

Objective

Europe's history is one of steadily increasing connectivity and interaction between societies. This is the base for the material and cultural diversity that modern Europeans take pride in. My presearch project aims to show that cross-cultural interaction (in this case: warfare) between societies in the European Bronze Age was more intense than is currently acknowledged, and that the Bronze Age must be considered a formative epoch of European history. Modern day Europeans are often taught that the Roman Empire was the first political entity to establish long-distance networks that brought the societies of the "barbaric" North into direct contact with the more sophisticated Graeco-Roman world, spreading civilisation throughout the continent. However, during the European Bronze Age, especially the developed Bronze Age from 1600 BC onward, vast networks of communication already existed, steadily transforming physical geography into social geography, and spreading cultural innovations across the continent. The research outlined here focuses on the interactions between mobile warriors/mercenaries of the Mediterranean, Central Europe and Northern Europe. The concept of "Warriors on the Move" best describes both the exchange and transmission of ideas (including the social organization model), technology and innovation and also the rapid dissemination of their weapons technology as part of the Late Bronze Age warrior package. Detailed analysis of this packages will show how much it was standardized throughout the European continent. Comparative and chronological analyses will reveal the northern or southern origin of some of its elements.

Despite its focus on archaeological evidence of warfare and a mobile warrior class, the proposed project does not solely aim at one particular process of cultural transmission, i.e. warfare. It wants to explore the mechanisms that underlie cultural exchange and transformation of human societies and are expressed through trade, migrations and other means (in this specific case: warfare and warriorhood). In this respect, the European Bronze Age as a formative epoch has the advantage of having both a prehistoric character in the north of the study region and a historic character (including written sources) in the south.

Basic Research

Archaeology offers a uniquely broad perspective on the past by integrating historical sources, material evidence and environmental data into powerful explanatory models. Detailed analyses and interpretations of the material culture will be made from a network-theoretic point of view to reveal (1) the dynamics of political power and economic control, as evidenced by the evolution and dissemination of weapons technology and (2) the complimentary perspectives of trade and migrations as evidenced by the diffusion of amber beads, personal dress items, jewellery and pottery. Any attempt to understand a complex phenomenon, such as cross-cultural interaction, long-distance communication and co-evolution of connected societies, must make use of research tools and methods from humanities and sciences, eg. archaeology, anthropology, ethnology, social sciences, network theory and spatial statistics. Integrated and trans-disciplinary approach can enhance our understanding of the complex co-evolution of prehistoric societies, both on the local and global scale.

In the proposed project a digital data base will be used that consists of a substantial collection of artefacts, metallurgical and environmental data with a geographic coverage that spans the entire space of the study regions and the areas in-between. One particularly important group of artefacts are characteristic bronze swords of so-called "Naue II" type, the earliest known example of a pan-European weapons technology of the Late Bronze Age. They were robust and most effective on the battlefield. A collection of more than 1000 of these swords form the backbone of the data base. Geographic Information Systems (GIS) are used to map the distributions of artefacts and the results of statistical analyses. They are also used to reconstruct the warrior networks in a bottom-up fashion, integrating both geomorphological ("movement corridors") and archaeological (artefact distributions) evidence. Movement corridors will be reconstructed via least-cost models and links between archaeological find spots/sites will be reconstructed within these corridors. Methods for network reconstruction have been studied in archaeology and many more have been published by researchers from other disciplines, such as human geography, sociology and ecology.

Motivation

Although it has long been acknowledged that connections existed between these different cultural regions of Europe, Bronze Age research has not fully succeeded in developing explanatory models that could account for their strength and frequency. Studies have mostly been limited to local observations, and connections have been portrayed as rather weak links. A selective focus on singular (often spectacular) artefacts and sites has resulted in discourses on whether they represent evidence of direct cross-cultural contact. These have overlooked that (a) contact does not need to be direct in order to be pervasive and (b) the mass of the evidence consists of lessspectacular but more frequent objects, such as pottery that clearly indicate trade and exchange. Even though an alternative perspective has been pursued before, and reconstructions of the trade routes behind the geographical spread of artefacts have been attempted, rather vague and implicit ideas of networks have been used in most cases. All this has led to an underestimation of the political and economical connectedness of Bronze Age Europe, which the proposed research wants to challenge. Modern European archaeology must overcome its narrow focus on "cultures", territories and borders, and transform itself into an integrative science that addresses questions of critical importance to the understanding of longterm historical processes and the interaction between people and the environment. I wish to contribute to this process with the use of network theory.

The network paradigm is not new in Bronze Age archaeology and work predating the use of GIS has already identified e.g. river networks as primary factors for the communication network. However, explicit, data-based reconstructions of this networks are lacking (with the exception of networks between islands, which are much easier to model than continental networks, due their obvious geographical structure). I expect that the results of my research will challenge the results of this "informal" network reconstructions because my data shows that the links are stronger and more far-reaching than studies focused on single sites would indicate. In this way, I hope that my research will show how much available potential there is in the evidence on mobile warriors and their material culture ("packages").