PM for final seminar, 4th of February 2026, 15:00-17:00.

Diet and Mobility in Iron Age Sweden: Isotopic insights into the Before and After of the AD 536/540 Climatic Event

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This thesis reconstructs dietary and mobility patterns in Iron Age Sweden, spanning from the Roman Iron Age to the Vendel and Viking periods. Through carbon, nitrogen, oxygen, and strontium isotope analyses, it explores how diet and mobility varied across time, regions, and individuals. A central aim is to examine whether these patterns may have shaped differing degrees of vulnerability or resilience in relation to the AD 536/540 climatic event, a long-lasting volcanic-induced cooling event that has generated extensive debate within Swedish archaeological research. Rather than seeking to resolve this debate, the thesis approaches the issue by focusing on diet and mobility as factors that may have structured conditions of vulnerability or resilience in Iron Age societies.

Using a multi-isotope and multi-tissue approach, the thesis integrates data from several sites in Sweden, with a particular emphasis on Gotland, Öland, and Östergötland. The material spans multiple centuries and includes individuals of different ages and sexes, allowing for the exploration of diachronic change and intra-community variability within a vulnerability framework.

List of papers

The thesis is based on the following papers:

Paper I

Anagnostou, E., Linderholm, J., & Lidén, K. (2024). The AD 536/540 climate event in Sweden: A review. Boreas, 54(1), 1-13

This paper reviews research on the AD 536/540 event within Swedish archaeology, drawing on published climatic and archaeological data. It examines how changes in the archaeological record have been interpreted, highlights ongoing debates, and outlines research gaps. The paper suggests that isotopic analysis can provide additional insights and help move the discussion forward.

Paper II

Anagnostou, E. & Palmowski, V. (to be re-submitted) Temporal and social factors shaped diverse and dynamic dietary practices at Havor, Gotland, from the Roman Iron Age to the Viking Age.

This paper examines dietary practices at the Havor burial site on Gotland using carbon and nitrogen isotope analysis.

Paper III

Anagnostou, E., Lidén, K., & Morrone, A. Diet and mobility at three burial sites in Iron Age Gotland: a multi-isotopic approach (preliminary title)

This paper investigates diet, mobility, and pathology at three Gotlandic burial sites (Barshalder, Hallvede and Allekvia), dating from the Roman Iron Age to the Vendel period, combining multiple isotope analyses, radiocarbon dating, and osteological analysis.

Paper IV

Anagnostou, E. & Lidén, K. Diet and mobility at Smörkullen (preliminary title).

This paper reconstructs dietary practices and mobility patterns among individuals buried at the Roman Iron Age cemetery of Smörkullen in Östergötland.

Paper V

Skedemosse (title to be defined). Collaboration between Hars, A., Eriksson, G., Glykou, A., Lidén, K.

This paper investigates dietary practices at the Skedemosse sacrificial site on Öland using carbon and nitrogen stable isotope analysis.

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Chapter 1 introduces the research aims and questions, outlines the scope of the thesis, and highlights the relevance of vulnerability for understanding the 6th-century climatic event.

Chapter 2 presents the research background, including an overview of the AD 536/540 climatic event, climate variability during the Late Holocene in Sweden, archaeological changes in the mid-first millennium AD, the scholarly debate surrounding these transformations, and the contribution of isotope analysis.

Chapter 3 presents the theoretical framework, focusing on concepts of vulnerability and resilience.

Chapter 4 introduces the principles of stable isotope analysis and discusses methodological considerations.

Chapter 5 describes the material and methods, including sampling strategies, chronological framework, sites, and analytical methods.

Chapter 6 summarizes the results of the papers.

Chapter 7 offers a synthetic discussion that integrates results across papers and with other published isotopic data from Sweden, addressing the overarching research questions.

Chapter 8 concludes the thesis by reflecting on its contributions, limitations, and directions for future research.