

Copeland, Sandi (Los Alamos National Laboratory), Amanda White (Los Alamos National Laboratory), Samuel Loftin (Los Alamos National Laboratory), Leslie Hansen (Los Alamos National Laboratory) and Benjamin Sutter (Los Alamos National Laboratory)

[366] *Modeling Erosion Risks for Archaeological Sites in the American Southwest Using GIS and RUSLE (Revised Universal Soil Loss Equation)*

The greatest climate change related threat to archaeological sites in the American Southwest is soil erosion brought on by hotter temperatures, increasingly intense wildfires, bark beetle infestations, and other subsequent changes in habitats. At Los Alamos National Laboratory in northern New Mexico, we manage 38 square miles of canyons and mesas that contain more than 1,700 archaeological sites, most of which are affiliated with Ancestral Pueblo cultures. In order to identify and protect the sites at highest risk for erosion, we created a soil erosion model using a geographic information system (GIS) and the revised universal soil loss equation (RUSLE). The model combines GIS layers that reflect climate, soil types, land cover, and LIDAR-based topography with a 2-m-square resolution. The model estimates tons of soil eroded per acre per year, but is best interpreted as a relative measure in this initial application. At Los Alamos National Laboratory, the model successfully identifies sites with threatening erosional issues, such as small gullies within the boundaries of mesa-top pueblo room blocks, and shows promise for use as a tool for comparing areas of greatest erosional concern across the Laboratory.

Coppe, Justin (Tracéolab-University of Liège), Veerle Rots (Tracéolab-University of Liège), Marc Pirlot (ABAL-Royal Military School of Belgium) and Valérian Clarenne (Royal Military School of Belgium)

[40] *The Ballistic Performance of Prehistoric Weapons: First Results of a Comparative Study*

Projectile points have recently taken a prominent position in debates on the complexity of Paleolithic human behavior. While the appearance of hunting weapons in the archaeological record was a central element in early discussions, the debate has shifted toward the appearance of specific projecting modes. Given that the organic propulsion tools (bow, spear-thrower) are only rarely preserved, energy has been invested in experiments to explore how the projecting mode can be identified based on the analysis of stone points. These experiments usually attempt to control selected parameters in projectile use (e.g., speed, target, angle of impact), but the ballistic parameters that are used are generally based on heterogeneous and not commonly reported studies. Little research has focused on the measurement of the complete ballistic performance of prehistoric weapons. We present the first results of a systematic ballistic study that quantifies and compares different modes of propulsion.

Corbett, Debra [194] see Funk, Caroline

Corbett, Jack (Portland State University) and Nelly Robles Garcia (National Institute of Anthropology and History)

[200] *Más Allá de la Arqueología*

Archaeological research frequently produces material elements we seek to safeguard for the benefit of future generations, a goal that requires organizational support and a mix of resources. When the research materials pass to the responsibility of communities or groups with limited preparation and resources for management of said materials, we encounter a serious disconnect between the accomplishments of research and the long-term viability of archaeological resources. In Mexico the long monopoly of the National Institute of Anthropology and History is being eroded as community museums or other entities seek more control over archaeological materials. Yet the organizational frameworks, resource base, and capacity for continuity of such entities remain in question. This paper explores the capacity for sustainable management of cultural heritage among communities in the Sierra Norte de Oaxaca. Using the region as an extended case study, this paper seeks to assess the principal challenges and prospects of heritage protection as archaeological research advances. Will we see a deepening of our knowledge at the possible cost of greater vulnerability to archaeological resources? How do we respond to community expectations of respect for their interests while protecting societal interest in heritage sustainability?

Corcoran Tadd, Noa (Harvard University)

[128] *Charki and Red Currant Jam: Provisioning Extractive Industries in Republican Highland Peru*

With the current boom in the archaeology of the colonial period in the central Andes, we risk losing sight of the potential for archaeological investigation of the colonial aftermath. Following important work further afield in the Southern Cone, I argue for the particular relevance archaeology could have in exploring trade liberalization, emancipation, and the new commodity booms of the nineteenth century. Drawing on the recent investigation of a series of Republican tambos (roadside inns) in the highlands of Palca (Tacna, modern-day Peru), the case study examines patterns of mobility and consumption as these sites were transformed by new extractive industries (primarily silver, copper, and sulfur) in the region. Tying together the growing British entrepreneurial presence and the resilience of 'traditional' forms of mobility and provisioning, these sites point toward a wider story of an emergent regional mining economy that both superseded previous circulations tied to the great silver mines of the altiplano and left a landscape of boom-and-bust development with uneasy resonances with the present.

[202] *Chair*

Cordero, Robin [332] see Dello-Russo, Robert

Cordova, Carlos

[121] *The Environmental Context of the Middle Pleistocene Occupation at the Shishan Marsh, Azraq, Jordan*

The Greater Azraq Oasis Area occupies a hyper-arid area of the Syro-Arabian Desert. Geomorphological and paleoecological evidence suggests that at times during the Pleistocene the region experienced moister conditions than at present. This particular study centers on the environment surrounding the Middle Pleistocene hominin occupation dated approximately 250,000 BP. Archaeological and archaeozoological remains from this occupation have provided significant information about the wide range of faunal groups and butchering strategies. Geoarchaeological and paleoecological (mainly plant microfossil remains) research provide an environmental context to this occupation, which existed in association with a fan-delta on the northeast shores of paleo-lake Azraq. The lake-delta dynamics provided a rich wetland environment. A local fault influenced the flow of water from springs and stream channels into the delta. The up-thrown block of the fault created an outcrop where the local Umm Rijamm Chert could be utilized. The sedimentary data and geomorphic evidence elsewhere in the basin suggests that conditions deteriorated toward the end of the occupation, as the lake receded and dried out and the fluvial systems ceased to flow into the occupation area. Eolian activity suggests the aridization that forced fauna and hominins out of this area.

[121] *Chair*

Cordova, Carlos [121] see Nowell, April

Cordova, Guillermo (Guillermo Cordova) and Benno Fiehring (INAH)

[94] *Avances en el estudio de la organización sociopolítica prehispánica en la región del Río Tampaón, S.L.P., México*