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Population mobility and welfare in 10th-14th centuries Hungary

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During the medieval period in Central and South-east Europe successive waves of human migration to new lands resulted in the construction, consolidation and decline of nations. One group, the Magyars, migrated from Siberia arriving in Central Europe in the 9th century, resulting in significant cultural impact on the region. The Magyar archaeological record includes a number of cemeteries, revealing hundreds of well-preserved burials with associated grave goods, such as richly adorned princely warrior graves.

Hungarian tribes settled in the Carpathian Basin at the end of the 9th century, initially continuing to live a semi-nomadic lifestyle and incorporating horses and/or equestrian equipment within their burials, but rapidly underwent a series of changes, not only in terms of social life, but spiritual as well. New developments involved abandoning the old pagan traditions and embracing Christianity as the new religion, which brought about different burial rites and rituals; and adopting a new sedentary lifestyle, as opposed to a past nomadic one, by employing intensive stockbreeding and agriculture. Political organization changed as well with the foundation of the new state, now led by the Christian King Stephen. Although the biogeography of the Carpathian Basin, having much in common with the forested steppes of Eastern Europe, was apparently unsuitable for nomadic life, it offered excellent possibilities for sedentary farming.

There have been attempts to examine regional and macro-regional changes in material culture, burial practice, diet and health within cemetery, and other contexts. In 2011,

Harhoiu and collaborators used the variation in grave goods (gradual decline in the inclusion of horses, weapons or hunting tools) to suggest changes in religious practice, warfare and hunting, while others have noted differences in the distribution of animal species within cemeteries and settlements and changes in agricultural and pastoral practices within zooarchaeological and palaeobotanical assemblages. Gyulai (2014) tracked variation in grain usage across time in parts of Hungary, identifying a switch from a focus on wheat and rye alone to the later inclusion of millet, indicative of a switch to high nutrient grain production in the 12th-13th centuries. We may also note Marcsik and collaborators (2002) who examined patterns of human health in five Hungarian cemeteries (10th-11th centuries) and noted an increase in dietary stress indicators and bacterial diseases during the 10th century, a higher incidence of tuberculosis and leprosy (11th century) and a decrease in trephination (surgical intervention when a hole is either drilled, incised or scraped into the skull of the patient with the use of simple tools) in the 11th century.

Despite this valuable research, limited comparisons have been made between small numbers of cemeteries, mostly from Hungary and the need for integrated isotopic analyses is highlighted by several studies. These analyses are commonly used in archaeological and anthropological investigations of past populations and can provide valuable insights related to the study of diet and mobility. Isotopes are atoms whose nuclei contain the same number of protons but a different number of neutrons and can be both stable (do not decay into other elements) and unstable/radioactive (will decay into other elements).

The project aims to investigate the changing characteristics of the Magyars as they transitioned from a unified nomadic pagan population to settled Christian groups by focusing on human and faunal skeletal remains and associated grave goods. This will be achieved by:

1. Identifying regional differences in lifeways via the reconstruction of demographic and health indicators over time.
2. Mapping chronological changes in mobility from skeletal markers for diet, activity and population mobility.
3. Examining shifts in belief systems through changes in mortuary practices.

The present study will focus on four early to late medieval cemeteries (10th-14th centuries) located in the two modern countries of Hungary [HU] and Romania [RO] (Szada-Pusztaszentjakab [HU], Alba Iulia-Strada Brânduşei, Pîclişa and Alba Iulia-Izvorul Împăratului [RO]), which in the past, represented constituent areas of the Medieval Hungarian Kingdom. To date, over 550 burials are available for research. None of the existent materials have been previously investigated osteologically, nor have been sampled for isotope analysis.

These extensive human skeletal assemblages will be subject to full skeletal investigations, following standard methodologies. Sex and age estimation will provide valuable data which will allow demographic reconstruction; investigation of diseases (e.g., nutritional; bacterial – figure 1) along with stress/activity markers and dietary indicators will be used to estimate general population health; and metrical data (skull and post-cranial skeletal measurements) will establish stature and morphology (referring here to facial indices determined through measurements of the skull, which will allow an estimation of each individual's ancestry).

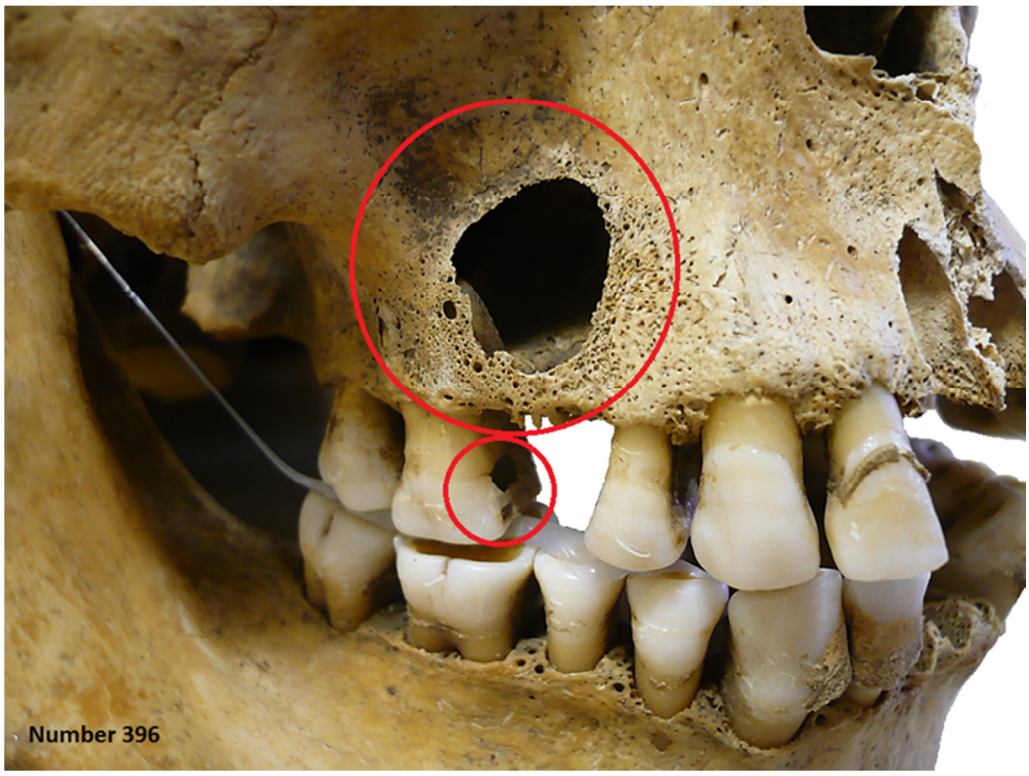

Figure 1: Recorded abscess from grave 396 from Szada-Pusztaszentjakab cemetery, Hungary (male, 30-40 years).

Targeted isotope (87Sr/86Sr, δ13C, δ15N) analysis will be performed following completion of initial osteological investigation for each cemetery. This will be undertaken for migration patterns and dietary reconstruction.

All data resulted will be imputed into a database and linked to existing excavation and analytical data, including chronological evidence, material culture, anthropological and zooarchaeological data and burial practices.

Chronological analysis of human lifeways and mortuary practices across the area of study will allow a fine-grained reconstruction of changes in culture and health and even offer new insights into the changing nature of Magyar identity.
Following on initial archaeological evidence and by engaging detailed osteological investigations and isotope analyses, the present study hopes to provide clear evidence of different regional population characteristics (within the same kingdom) evolving throughout time and to what extent these were influenced by cultural and religious changes.

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