves. We are being squeezed on multiple fronts. Consolidation in industry is creating fewer and fewer clients. Improved design and construction techniques are allowing many industries to reduce their development footprint. Political pressure is strong to reduce the amount of work required under the Act. Many of the academic institutions, which train our staff, are losing regional specialists due to retirement with little sign they will be replaced. Improved methods and customer expectations are reducing what can be charged. These trends are threatening the basic supply and demand curve which governs our industry. New ways of thinking about the CRM industry are required if it is to survive.

**Jeffrey B. Glover** (George State University) and **Dominique Rissolo** (University of California, San Diego).

*The Proyecto Costa Escondida: Interdisciplinary Investigations along Quintana Roo's North Coast*

Over the past three millennia, rising sea levels and fluctuating climatic regimes have dramatically transformed the physiographic characteristics of this drowning coastline, while Maya society witnessed the rise and fall of divine kings and the emergence of a market-based economy. By correlating multiple facets of the changing paleoenvironment with broader social and economic changes, the Proyecto Costa Escondida research team is revealing the challenges faced, and opportunities pursued, by these coastal peoples as they adapted to their changing coastal landscape. The neighboring ancient Maya port sites of Vista Alegre and Conil are the focus of study. Located only 7 km apart, preliminary data indicate that human habitation along the coast was not continuous over the past three millennia, nor did the occupational histories at Conil and Vista Alegre mirror one another. This episodic settlement history provides tantalizing clues to the vulnerabilities and resilience of these coastal peoples. The project first aims to investigate what social and environmental factors conditioned the resilience and vulnerability of the inhabitants of Vista Alegre and Conil over the past 3000 years. It will do this by employing sediment coring, water salinity mapping, coastal ecological surveys, archaeological survey and excavations, and multi-proxy lab analyses. With these data collected, project members will be able to understand how these factors shifted through time and correlated with one another in order to examine how their interplay shaped past lifeways.

**Christie Grekul** (Yukon Beringia Interpretive Centre) and **Cynthia Zutter** (MacEwan University)

*The value of experiential education: Developing collaborative internship opportunities for archaeology students*

Museums and interpretive centres have great potential as educational partners. Establishing partnerships with post secondary institutions to offer internships can provide unique and challenging experiences for the future generation of professional archaeologists. Similar to archaeology field schools, internships are experiential opportunities for students to learn and develop skills in an applied environment outside of a traditional academic setting. Public outreach is an essential component of professional archaeological practice today, and this

outreach goes far beyond inviting the public to observe an excavation. In the 21st century, public archaeology means directly involving the public in the discovery of the past, while making the past tangible and relevant. The skill set required for this (such as expertise in presentation, communication, interpretation, and engagement) is not something that most archaeologists learn within the traditional pedagogical approach to post-secondary education in archaeology.

Our experiences demonstrate that museum internships contribute to the development of well-rounded archaeologists who are ready for the work force, and are qualified to take on the ever-increasing challenge of public education in archaeology. We have found that collaborative partnerships and internships result in quality learning experiences that are not difficult to establish or maintain, and create strong alliances between students, universities and heritage institutions. The positive outcomes of these internships are numerous for all stakeholders and the benefits extend into the wider discipline of archaeology. In this paper we will share our experiences and recommendations for developing successful public archaeology internship programs.

**Eugene Gryba**, Calgary, Alberta

*Suggestive Evidence from the Boreal Forest Region of Northeastern Alberta of Two Family Unit Archaeological Sites*

Survey work in 2008 and 2009 of a roughly township-and-a-half large oil sands lease in northeastern Alberta led to the discovery of a significant number of small precontact sites identified only by two discrete lithic concentrations located roughly between 15 and 30 meters apart. Field work entailed a judgmental selection of potential target areas and a sampling program involving random and non-randomly placed shovel test units. Where ever amenable, the matrix was sifted through fine-meshed screens. Although none of the sites have been excavated, the evidence suggests that these small sites had possibly been occupied by two family units.

**Lisa Guerre** (Çatalhöyük Research Project)

*Finders Keepers: Accessibility and Sustainability of the Artifact Archive at Çatalhöyük*

When an archaeological excavation grows in scope and size, as more earth is removed and features, structures, and units exposed, so does the volume of finds material. Inherent with this growth come challenges in maintaining what serves as a primary source in our understanding of the past. Over the course of the last twenty-three years, the Çatalhöyük Research Project (ÇHP) has grown to an impressive size supporting multiple multi-national teams as well as independent researchers; in tandem came an exponential growth of the artifact assemblage. To manage the large volume of finds while supporting the research objectives of project staff and independent researchers, a dynamic finds management system was necessary. This article will discuss the evolution of the ÇHP Finds Management System and the role of the Finds Staff, the challenges and obstacles encountered with the growth of the project, and the varying policies and procedures initiated to ensure the sustainability of the finds assemblage for current and future research. Topics to be addressed include a focus on accessibility, the engagement of finds staff with both the archaeologists and lab specialists, and the increased emphasis on accountability of all project members in the stewardship of the ÇHP finds assemblage.

**Helen R. Haines** (Trent University) and **Aaron Shugar** (Buffalo State University)

*Rings on Her Fingers and Bells on Her Toes: Objects of Adornment from Chultun C-1 at Ka'Kabish*

Excavations into several chultuns at Ka'kabish, an ancient Maya city in north-central Belize, have shown that the final use of these features was a mortuary crypt. The chultuns have been found to contain multiple internments and a variety of grave goods. No chultun was more surprising than C-1, a Post-Classic sepulchre which yielded, among other items, a plethora of copper bells and rings of various forms, and numerous shell and jade beads. While known from other parts of Mesoamerica, copper is rare in the Maya world and is restricted to the Post-Classic period. The collection of copper objects from Chultun C-1 at Ka'kabish forms the third largest ancient Maya collection found in Belize. In this paper, we will discuss these objects of adornment, their possible uses, and the significance of this find.

**Mikael J. Haller** (St. Francis Xavier University, mikaelhaller@gmail.com, mhaller@stfx.ca)

*Methodological and Theoretical Trends in the Archaeology of the Central Region of Panama: A Case Study from the Parita River Valley*

After the discovery of the elaborate burials at Sitio Conte, the Central Region of Panama attracted much attention from archaeologists, both professional and amateur. Archaeological inquiry was initially focused more on establishing chronologies or obtaining museum pieces (i.e., gold artifacts), rather than addressing research questions, which came many decades later. Additionally, during this phase of investigation, several influential archaeologists who worked in the region departed to continue their careers in Mesoamerica leaving a legacy of disarticulated research. In the last several decades, more-focused investigations addressing important archaeological questions were advanced; however, challenges still exist. Using the Parita Archaeological Research Project as a case study, I will examine these past trends and suggest methodological and theoretical objectives for future research in the Central Region of Panama.

**Christina T. Halperin** (Université de Montréal)

*Maya Architectural Recycling, Aesthetics, and Investments at the end of the Classic period*

The Terminal Classic period in the Southern Maya Lowlands is known as a time in which architectural investments in major construction projects and vaulted masonry buildings began to wane. Terminal Classic constructions have often been noted to be ad hoc or of poorer quality in comparison with previous phases. Moving beyond models of scarcity, this paper examines the aesthetics, meanings, and shifts in architectural projects at the site of Ucanal, Peten, Guatemala, during the Terminal Classic period. It highlights the importance of recycling older building parts, the potent meanings of building fragments from both near and distant places, and the construction of large platforms, which would have showcased the craftsmanship of wooden buildings.

**Christina T. Halperin** (Université de Montréal), **Zachary X. Hruby** (Northern Kentucky University), and **Ryan Mongelluzzo** (San Diego Mesa College)

*Wearing Down the Royal Body: Classic Maya Jade Ornaments*

Weight can be as physically salient an element in ornamentation as size, color, and workmanship, yet the weight of jade adornments has received comparatively little analytical attention. Taking a new discovery of a jade pendant from the site of Ucanal, Guatemala, as its source of inspiration, this talk explores Classic Maya jade pendants in the round through the perspective of weight. As such, it provides a new analytical lens to think about jade head pendants because, as we argue, weight relates to ornament function or type, weight has rich metaphorical meanings, and its consideration allows for a phenomenological approach often overlooked among studies of jade.

**Scott Hamilton** (Lakehead University)

*Disruptive technologies and their impact on archaeological practise*

Consumer electronics have profoundly impacted archaeological research and dissemination of knowledge. These disruptive technologies have become increasingly powerful and user-friendly, while simultaneously declining in cost. This has had a democratizing effect, enabling even those with modest budgets and minimal specialized training to apply new tools. A series of case studies illustrate the impact of microcomputers and associated software, coupled with digital imaging, global positioning systems, drone photography, sonar mapping, and 3D imaging of material culture and archaeological sites.

**Joanne Hammond** (Pacific Heritage Research & Consulting)

*A Thousand Ways Forward: Teaching decolonization in the CRM industry*

The last half century has seen commercial archaeology eclipse the academic field in terms of employment numbers, research scope, technological pace and financial heft. Rising in tandem with increased recognition of Indigenous rights and rights to cultural heritage, Canadian CRM that profits from Indigenous cultural inheritances has special responsibilities to consciously incorporate decolonizing principles as design, not default. Teaching and learning about decolonization outside the academy is a distinct challenge for CRM, in which varied constituencies—professional, Indigenous, regulatory, industry—are working to reconcile different scales of financial and social sustainability. The TRC calls to governments and the corporate sector to apply UNDRIP principles and standards give some shape to the change we need, yet CRM is divided on how to proceed. A recent survey of the British Columbia CRM community suggests we must identify and exploit as many ways as possible to teach across a field that's diverse and distributed, regional and political, professional and personal. This means a careful, constructive look at how to adapt existing tools of practice such as codes of ethics, regulatory policy and business-oriented workflows to inform users of decolonial rights and responsibilities. We can't sit all of CRM down and prescribe a curriculum for change, but rather must help its constituent groups (consultants, regulators, proponents and Indigenous people) identify appropriate applications of consent and accountability that will ensure the continued relevance of heritage management.

**Meigan Henry** (Hakai Magazine & Hakai Institute)

*Media and the Role of Storytelling in Archaeology*

Media storytelling can be a powerful tool when communicating science to a

wide range of audiences. In the past, magazines, newspapers, television series, and movies have often been the ones to tell science stories with varying success, and they continue to do so on traditional and new platforms. However, as media-making equipment has become more affordable, and personal websites and blogs more prevalent, an increasing number of scientists have begun using a variety of media to share their research directly with audiences. Even when researchers are not comfortable or wanting to take up these communication tools, they might have to: some funding sources now require recipients to convey their work to the general public. Despite potential obligations and a growing sense of responsibility within the scientific community to impart findings more broadly, there is often no explicit training available to researchers when it comes to communicating science to non-scientists. Should we be training researchers to become engaging science communicators and adept media makers? Even if they are not creating media themselves, should scientists be taught to work with journalists, filmmakers, and policy makers to better the odds that their science will be accurately understood and portrayed? In today's world of "fake news," what role should researchers play in science media storytelling? What science communication roles do we want them to play in the coming decades and how do we best prepare them for these responsibilities?

**Roberto Herrera** (Hunter College, CUNY, rherr@hunter.cuny.edu)

*Moving Forward: Investigative and Conservation Strategies in the Diquís Subregion*

Research in the Diquís Subregion of Southern Costa Rica is addressing issues from a more autochthonous perspective, driven by investigators whose theoretical foundations are defined less by Mesoamerican models and more by local Isthmian social dynamics and environmental parameters. This is no more evident than with the new work focusing on the emergent social dynamics of the region. Concentrating on the Aguas Buenas (300 BC–AD 800) to Chiriquí period (AD 800–1500) transition, this presentation looks at one strategy to engage the issue of emergent complexity: site-scale use of space and material in ritual contexts through geospatial and correspondence analyses. While primarily a case study for how one can look at internal site organization over time, this paper also explores how these tools facilitate a more integrative and sustainable approach to investigation. It concludes with a discussion on how we as "local" archaeologists are implementing such methods to develop a more collaborative and holistic archaeological approach in the region.

**Rocío María Lourdes Herrera Reyes** (Dirección Nacional de Patrimonio Cultural, El Salvador)

*Archaeological studies and development in El Salvador*

Anthropological and archaeological studies in El Salvador have been developed since the 19th century from explorers and amateurs, after a few years the work focused on academic projects and little is known about the role that was played by the state, in safeguarding and studying archeological sites, beyond its registration. Work on projects such as dams, that were part of the rescue archaeology, allowed the generation of knowledge based on excavations at places that had not been thought of previously. By 1980, the urbanism and migration started to increase and played a preponderant role in the destruction of sites due to construction. In the twenty-first century more laws were generated to help in protecting, rescue and disseminate the



archaeological heritage, but how does it work the archaeology of contract and what are the problems, taking in consideration human resources, state and private pressures, and clear procedures for a better functioning of the archaeology in El Salvador.

**Ian Hodder** (Stanford University)

*Looking Back at The Successes and Failures of A 25 Year Field Project*

**Erin A. Hogg** (Simon Fraser University) and **John R. Welch** (Simon Fraser University)

*Archaeological Accuracy, Ambiguity, and Activism in Aboriginal Title Claims*

The 2014 *Tsilhqot'in Decision* reaffirms archaeology's relevance to the momentous question of Aboriginal rights and title claims in Canada. Courts and governments now recognize archaeological data as integral in assessing the three key standards for assessing land claims: continuity, exclusivity, and sufficiency in territorial occupation. This recognition boosts mandates to increase knowledge about how courts consider and weight archaeological data and how archaeologists collect and interpret information pertinent in title claim proceedings. Improved accuracy and reduced ambiguity are prerequisite to archaeological contributions to fair and complete land claim assessments. By analyzing how archaeology is used juridically, archaeologists stand to enhance the rigour and relevance of archaeological research and our capacities to serve-as effective advocates for and with Indigenous peoples.

**Sandra E. Hollimon** (Santa Rosa Junior College)

*The Antiquity of Nonbinary Genders in Native North America*

I investigate current archaeological evidence for nonbinary (woman and man) genders in indigenous cultures of North America. These identities have been documented ethnographically, and archaeologists have attempted to locate material and bioarchaeological evidence of these persons in past societies. It has also been suggested that the original migrants from northeast Asia to North America likely would have recognized more than two genders in their cultures. This provides the opportunity to hypothesize what evidence might be found to indicate the presence of non-binary gender identities as far back as pre-Clovis times. Advances in queer theory and practice in archaeology will be discussed in reference to these research issues.

**John Hoopes** (University of Kansas)

*Discussant, Central American Archaeology: The Next Generation*

**Nicholas A. Hopkins** (Independent Scholar)

*A Language-based Theory of Mayan Origins*

Linguists approach the subject of language origins with a caveat: all languages may go back to a single common ancestor (or multiple ancestors) that existed so far in the past it is impossible to determine its characteristics. The best techniques of linguistic reconstruction can reconstruct ancestral languages only as far back as some 10,000 years ago, perhaps ten percent of the distance to the original language(s). Nevertheless, historical linguistics does cover more or less the same chronological span as archeological research in the Americas, and is more accurate for the period in which known ethnic groups formed - in the Archaic and Formative or Preclassic

periods, in the case of Mesoamerica. Within this more recent chronological space, it is possible to formulate hypotheses about the relation of reconstructed ancestral languages to the emerging cultural subgroups. In this paper, a set of hypotheses are proposed concerning the languages of the Mayan family and the processes by which they diversified from a single ancestral language (Proto-Mayan) that existed around 4000 BP, well within the range of reasonable speculation. Patterns of common development allow for subgrouping of the languages in a series of stages, and factors of distribution, vocabulary, and external contacts suggest hypothetical regions of occupation at different periods. In some cases archeological evidence supports these hypotheses, in other cases the relevant questions have never been asked, and supportive data are absent.

**Colleen Hughes** (University of Calgary)

*Exploration of Sentiment Analysis Application with Inuit Place Names*

Sentiment analysis is a natural language processing computer program that evaluates text for negative, neutral, and positive opinions. This program was chosen to assist with determining how a phenomenological method could be achieved within landscape archaeology. This program was used to analyse over 600 Paadlirmuit place names from the Kavilliq Region in Nunavut. This talk will explore the methods of applying sentiment analysis in a place name and archaeological setting and the results from my Master's research on this topic. The use of natural language programs has a future in archaeology and has the potential of becoming as prevalent as GIS.

**Kerry Hull** (Brigham Young University)

*Elite Transportation in Ancient Mesoamerica*

In ancient Mesoamerica elite forms of transportation doubled as powerful symbols of prestige. In this paper I examine the form, function, and symbolism of palanquins across different Mesoamerican cultures from the Late Formative period through colonial times. Using iconography, epigraphy, and early ethnographic material I argue that these litters were portable shrines that were linked in tangible ways to the specific site of the owner. In addition, the presence of what have been described as "protector deities" suggests local patron gods, which themselves can become the object of warfare. I also investigate the use of litters in death rituals both in the Classic period as well as into modern-day indigenous communities in Mesoamerica. Finally, I provide a classification of litter types in pre-Columbian iconographic depictions and detailed colonial descriptions among the Maya and the Aztecs.

**Jenna Hurtubise** (University of Alabama) and **Matthew Helmer** (SWCA Environmental Consultants and University of East Anglia)

*Dualism and Sacrifice at Samanco, Nepeña Valley, Peru*

Duality is one of the key ideological paradigms that defined ancient Andean life, reflected in social organization, architecture, art, and mortuary practices. In 2013, archaeologists discovered a Chimú-Inca style multi-chambered tomb at Samanco, located in north coastal Peru. While the principal chamber was looted and disturbed, containing the remains of at least nine individuals, two flanking chambers were left unscathed. In one chamber, researchers uncovered two individuals, male and female subadults, fronting the remains of a carrying litter and various

offerings. Both of these individuals suffered multiple traumatic perimortem wounds indicating they were sacrificed. Two llamas were found in the opposite chamber. The flanking chambers have an element of symmetry as body position and placement of the subadults and llamas appear to mirror each other. This paper examines the sacrificial and symmetrical characteristics of the interred and explores the importance of duality in Andean ideological and religious practices.

**Scott Hutson** (University of Kentucky)

*A Market Is not a Market Is not Market: Incongruous Consumption in Mesoamerican Cities*

To the extent that markets are institutions, they are always embedded in culturally and historically specific structures of power, practice, and perception. A recent comparison of the economies of a pair of Classic period Maya cities (Tikal and Chunchucmil) shows that superficial likenesses in patterns of consumption and distribution conceal rather striking differences in the economies of these two otherwise similar urban market centers. This paper compares the contrasting patterns at Tikal and Chunchucmil with patterns in household consumption at the non-Maya market center of Xochicalco as well Classic period Maya sites that are unequivocally not market centers. These comparisons test the reach of the distributional approach and shed light on the ways in which local institutions shape not just market exchange but also other forms of distribution. Indeed, recent excitement about ancient markets in Mesoamerica may have caught a tangle of diverse beasts within a single, ill-fitting net.

**Makarius Itambu** (University of Calgary and University of Dar es Salaam), **Robert Patalano** (University of Calgary), **Fernando Diez-Martín** (University of Valladolid), **Manuel Domínguez-Rodrigo** (Complutense University Madrid), **Charles Egeland** (University of North Carolina), **Julien Favreau** (University of Calgary), **Patrick Lee** (University of Calgary), **Audax Mabulla** (National Museum of Tanzania, Dar es Salaam), **Alfredo Pérez González** (Centro Nacional de Investigación sobre la Evolución Humana), **Manuel Santoja** (Centro Nacional de Investigación sobre la Evolución Humana), **Laura Tucker** (University of Calgary), and **Julio Mercader** (University of Calgary)

*Phytolith Plant Landscapes during Bed II at Olduvai Gorge (Tanzania)*

Hominin adaptations to changing environments and increasing aridity in East Africa are central to current paleoanthropological debates, particularly in regards to the Oldowan-Acheulean transition. Reconstructions of ancient vegetation landscapes require a multi-disciplinary approach that includes paleoethnobotany, archaeology, and geoarchaeology to illustrate long-term environmental trends observed in sedimentary sequences. Olduvai Gorge (Tanzania) contains bedded deposits of recognized value to address questions such as the habitat types that existed along the paleolake Olduvai during the deposition of upper Bed II (1.5-1.3 Ma).

Phytoliths are silica bodies that form within and between cells of different plant parts. When preserved, they can be used as a marker of plant families. These silica particles are morphologically distinct, consistent, and resistant to decomposition. Opal silica bodies have been used to understand phytolith production by modern plants in various ecosystems, the correlation between subsurface assemblages and overlying analog vegetation, and Plio-Pleistocene ecosystems. In Olduvai Gorge, phytolith analysis has focused on reconstructing

the diversity of landscapes that framed hominin evolution during Bed I and lowermost Bed II. However, almost no information exists for the middle to upper part of Bed II.

This paper introduces ongoing doctoral phytolith work at three sites: 1) Sam Howard Korongo (SHK) (1.5-1.34 Ma); 2) Bell's Korongo (BK) (1.3 Ma); and 3) Thiongo Korongo (TK) (1.3-1.1 Ma). The lithofacies represented at these sites include lacustrine, fluvial, low energy channel deposits, and paleosols. SHK is found in a fluvial context that was an integral part of a wider lacustrine system, while BK contains both alluvial and fluvial deposits, and TK supports low energy paleosols and several channel facies. Sampling procedures involved a site specific and landscape approach as well as horizontal (spatial) and vertical (temporal) sampling. Sediments were also collected from trenches, according to stratigraphic layering and features. In the laboratory, sediment samples were sieved, dispersed, and treated with acids prior to heavy liquid separation. After phytolith extraction, counting and classification ensued. Morphometric characteristics were recorded as the basis to making ecological inferences and explain the environmental context of upper Bed II.

**Robert R. Janes** (University of Leicester)

*Reflections of a Grateful Graduate Student*

This paper is best described as a condensed memoir, recounting several themes that characterized my experience as a graduate student in the University of Calgary's Department of Archaeology from 1970 through 1975. I will discuss the freedom and responsibility I was given as a student; the eccentricities and strengths of the academic faculty; my understanding of the attributes underlying the department's success and high morale, and the impact that the Department had on my subsequent career as a scholar-practitioner. While acknowledging the personal bias underlying this historical snapshot, I also note that the Department's track record in educating accomplished graduates in a variety of disciplines is a matter of record.

**Michelle Jones** (Universidad de Costa, michijones@gmail.com)

*Los sistemas de información geográficos aplicados en la zona de Turrialba y Jiménez en Costa Rica*

La integración del uso de los sistemas de información geográficos (SIG) en antropología, y más concretamente en Costa Rica, no es una realidad muy extendida. A pesar de ello, encontramos ejemplos donde se realizan mapas con información general, pero estas acciones aisladas no van asociadas a análisis avanzados de uso del espacio. Comenzar a analizar el espacio en relación con el material arqueológico provoca la emergencia de numerosas preguntas tales como: ¿existen patrones en cuanto al uso del espacio que se pueden determinar en un SIG?, ¿qué variables sirven para determinar estos patrones y análisis?, etc. Esta ponencia es un ejemplo de la aplicación de los SIG a sitios en Costa Rica.

**Rosemary A. Joyce** (University of California, Berkeley)

*Resituating archaeology in transdisciplinary theory*

What would a radical vision of archaeological theory encompass? The "New Archaeology" of the 1960s was ambitious to establish a degree of autonomy for archaeology coupled with a demonstration that archaeology, rather than being a hobby of rich men, mattered.

As archaeology has developed in concert with, and in service to, cultural heritage policy in the last five decades, it has perhaps lost both the claim of autonomy and the aspiration to broader significance. The materials we uncover and analyze now secure the goal of archaeology as a contribution to identity formation, often to nationalism. We rarely expect, and almost never receive, attention as a source of theoretical insight. This paper will argue that archaeology in the coming decades could claim a central place in social theory by contributing to transdisciplinary new materialist thought, but only if we reclaim autonomy in a way radically different than imagined in the 1960s.

**M. Anne Katzenberg** (University of Calgary)

*The Legacy of Biological Anthropology at the University of Calgary*

The Department of Archaeology at the University of Calgary began with one physical anthropologist who specialized in analysis of human skeletal remains. The initial focus was on anatomical variation, including age changes, sex differences and population variation. With the rise of scientific methods in archaeology, the department hired a physical anthropologist who specialized in bone chemistry, stable isotope analysis and paleodiet reconstruction. The addition of a nutritional anthropologist provided a much needed perspective on living indigenous people. Graduate students in physical (biological) anthropology often work with archaeologists in the department on aspects of their research area and/or on their collections. The result has been a successful group of bioarchaeologists who have regional, temporal and technical expertise, and who hold positions in many Canadian universities. Today, after 50 years, the department provides an interdisciplinary specialization in Biological Anthropology that encompasses faculty members and students with interests in human evolution, human variation, bioarchaeology and primatology.

**Alice B. Kehoe** (University of Wisconsin, Milwaukee)

*Chacmool's, and Calgary's, Anthropological Archaeology: Jane Kelley Writ Large*

Chacmool reflects Jane Kelley's gentle, feminist leadership. It helped to have Dave Kelley's star-quality presence, certainly that made it an important Mayanist conference for years, but it was Jane's deep understanding of anthropology that fostered the conferences as a whole. Chacmool 1989 was the first conference on feminist standpoint in archaeology, it was the watershed (as Alison Wylie termed it), and the fact that Dale Walde co-edited the conference proceedings (with Noreen Willows) was in itself a significant reflection of Calgary's broad anthropological archaeology. Jane's own research using impeccable archaeology and ethnography in seamless IBEs (inferences to the best explanation) modeled fearless anthropological archaeology; her outstanding collegiality made the department supportive at all levels; these qualities underlay Chacmool for 49 years. The question today is whether this oasis of warm climate can persist when CRM, employing the great majority of practicing archaeologists, does not reward an anthropological perspective, and the few academic archaeological programs not focused on preparing students for CRM instead reward "theory" over solid empirically based historical science.

**Harri Kettunen** (University of Helsinki)

*Uk'ay ajbuj: Owls in the Maya Culture*

Owls are frequently considered to be bad omens and harbingers of death throughout Mesoamerica. Ancient Maya and Mesoamerican ideas of owls appear to be reflected in modern beliefs, as is evident from linguistic and iconographic sources. Linguistically, terms for owls in the Maya area are as varied as the map of Mayan languages. However, although some of the terms are language specific, many appear to be diffused across the landscape. Furthermore, many names of birds around the world are imitative (or sound-symbolic), adding to the complexity of linguistic research on birds in general. Additionally, although Mayan languages exhibit numerous terms for different types of owls, only a handful of these appear in the corpus of Maya writing. One of the most common is kuy - a term that is common in Yucatecan sources but, interestingly, all but absent in other Mayan languages, except for Classic Mayan sources. In addition, representations of owls in writing and in iconography share some common features across the landscape, including the characteristic large gazing eyes depicted in frontal view - a trait that is shared not only by Mesoamerican scripts but also by other writing systems and artistic traditions around the world, including Egyptian writing and the earliest known owl representations dating back to the Upper Paleolithic.

**Kathryn Killackey** (Çatalhöyük Research Project)

*Keeping Up with The Drones: The Role of Traditional Illustration At Çatalhöyük In the Digital Age*

Archaeologists have employed visualization at each stage of research throughout its history. While visualization has been a constant, the technology archaeologists employ for visualization has changed over time, especially in the last couple decades. I have been the site illustrator for the Çatalhöyük Research Project since 2007, recording features, drawing artifacts, and reconstructing architecture and past activities. Over the years I've seen the project transition from entirely analogue recording to almost entirely digital in some trenches. At this point the project employs orthophotography, laser scanners, and drones to record and model architecture, landscapes, and artifacts. This transition has provided me the opportunity to re-evaluate my 2D traditional illustration approach and consider integrating some of these new digital methods. In this paper, I discuss the different roles of traditional 2D and digital 3D methods, as well as the benefits of combining traditional techniques with emerging digital technologies. I show how this blending of different technologies draws on their individual strengths, using examples of my work from Çatalhöyük. The 3D models improve accuracy while my traditional techniques add interpretive details, people the past, direct the viewer's gaze, and foreground the image's authorship with brushstrokes and pencil lines.

**Eleanor M. King** (Howard University)

*The Marketplace and Merchants at Maax Na, Belize*

Recent research on the prehispanic Maya has radically changed our views of Maya economics. From an original perception of the Maya economy as monolithic and centered on agriculture leavened by long-distance trade, scholars now recognize a plurality of economic strategies prevailed at different sites. Among other developments has been the discovery of marketplaces at a number of Classic Maya (C.E. 250-900) sites, including Maax Na. Situated in

the Three Rivers Region of northwestern Belize and northeastern Guatemala, Maax Na occupied a peculiar position in the regional hierarchy. While it apparently lacked the political clout of its near neighbor, La Milpa, it served another important regional function as a religious center and possible pilgrimage destination. The discovery of a marketplace at the site suggests it also served as one of the salient nodes in what was probably a region-wide, periodic market system. This paper examines the evidence for a marketplace at Maax Na, including the significance of its placement, and looks at how merchants might have functioned within this site and in the wider region. The focus will be on Late Classic (C.E. 600-900) commerce when most of the sites in this area were contemporaneously occupied.

**Marie Kolbenstetter** (McGill University, marie.kolbenstetter@live.fr )

*Technological Choices and Embodied Practice in the Gulf of Fonseca, Honduras (AD. 350-1400): Giving the Potter Agency*

The Gulf of Fonseca has long been a region that aroused interest in Central American archaeology without attracting much research. Situated between two regions dominated by culture historical research—the southern Maya frontier and Greater Nicoya—, the regional archaeology has slowly opened to new approaches and theoretical frameworks. This study revisits material collected during the 1964-1965 field season by French archaeologist Claude Baudez, with a theoretical framework anchored in French social philosophy and practice theory. Through the lens of embodied practice (Bourdieu 1977), technological choice (van der Leeuw 1993), and technical gesture (Leroi-Gourhan 1964; Mauss 1935), this research attempts to identify communities of practice in three case-study sites located in the Gulf of Fonseca. The analysis of the operational sequence of ceramics, focusing on forming, firing, surface treatment, and decoration, reveals potting traditions that are strongly locally rooted.

**Kendra Kolomyja** (Lifeways of Canada)

*Engaging the Casual Observer: CRM Archaeology in Public Parks (AKA - No, We Aren't Digging for Gold)*

Working in a highly visible public setting creates unique challenges for CRM archaeologists. Public archaeology programs often work to engage the wider public audience through volunteer programs or formal tours and educational sessions. The participants in those programs have deliberately chosen to be involved in an archaeological experience. Far more frequent are the casual encounters between passersby and practicing CRM archaeologists in public areas. Recreational users in public park settings in particular often take the opportunity to stop and ask questions about the project and any interesting discoveries. This level of visibility can make CRM workers the public face of archaeology for an audience who may not engage with historical resources otherwise. How we manage these chance encounters has the potential to impact public opinion and to increase community support of our larger goals towards protection and furthering understanding of archaeological and historical resources.

**Brian Kooyman** (University of Calgary)

*The Technical Challenge: Opening Minds and Windows through Archaeological Science at the University of Calgary*

The Archaeology Department at the University of Calgary was in part founded based on a need for technical skills in archaeology. It began with a foundation in experiential learning through laboratory-based teaching by technically sophisticated archaeologists and a team of contributing scholars from outside disciplines, to map a truly multidisciplinary methodological approach to archaeological questions. The program inspired its students to realize that anything was possible and that many seemingly intractable problems could be unravelled with multi-pronged analyses based on techniques pioneered in other sciences such as geology and biology. Through Department members' innovative research projects the Department continued to lead the way in applications of scientific techniques, compounding the insights and spurring new students to similarly challenge the boundaries of the possible. From flakes and faunal remains to isotopes, residues, and ancient DNA, the Archaeology program at the University of Calgary has pushed the envelope for seeing archaeological culture through a sharp and innovative technical lens.

**Todd Kristensen and Courtney Lakevold** (Historic Resources Management Branch, Alberta Culture and Tourism)

*Outreach, Protection, and Legislation: The role of heritage managers in archaeological education*

Heritage managers in Canada are often part of regulatory bodies that oversee archaeological projects and manage archaeological information in the form of permit reports, site forms, and spatial data. Public outreach and education initiatives of archaeological regulators can encourage the preservation of sites by demonstrating the value of archaeology and, in the process, justify legislation that protects heritage resources. We present the legacy of a 50-year history of heritage management in Alberta, Canada and discuss several current projects designed to educate and inspire the public and archaeological community. These initiatives include an art in archaeology project, blogs, archaeological site discovery and stewardship programs, magazine articles, and several venues that bridge academia, heritage managers, and CRM archaeologists. Heritage managers will have important roles over the next 50 years to convince the public that heritage legislation is important and to create arenas both for public engagement with archaeology and for research that adds value to the archaeological record.

**Emilie M. LeBrell** (University of Calgary) and **Sharisse D. McCafferty** (University of Calgary)

*Ceramic Figurines of Pacific Nicaragua: What Ornamentation, Standardization, and Bodily Conventions Reveal about Indigenous Life and Culture*

Ceramic figurines are being unearthed in household, mortuary, and ritual contexts at sites across Pacific Nicaragua. Due to the ubiquitous presence of these objects in the archaeological record, it is impossible to ignore the importance they must have held for those who made use of them in their daily lives. By assessing diachronic change in representations of costume, hairstyle, adornment, decoration, and the body, (as well as the development of widespread standardization and body conventions) we seek to gain insight into the lives and culture of the indigenous peoples of Pacific Nicaragua.

**Patrick Lee** (University of Calgary), **Robert Bird** (University of Calgary), **Mariam Bundala**



(University of Dar es Salaam), **Julien Favreau** (University of Calgary), **Makarius Itambu** (University of Calgary and University of Dar es Salaam), **Samson Koromo**, **Charles Mather** (University of Calgary), **Robert Patalano** (University of Calgary), **Laura Tucker** (University of Calgary), **Enrique Baquedano** (Museo Arqueológico Regional de Madrid, Alcalá de Henares), **Manuel Domínguez-Rodrigo** (Universidad Complutense Madrid), **Audax Mabulla** (National Museum of Tanzania), and **Julio Mercader** (University of Calgary)

*Breaking New Ground: Coordination of Maasai and Paleoanthropological Digs and Droughts in Olduvai Gorge, Tanzania*

Echoing past charges of archaeology being a colonial pursuit that serves to displace African populations, foreign research teams still predominantly conduct and command paleoanthropological research on the continent. These scientists have neglected to encourage African scholars to enter the discipline, and have not meaningfully interacted with the communities who live adjacent to dig sites. In northern Tanzania, archaeologists seasonally travel to Olduvai Gorge, a vital paleoanthropological research destination located in the multi-use Ngorongoro Conservation Area. Less recognised is that the Maasai inhabit the area, and that a variety of conservation measures are restricting their livelihood options. Despite a century of research projects in Olduvai, paleoanthropologists continue to exclude the Maasai from their work.

Based in the social studies of science and drawing on two seasons of ethnographic fieldwork, this presentation will investigate congruent Maasai and paleoanthropological processes of knowledge production. Instead of epistemic differences, the divide between the groups largely stemmed from subsistence exigencies. To produce publications, researchers dug to model an ancient drought. In a parallel fashion, the Maasai addressed a contemporary drought by digging through the basalt floor of Olduvai Gorge to retrieve the vestiges of water that was abundant in the recent past.

There exists potential to nourish *eseriani*, a locally-valued Maasai concept of peacefulness and unity, through mutually beneficial collaboration. In 2016, a collaborative dig coordinated and addressed Maasai and paleoanthropological conceptions of drought. Diverging from paleoanthropology's neocolonial practices, this dig broke new literal and symbolic ground by being conducted and managed by the Maasai of Olduvai Gorge.

**Roberto López Bravo** (Universidad de Ciencias y Artes de Chiapas)

*Commerce in urban and rural settings at the end of the Late Classic period: a case study in the Palenque polity*

Previous studies related to ceramic exchange networks in the Late Classic Palenque polity have suggested an intricate system of relationships between the political capital and its subsidiary centers. This paper will analyze the distribution patterns of Chablekal Gray ceramics, which were produced in the Palenque polity in locations far away from the capital, imported to the city, and later highly consumed in public and private spheres, and in both elite and commoner households. In addition, the observed patterns will be compared to the distribution of Chablekal pottery at El Lacandón, a secondary center in the political hierarchy of the Palenque polity.

**María López-Rojas** (University of Costa Rica)

*Preliminary Results on Anthropogenic Disturbances in Vegetation of the Pre-Columbian Settlement Nuevo Corinto, Costa Rica*

Nuevo Corinto is located in Guápiles, Costa Rica. The investigations on the archaeological site had suggest social change process over 3000 years, and consequently, the formation of social and political differences. The current research analysis the anthropogenic disturbances in vegetation, based on the social demands of Nuevo Corinto settlers after 250 d.C. The theoretical approach encompass concepts such as: Human-Environment Interactions (HEI), and domesticated landscapes; since probably, the anthropogenic impacts on landscapes were consequences of social demands, for example: construction of social groups, household activities, territoriality, local traditional knowledge, exchanges relationships and competitiveness, and besides. The methodology is based on phytoliths analysis, because of the preservation and potential of this plant remains in paleoenvironmental studies. Therefore, the research includes: soil recollection and description, phytoliths extraction from soils, taxonomic identification and statistical analyze; the methodological strategy aims to identify: the taxonomic diversity, the temporary changes of vegetation disturbances, and the cultural practices that impacts the environment during the Pre-Columbian occupation in Nuevo Corinto.

**Amanda Lorenzini and Josue Gomez**

*Heritage as a Resource or Heritage as a Source of Identity?: The shifting of official heritage discourses and community reactions against touristic development in Cholula, Mexico.*

Since the implementation of the neoliberal economic model in Mexico, heritage discourses have shifted from promoting nationalism to encouraging tourism. Recent legislative changes allow economic exploitation of heritage by the state government and private capital by investing in touristic development of archaeological sites that are meaningful for national and local identities. However, local populations generally view these projects as extractive and through its imposition their understandings of past and present are challenged. This clash is evident in Cholula where the state government expropriated land surrounding the Tlachihualtepetl for building an amusement park in 2014. The local community organized in opposition and managed to halt the original project despite some construction. In this paper, counter-hegemonic notions of heritage and actions carried out by locals opposing the park will be explored and contrasted with the shifts in official notions of heritage.

**Diane Lyons** (University of Calgary)

*Gender Archaeology: Shaken but Not Stirred*

An early criticism of gender archaeology was that many studies simply 'added women and stirred'. This presentation explores how my own gender research was influenced by Chacmool's 1989 gender conference, and how the topic of gender has continued to shake my approach to social identities in rural communities in Africa. This journey has moved from gendered spaces to gendered places, and the ways that cultural perceptions and performances of gender are used to ontologically categorize people's identities in northern Ethiopia.

**Marilyn Masson** (State University of New York, Albany)

*From the bottom up: Rural household economies in the Terminal Classic and Postclassic Periods of northern Yucatan*

A robust and regionally-oriented perspective of political economy is aided by documentation of wealth, integration, and activity differentiation from the humblest households in the settlement system. More is known about commoner lifeways from contexts located solidly within the boundaries of cities, minor centers, or towns in the Maya area. But what about sprawling countryside inhabitants whose agrarian focus provided the baseline surpluses essential to urban life? The long arm of commercial institutions is evaluated in this paper from the perspective of eight rural houselots fully excavated beyond Mayapan's city wall in 2015.

**Kathryn Math** (Concordia University)

*Fang & Feather: The Origin of Avian-Serpent Imagery at Teotihuacan and Symbolic Interaction with Jaguar Iconography in Mesoamerica*

The Central Mexican city of Teotihuacan rose to prominence in the last century BC and lasted for nearly six centuries. The site was constructed unlike any other in Mesoamerica. The civic plan was arranged around two main perpendicular avenues and lined with temples and public monuments. By the third century AD, population was housed in apartment compounds, also precisely aligned with the overarching grid plan (Manzanilla 1999). Such uniformity insinuates the presence of some sort of governing agent. Yet, even after decades of archeological research at the site, there is little consensus on what form of government that was. There are no stelae proclaiming the great achievements of Mayan ajaws, no definitive palaces, no royal burials of the Classic Period. Instead, Teotihuacan murals tell a different story by depicting ornately dressed administrators, armor-clad warriors, and fantastic creatures not found in nature. These murals are key, as they were the birthplace of the Feathered Serpent, distinct from the Avian-Serpents depicted since the Terminal Formative. I propose that the Feathered Serpent of Teotihuacan was a new deity serving as a symbol of the city and was conceived in direct opposition to the jaguars used to symbolize kingship in contemporary Mayan polities. Past studies have treated the murals of Teotihuacan as either literal representation of supernatural deities—often equated to the Aztec Quetzalcoatl—or as a set of signs to be translated like a language. This study concludes that there is an intermediate interpretation wherein the feathered serpent is both a god and a symbol of identity. This is found in the representations of Teotihuacanos outside of Teotihuacan and outsiders within the barrios of Teotihuacan. I will show that Mesoamerican states not only foregrounded concepts of community identity, but also actively recognized those of other polities they came into contact with.

**Geoffrey McCafferty** (University of Calgary)

*Cholula: The Mall of [Meso]america*

Ethnohistoric sources describe the market of Postclassic Cholula as featuring goods from throughout Mesoamerica. Furthermore, the merchant guilds centered in the city, followers of the merchant god Yacatecuhtli, were elevated to princely status. Contact-period sources also describe the political organization of the city, in which these merchant princes played a prominent role. The far-flung influence of the religio-commercial hegemony is represented through the distinctive symbolism of the Mixteca-Puebla stylistic tradition, found throughout

Postclassic Mesoamerica and as far south as Pacific Nicaragua. This paper uses the ethnohistorical evidence to construct a model of Cholula's urban economy and its international influence, with archaeological evidence to critically evaluate the sources.

**Geoffrey McCafferty** (University of Calgary)

*Greatest Hits of the University of Calgary's Central American Archaeology Program*

One of the longstanding research foci of the University of Calgary's Archaeology program has been Central America. Departmental archaeologists have worked in and published on all countries of the region, perhaps the only institution that can make that claim. In the process, researchers have made innovative scholarly contributions to an area that remains mired in culture historical models of paradigms past. For example, Jane Kelley introduced household archaeology to El Salvador, when contemporaries were more interested in lifestyles of the rich and famous. Ruth Dickau and Diana Carvajal used sophisticated techniques to study ethnobotanical and zooarchaeological remains, respectively. The most extensive project has been conducted along the shore of Lake Cocibolca in Nicaragua, involving over 100 undergraduate students and generating numerous MA and PhD theses. Through this concerted research effort, it is clear that the Archaeology Department's legacy has contributed significantly to re-writing Central American prehistory.

**Sharisse McCafferty and Geoffrey McCafferty** (University of Calgary)

*Puttin' on the Glitz: Costume and Ornamentation from Pacific Nicaragua*

Costume is a fundamental expression of social identity that can communicate such characteristic elements as region of origin, civil status, age, ethnicity, and religious affiliation. Using archaeological materials collected over the past 17 years of excavation in Pacific Nicaragua, we will evaluate costume as it evolved over the 2000 year archaeological history of the region. Although there is limited ethnohistorical or ethnographic information available for analogous modelling, terracotta figurines do provide a diverse range of information across time. Furthermore, unusually rich archaeological deposits from domestic and mortuary contexts provide actual objects of adornment, including beads, earspools, and pendants made out of ceramics, bone, shell, and greenstone. Following the overarching goal of the Calgary research in Pacific Nicaragua, these artifact classes will be used to infer developments in the use of costume as a form of distinction.

**Heather McKillop** (Louisiana State University)

*Preserving and Communicating the Underwater Maya with Digital Technology*

The Underwater Maya project focuses on the discovery, mapping, and excavations of wooden buildings and associated artifacts preserved below the sea floor in a shallow coastal lagoon in southern Belize. Digital Technology is being used to create accurate 3D digital images of waterlogged material from the Underwater Maya project, to make exhibits featuring 3D printed replicas, and to digitally communicate via a web site, with emphasis on open-source and open-access software. In order to keep a permanent record of the wood and other salt waterlogged objects, 3D imaging equipment is used in the field, and a 3D printer is used to make accurate replicas from digital files in the LSU DIVA (Digital Imaging and Visualization in

Archaeology) Lab at LSU. With funding from an AIA Site Preservation Grant, 3D prints are featured in permanent exhibits in communities near the underwater Maya sites. The concept is for communities in southern Belize to protect the Underwater Maya sites by investing in them through sustainable archaeological tourism. A web site, [underwatermaya.com](http://underwatermaya.com), was created to share 3D images, open-source GIS, and other digital data.

**Miriam Mendez** (Dirección de Patrimonio Cultural, El Salvador)

*The protection of archaeological heritage in a nascent archeology: The role of contract archeology*

Faced with an uncontrollable advance of urban development, it is presented as an urgency, to establish clear and non-negotiable processes regarding the permits that are granted to construction projects of whatever nature. This has been achieved to a certain extent from the growing number of salvadoran archaeologists who meet the needs of the subject of contract archeology, but this achievement still falls short of the fact that companies continue on many occasions, treating of evading processes, regardless of the destruction of heritage. Here i will approach two specific cases in which each company reacts differently to assuming that they must comply with the established legal framework for the protection of cultural heritage in El Salvador are a clear example of the reactions we face daily and with which it is necessary to deal with, trying as far as possible, to minimize negative impacts on archaeological sites.

**Julio Mercader** (University of Calgary), **Enrique Baquedano** (Museo Arqueológico Regional de Madrid), **Robert Bird** (University of Calgary), **Mariam Bundala** (University of Dar es Salaam), **Fernando Diez-Martín** (Universidad de Valladolid), **Manuel Domínguez-Rodrigo** (Universidad Complutense Madrid), **Julien Favreau** (University of Calgary), **Makarius Itambu** (University of Calgary and University of Dar es Salaam), **Patrick Lee** (University of Calgary), **Audax Mabulla** (National Museum of Tanzania), **Joaquín Panera** (IDEA, Museo de los Orígenes), **Robert Patalano** (University of Calgary), **Alfredo Pérez-González** (Centro Nacional de Investigación sobre la Evolución Humana), **Susana Rubio-Jara** (IDEA, Museo de los Orígenes), **Manuel Santonja** (Centro Nacional de Investigación sobre la Evolución Humana), **Laura Tucker** (University of Calgary), and **David Uribe Larrea** (Universidad Complutense Madrid)

*Acheulean Hominin Ecology: Organic Residues on Lithics as Evidence of Plant Processing at FLK-W and TK (Olduvai Gorge)*

Several compendia have illustrated the reach of conventional approaches to exploring the origins of omnivorous diets in the archaeological record. Included are the cost of developing large brains and bodies; tooth size and shape, enamel thickness, wear; and the chemical signatures obtained from bones and teeth. Over the last decade, new interpretations of human dietary adaptations have proposed a long history of fire dependence, suggesting that humans are biologically adapted to cooked foods. However, these recent studies have not provided direct indication of eco-niche exploitation, plant utilization, or what foods were processed with lithic technologies. The context of hominin activities at Olduvai Gorge (Bed I and II) is revealed through macrobotany, ethnoarchaeology, and the analysis of pollen, phytoliths, and biomarkers. However, no studies have explored hominin ecology, dietary patterns, and the function of the

Acheulean techno-complex by way of plant residues adhered to the surfaces of stone tools. Here, we will present direct evidence of hominin plant processing via Acheulean technologies from two sites at Olduvai Gorge (FLK-W and TK). The data are preserved in the form of: 1) bark, resin, and lignified tissues; 2) preserved starches from USOs; 3) phytoliths derived from cork; 4) resinaceous substances adhered to scrapers; 5) starches from the rhizome of *Typha capensis* on scrapers; and finally 6) USO epidermis is attested by root bacterial fibrils

**Daniel A. Meyer** (Lifeways of Canada Limited)

*New Light on the Protohistoric Period in Southern Alberta as Revealed by the 2013 Floods at Margaret's Site on the Bow River*

The devastating floods of 2013 in southern Alberta led the Archaeological Survey of Alberta to commission studies of their effects on archaeological sites. During the four years of associated survey and excavation work, one of the sites studied was EePj-103, Margaret's Site, located on the Bow River to the east of Calgary. Two seasons of excavation revealed the site to be a multi-component Protohistoric Period site, with the remains of at least one circular lodge area uncovered, and numerous others most likely present. The artifacts recovered, particularly the dearth of traditional stone tools and debitage, has led to a re-examination of our thoughts regarding the impacts of the Fur Trade and technological change on local Aboriginal groups, and is providing information crucial for the preliminary definition of a local Protohistoric phase sequence.

**Virginia Miller** (University of Illinois, Chicago) and **Ruben Maldonado**

*What the Chacmool Wore: Deciphering an Enigmatic Mesoamerican Stone Sculpture*

The monumental stone sculpture known as the Chacmool, found throughout Mesoamerica and even beyond during the Epiclassic and Postclassic periods, has remained a mystery since the first example was recorded at Chichén Itzá and named (inaccurately) in the late 19th century. A variety of interpretations for this enigmatic figure have been offered since its discovery, ranging from deity to ballplayer to sacrificial victim. Some of these figures may bear supernatural attributes, particularly among the Mexica. Here, however, I argue that dress and accoutrements reveal that at Chichén Itzá and Tula, at least, he represents a warrior, and not a defeated one.

**John Millhauser** (North Carolina State University)

*The Other Mesoamerica: Or What We Risk by Ignoring Poverty in Archaeological Method and Theory*

The study of poverty-its recognition, causes, and solutions-has been one of the most pressing, contentious, and long-running components of social science research around the world. And yet, poverty remains nearly absent from the discourse of prehistoric Americanist archaeology. This lack of attention to poverty is especially surprising among scholars of Mesoamerica, so many of whom have endeavored to explain the emergence and persistence of social inequality. This paper examines why poverty has been absent from so much of Mesoamerican archaeology, why this is a problem, and how to remedy the situation. A case study from the Aztec Empire provides an example of how to build an emic model of poverty and

how to use archaeological data to look for its material and spatial correlates. The Aztec case reinforces why it is important to distinguish poverty from inequality and to investigate it outside of Western cultures and monetized economies. The efforts of archaeologists and ethnohistorians studying places like Mesoamerica can help move the comparative and historical study of poverty beyond the reconstruction of wages, incomes, and costs and toward a recognition of the processes that create poverty and its social costs and consequences.

**Ana Morales Arce** (University of Calgary)

*Ancient Mesoamerican groups and their multiple faces: From Cholula and Tlatelolco to an ancient genetic landscape in Central Mexico and beyond*

Central Mexico contained some of the most iconic Mesoamerican populations, such as Nahuatl and Otomanguan speakers, that exerted cultural influences over a vast region through Mexico and Central America during the Postclassic period. Ancient DNA could add valuable information about the ancient population's genetic structure and customs, although the genetic studies of past Mesoamerican groups are still limited. I explore patterns of genetic diversity of two important cities in Central Mexico: Cholula and Tlatelolco. On one hand, Cholula was a city mainly populated by Otomanguan speakers that functioned as a religious and pilgrimage and economic center and it is commonly described as a multicultural city. I investigate to what extent Cholula was genetically related to Central Mexican groups during the Postclassic and how can we use mtDNA to explore Cholula's multiculturalism. On the other hand, Tlatelolco was a sister city of Tenochtitlan, populated by Nahua people that practiced human sacrifice, mainly subadults, as part of their rituals. I address the sex and genetic ancestry of Tlatelolco's sacrificed children. I apply aDNA methods to ancient 13 dental samples from Cholula and 15 rib samples from Tlatelolco, the last ones corresponding to children from a ritual context. I observe mitochondrial haplotypes and haplogroups from these two populations and compare them to other contemporaneous groups to explore their genetic affinities. I also apply molecular methods to determine the sex of the Tlatelolco subadults. Finally, I address the Central Mexican genetic diversity and their interactions with other regions that continue to be debated by archaeologists and ethnohistorians.

**Margarita Moran** (Dirección de Patrimonio Cultural, El Salvador)

*The Gender Perspective in Salvadoran Archaeology*

Although more than twenty years ago in the archaeological investigations at the international level there is the gender approach, in El Salvador it is still not observable, starting from the fact that the interest of the majority of archaeologists are the excavations per se, less appreciating that archeology can be approached from several edges and that one of them is the aforementioned tendency, by means of which elements can be explained that would help to fill gaps of our history, visualizing not only the masculine, but also the contributions that have been given from the feminine. Within this paper i will try to explain the current conditions of this perspective in salvadoran archeology, elaborating an outline of what exists so far.

**Shawn Morton** (Northern Arizona University and **Peter Dawson** (University of Calgary)

*Digitally Preserving Heritage Through Virtual Tourism: Case studies from Belize*

*and Canada*

Visitor experience is often viewed as the best way to communicate the significance of heritage sites to various publics. The paradox is that physical visits to heritage sites can negatively impact heritage resources through the movement and removal of artifacts, intentional and unintentional vandalism of cultural features, the creation of footpaths, etc. Minimizing such impacts by restricting attendance levels or limiting post-excavation development creates challenges for communicating the value of heritage to the public. Visitor experience can also be constrained when heritage sites are geographically isolated, or deemed too dangerous to physically visit. This too makes it difficult to raise awareness about the significance of heritage resources, as well as support for their continued preservation. Virtual tourism and extended reality applications offer potential solutions to such issues. In this paper, we examine how reality capture technologies such as laser scanning and panospheres can be used to create virtual tours and extended experiences that increase the accessibility of heritage sites where access might otherwise be restricted or where development is limited. We also outline how these mediums create opportunities to communicate key messages of heritage significance to the general public that they might not otherwise receive.

**Shawn Morton** (Northern Arizona University) and **Meaghan Peuramaki-Brown** (Athabasca University)

*Maya monumental 'boom': spatial development, rank ordering, and planning considerations at Alabama, East-Central Belize*

In the 1980s, archaeological investigations by the Point Placencia Archaeological Project (PPAP) noted the rapid, single-phase development of monumental construction at the Maya site of Alabama in the Stann Creek District. Though never fully investigated by PPAP, this rapid, 'boom-like' development during the late facet of the Late Classic to Terminal Classic periods is being pursued in current investigations by the Stann Creek Regional Archaeology Project (SCRAP). This presentation, by directors of the SCRAP project, discusses ongoing research at Alabama, particularly the spatial, rank order, and planning analyses being considered as part of epicentre investigations, which we hope will shed additional light on the interesting development processes we believe are occurring in this understudied material sub region of the eastern Maya lowlands known as East-Central Belize.

**Sarah Milledge Nelson** (University of Denver)

*Gender Studies in Archaeology -Are They Still Needed?*

Gender Studies in Archaeology took at least two quite different forms, as the movement developed, and they have had different trajectories. One form involved equity for women archaeologists, where a great deal of progress was made. The other, at least in my view, involved equity for women in the past societies and cultures that we study. This paper mostly considers equity for women in the study of the past. How often is gender a part of site reports? Are the same assumptions that men are responsible for the artifacts still implicit in interpretations of archaeological sites? Do women get equal time? Even this endeavor has many strains. Most of this talk looks specifically at women leaders, and how they are identified and described and in archaeological contexts.



**Tatsuya Murakami** (Department of Anthropology, Tulane University, tmurakam@tulane.edu)  
*Reconfiguring Market Economy: Dimensions of Exchange and Political Actions in Early Mesoamerican Cities*

Polanyi's categorical models of exchange system (reciprocity, redistribution, and market exchange) have provided a powerful tool for characterizing ancient (and modern) economies. While such models are useful in some respects, they obscure variations within each economic system and similarities between different systems. This paper will explore some dimensions of exchange, including market exchange, as a methodological framework for assessing the nature of exchange systems. Then, it will examine the nexus of economy and political actions and provides a more nuanced understanding of the variations and commonalities of economic systems using a case study from Teotihuacan, the capital of a regional state in Pre-Hispanic Mesoamerica (AD 150-650).

**Tommy Ng** ( Bison Historical Service)

*A Special Tribute to Bob Steinhauser, Gentleman Archaeologist*

Robert Steinhauser unexpectedly died of heart failure on January 12, 2016. He was 70. Bob was a pioneer in Alberta archaeological consulting, he was there from the beginning. Bob loved archaeology. He had a hand in the discovery of many of the archaeological sites in Alberta, even though his name was not often on the final reports or site forms. Bob loved the people in archaeology more. Bob was my friend, and my mentor, and because of him, I became a better archaeologist. Bob lived accordingly to his own convictions, and because of those, he had turned away many opportunities. Importantly, Bob was a gentle man and a giver. He was always willing to help, whatever needs cleaning or building, or just a friend who will listen. This is a tribute to one of the most underappreciated and yet one of the most influential archaeologist in Alberta.

**Lesley Nicholls**, retired Department Administrator, Department of Archaeology.

*Behind the Front Lines: Memoirs of 35 years Behind the Trenches*

From joining the Department in December 1973 until my retirement in April 2002 I witnessed many changes in the discipline of archaeology and how it was taught. There were also massive changes in technology that at first were not fully appreciated but which eventually made a big difference my job and changed me from being a department head's secretary to becoming the department administrator. The years I spent in the department were years of growth and development in all our programmes. As the academics changed, so did the Chacmool conference and as today we celebrate the 50th anniversary of the conference we see how it aligned itself with changes in the discipline.

**Yahaira Núñez Cortés** (University at Albany, SUNY)

*Up the hill and down the river: Lomas Entierros archaeological site*

Lomas Entierros was a primary center during the seven centuries before the Spanish arrival (AD 800-1500). It is known for its cobble stone architecture and abundance of non-local trade goods from the Greater Nicoya region, which was linked to Mesoamerica in terms of trade, cultural influence and migrations. Lomas Entierros is located in a prominent hilltop to the east of

the navigable Tárcoles River, considered to have been a major trade route during late pre-Columbian times. It is also strategically located between the coast and the central valley of Costa Rica, and along the coastal routes leading to the gold producers of southern Costa Rica and Panama. This paper presents the preliminary results of the application of LiDAR mapping technology at Lomas Entierros as well as a discussion about the role of interregional exchange in the creation of social hierarchies and chiefly interaction in central Costa Rican polities.

**Karen O'Day** (University of Wisconsin-Eau Claire)

*Caniniform Pendants of Greater Central America & Mesoamerica*

Pendants are among the most widely documented type of body ornamentation in the ancient Americas. Archaeologists excavate the actual pendants and they also excavate objects that represent people wearing pendants. Although pendants typically hang from a cord strung through a perforation so as to be worn to decorate the chest, the pendants take an immense variety of forms. This presentation is specifically about the caniniform, or tooth-shaped, pendants made in Greater Central America. The tapering and curved shaft and tip make this pendant unmistakable. The caniniform pendant is intrinsically a power object because of its design for powerful tearing and piercing of prey. The presentation will demonstrate the long history of caniniform pendants in the region, culminating in an array of materials, forms, and iconography in the centuries prior to Spanish colonization. The end of the presentation will show a few comparisons with caniniform pendants that people in Greater Mesoamerica created.

**Gerald A. Oetelaar**, University of Calgary

*Niche Construction Theory in Plains Archaeology: A New Perspective on Subsistence and Settlement Strategies*

For almost six decades now, our models of subsistence and settlement strategies have been based on ecological principles, specifically those relating to the biology and ecology of bison populations. The basic framework for these theoretical approaches stipulates that climate, topography and soils impose constraints on the nature of the local and regional vegetation which, in turn, influences the nature and behavior of bison populations. In this structured world, the survival and florescence of human groups depends on the acquisition and transmission of knowledge relating to the seasonal movement and patterned aggregation of bison herds. Moreover, shifts in subsistence and settlement strategy are normally attributed to changes in climate and vegetation cover. Unfortunately, the wide acceptance of human impacts on global climate change has prompted researchers in ecology to adopt niche construction theory as a more robust evolutionary framework for understanding the development of ecosystems, large and small. This new theoretical framework views organisms as active participants in the creation of selective environments and thus incorporates biological, cultural and ecological inheritance in its models of ecosystem development. In this presentation, I propose to apply niche construction theory as an alternative framework for understanding the development of the subsistence and settlement strategies of Plains bison hunters. Moreover, I propose to illustrate how the Plains environment was, in fact, a constructed niche designed to enhance the predictability and reliability of desirable resources for the resident bison hunters.

**Gerald A. Oetelaar** (University of Calgary)

*Graduate Alumni of the Department of Archaeology: Where are they Now?*

In the 1960s, the University of Calgary and the newly formed Department of Archaeology embarked on a bold journey to establish themselves as leaders provincially and nationally. In 2016, the University of Calgary celebrated its 50th anniversary proudly announcing its status as North America's top young university. This year, the Chacmool conference is celebrating its 50th anniversary and I would like to take this opportunity to celebrate the accomplishments of the now former Department of Archaeology. Throughout most of its time as an independent unit, the Department of Archaeology was ranked as one of the top five departments in Canada and this ranking was due, in no small part, to the quality of its graduate program. I propose to explore the nature and accomplishments of the graduate program by reviewing the quality of the mentorship and training through the career paths of the individuals who graduated with Masters and PhDs from the program over the past 50 years. This retrospective is designed to highlight the formative role of the graduate program in developing one of the first generation of leaders in archaeology on the provincial, national and international stages.

**Alanna Ossa** (SUNY Oswego)

*Comparing the Association of Centers and Commerce in Preclassic and Late Classic Settlements in south-central Veracruz*

Previous research at the Middle Postclassic period (A.D. 1200-1350) center of Sauce, in south-central Veracruz, documented the development of commercial market exchange centered on Sauce, with spatial drop-off patterns showing decreases in individual artifact types. Earlier periods have some indication of market exchange, including obsidian blades during the Late Classic period. Previous research by Barbara Stark has identified craft production in association with the Late Classic centers, indicating a change from the Preclassic era. However, residential evidence and the spatial articulation of exchange (commercial or not) with centers has not been evaluated systematically for both the Preclassic (600 B.C. - A.D. 300 AD) and Late Classic (A.D. 600-900) periods. These periods are of particular interest in evaluating the association of political centers with commerce because they are marked by significant political and social transitions, with the formation of a large capital and state (Cerro de las Mesas) during the Preclassic, and the breakdown of this state into several likely competing polities (Nopiloa, Azuzules, and Zapotal) in the Late Classic. Both eras have well-developed ceramic chronologies and enough diagnostic materials to provide statistically reliable results using density collections of residential mounds made by Stark's Proyecto Arqueológico La Mixtequilla

**Lisa Overholtzer**, McGill University

*Spinning and Weaving Time: Women's Cloth Production in Aztec and Colonial Central Mexico*

Archaeologists have recently demonstrated renewed interest in time and its relationship with history, temporality, and social memory, and a dichotomy has arisen between "measured/abstract/natural" and "experienced/subjective/social" types of time. In this talk, I fight back against the tendency for pre-Columbian societies to be relegated to the "savage slot" (Cobb 2005) corresponding to the latter, wherein Mesoamerican time is framed as cyclical, change

existing as endless repetitions of cosmic time. Following Gardner (2001), I apply an understanding of time as a temporality generated through human practice, using archaeological, ethnohistoric, and ethnographic lines of evidence to reconstruct time as generated through the embodied, situated practices of spinning and weaving in Postclassic and early colonial central Mexican households. Consideration of quotidian material culture in the form of spindle whorls and of the cyclical daily practices of producing cloth defies the opposition between cyclical time and progress, history, and productivity, and suggests an alternative definition of cyclical time that does not preclude ultimate, long-term change, historical events, or beginnings or endings. This analysis also reveals that we ought to consider not only the warps and wefts of cyclical temporality, but also the situated historicities of cloth production, at both intimate and global scales. Investigating time as it was produced by women spinning thread and weaving cloth in Postclassic and early colonial central Mexico allows us to appreciate the complexities and nuances of their household philosophies.

**Elizabeth H. Paris** (University of Calgary) and **Roberto Lopez Bravo**

*Urban Commerce in the Jovel Valley of Highland Chiapas*

The small cities and towns in the Jovel Valley of highland Chiapas were important local political and economic centers for the small network of polities that characterized the region during the Late Classic-Early Postclassic period transition. In this paper, we examine the role of marketplaces, commercial exchange, and currencies at the monumental centers of Moxviquil and CV-38. We examine evidence for cross-valley trade and local marketplaces, and examine the arrival of exotic currencies from the lowlands, including olive shell tinklers, miniature jade axes, and copper ornaments. We also examine evidence for long-distance merchant activities as documented for Colonial-period Zinacantan, including imported chert spearpoints, obsidian blades, and fine-paste pottery.

**Jason Paling** (Plymouth State University), **Justin Lowry** (State University of New York at Plattsburgh), and **Hannah Dutton** (New Mexico State University)

*Ceramics from Chiquilistagua, A Chemical Analysis*

Looking into the future of archaeology in Nicaragua, it may be possible to connect many different research projects, rescates, and idiosyncratically recovered archaeological materials. By looking at sources and comparative chemistry this paper discusses patterns of production and distribution of pottery recovered from the site of Chiquilistagua through the use of X-ray Powder Diffraction (XRD) compositional data and a proposed use of Instrumental Neutron Activation Analysis (INAA). Ceramic samples tested were compared to existing compositional databases and the results of this study continue to elucidate patterns of ceramic production and distribution near Lake Managua. Dominant types found in the Chiquilistagua assemblage include Usulatan, Espinoza, Segovia, Chavez Astorga, and Nejapa Roja. These initial results and methodology will help to provide a framework for understanding the trade connections and distribution of artifacts across the Nicaraguan landscape during the Tempisque and Bagaces ceramic spheres, which have been associated with widespread social and political reorganization.

**Robert Patalano** (University of Calgary), **Fernando Diez-Martín** (Universidad de Valladolid), **Manuel Domínguez-Rodrigo** (Universidad Complutense Madrid), **Julien Favreau** (University of Calgary), **Makarius Itambu** (University of Calgary and University of Dar es Salaam), **Patrick Lee** (University of Calgary), **Audax Mabulla** (National Museum of Tanzania), **David Manuel Martín Perea** (Universidad Complutense Madrid), **Laura Tucker** (University of Calgary), **David Uribe Larrea** (Universidad Complutense Madrid), and **Julio Mercader** (University of Calgary)

*A Multi-Proxy Approach Highlights the Environmental Context of the Earliest Acheulean at Olduvai Gorge, Tanzania*

Paleoenvironmental studies focusing on human evolution provide insight into the effective hominin response to ecological variables in diverse habitats. Proxies such as stable isotopes, diatoms, and phytoliths serve as measures for water availability, vegetation communities, precipitation or aridity, evapotranspiration of leaf and soil moisture, and the relative abundance of C3 and C4 plants in response to changes in climate.

The Frida Leakey Korongo West (FLK-W) archaeological site in Olduvai Gorge (Bed II) offers an opportunity to investigate climatic triggers and technological innovations, and the impact on human evolution. The FLK-W sequence is dated between  $1.698 \pm 0.015$  and  $1.664 \pm 0.019$  Ma, is separated into six archaeological levels, and consists of fluvial conglomerates and sands fixed within a clay unit at the base of Bed II. The site provides the earliest evidence of Acheulean technology at Olduvai Gorge through a dense archaeological assemblage that includes sophisticated symmetrical and bifacially flaked tools.

We present a high-resolution isotopic analysis of molecular  $\delta^{13}C$ , as well as diatoms, and phytoliths from arboreal, grass, and palm plant species from a 130 cm sedimentary sequence from FLK-W. Our data show environmental fluctuations throughout the sequence, but overall, the FLK-W site was a forest ecosystem that was a component of a larger ecotone environment. Isotope data reveals that there was a general drying trend in East Africa starting around 1.7 Ma, and possibly an expansion of C4 grasses in and around Olduvai Gorge. However, C3 arboreal plant species comprise most of the vegetation throughout our sedimentary sequence. Thus, the environmental context of Olduvai's earliest Acheulean was likely a riverine forest surrounded by woodland and grassland ecotones that experienced warming/drying climate, but not necessarily an expansion of C4 grasses in the immediate FLK-W area.

**Trevor Peck** (Archaeological Survey of Alberta)

*Anthropomorphic 'Napi' Effigies on the Northwestern Plains: A Petroform Record of Nitsitapii (Blackfoot) Belief*

Anthropomorphic 'Napi' effigies are petroforms (boulder outlines) of a static, frontal, male figure with a simple head, rectangular body, upraised arms, heart-line (lifeline), simple-extensions legs with out-turned feet and male genitalia. These petroforms have been called 'Napi' effigies owing to evidence linking them to the Nitsitapii (Blackfoot) entity. This link was suggested over 50 years ago by Thomas F. Kehoe, Alice B. Kehoe and Richard G. Forbis for anthropomorphic petroforms in Montana, Alberta and Saskatchewan. More recently, J. Roderick Vickers formalized criteria that separate these 'Napi' effigies from other human effigies. Since then, five new figures meeting the criteria of 'Napi' effigies have been found

compelling the reconsideration of four previously discounted effigies. This larger sample of distinct anthropomorphic effigies (n=22) provides an opportunity for a further assessment of their style and distribution. A stronger case is made for linking the distinct anthropomorphic effigies to the Blackfoot.

**Kelsey Pennanen and Shalcey Dowkes** (University of Calgary)

*Excavation, Education, Engagement: The University of Calgary Aboriginal Youth Engagement Program*

When the Public Archaeology Program was established in 2014, a need was identified to engage Siksika youth in a meaningful way. The Aboriginal Youth Engagement Program, established in 2016, met this need through providing an enriched educational experience, allowing youth to directly interact with the unique cultural history of the Cluny Fortified Village site (EePf-1). This program consists of two elements intent on engaging youth in archaeology: the first section consists of archaeology-based classroom activities which act as a training day for the students. Second is the participation in the ongoing archaeological excavations at the Cluny Fortified Village site. The interaction between youth and University of Calgary students may provide a means to encourage more youth to pursue a post-secondary education. This presentation will provide an overview of the newest public outreach program hosted at the Cluny Fortified Village site (EePf-1).

**Kelsey Pennanen** (University of Calgary), **Christopher Hamilton** and **Brittany Moses**

*Building a Predictive Model for Archaeological Site Potential using GIS*

Archaeological sites are non-renewable and culturally important resources, and predicting the location of archaeological remains is an integral aspect of archaeological work. In the past, methods such as the examination of aerial photography has been utilized for site prediction. With the availability of new spatial analysis technology, archaeological site prediction models can be built to estimate where archaeological sites may be located by using this software. This presentation will outline the necessary analytical techniques that can be used to produce a predictive model for archaeological site potential, using the Northwestern Ontario landscape as a case study. To build the predictive model, the Standards and Guidelines that govern archaeological assessment in Ontario were used to create layers that were overlaid to differentiate high-and-low potential for archaeological sites that resulted in the creation of a GIS-based predictive model. The model takes into consideration the lithic geology of the area combined with known outcrops, current and former post-glacial lake levels, as well as the glacial landscape features. An algorithm was developed to determine the potential of features and their ranking within the predictive model. The accuracy of the final model was compared to known archaeological sites using an overlay analysis. The results found that through the creation of the predictive model, areas of high potential for containing archaeological sites can be established and confirmed, and the presentation will overview how this technology can be used as a valuable tool to assist in archaeological prospection.

**Sean Pickering** (Bison Historical Services)

*A Bridge too Far: Recent Investigations at EePk-38*

The Highwood River in southern Alberta was the focus of some of the earliest large scale archaeological surveys conducted by the University of Calgary in the early 1970s. Recently, there has been renewed research interest into sites along this important watercourse to assess the impact of large scale flooding of the Highwood River in 2013. However, in addition to recent flood assessment research, excavations carried out by staff of Bison Historical Services Ltd. with the Highwood River valley for a bridge replacement project have also added to the breadth of our understanding of the past use of this area. EePk-38, a stratified multi-component campsite in use from 9,500 years BP to the Historic Period, will be discussed, and placed in a wider context of the archaeological landscape along the Highwood River.

**Adrian Praetzelis** (Sonoma State University)

*Archaeological Theory Without Tears*

Theory is the eat-your-vegetables part of archaeology. Everyone says it's good for you, but actually getting it down isn't much fun. Undergraduate courses in theory traditionally assign mostly classic (i.e., hard) articles. But however virtuous it is to read this stuff, actually grinding through the often convoluted and abstract language scares more undergraduates than it inspires. The same goes for edited volumes of essays by recognized experts that are supposed to provide students with an overview of theoretical topics. These are very erudite people—and that's part of the problem. While the names of Binford and Hodder are great in our field, articles they wrote for publication in professional journals are packed with allusions that pass over the heads of beginners. This leaves the university teacher with two problems to solve: How to present complex ideas without dumbing them down too disgracefully and how to convince people with an inclination to empiricism that theory is actually helpful to stimulate the archaeological imagination. This paper contributes, first, by admitting that there is a problem and that it's not all the students' fault; and, second, by presenting a pragmatic, if controversial, strategy that has had some modest success.

**Heinz W. Pyszczyk** (University of Lethbridge)

*The Many Faces of Fur Trade Archaeology - As Seen from Research at a Northern Fur Trade Site, Fort Vermilion, Alberta*

("Kaninchen und Ente" ("Rabbit and Duck"). *Fliegende Blätter*. 1892)

Fur trade archaeology began in Alberta in the early 1960s. Its practitioners presented papers at the CHACMOOL Conference covering a diverse set of themes. Sometimes, while investigating our material, we saw 'ducks', which, when looked at long enough, became 'rabbits' - a concept introduced by Ludwig Wittgenstein (1953) and expanded by Thomas Kuhn in his work on paradigm shifts in science. That shift in focus was often very subtle, rarely linear, nor did everyone agree on its direction. This paper examines the genesis of those perspectives and research methodologies, and the reasons for them, with examples from the NWC/HBC Fort Vermilion (c.1798-1830), northern Alberta. After contemplating this site for nearly 20 years, the data offered many potential historic realities. However, often our choices were dictated by: 1) the nature of the data base; 2). our struggle for relevance as a discipline; and, 3) new methods

that took us down roads of inquiry never traveled.

**Matt Rawluk** (University of Saskatchewan, Saskatoon, Saskatchewan/Circle CRM Group)  
*Advancing Boreal Forest Archaeology: Intrasite analysis of the Eaglenest Portage Site*

Archaeological studies in northern Alberta are primarily driven by industry. Each year, archaeological consulting firms excavate sites in order to make way for new industrial developments, gathering data on a vast scale. In this region, many sites consist of a seemingly random accumulation of stratigraphically mixed artifacts created through repeated seasonal occupations. In these circumstances it can become difficult to distinguish which artifacts are temporally related to one another. Due to time and budget constraints, consulting archaeologists do not map all artifacts found in situ; instead, it is common to shovel-shave excavation units in 10-cm arbitrary levels. Challenges arise when interpreting these data, due in part to physical and biological processes that move artifacts from where they were initially deposited, resulting in a general lack of stratified sites. These challenges make it difficult to understand both the vertical and horizontal spatial relationships between artifacts. The research presented in this paper hypothesizes that carefully controlled excavations, with emphasis on three-point provenience measurements and spatial analysis, offers an objective method in which to deal with the stratigraphic issues often seen in the boreal forest and subarctic regions of Canada

**Scott Raymond** (University of Calgary)

*Archaeology of the "Least Known Continent"*

South America has been called the Least Known Continent. That characterization was fitting at the time the Department at Calgary was founded, but the founding members, who did not want staff research to be confined to any particular region, set out to change that. Here I review the evolution of research and teaching about South American archaeology and ethnology as carried out by faculty and students of the Department, as well as visiting scholars and post-doctoral fellows. The students who received their masters and doctoral degrees came from several nations of South America as well as Canada and the United States. By the 1980's Calgary had become the principal university in Canada for the study of South American archaeology.

**Joshua Read** (University of Lethbridge)

*Diet of a Fur Trader: Preference or Necessity?*

It is well documented that meat was the primary component of a fur trader's diet. Not only did large game animals sustain the indigenous and European populations, but game birds, fish, and a variety of smaller mammals were also consumed in significant quantities. Regional variation in animal populations would have affected access to certain animals, possibly explaining the diversity of the faunal assemblages within each fort. Was the diet of the fur trader driven and defined by what was available, or did other cultural factors affect access and consumption of specific elements and species? Through an examination of historical documents, including journals and fort records, dietary trends and population preferences were revealed. It was not only necessity that determined diet; personal preference and, in some cases, ethnic affiliation, were key factors in animal consumption. This complexity of individual and group



choice must therefore be considered when interpreting faunal data. The assemblage at Fort Vermillion, a northern Alberta fur trade post, was used as a case study to demonstrate how historical documents can be used to better interpret faunal assemblages.

**Kathryn Reese-Taylor** (University of Calgary) and **Armando Anaya Hernández**

*Locating peri-urban marketplaces in ancient Maya cities*

Recent lidar survey of Yaxnohcah, Campeche, Mexico has revealed four complexes that display features often associated with lowland Maya marketplaces. Located in the northeast, northwest and southwest sectors of the site, the complexes are situated between 1.3km and 2.5km from the center of the E-group plaza, with three clustered between 2.3 to 2.5km. Additionally, three complexes are adjacent to major calzadas that link peri-urban neighborhoods to Yaxnohcah's central civic precinct. In this presentation, we will consider the defining features of these complexes and discuss the results of preliminary testing in one of the groups. Finally, by comparing these complexes to other marketplaces identified in the central and southern Maya lowlands, we will explore models for the administration of urban commerce.

**Michelle Rich** ( Los Angeles County Museum of Art)

*Critical Dialogues: Museums, Archaeology, and Ancient Maya Cultural Patrimony in the 21st Century*

A number of factors, including criticism of collecting practices, activism to set guidelines relating to collecting practices, interactions with countries comprising ancestral Maya homelands, and public engagement, are transforming the relationships between museums, Maya archaeology, and ancient Maya cultural patrimony. After a period of intense debate, ancient Maya scholars from myriad disciplines including archaeology, art history, and epigraphy appear to be increasingly open to working with museum collections, despite the fact that many objects lack archaeological provenience. Both museum curators and outside scholars face the ethical issues concerning such research, and debates about working with ancient objects in museums are ongoing and important. In reality, relationships fostered with countries of origin will guide the viability of both archaeological fieldwork and museums that house ancient art collections. More and more, scientifically-excavated artifacts are creating the foundation for large-scale or specially ticketed exhibitions, which are grounded in international collaboration and loan-based relationships. Nonetheless, the other reality of the situation is that permanent museum collections of unprovenienced objects held in trust in public institutions form the basis of most museum exhibitions and educational programming that contribute significantly to public understanding of Maya archaeology, and of ancient and modern Maya culture. This presentation examines the increased potential for combining archaeological research and museum work to produce responsible, object-oriented research. It will also explore how juxtaposing archaeological research and curatorial work facilitates the creation of dynamic dialogues with countries of origin, as well as the many "publics" who learn from museum exhibitions that endeavor to bring the complexities of the pre-Hispanic past to life amidst contemporary communities.

**Elizabeth Robertson** (Stantec Consulting Ltd./University of Saskatchewan)

*If You Like It, Then You Better Put a Shovel Test in It: Expanding and Characterizing Targeting and Sampling Strategies in Alberta's Boreal Forest Region*

Currently, methodology statements and final reports for consulting archaeology projects in Alberta's boreal forest region typically provide a somewhat standardized list of criteria for the identification of landforms with moderate to high potential for archaeological and/or historic sites. These criteria usually focus on elevated, well-drained landforms with good access to past or present sources of potable water, transportation corridors and/or views of surrounding terrain. More anecdotally, practitioners on the ground will often focus on the highest point of such landforms or points at their ends. However, the boreal forest of Alberta is physically large and diverse, suggesting that unreflective application of these criteria leads only to their reification, as well as a somewhat mechanistic approach to field assessment, particularly on the part of less experienced practitioners. This paper argues that, while these criteria are generally valid, the potential for local variations in the distribution of archaeological and/or historic sites needs to be more explicitly considered in targeting and sampling strategies; furthermore, when local pattern in site distribution is identified, it needs to be specifically characterized in subsequent reporting, so that future studies are informed and guided by detailed information on how specific areas do and do not conform to the overarching model for the region.

**Elizabeth Robertson** (Stantec Consulting Ltd./University of Saskatchewan)

*Fifty Shades of Untitillating Grey Literature: Getting Tied Up in Knots by Alberta's Corpus of Consulting Archaeology Reports*

Alberta Culture and Tourism's On-line Permitting and Clearance System (OPaC) currently makes it possible for professional archaeologists to access all submitted and approved archaeological permit reports produced under the terms of the province's Historical Resources Act (HRA). As such, it constitutes a tremendous resource not only for consulting archaeologists, but also for researchers interested in accessing and compiling data reflecting the massive body of archaeological work that has taken place in Alberta since the implementation of the HRA in 1973. However, in addition to the fact that, as is to be expected, reporting expectations have changed since that time, inconsistency across contemporaneous reports within and between archaeological consulting firms problematize the extraction of consistent and meaningful data from these reports. Although the case has very reasonably been made that standardization of consulting archaeological practices in Alberta will produce inappropriate "one-size-fits-all" approaches, this paper will explore whether a move toward consistency in reporting, whether internally imposed by consulting firms and/or externally enforced by the regulator, represents an important means of ensuring the value and usability of this resource as reports continue to be compiled in and accessed through OPaC.

**Jason Roe and Derrick Foster** (Lifeways of Canada Limited)

*Historic Forestry Practices in the Coal Branch Region*

In a time when coal was king and numerous communities were springing up all through the Coal Branch Region of West Central Alberta, another industry was thriving. The forestry industry has had a long and illustrious presence throughout Alberta. Decades of archaeological work in the Hinton-Edson-Rocky Mountain House region has afforded a unique window into

Historic Period logging practices. Lifeways of Canada, and others, have recorded dozens of forestry-related sites in the region. The sites range from sawmills and splash dams to logging camps. Some of the forestry sites are known, for example the Brule Lake Lumber Camp north of Hinton, or the Corser Lumber Yard at the confluence of the Embarrass and Erith Rivers, but many of the sites have been lost to time. This presentation will take on the task of chronicling the sites that have been found and attempt to tie them into the larger history of the Forestry Industry in West Central Alberta.

**C. Mathew Saunders** (Davidson Day School, North Carolina) and **Meaghan Peuramaki-Brown** (Athabasca University)

*Hands Back, Hands Forward: Learning and Sharing Archaeology Through Education and Pedagogy*

In this introductory presentation to the “Other Grand Challenge” session, we will address what we believe to be the goals of archaeological education and pedagogy—where we have been and where we currently find ourselves—and discuss whether or not they require re-evaluation given current and future likelihoods with regard to student demographics, the economics of education systems, political and social climate, etc. Personal experiences with k-12 and online university education will be used to demonstrate some transitions with the way we do and can engage students with the science of archaeology.

**Stacy B. Schaefer** (California State University, Chico)

*The Threads of Life: Huichol Indian Textiles Over Time*

In the 21st century Huichol Indians of Mexico publicly display to the world their cultural identity through their clothing and other textiles. This presentation examines the importance of cloth and thread in Huichol culture. Based on my decades-long research among Huichol women weavers and embroiderers, and my own Huichol weaving lessons, I will discuss the layers of meaning, symbolism, and practical and ritual use of textiles in Huichol lives. A review of woven and embroidered fabric from its earliest documentation in the late 19th century to the present day will show continuity and change in designs, styles, and dress and how these textile artisans turn their work into creations that are uniquely Huichol.

**Oula Seitsonen** (University of Helsinki, Finland)

*Archaeology, National Identity and Globalization*

As the professionals know, archaeology and cultural heritage have been applied in diverse ways to build and enhance national identities over the past 50 years, and even longer. For instance in Finland, the national identity has been extremely closely tied with the so called “National sciences”, including ethnography, archaeology and folklore, from the late 1800s, and the development and research histories of archaeology have been analogous in numerous other countries around the world. In many relatively new or colonized countries, this was especially strongly driven by a need to invent a unifying national identity. Finland was part of the Imperial Russia until 1917, and in late 1800s and early 1900s there was a strong need to forge an “ancient” identity, both before, during and long after the independence process. Even a century after the Finnish independence, the situation has not entirely changed and there are often

strong nationalistic undertones, especially in the public understandings of archaeology. Nordic countries have been for long culturally and ethnically very uniform, but this situation has started swiftly changing over the past few years, for instance, due to the ongoing refugee crises. Globalization, rapid demographic change and increasing cultural diversity challenge archaeology's roles and ethical responsibilities as a communicator of the past to the increasingly diverse public. Traditional nation-based narratives appear to fail in addressing and engaging the people with varied or multiple national, ethnic and other identities. This paper maps the past and present relationships between archaeology and national identity, and considers possible ways to answer the challenge presented by the diversifying national identities.

### **Selig**

*Evaluating Old Methods with New Data: How Ancient DNA Can Improve Radiocarbon Dating*

Ancient DNA data are now available from thousands of individuals across the globe. This diverse and ever-growing data set provides ample opportunities to not only ask new questions, but also evaluate archaeological methods. This paper discusses recent research that has discovered multiple sets of ancient individuals who were first-degree relatives (parent-offspring or siblings), but have a difference of 100 years or more in radiocarbon age ranges, suggesting a chronological anomaly. To identify such anomalies, maximum and mean year separation between the deaths of related individuals were established through theoretical modeling and examination of ethnographic and historic death records. Initially, detection of these anomalies helped illuminate previously unsuspected errors in radiocarbon dates. It is now also evident that by incorporating relatedness boundaries and radiocarbon dates into Bayesian statistical analysis, archaeological sites can be more accurately and precisely dated. Additionally, this paper examines whether discrepancies between radiocarbon dates and genetic relatedness can be used to identify irregularities in the radiocarbon curve.

**Yuko Shiratori** (The Graduate Center, City University of New York)

*Spolia as Social Identity: The Reuse of Antiquity for the Late Postclassic Maya*

Spolia could be defined as fragments reused in a context different from the original one. Then, the use of spolia is reuse or appropriation of antiquity. Evidence for the reuse and modification of past buildings have been documented at numerous archaeological sites in the Maya lowlands at various times. Massive constructions of ruined Preclassic architectures were commonly reoccupied during the Late Classic period with modifications. While connections to the past inhabitants are unclear, the later inhabitants often constructed ceremonial buildings in locations that had been ceremonially significant. In this paper, I examine the Maya spoliation at the Late Postclassic sites and discuss that the reuse of earlier constructions was one way of adopting to existing architectures for the legitimacy of their social identity at the site. The re-occupation of the past buildings by later occupants may have commemorated and venerated the ceremonial spaces of their ancestors

**Christopher Sims** (University of Louisville); [christopher@godigahole.com](mailto:christopher@godigahole.com)

*Taught Yet Malleable: Presenting Research-Based Knowledge as Content in Digital Media*

Education and outreach are critical undertakings in archaeology, and indeed vital to the

dissemination of research-based knowledge. The efficacy of pedagogy in the discipline faces opportunities and challenges across various media. As new modes of scholarship develop, the roles of archaeologists borrow from other fields. In the case of presenting archaeological research on Web 2.0 – user-driven, interactive platforms – archaeologists become content creators. Employing Web 3.0 platforms, which utilize expansive user-generated data and automated processes, enhances the speed and precision of collecting and processing archaeological data. This paper highlights examples of archaeological education and outreach with social media, blogging, and podcasting. Uses of the Codifi mobile app to collect and present archaeological data are also evaluated in terms of their value to stakeholders and clients.

**Sarah K. Smith** (Amec Foster Wheeler Environment & Infrastructure)

*Archaeological Investigations at the Stó:l̓ Cultural Site Uwqw'iles - the Restmore Caves Site (DiRj-34)*

Archaeological Investigations at the Stó:l̓ Cultural Site Uwqw'iles - the Restmore Caves Site (DiRj-34) In 2014 Amec Foster Wheeler, in partnership with the Stʔ:łó Resource and Research Management Centre, conducted an archaeological investigation of rock shelter site DiRj-34 in response to a proposed development. The site was documented ethnographically by Wilson Duff in 1949 as the Restmore Caves and recorded as spiritual site Uwqw'iles by the Stʔ:łó Nation. The rock shelter is comprised of large boulders at the toe of the Canadian Cascade Range, adjacent to Hunter Creek on the south side of the Fraser River in S'olh Temexw. The site is located between the communities of Hope and Chilliwack, in southwestern British Columbia. The identification of stratified cultural layers, archaeological features, diagnostic lithic tools and the analysis of radiocarbon data provides a framework for placing the site into the oral and ethnographic history of the Stʔ:łó. Traditional local transformer stories and flood stories are investigated through the timeframe of site occupation and contrasted with the physical evidence of site use encountered. By comparing and contrasting ethnographic information recorded on the rock shelter site, the cultural narrative associated with the Uwqw'iles spiritual site, and data collected during preliminary archaeological excavations, we provide a glimpse into the cultural landscape of the area, focusing on changing site-use and settlement patterns over time. It is the intention of this study to show how data from the cultural resource management sector can be tied into regional chronology, landscape use and lithic analysis research and enriched through collaboration with First Nation communities.

**Meradeth H. Snow**

*Genetic Identity and Relationships in the Southwest United States and Mexico*

The prehistoric occupants of the Southwestern United States and Mexico have many similarities, including maize agriculture and the Uto-Aztecan language family. A genetic relationship, potentially due to migration between the regions, has been investigated through mitochondrial DNA analysis. However, limited modern and ancient samples, a focus on the hypervariable region of the mitogenome, and limited samples from intermediate regions between the Valley of Mexico and the cultural complexes in the Southwest US, may have masked the maternal relationship between the regions. A larger sample size from modern populations in Mexico, as well as whole mitogenomes from geographically intermediate sites

such as Paquime, have allowed for a better understanding of the two regions and their relationship. An analysis of modern and ancient, as well as full mitogenomes and solely the hypervariable region, will be discussed to better understand the genetic relationship between the regions and what this means regarding expansion of cultural complexes in the past.

**Nazareth Solís Vargas** (Universidad de Costa Rica, nazareth.solisv@gmail.com)

*Prácticas productivas alfareras y tradiciones tecnológicas durante El Bosque (300 a.n.e.-300 n.e.) y La Selva (300-700/800 n.e.) en Nuevo Corinto (L-72 NC), Caribe Central de Costa Rica*

En la arqueología de Costa Rica se debate sobre la contemporaneidad o secuencialidad de las fases El Bosque y La Selva. Para contribuir a la secuencia cultural del Caribe Central costarricense, se estudia la variabilidad o continuidad de estos conjuntos cerámicos mediante análisis macroscópicos y microscópicos de las características tecnológicas, morfo-funcionales y decorativas de los restos materiales. La muestra utilizada proviene de dos contextos con características de áreas domésticas, uno de la fase El Bosque y otro de La Selva. Teóricamente, se aborda desde el habitus, la antropología de la tecnología y las cadenas tecnológicas operativas, con lo cual se pretende explicar las decisiones y mecanismos utilizados por los artesanos en la producción alfarera. En los resultados preliminares, se notan características decorativas, tecnológicas y funcionales exclusivas de cada fase, mientras que otras características se comparten entre El Bosque y La Selva.

**Jon Spenard** (CSU San Marcos), **Terry Powis** (Kennesaw State University), **Sheldon Skaggs** (Bronx Community College), and **Christophe Helmke** (University of Copenhagen)

*(Re)membering and Forgetting in Pre-Hispanic Pacbitun, Cayo, Belize*

Ongoing archaeological research at the pre-Hispanic Maya site of Pacbitun, Cayo District, Belize, by the Pacbitun Regional Archaeological Project (PRAP) has revealed the site's elites regularly engaged in memory politics, actively forgetting and remembering for political reasons. In this paper we discuss three cases of memory politics tied to major socio-political events in Pacbitun's history. The first occurred during the Late Preclassic period when the entire village settlement and the community ritual building was buried, making a place for the elite site core. Secondly, at the end of the Early Classic period, and later in the Terminal Classic, the only known carved monuments were broken and redistributed in various locations throughout the site. Finally, during the Terminal Classic period, likely one of the last rulers of the site appropriated a Late Preclassic through Early Classic period community cave rain shrine, and transformed it into a ritual stage for stately rain ceremonies.

**Larry Steinbrenner** (Red Deer College)

*"Lesser Nicoya?": Addressing Nicaragua's Marginal Place in Central American Archaeology*

Although Nicaragua's archaeological potential has been recognized by scholars since at least the time of Ephraim Squier in the middle of the 19th century, political currents in the 20th century conspired to ensure that the archaeological record of the largest country in Central America remained the least explored and most ignored. One consequence of this is that Nicaragua's

prehistory has never been properly contextualized, since the comparative lack of research means that only ad hoc, sporadic attention has been paid to evidence for interregional interaction produced by the archaeological record, both within and beyond Nicaragua's modern borders. This paper offers some thoughts on how archaeology in Nicaragua might benefit from an increased focus on connections with neighbouring countries suggested by archaeological evidence rather than on the more familiar yet vague connections suggested by ethnohistoric sources.

**Kisha Supernant** (University of Alberta)

*Archaeological Pedagogy, Indigenous Content, and the TRC Calls to Action: An Indigenous archaeologist's perspective on the next 50 years of teaching Indigenous archaeology*

In 2015, the Truth and Reconciliation Commission released 94 Calls to Action, many of which pertain to education. As archaeological educators, we are called to find ways to integrate Indigenous knowledge into our classrooms, teaching methods, and curriculum at all levels of education. For the past 50 years, archaeologists have tended to frame themselves on experts on precontact indigenous lifeways and have taught the histories of indigenous peoples within a post-secondary context. How, therefore, do we distinguish between including indigenous content in our classrooms and integrating indigenous ways of knowing into our pedagogies? What will be required to develop appropriate and responsible archaeological pedagogies in response to the TRC Calls to Action? In this paper, I review the current discussions about mandatory indigenous content happening in post-secondary institutions across Canada and explore what the current landscape is for archaeology and indigenous knowledge in a pedagogical setting. I present some possible ways that non-indigenous archaeologists can reframe their pedagogy that centers indigenous knowledge in the classroom and the field. I conclude by imagining a future of archaeological pedagogy in 50 years where indigenous voices and perspectives are equal to archaeology in telling precontact history of their traditional lands.

**Travis W. Stanton** (University of California, Riverside), **Patrick Rohrer** (University of California, Riverside), **Traci Ardren** (University of Miami), **Jose Osorio** (Instituto Nacional de Antropología e Historia), **Francisco Perez** (Instituto Nacional de Antropología e Historia, and **Aline Magnoni** (USAID)

*The Ties that Bind: An Analysis of Causeways and Urban Planning in the Northern Maya Lowlands*

The spatial structure of Prehispanic Maya urban phenomena has long been the subject of academic scrutiny. Causeways have been an important element of these discussions given the great effort that the ancient Maya of some regions put into materially connecting architectural groups within and between sites. In this paper we discuss the new data on causeways from central Yucatan and northern Quintana Roo that inform us of several urban phenomena spanning the Late Preclassic to the Terminal Classic. Lidar data that include the sites of Chichen Itza, Coba, and Yaxuna are analyzed with reference to previous settlement pattern studies to shed light on the spatial organization of these important urban centers.

**Irene Torreggiani** (Oxford University, irene.torreggiani4@gmail.com)

*An Environmental Approach to Archaeological Research in Chontales*

From an archaeological perspective, the pre-Hispanic linguistic and cultural heterogeneity of Chontales make it one of the most interesting areas of Central Nicaragua. In 2007, a team directed by Alexander Geurds, started a systematic study of this area. A full-coverage pedestrian survey documented a significant number of archaeological sites in the Mayales River hydrographic sub-basin. Furthermore, eighteen sites with different characteristics have been investigated through archaeological test excavations. Data from archaeozoology, archaeobotany, absolute dating, and relative ceramic sequencing, generated by the research team, provides an unparalleled regional archaeological context to understand the pre-Hispanic social dynamics in this area. Thus, the aim of further investigation will be to correlate social and fluvial dynamics. Geomorphological and paleoenvironmental data will be generated through a multi-scalar analysis to elucidate the adaptive strategies that pre-Hispanic people developed to cope with the environmental changes that modified the surrounding landscapes and influenced the availability of water resources.

**Cara Grace Tremain** (University of Calgary)

*Ancient Maya Fashion Faux Pas*

The Ancient Maya are well-known for their exotic and striking dress, once composed of colourful textiles; shimmering feathers; and intricate jewellery. Sadly, the majority of these materials have not survived in the archaeological record so we are mainly left to studying them through pictorial evidence. It has been suggested that the ancient Maya used dress to identify roles within society, particularly within the royal court, and that their choice of dress may have been influenced by sumptuary laws. With this in mind, can we think about certain clothes or styles as 'fashion faux pas' among the ancient Maya? Does evidence exist to demonstrate that certain dress elements were restricted to specific individuals? Or is it time to reconceptualise dress and consider alternative uses of clothing and adornment in ancient society? This paper will explore these questions and hope to generate new ways of thinking about dressing the body.

**Laura Tucker** (University of Calgary), **Julien Favreau** (University of Calgary), **Makarius Itambu** (University of Calgary and University of Dar es Salaam), **Patrick Lee** (University of Calgary), **Robert Patalano** (University of Calgary), **Enrique Baquedano** (Museo Arqueológico Regional de Madrid, Alcalá de Henares), **Manuel Domínguez-Rodrigo** (Universidad Complutense Madrid), **Audax Mabulla** (National Museum of Tanzania), and **Julio Mercader** (University of Calgary)

*Bioavailable Strontium ( $87\text{Sr}/86\text{Sr}$ ) and Assessment of Diagenesis at Olduvai Gorge, Tanzania: Preliminary Results*

Stable strontium isotope analysis ( $87\text{Sr}/86\text{Sr}$ ) of skeletal remains can be used to assess migration of prehistoric people and animals, and to distinguish local and non-local individuals. Geological bedrock composition and age are the primary factors which impact the local  $87\text{Sr}/86\text{Sr}$  value. Bioavailable strontium is strontium in groundwater taken up by plants during photosynthesis that is incorporated into animals' skeletal and dental tissues when they eat said plants. As animals move, they carry the  $87\text{Sr}/86\text{Sr}$  signature of different areas with them. Post-depositional contamination called diagenesis can happen, where strontium in the



surrounding matrix can overwhelm the  $87\text{Sr}/86\text{Sr}$  signature of the bone, making it difficult to determine what the original value of the bone was. To interpret  $87\text{Sr}/86\text{Sr}$  signatures from skeletal remains, variation in the region's bioavailable strontium values must be established. This can be done by analysing plants, small herbivores, or land snail shells.

Olduvai Gorge in northern Tanzania is an incredibly important area for paleoanthropological research, but there has not yet been a study done there on prehistoric mobility. In this study, we analysed small portions of plants from known locations in northeastern Tanzania to determine their  $87\text{Sr}/86\text{Sr}$  signatures to create a bioavailable strontium isoscape: a map of the landscape divided up based on isotopic values. These samples were from various Cenozoic (both sedimentary and volcanic) geological domains. As well, I analysed bovid tooth enamel from DS, a 1.8 million year old site on the same paleosurface as FLK Zinj in Olduvai Gorge, to assess whether or not diagenetic contamination is a major issue at the site. Here, I present my preliminary bioavailable strontium isoscape of northeastern Tanzania, as well as preliminary data on diagenetic contamination at DS.

**Michelle Turner** (SUNY Binghamton)

*On the Matter of a Great House*

Archaeologists in the Chaco region have tended to minimize the importance of earthen architecture, often viewing it as expedient or "local." Where Chacoan-style masonry is associated with complexity, political importance and ritual, earthen architecture marks the domestic, the apolitical, the unambitious. Yet earthen architecture was common in the Chacoan era and was even used in some great houses. Working with the case study of an unusual outlier great house, I draw on ideas of social landscape and human entanglement with non-human agents in examining the materiality of earthen construction. I argue that by reorienting our attention to the humblest of materials, and their relations with human agents, archaeologists can gain new theoretical insights into human cultural practices and social structure.

**Madoka Uemurua** (Kyoto University of Foreign Studies), **Hiroshi Minami** (Kyoto University of Foreign Studies), **Sagrario Balladares N.** (Universidad Nacional Autonoma de Nicaragua), and **Leonardo Lechado R.** (Universidad Nacional Autonoma de Nicaragua)

*Archaeology and the Public Participation: Creating a Field Museum in the Community of Matiguas, Matagalpa*

In 2013, Kyoto University of Foreign Studies (KUFS) started the Project Matiguas, a local applied research in Nicaragua. This project is focused on resolving local problems, that is the cultural heritage and environment preservation using a methodology based in archaeology and museology. By carrying out archaeological excavations and the obtained information with local residents, we aim to help them revalue the history of this area and reinforce their local identity. In this project Japanese students and Nicaraguan students participate in the various activities to learn a method of archaeology and museology. In this presentation, cases within our project will be introduced, showing the current results and future tasks.

**Daniel Uosukainen** (Leiden University)

*A window into past surfaces: Non-systematic archaeological survey data from North Central*

## *Nicaragua*

In the north central highland region of Nicaragua much of the archaeological data compiled has been collected opportunistically, usually without deeper interpretation or publication. A lack of overview and synthesis of the existing archaeological data has prevented archaeology from contributing to revealing more about the indigenous past of the region, which has been subject to the projection of both ethnic and colonial biases since early colonial times. The aim here is to evaluate the homogenised non-systematically produced data from different sources and conduct a visual analysis aided by geographic information systems (GIS) of the archaeological data from the region and provide preliminary interpretation of the data in order to see how the different archaeological traces relate to their geographical environments, and what implications the evidence from this region holds to the archaeology of neighbouring regions.

**Dieuwertje van Boekel** (ADC Archeoprojecten in the Netherlands)

*Dead men tell many tales: introducing a new methodology for excavating burial contexts in the Gran Nicoya region of Nicaragua*

There are many things of great value to be found among the dead. The various grave goods are, of course, a pleasant incidental, but the real treasure is the amount of information that can be gathered from mortuary contexts about past lives and practices. As such, burial excavations have always been a topic of great interest among archaeologists. In the Gran Nicoya region of Nicaragua, however, the preservation of osteological remains is often less than ideal. Heavy rainfalls and moisture in the ground cause rapid deterioration, and the lack of sedimentation leaves burials exposed to rodents, bugs, roots, and trampling. A new methodology that was developed for Merovingian graves in the Netherlands can help in retrieving as much information as possible from this fragmented record. Over the years Prof. Theuws and his students have refined their burial excavation method during extensive research in Borgharen, Echt, and Veldhoven. Aspects of their research will be adapted to the cultural setting of the Gran Nicoya area, and made applicable for use in future excavations in this region. By using subsection and profile excavation, digital mapping, and a combination of various sampling procedures and micro-morphological analyses more insight can be gained into cultural, biological and environmental processes in the area.

**Dale Walde** (University of Calgary)

*Mortlach and One Gun: A Reconciliation*

The nature of the relationship between One Gun and Mortlach ceramics has been a source of contention amongst archaeologists for the last fifty years. Some contend that One Gun (Cluny complex) and Mortlach pottery are basically the same thing while others note that differences in manufacture, tool size, and spatial distribution suggest the two belong to entirely different cultural historical entities. The results of ongoing research by the author over the last twenty years suggest a reformulation of both pottery complexes and their respective cultural historical designations is now appropriate. A call to promote the Mortlach phase to the level of archaeological culture (the Mortlach culture) is reiterated here and the implications of this redesignation are explored. Two eastern phases are suggested-a northerly Lozinsky phase and a southerly Lake Midden phase. To this complement, a third phase is added. While there are clear

differences between the ceramics of the earlier Mortlach phase and those of One Gun, it is also clear that Cluny complex pottery shares more characteristics with Mortlach than it does with any other ware. It is therefore proposed that One Gun be added as a third phase of the Mortlach culture. Several newly named ceramic types are associated with these phases, including: Cluny Dentate/Check Stamped (One Gun phase), Long Creek Dentate/Check Stamped (Lake Midden phase), and Stoney Beach Wrapped Object Impressed (Lozinsky phase).

**Lucía Watson Jiménez** (Pontificia Universidad Católica del Perú) and **Krzysztof Makowski Hanula** (Pontificia Universidad Católica del Perú)

*Women Among Fishermen and Shepherds of the Central Coast of Peru in Late Periods (1100d.C-1532d.C)*

The objective of this work is to approach the roles played by women in the prehispanic complex societies (Chancay Culture and Inca Empire 1100d.C-1532d.C.) of the central coast of Peru. We compare the results of the funerary contexts from "The Necrópolis de Miramar" in Ancón and Pueblo Viejo-Pucará in Lurín. We will approach these from the bioarcheological perspectives of different socio-political aspects of women's position in these societies, where the main activity of the female population was textile production, while men worked on sea fishing and camelid grazing. This study uses recent and partially unpublished excavation results as well as 3D reconstructions of funerary bundles, and nonpublished field notes from archives. In the Necropolis of Miramar in Ancón the marriage alliances with elite women from foreign groups served to assert the political position of some lineages to judge by various aspects of funeral ritual that sets them apart from other members of the same group. While in Pueblo Viejo - Pucará all individuals, including elite women, were buried according to the ritual of foreign origin (Huarochiri).

**John R. Welch, David Burley, Erin Hogg, Kanthi Jayasundera, David Maxwell, George Nicholas, and Janet Pivnick** (Simon Fraser University), **Christopher D. Dore** (Heritage Business International and SFU), **Joanne Hammond** (Pacific Heritage and SFU), and **Michael Klassen** (Klahani Research and SFU) Primary Contact Email: [welch@sfu.ca](mailto:welch@sfu.ca)

*An Online Professional Master's Program in Heritage Resource Management: Digital bridges across disciplinary, practical and pedagogical divides*

Once perceived as a fallback career choice for academic archaeologists, CRM has emerged as the dominant and most dynamic and relevant form of professional practice. Since 2016, SFU Archaeology has been engaged in an experiment designed to meet the professional and intellectual development needs of CRM practitioners who seek graduate credentials but are not inclined toward traditional or residential graduate programs. Our program builds upon five decades of SFU Archaeology success in undergraduate and graduate training by broadening the intake and otherwise funneling leadership into a CRM industry with sturdy archaeological roots and rapidly diversifying futures. Instead of providing training in archaeology, per se, our program attracts field-tested practitioners who hold Bachelor's degrees and are ready to make commitments to a thesis-based Master's degree and to their CRM careers. Program structures and contents broaden, deepen, and professionalize student capacities to integrate and balance often competing legal, ethical, business, and scientific demands. The intensive, in-person

orientation, four courses with virtual meetings, and thesis requirements expand and enhance candidates' knowledge of contemporary CRM issues and dynamics on regional, national, and global scales. CRM will continue to create its own forceful fields of intellectual, commercial, and communal gravity and to meet changing standards for licenses to operate on multiple social and political levels. This means that CRM's future vitality and integrity will depend even more on practitioner commitments to savvy management, impeccable ethics, excellent research, and strategic and critical thinking.

**J. Jeffrey Werner** (University of Alberta)

*Quantifying Lithic Use-Wear Using a Confocal Laser Scanning Microscope*

Despite methodological and technological advances in the field of lithic use-wear analysis it continues to be a largely fundamentally subjective exercise. In an attempt to mitigate this issue, archaeologists have experimented with different ways to quantify wear signatures to increase reproducibility while reducing subjectivity and inter/intra-observer error. Building in this direction, this paper describes a new quantitative method of determining stone tool function, which relies on a statistical model generated from detailed 3D scans of tool surfaces. The method presented here was also "stress tested" to explore the impact of post-depositional damage on its findings. Experimental use-wear specimens were shaken in a sediment sieve shaker in thirty minute increments before being reassessed with the model. The results reveal that the method is still viable for use with lightly and moderately damaged specimens. As with other forms of use-wear analysis, appropriate assemblage selection is important. However, this experiment demonstrates that the method is no more vulnerable to post-depositional damage than more conventional methods and thus can be confidently applied to archaeological specimens.

**Michelle Wickham** (Bison Historical Services)

*Notable Finds along the Red Deer River Valley*

The Morrin Bridge along Highway 27 in Alberta is getting a facelift, and part of this process was an assessment of archaeological sites within the project footprint. This presentation will briefly touch on the mitigation of three sites within the Red Deer River Valley that were excavated as part of this project. These sites span ~ 3,000 years of occupation, and exemplify site types typical of the Alberta plains. A narrower focus will be placed on one of these three sites (EjPf-4), and on several interesting artifacts that were identified during these excavations. Excavations at EjPf-4 identified ochre processing and storage areas, as well as the intentional use and collection of dinosaur fossils. Implications regarding site type and seasonality as well as future directions specialized analysis can take will also be discussed.

**Michael C. Wilson** (Douglas College)

*The Origins of Chacmool and the Early Chacmool Conferences: A Retrospective*

Chacmool as an association began in 1967-68 through the efforts of a dedicated but naïve group of undergraduate Archaeology students at the University of Calgary, heady with the excitement brought by Professors Richard S. (Scotty) MacNeish and Richard G. (Dick) Forbis. We had the crazy notion that we could change the world, almost before we could develop an

idea of what that world actually was. Guided by faculty advisor Brian Reeves, then a sessional instructor, we created Chacmool. To qualify for Students' Union funding we needed to be an undergraduate association; but in essence we were more than that: graduate students eagerly assisted us in planning our activities. It did not occur to us that sponsoring an annual interdisciplinary conference was not a typical undergraduate activity, so we soon embarked upon plans for our first, the admittedly gender-insensitive "Post-Pleistocene Man and his Environment on the Northwestern Plains." Even though it was held in the chill of January, it was a success and the proceedings were published by the fledgling "Students' Press" of the Student Union. Plans immediately followed for a second conference, and then a third... and the Chacmool Conferences were on their way. As president and chair of the first Chacmool Conference, I can now look back with pride, even as I shake my head in disbelief. To quote Scotty, "in actual fact" we simply did not know that it couldn't be done. Chacmool and the Chacmool conferences were the product not only of a brash new department, but that department was itself the offspring of a brash new university - which moved to its present campus in the early 1960s and then saw full independence as the University of Calgary in 1966. It was typical of this small university that individual faculty members would teach a wide range of subjects and that cross-departmental linkages and cross-listing of courses would be used to make programs viable. That fostered an uncommonly interdisciplinary sentiment. Our department built upon a European model of Archaeology as a distinct discipline with strong linkages to the Natural Sciences, rather than the American model in which it would be a sub-discipline of Anthropology. The publication of the first of Scotty's Tehuacan volumes, laying out this interdisciplinary manifesto, "sealed the deal." Clutching our Tehuacan volumes like Mao's Little Red book, we had our marching orders: the people of Chacmool ventured forth. The passage of fifty years has not dulled that sense of excitement.

**Michael C. Wilson** (Douglas College)

*Hypsithermal Aridity and Landscape Instability in Western Canada: New Geoarchaeological Findings from British Columbia and Alberta*

Western Canadian geoarchaeological studies indicate early Holocene swings from landscape instability to stability (represented by a prominent, widespread pre-Mazama paleosol), then renewed instability, with erosion (deflation), lag deposits, aeolian sand and silt deposits, and alluvial cutting and filling. The paleosol, dated between ~9000 and 8000 rcybp in southern Alberta, appears correlative with the "Altithermal soil" of the northern U.S. plains and indicates increased effective vegetative cover. A key question is whether the preceding and following episodes of instability were similar in character. Regionally, the direct variable was effectiveness of vegetative cover, in turn reflecting trends in precipitation, insolation, air mass dynamics, etc. Early postglacial, paraglacial landscape "relaxation" is strongly expressed in mountainous areas, associated with thawing and downslope movement of unstable, glacially emplaced debris, and can locally obscure other elements of the regional signal. New findings aid in modelling of the regional Hypsithermal landscape signature. In south-central British Columbia, two sites near Pritchard (EdQx-45 and EeQw-102), east of Kamloops, BC (Terra Archaeology), displayed deeply stratified pre-Mazama archaeological sequences extending back over 9000 rcybp, in deposits at the toes of debris-flow fans along the South Thompson River

valley. Paraglacial debris-flow activity was likely under way by 11,000 rcybp but tapered off before site occupation; slopewash input became dominated by loess deposition between ~9500 and 8000 rcybp, after which fan sands and gravels began again to increase. Sudden, renewed debris-flow activity near the time of the Mazama tephra fall may document upslope forest fires analogous to recent wildfire events. Aeolian deposition during fan inactivity precluded development of a single thick soil though weak, incipient pre-Mazama paleosols are present. Investigations at sites EdPl-10 (Metke Site) and EdPl-76, on the Highwood River west of High River, Alberta (Lifeways of Canada), revealed massive (unstratified) aeolian silts from just before the time of Mazama tephra deposition to after ~5000 rcybp, in the floor of a late-Glacial meltwater channel upon which the Highwood was superposed. This indicates unstable surface conditions with reduced vegetative cover, consistent with Hypsithermal warming/drying, which peaked about the time of the Mazama tephra fall. In this light the reason for an interval of landscape stability must be sought. Two early Holocene Northern Hemisphere cooling events were associated with meltwater outbursts into the Atlantic and Arctic Oceans during late Laurentide Ice Sheet retreat. One, ca. 8200 rcybp, may be marked by sediment isotopic (?13C and ?15N) trends at Pritchard, but the onset of the "quiet" period in terms of fan alluvial/colluvial activity appears to precede it; the same appears true for the onset of pre-Mazama paleosol development in Alberta. The paleosol and the time of fan inactivity do appear themselves to correspond, as if sharing causation. Yet it is still not possible to reject a model of the "Hypsithermal [or Altithermal] soil" as time-transgressive, marking northward migration of a time of balance between early postglacial pioneer landscape instability and instability from Hypsithermal warming/drying. Continued study of sites such as these will contribute to explanatory models, relevant also in understanding the consequences of modern climatic changes.

**Laura Wingfield** (Nasher Museum of Art, Duke University)

*Lenca Costume in Honduran and El Salvadoran Art: In Between Mesoamerican and Chibchan Cultures*

Early and later figurines and polychrome cylindrical vessels of the Uluá region of Honduras farther south to El Salvador were likely made by Lenca people, inhabitants in these regions for millennia. Dress and jewelry depicted in these ceramics tell the tale of a culture caught between Mesoamerican and Chibchan worlds of the west and east, respectively. Changes over time are apparent, yet with each new era the Lenca seem to hold their own, from handmade figurines of early days denoting primarily age-appropriate hairstyles and jewelry. Later mostly moldmade figurines exhibit costume elements in three-dimensions that are also seen in two-dimensions in cylindrical slip-painted vessels. The characters presented in these later artworks provide a view into a complex world of powerful Lenca chiefs, spiritual leaders, prominent women, and respected elders. Certain accoutrements, such as round shield/fans appear more Mesoamerican, while the use of double earpools hints at connections to the Chibchan world to the east and south. The Lenca clearly lived in a crossroads, with a major path between north and south the central corridor running roughly from the Caribbean to Pacific through Lenca territory. A cross-cultural approach to Lenca art hopefully will open our eyes to the sophisticated creativity of this understudied area.

**Karon Winzenz** (University of Wisconsin-Green Bay)

*Transgendered Garments worn by Maya Kings and Queens*

On several Late Classic Maya stelae both kings and queens wear identical garments despite their sex. This costume set is a skirt or kilt composed of jade beads paired with a large shark-and-shell belt. In a period of competition, warfare, and marriage alliances between kingdoms, ruling women appear more frequently on monuments. The belt itself is dual-gendered; the shark associated with males, and the shell representing the female womb. As a visual metaphor for procreation, the belt emphasized the fertility of royal couples and especially the ability of queens to produce heirs that would remain in the king's patriline.

**Brent Woodfill** (Georgia State University)

*Salt Strikes Back! Recent Advances in Salt Production and Exchange in the Maya World*

Salt is a basic biological necessity that is an important economic resource in most if not all human societies. However, the study of salt production and exchange in the Maya world has proven to be especially contentious in academia, culminating at one point in a series of increasingly bitter exchanges in the pages of *American Antiquity* throughout the 1990s. Today, research into salt production and exchange continues and the new generation of salt scholars have made several major leaps of understanding at field sites in Belize, Guatemala, and Mexico, albeit with less sturm und drang.

**Sarah Woodman** (University of Leicester)

*Northern Plains Rock Art: An Investigation of Writing-on-Stone's Archaeological Site DgOv-2 using D-Stretch Digital Photographic Enhancement*

The recording of rock art has vastly changed in the digital age, and the technology associated with digital photography has opened a number of doors for archaeologists with regard to data processing and analysis. D-stretch is a plug-in for ImageJ software program, developed for the purpose of analyzing rock art in different colour spaces. The plug-in is being increasingly popular in the study of rock art world wide. Through the use of D-stretch at archaeological site DgOv-2, at Writing-on-Stone Provincial Park Alberta, an increase of 43% data was collected and added to the known record. The data collected centred on the examination of the presence of ochre within the Ceremonial and Biographical rock art traditions on site. The naming convention of these two traditions suggest the Ceremonial traditional should have a higher use concentration of ochre where the Biographical tradition should have a lower use, based on its predominately "story-telling" purpose. However, the examination of ochre usage between these two traditions highlighted a fairly uniform spiritual use of both traditions. The study also supported the use of D-stretch contributing more than just the highlighting of faded pictographs as often used within current rock art research.

**Mark Wright** (Brigham Young University)

*The Flower and Song of the Central Mexican Codices*

Poetry is a fundamental part of formal discourse across Mesoamerica. Rather than a simple rhyming of words, Mesoamerican poetry emphasizes a rhythmic repetition of ideas through the use of parallel structuring. Prayers, curing ceremonies, genealogies, and histories all

incorporate features such as couplets and triplets to add to the beauty and power of the narrative. Although the codices from central Mexico are primarily pictographic, this paper argues that well-attested Nahuatl poetic conventions can be detected in the arrangement of the twenty days signs in instances when they break from the typical linear sequence. Examples of poetic conventions known from the ethnographic and ethnohistoric records will be used to draw structural comparisons with the examples known from the pictorial manuscripts.

**Andrew R. Wyatt** (Middle Tennessee State University)

*The Past and Present of Maya Gardens: A Synchronic Perspective of Household Production*

Houselot gardens are generally defined as cultivated spaces located adjacent to households used to grow flowers, herbs, vegetables, and fruits. Gardens function as a primary source of many food items including staples, condiments, medicines, and spices; they provide many non-food items such as dyes, construction materials, or ornamentals; and they also often provide food to sell in markets. Crops grown in houselot gardens encompass both primary and secondary crops as well as those grown for both individual household use and income making them a fundamental element of household subsistence production and therefore play a central role in the political economy.

Despite their crucial role, ancient Maya gardens have received relatively little attention, and their position within the political economy needs to be explored. This presentation will investigate the articulation of Maya gardening practices with the political economy, focusing on how changes in the political economy impact this element of household production. I will be presenting data on gardens from the ancient Maya site of Chan, exploring how practices were affected in a dynamic political landscape. These data will be compared with contemporary data from Lacandon Maya gardens at the site of Lake Mensabak and I will discuss the changing role of gardens from the Preclassic through the modern era.

**Cherra Wyllie** (Pre-Columbian Society of New York)

*Classic Veracruz Calendric Signs*

Classic Veracruz was home to at least four distinct writing systems. Epi-Olmec continued to be used and modified in the Mixtequilla-Tuxtlas region of southern Veracruz. El Tajin in north-central Veracruz had its own unique script. Meanwhile, at sites such as Piedra Labrada and Maltrata, inscriptions were rendered using Teotihuacan and Xolchicalco hieroglyphs. The most salient feature differentiating these scripts is the graphic depiction of calendric signs. But which cultures and languages are represented by these varied signs, symbols, and hieroglyphs?

Throughout the Classic period migrants from central Mexico, including Nahua and Totonac speakers, entered long-held domains of Huastec and Mixe-Zoquean speakers. Yet, there is no consensus on when these demographic changes took place, nor of the cultural and linguistic matrices of regional populations. Linking script and language is especially challenging in light of these factors.

In this presentation I examine the known corpus of Classic Veracruz calendric signs, their attributes, and placement within the writing systems outlined above. Applying ethnographic analogy I analyze the 20 day signs of each script relative to the Huastec, Totonac, Nahua, and



Mixe sacred calendars in order to tease out linguistic and visual correspondences. Since calendric signs encode indigenous names and meanings, they provide us with the first step in the direction of hieroglyphic decipherment.

This presentation examines the key diagnostic features delineating the varied Classic Veracruz scripts.

**Danny Zborover and Ran Boytner** (Institute for Field Research); [dzborover@ifrglobal.org](mailto:dzborover@ifrglobal.org)  
*Archaeology Field Schools: Where have we been, where are we going?*

Archaeology field schools have been the mainstay of the discipline for over 130 years. Initially designed to train the next generation of academic archaeologists, field schools have been going through significant transformations in the past two decades. No longer limited in number or scope, field schools have proliferated and are now the third largest source of funding for archaeological research, educating both future scholars and a broad range of students. The changing nature of higher education, global instability, and universities' inability to control cost or quality of field research, are having a dramatic impact on the nature of field schools and research-based study abroad programs – both within and outside archaeology. This paper will examine the history, impact, and future of archaeology field schools, including their influence on methods and data gathering in the field; the funding promise they hold in times of long-term shrinking budgets for basic scientific research; and the need to embrace students not just as potential future academics but as future supporters of basic scientific research.

## NEW ARRIVALS