Roman Leather & Project Objectives

The Roman fort at Vindolanda on the northern frontier in Britain has produced the largest assemblage of archeological leather from anywhere in the Roman empire. The leather assemblage consists of over 500 years of occupation and includes numerous different types of artifacts, including tent panels, shoes, equipment, and manufacturing offcuts, offering an excellent opportunity to examine the characteristics of leather products used in the Roman period in Britain. This initial study looks predominately at tent panels, manufacturing offcuts (pictured right), and a few shoes.

Romes tent panels were made of seventy-seven large panels, carefully stitched together to prevent rainwater penetration. Visual analysis of the leather for identification is not a reliable method for at least some archaeological leather.

Leather samples were carefully taken from the upper fold of the tent edge (see images left and right) where the least potential for contamination existed. Smaller holes show the precise stitch line of a French seam clearly on the edge of the tent panel, which ensured a watertight connection when the tent was assembled.

Sampling Strategy

Leather samples were carefully taken from under the folded seam of the tent edge (see images left and right) where the least potential for contamination existed. Smaller holes show the precise stitch line of a French seam clearly on the edge of the tent panel, which ensured a watertight connection when the tent was assembled.

Preliminary Results

Tent samples yielded peptides for level identification of bos taurus (cowhide) and ovis aries (sheep hide). From the eight panels, three panels were determined to be cow hide and five were ovine. The viable samples of manufacturing offcuts, which were excavated from various deposits from the 6B occupation period (ca. 200-211 CE), all yielded peptides from bos taurus.

The reliability of ZooMS has been confirmed by many studies, thus although the literature has suggested Roman tent panels were manufactured from goatskin, these results indicate that there was a much greater reliance on cattle and sheep hides rather than goat hides in general use between the later part of the 1st century BC to the early 3rd centuries AD. These results also show that visual morphology inspection and interpretation of leather for identification is not a reliable method for at least some archaeological leather.

Four shoes were sampled with the objective to determine if different types of leather were used for discrete shoe components. All shoes were from Period 6B (ca. 200-211 CE). Samples from two shoes were viable (pictures above) and the following components of the shoe were identified: the thick outer sole, inner sole, insole, uppers, and straps. All parts of the shoe, including the thick outer sole and the thin supple leather of the shoe uppers, yielded peptides of both bovine and ovine species. The results show complete reliance on cowhide in manufacture of offcuts, as well as in finished products such as shoes, in the early-3rd century.

Acknowledgements:
We would like to thank The Vindolanda Trust for facilitating this research and providing access to the leather assemblage.

Funding for this research has been provided by the Social Sciences and Humanities Research Council of Canada, and the Canada Research Chairs Programs (Award, CRC-2019-00113), as well as the University of Western Ontario.

Impact & further considerations

Excavations at Vindolanda have returned vast assemblages (>7500 items) of vegetable-tanned leather that has already been the subject of palaeoproteomics.

The application of proteomics can inform us about the Roman economy, as well as changes and trends in leather production from ca. 150-570 CE. These results look forward to understanding the supply of the materials used in manufacturing offcuts from the Late Middle/Early Upper Palaeolithic Sequence of Les Eyzies-de-Tayac-Sireuil, Dordogne, France, “The Source of Hides and Skins for Roman Army Equipment,” in W.S. Hanson (ed.), The Army and Frontiers of Rome. Portland: APA Supplement 74: 209-15.

References:

Contact Information:
Elizabeth Greene: egreene2@uwo.ca; Gillian Taylor: g.taylor@tees.ac.uk

4. University of Western Ontario, Canada; 2. University College London, UK; 3. The Vindolanda Trust, UK; 4. Teesside University, UK

Species Analysis of Leather Objects and Manufacturing Offcuts from Vindolanda, UK
Elizabeth M. Greene1, Rhiannon Stevens2, Barbara Birley3, Gillian Taylor4

1. University of Western Ontario, Canada; 2. University College London, UK; 3. The Vindolanda Trust, UK; 4. Teesside University, UK