



Palaeoanthropological
Society of Canada

Société canadienne de
paléoanthropologie

PASC SCPA 4th annual meeting 2018

London, ON

Held in conjunctions with CAPA/ACAP conference

Friday, November 2nd

Gunnery Ballroom

1:45pm – 3:15pm

Podium Session 6

Symposium: Palaeoanthropological Society of Canada/ Société canadienne de paléoanthropologie

Palaeoanthropology Research by Canadian Scholars

Chair: Mirjana Roksandic

Update on research projects by Canadian scholars, members of the Palaeoanthropology Society of Canada (PASC) and their students. This forum is meant for the exchange of ideas by scholars and students of human evolution in its most encompassing meaning: including the study of primates, environment, tools, morphology and ancient DNA. In addition to presentations and posters, the forum will feature short research updates.

Friday, November 2nd continued

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| 1:45pm-2:00pm | Tocheri, M.W., Veatch, E.G., Sutikna, T., McGrath, K., Wahyu Saptomo, E., Jatmiko and Helgen, K.M. Temporal Shifts in the Distribution of Murine Rodent Body Size Classes at Liang Bua (Flores, Indonesia) Reveal New Insights into the Paleoecology of <i>Homo floresiensis</i> and Associated Taxa South Australia, Australia |
| 2:00pm-2:15pm | Chazan, M., Kolska Horwitz, L., Ecker, M., Morris, D., Koopowitz, C., Rhodes, S. and Berna, F. Renewed Excavations at Wonderwerk Cave, Northern Cape Province, South Africa |
| 2:15pm-2:30pm | Vallerand, A., Mailloux-Root, G., Laliberto, A., Negrino, F. and Riel-Salvatore, J. Middle and Upper Paleolithic Lithic Technology at Riparo Bombrini (Liguria, Italy) |
| 2:30pm-2:45pm | Brun, C., Martin-Moya, D., Negrino, F., Ribot, I. and Riel-Salvatore, J. Photogrammetry, Data Visualization and Public Outreach: A Case-Study from Riparo Bombrini |

- 2:45pm-3:00pm Roksandic, M., Lindal, J., Radovic, P., Blackwell, B. and Mihailovic, D. The First Confirmed Neanderthal from the Central Balkans
- 3:00pm-3:15pm 5 minute research updates from the world of paleoanthropology
- Drapeau, M.S.M., Bisson, M.S. and Burke, A. Documenting the Prehistory of Zambia
 - Schroeder, L. and Ackerman, R.R. The Hybrid Phenotype of the “Coywolf”: A New Mammalian Model for Detecting Hybridization in Hominin Evolution.

Friday, November 2nd

1. (S) Kilpatrick, J. Quantifying the Center of Mass in Bifacial Tools (*Paleoanthropology Symposium*)*
2. (S) Doran, K. The Fascination with Neandertals: Tracing Academic and Popular Attitudes from 2000 to 2018 (*Paleoanthropology Symposium*)*

ABSTRACTS:

Photogrammetry, data visualization and public outreach: A case-study from Riparo Bombrini

Brun, C. (1), Martin-Moya, D. (1), Negrino, F. (2), Ribot, I. (1), Riel-Salvatore, J. (1)

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Increasingly, new technologies are being adopted by archaeologists and paleoanthropologists as part of the array of methods used to document and present the sites they excavate. The introduction of various forms of 3D imaging, such as photogrammetry, tridimensional scanning scan and Lidar, is gaining popularity among archaeologists as a way to digitize artifacts or sites themselves, which allows quantification of our research materials on an unprecedented scale. 3D imaging also allows us to standardize our working methods as well as our data; it also greatly facilitates the sharing of data between researchers and institutions, as well as with the public at large. This project that is the focus of this presentation is explicitly based on the use of in-field photogrammetry as a tool to reconstruct the evolving geometry of the collapsed rockshelter site of Riparo Bombrini, using digital photography as the main documentation instrument. The main goal is to create 3D models of the site using 2D photos, spatio- temporal landmarks and autocalibration software. Using this tool, we have been able to obtain a visual of the progression of the excavation on a daily basis, allowing in the future objective quantification of variables like excavated volume of sediment. The case-study provided by the site of Riparo Bombrini permits a discussion of the advantages and limitations of photogrammetry in archaeological practice and, because of its peculiar position in the Balzi Rossi site complex (NW Italy) also provides a valuable context to highlight its potential as a promising tool for public outreach in the context of the touristic circuit developed by the Museo Preistorico Nazionale dei Balzi Rossi.

2. Renewed excavations at Wonderwerk Cave, Northern Cape Province, South Africa

Chazan, M. (1,2), Kolska Horwitz, L. (3), Ecker, M. (1), Morris, D. (4,5), Koopowitz, C. (6), Rhodes, S. (7), Berna, F. (6)

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In 2013, the Wonderwerk Cave Research Project shifted toward renewed excavation, although analysis of the collections is ongoing. Excavations currently consist of five different “operations” within the Oldowan and Earlier Stone Age (ESA) strata and Later Stone Age (LSA) strata in the area toward the cave entrance (extensions of Peter Beaumont's Excavation 1 and 2). The methodology of the renewed excavations focuses on detailed documentation of spatial data, as well as complete recovery and collection of multiple lines of evidence relevant to understanding site formation processes. This paper will present an overview of excavation methodology and results to date, with a focus on the later stages of the Acheulean sequence.

3. The fascination with Neandertals: Tracing academic and popular attitudes from 2000 to 2018

*Doran, K. (1)

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The paper examines the portrayal of Neanderthal behaviour in scientific and popular science literature. I have limited the review of the papers to 2000-2018 in order to get a sense of contemporary opinions in science and how they are translated into popular discourse. As representative of different approaches I examined three journals: *Science* (a high impact general science journal), *Journal of Human Evolution* (as the most prominent palaeoanthropological publication) and *Scientific American* (popular science journal with wide circulation). The papers were divided into those that interpret behavior from morphology/DNA and those that use tools. The questions posed are: are Neandertals being portrayed as being similar to modern humans or as different from them in their behaviour? Is the research more inductive or deductive? Two individuals, a “specialist” (BA in Paleolithic archaeology) and one “lay educated person”, with a PhD in Music, scored the papers independently. The story of the Neandertal has captivated archaeologists since the discovery of the type specimen in 1856. M. Boule, in the early 20th century, depicted Neandertals as brutish, club swinging beasts. Then in the 1960's, with the discovery of the Shanidar cave site in Iraq, the portrayal Neandertal swung in the other direction. Scientific theories feed the popular imagination. The figure of the Neandertal is placed in prominence among fiction writers from H. G. Wells to Jean Auel. A big part of that fascination is the fact that Neandertals disappear at the arrival of modern humans in Europe. Placing the distinction between Neandertals and modern human under “behavioural modernity” the differences were no longer these differences were no longer morphological but cultural. All attempts to interpret behavior of Neandertals have been subject of controversy and debate among archaeologists. Current archaeological research paints a complex picture of the Neandertal as fully “humanized” people who created the Upper Palaeolithic tool technology Chatelperronian. They might have created art forms similar European Upper Paleolithic

cave art and used ornamentation and jewelry. No longer are they the shadowy other that populated early imaginative accounts of our long- misunderstood cousins. Today, Neandertals are our cognitive equals. The same cognitively but different biologically.

4. Documenting the prehistory of Zambia

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Much of what is currently known about hominin origins and evolution in Africa comes from either East Africa or South Africa. Indeed, little is known about the role of Central Africa despite the fact that it lies between these two important regions and that it is a likely corridor of genetic communication and migration. This is due, in part, to the relative rarity of exposed older sediments. In that context, we focus our attention on the Luangwa Valley of eastern Zambia, which is located west of Lake Malawi, in an extension of the East African Rift. An amateur paleontologist has found over 500 fossil specimens, including a hominin talus, in secondary deposits along the Luangwa river. The faunal composition of the collection indicates that the bones likely date to the Middle Pleistocene, but some could be as old as the Pliocene. One isolated femur has been attributed to *Theropithecus cf. darti*, whose last known presence is

2.9 million years ago in Ethiopia and 3 or 2.5 million years ago in South Africa and constitutes the only possible evidence of Pliocene-age sediments. Given the uncertainty of dating composite assemblages, these dates remain tentative. The primary objective of our new project is to identify in situ fossiliferous sediments through systematic survey. This project is part of an integrated research program documenting the second half of the Middle Pleistocene in eastern Zambia, a period during which anatomically modern humans arose in Africa. Other parts of the project include paleo-climate modeling for the Middle Pleistocene (in collaboration with Francesco Pausata, Université du Québec à Montréal) and archaeological survey and excavations. The ultimate goal of the combined research program is to add to our knowledge of the biological and cultural evolution of hominins in the area.

5. Quantifying the center of mass in bifacial tools

Kilpatrick, J. (1)

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Acheulean handaxes have received considerable scholarly attention over the last 200 years due to their abundance, longevity, and wide geographic distribution. They are known from sites throughout Africa, as well the Near East, Europe, and parts of Asia. They represent humans' longest lasting tool industry, appearing about 1.9 ma until roughly 200 ka. As the first tools made by form shaping, with some specimens achieving a high degree of symmetry, they are often argued to reflect the cognitive abilities of their makers. Although often associated with *Homo erectus*, they appear to have been the product of at least two or more species of early *Homo*. Most research to date has focussed on the role of symmetry in handaxe design, their potential utilitarian and non-utilitarian functions, and levels of variability in the morphology between specimens within an assemblage or between group means of assemblages. Recent years have seen the application of three-dimensional (3D) digitisation of handaxe assemblages and related 3D analyses of their shape. The current proposal is based on

doctoral research using 3D digitisation and 3D analyses of assemblages in order to study the internal mechanics of handaxes and its role in their design. Specifically, a protocol has been developed to analyse the Center of Mass (CM) in the design of Acheulean bifacial tools and treats the CM as a quantifiable morphological variable. The proposed paper will focus on patterns that the new protocol has identified in the location of balance (CM) of Acheulean bifacial tools, how they relate to traditional handaxe typologies, and their importance in overall handaxe morphology and manufacture. The result of the analysis demonstrates that the methodology successfully differentiates between different handaxe forms, or typologies, such as pointed and ovate forms. Although the methodology was developed for analyzing Acheulean handaxes it can be used for studying shape variation in bifacial tools in general.

6. The first confirmed Neanderthal from the Central Balkans

Roksandic, M. (1), Lindal, J. (2), Radovic, P. (3), Blackwell, B. (4) Mihailovic, D. (5)

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Neanderthals are a European fossil hominin group associated with Mousterian technocomplex; all Mousterian sites in Europe are deemed Neanderthal. Recent research in the Balkans and Eastern Mediterranean Area indicates that Neanderthal presence cannot be assumed based on the stone tool evidence only, it has to be demonstrated. Here we present several specimens with morphological features consistent with Neanderthals, recovered from the Mousterian levels of the Pesturina cave (Serbia). Based on the associated ESR dates, these specimens demonstrate the presence of Neanderthals in the Central Balkans between MIS 5d and MIS 3.

7. Temporal shifts in the distribution of murine rodent body size classes at Liang Bua (Flores, Indonesia) reveal new insights into the paleoecology of *Homo floresiensis* and associated taxa South Australia, Australia

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Liang Bua, the type locality of *Homo floresiensis*, is a limestone cave located in the western part of the Indonesian island of Flores. The site's relatively continuous stratigraphic sequence spans the past ~190 ka and contains ~275,000 taxonomically identifiable vertebrate skeletal elements, ~80% of which belong to murine rodent taxa (i.e., rats). Six described genera are present at Liang Bua

(*Papagomys*, *Spelaeomys*, *Hooijeromys*, *Komodomys*, *Paulamys*, and *Rattus*), one of which, *Hooijeromys*, is newly recorded in the site's deposits, being previously known only from Early to Middle Pleistocene sites in central Flores. Measurements of the proximal femur (n = 10,212) and distal humerus (n = 1,186) indicate five rat body size classes ranging from small (mouse-sized) to giant (common rabbit-sized) are present. The proportions of these five classes across successive stratigraphic units reveal two major changes in rat body size distribution due to significant shifts in the abundances of more open-habitat-adapted medium-sized rats versus more closed-habitat-adapted smaller-sized ones. One of these changes suggests a modest increase in available open habitats occurred ~3 ka ago, likely the result of anthropogenic changes to the landscape related to farming by modern human populations. The other and more significant change occurred ~60 ka and suggests a rapid shift from more open habitats to more closed conditions at this time. These data suggest that the abrupt reduction of medium-sized rats, along with the disappearance of *H. floresiensis*, *Stegodon florensis insularis* (an extinct proboscidean), *Varanus komodoensis* (Komodo dragon), *Leptoptilos robustus* (giant marabou stork), and *Trigonoceps* sp. (vulture) at Liang Bua ~60-50 ka ago, is likely the consequence of these animals preferring and tracking more open habitats to elsewhere on the island. If correct, then the precise timing and nature of the extinction of *H. floresiensis* and its contemporaries must await new discoveries at Liang Bua or other as yet unexcavated sites on Flores.

8. Middle and Upper Paleolithic lithic technology at Riparo Bombrini (Liguria, Italy)

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2. DAFIST, Università di Genova

This paper presents an overview of the ongoing SSHRC-funded research on the Ligurian Middle-Upper Paleolithic site of Riparo Bombrini from 2002 to 2018 as well as the preliminary results of a comparative study of Mousterian and Proto- Aurignacian lithic technology. The site is a collapsed rockshelter in the Balzi Rossi site complex and is interesting in part for having yielded closely-dated Mousterian and proto- Aurignacian levels. Abundant lithic artifacts, faunal remains, marine shells, ochre and personal ornaments have been recovered at the site, which provides material to assess the degree of behavioral differences between the last Neanderthals and the first *Homo sapiens* in this part of the world. As well, it has been possible to reconstruct the paleoenvironmental framework of this transition, which allows us to place shifts in Paleolithic population dynamics and raw material procurement patterns in their broader context. As concerns Riparo Bombrini's lithic record, we present here preliminary results of a comparative analysis of the late Mousterian and the Proto-Aurignacian assemblages recovered in 2017. Its originality lies in the fact that a single analytical protocol was used to document the assemblages, allowing us to directly highlight and quantify similarities and differences in typology, fragmentation, alterations, artifact dimensions and lithology across both archaeological "cultures". These data complement more traditional techno-typological descriptors that help us highlight the characteristics of the Mousterian and the Proto- Aurignacian, to test the hypothesis that the two attest to fundamental behavioral differences between Neanderthals and modern humans. We conclude with a discussion to offer an explanation of the different patterns of behavior and to integrate this new analysis within the results of previous lithic analyses at Riparo Bombrini.