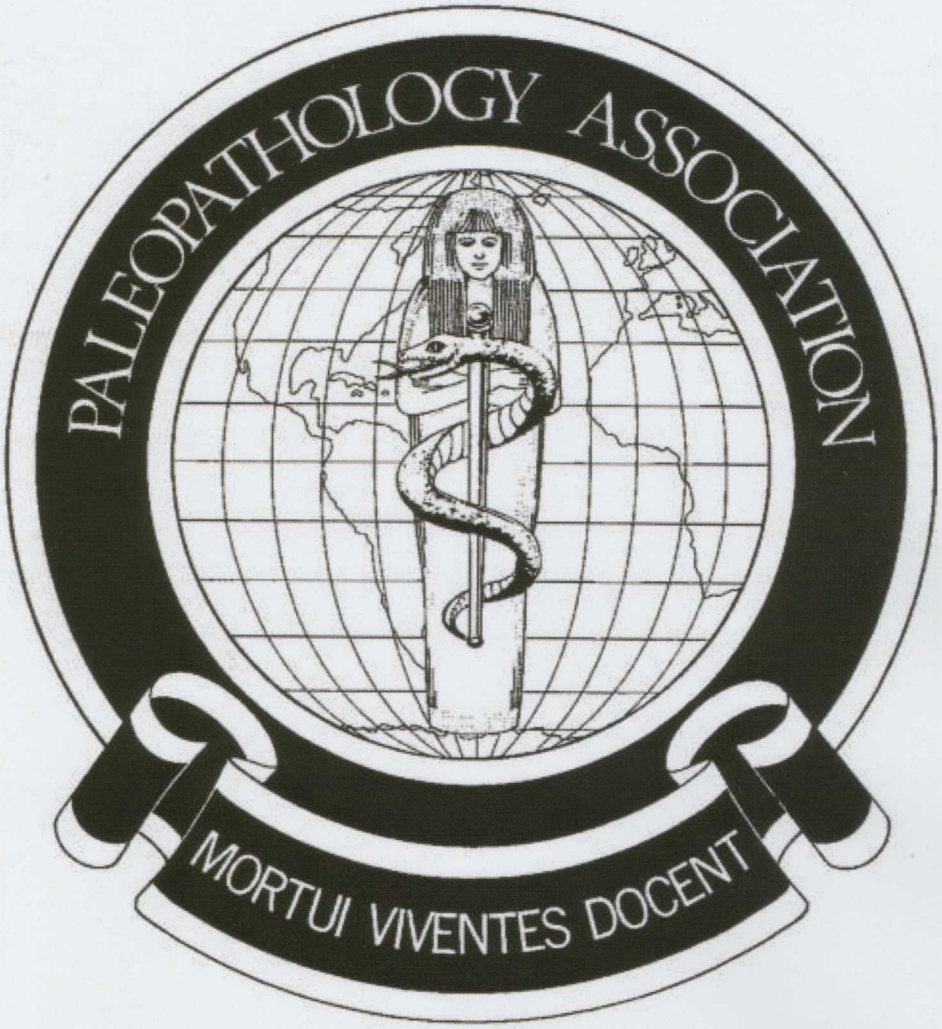

PALEOPATHOLOGY ASSOCIATION

SCIENTIFIC PROGRAM

44th Annual North American Meeting
Westin Hotel NEW ORLEANS
17-19 April, 2017

Health correlates of "The Little Ice Age" (AD 1300-1850): New questions, new insights
(Poster Symposium organized by Maria Ostendorf Smith)

1. **Health and diet under a dim light: paleoenvironmental anthropology of the LIA.** Olalla LOPEZ-COSTAS & Antonio MARTINEZ CORTIZAS +++
2. **Health and the Little Ice Age north of the Alps: Relationship between Stress, Nutritional Deficiencies, and Disease.** Leslie Lea WILLIAMS & Clark Spencer LARSEN +++
3. **Skeletal Environmental Markers (SEM): A new method for quantifying the effects of climate change on Romanian human skeletal populations from the Little Ice Age.** Annamaria DIANA +++
4. **Paleopathology in the Time of Climate Change: U.S. Southwest as a case-study.** Ryan P. HARROD & Debra L. MARTIN
5. **Selective Mortality from External Forces: Physiological Stress in the North American Great Plains during the Little Ice Age.** Jocelyn D. MINSKY-ROWLAND
6. **Feeling the Chill: An Examination of Skeletal Stress at the Onset of the Little Ice Age in the Black Friars Cemetery Population (13th – 17th centuries).** Amy SCOTT
7. **Pre-Columbian health status and climate change: AD 1300-1600 in southern Appalachia.** Maria Ostendorf SMITH, Lindsey HELMS-THORSEN, Dustin L. LLOYD
8. **The effects of the Little Ice Age on oral health and diet in populations from continental Croatia.** Mario NOVAK, Željka BEDIĆ, Vlasta VYROUBAL, Siniša KRZNAR, Ivor JANKOVIĆ, Emma LIGHTFOOT & Mario ŠLAUS
9. **The Abandonment of Greenland: The Viking Norse and the Little Ice Age.** Niels LYNNERUP
10. **A study of three skeletal markers of childhood health in an urban and a rural adult population from medieval Denmark as influenced by the Little Ice Age.** Charlotte PRIMEAU, Preben HOMØE & Niels LYNNERUP
11. **The "Little Ice Age" and the Protohistoric Monongahela Demise: A Review of Health and Activity Markers in the Ohio Valley.** Robyn WAKEFIELD-MURPHY ***

data to fully understand the multiple social, ecological, and biological factors that promote this disease.

This poster provides an overview of paleopathological research of TB in pre-Columbian populations. We discuss the significant contributions of paleopathology, archaeology, and molecular studies in understanding the emergence and spread of this disease. We highlight the identification of a pinniped strain of M. tuberculosis complex in 1,000 year-old archaeological remains from coastal Peru. We also discuss preliminary results and novel methods of detection based on non-enriched DNA analysis of skeletal remains from Huari, Peru (1019-1400AD). Those analyses provide insights into population health after the collapse of the Wari empire and during a period of climate stress (drought). Furthermore, it affords us the opportunity to gain information on the temporal and demographic range of TB in pre-Columbian Peru and help better understand the ecology of this pathogen, possibly supporting whether or not it had become adapted for human transmission.

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A Probable Case of Leprosy from Colonial Period St. Vincent and the Grenadines, Southeastern Caribbean. Greg C. NELSON, Taylor N. DODRILL & Scott M. FITZPATRICK

Leprosy (Mycobacterium leprae) traveled to the Western Hemisphere with the earliest European and African migrants, so its time depth in this area is quite shallow compared to the rest of the world. Historical records indicate that the disease occurred throughout the Caribbean, afflicting all segments of society. However, these records also show that leprosy was ill-defined and little understood so its true prevalence, particularly prior to the mid-19th Century, is not well established. Here, we report on a case of probable lepromatous leprosy dating to the late eighteenth century from the Grenadines island chain in the Lesser Antilles. Although no post-cranial elements are available for examination, the skull of this individual (female, 25+ years) clearly exhibits skeletal changes associated with the rhinomaxillary syndrome that have become diagnostic of leprosy. These include, but are not limited to, rounding of the pyriform aperture, resorption of the nasal spine and anterior alveolar process, and pitting and remodeling along the midline and anterior portion of the palate. Dating to approximately 1798 this may be the earliest known skeletal representation of leprosy in the New World.

A Case Study of Possible Childhood Illness. Hailie NORMAN, Anna OSTERHOLTZ, Andre GONCIAR & Zsolt NYARADI

Városfalva is a cemetery site situated within the Carpathian basin (Romania), and used during the 17th and 19th centuries. Thus far, the site has only been partially excavated, and very few of the 42 individuals from the cemetery have had osteological analysis. Due to the coins, headbands, buttons, leather, a clay vassal, coffin wood, and coffin nails recovered during excavation, it is likely that Városfalva was once a cemetery for the wealthy. Despite these other finds, burial 31 was not strongly associated with any grave goods or coffin materials, which differentiated the burial from the general population. The research presented here details the biological profile and paleopathological analysis of burial 31. This burial consists of a child whose age at death was between 8-10 years. The individual showed evidence of significant childhood stress in the form linear enamel hypoplasias (LEH), that began around age 2. The first stress event may be associated with weaning, while the rest may have been due to nutritional deficiencies or disease. Burial 31 also showed evidence of porotic lesions on the mandible and on the greater wing of the sphenoid, cribra orbitalia, caries, and periosteal reactions in the postcranial skeleton, all consistent with vitamin C deficiency (scurvy). Other nutritional deficiencies are also possible, including: rickets, a comorbidity of scurvy and rickets, anemia, or another form of metabolic stress. This may suggest that even the wealthy in the Carpathian basin region of medieval Romania were not always able to gain enough nutrition to remain healthy.

The effects of the Little Ice Age on oral health and diet in populations from continental Croatia. Mario NOVAK, Željka BEDIĆ, Vlasta VYROUBAL, Siniša KRZNAR, Ivor JANKOVIĆ, Emma LIGHTFOOT & Mario ŠLAUS

This study aims to investigate possible differences in oral health and dietary habits caused by climatic changes brought by the Little Ice Age in late medieval and early modern inhabitants of continental Croatia. The analyzed osteological material consists of two composite samples: the first (end 13th – beginning 16th century CE) is comprised of 260 adult individuals from five sites while the second (beginning 16th – beginning 19th century CE) is comprised of 400 skeletons from six sites. In order to assess the previously mentioned changes three dento-alveolar pathologies were analyzed: caries, ante-mortem tooth loss, and alveolar abscesses. The dietary profile was additionally assessed by analyzing carbon and nitrogen stable isotope analysis from bulk collagen.

The preliminary results suggest that there are no significant differences in oral health patterns and subsistence strategies in continental Croatia before and during the Little Ice Age. Additionally, it seems that the observed differences cannot be solely associated with the occurrence of the Little Ice Age in Europe, but could be also connected to political and social processes related to the endemic warfare that was present in Croatia between the 16th and 18th centuries due to constant Ottoman intrusions.

Do you kneed some assistance? Secondary osteoarthritis as a result of trauma to the quadriceps muscles. Olof OLAFARDOTTIR

Secondary osteoarthritis is a type of osteoarthritis that is caused by another disease or condition, such as congenital abnormalities, trauma, gout, and rheumatoid arthritis. In paleopathology, secondary osteoarthritis is often difficult to diagnose due to the lack of information collected from a single skeleton. A Middle Woodland (ca. 150 B.C – A.D 400) male from Pete Klunk Mounds in the Lower Illinois River Valley was found to have severe osteoarthritis of the right knee. The severe osteoarthritis was unilateral and appeared to be associated with a small (13mm x 11mm) ovoid depression (healed wound), present on his anterior distal femur. The wound was located where the articularis genus muscles originates and the blunt object would have had to pass through the free part of the vastus muscle and the bursa under it. This type of trauma would have caused limited mobility and extensive tear in the muscle tissue, eventually leading to the bony changes seen on the distal right femur and proximal tibia. It is also possible that the medial meniscus was affected, leading to further arthritic changes in the knee. This is supported by the presence of eburnation on the medial plateau of the right tibia and the medial condyle of the right femur. The severity of osteoarthritis in the right knee suggests that the injury occurred years before the man's death so this case can add on to the bioarchaeological record of individual adaptation to impaired mobility, disability, and care.

Perspectives on care and disability from the Rimac Valley, Peru. Alejandra ORTIZ, Melissa S. MURPHY & Trisha BIERS

Recent work in the bioarchaeology of care, the bioarchaeology of personhood, and the bioarchaeology of identity has started to attend to the investigation of disability and impairment in prehistory and these developments have important implications for the field of