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Biosocial archaeology of the Early Neolithic: Synthetic analyses of a human skeletal population from the LBK cemetery of Vedrovice, Czech Republic ☆

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ABSTRACT

Bioarchaeology is a powerful tool in the examination of prehistoric collections of human skeletal remains. Application of a few bioarchaeological techniques (ancient DNA, carbon and nitrogen stable isotopes, and dental micro-wear) to the human osteological remains from the Early Neolithic LBK settlement of Vedrovice (Moravia), has allowed us to reconstruct not only broad cultural patterns but also the life histories of the individuals with insights into diet, migrations, ancestry, personal identity, social position and life experience. Vedrovice acted as a gateway settlement for a farming community with close ties to western Hungary and northeast Bohemia. The individuals showed clear differences in status and migration histories, giving glimpses of more complex social practices and patterns than could have been determined through the traditional culture-historical studies.

Introduction

The Central European Linear Pottery Culture or Linearbandkeramik Culture (LBK) is the earliest agro-pastoralist phenomenon outside of the Balkans, broadly dating to 5700 BC–5000 BC (Lenneis and Stadler, 1995; Lenneis et al., 1996; Lüning, 1988; Modderman, 1988; Quitta, 1960; Stadler, 1999). Its perceived uniformity has traditionally been interpreted as reflecting a colonisation event, generally in terms of a rapid east–west spread of agro-pastoralist populations (Ammerman and Cavalli-Sforza, 1984; Cavalli-Sforza and Cavalli-Sforza, 1995; Childe, 1957[1925]; Modderman, 1988; Neustupný, 2004; Piggott, 1965; van Andel and Runnells, 1995; Vencl, 1986). In recent years the notion of uniformity has come under increasing criticism, and local and regional typological variability is now recognised in LBK ceramic, lithic, and dietary repertoires, and these suggest more continuity with indigenous hunter–gatherers (Bánffy, 2004; Bentley et al., 2003c; Gronenborn, 1998, 1999, 2003, 2004; Lukes, 2004, 2005, 2006; Lukes and Zvelebil, 2004; Mateicuicová, 2004; Price, 2000; Rulf, 1995, 1997; Whittle, 1996; Zvelebil, 2000a, 2004a, 2004b; Zvelebil et al., 2008, 2009).

We present here a biosocial reconstruction of early LBK life based on the site of Vedrovice (Moravia, Czech Republic). The project was conceived of as a multi-disciplinary approach to reconstructing biological and social life at Vedrovice, with an overall relevance to deepening our understanding of the transitions to agriculture in Central Europe (i.e., Dočkalová and Čižmář, 2008; Lukes et al., 2008; Zvelebil et al., 2008; Smrčka et al., 2008). At the heart of the project was the notion of synergy between the various analyses undertaken on representative samples of human skeletal material from the Široká u Lesa cemetery associated with the Vedrovice LBK settlement. This represents a new approach to understanding and interpreting human remains, which takes us beyond previous bioarchaeological studies that have been mostly focussed on reconstructing dietary patterns from bone chemical analyses and conducted in relative isolation from associated cultural material, even though the advances these studies had achieved and major debates they had generated must be acknowledged (e.g., Antanaitis and Ogrinc, 2000; Bonsal et al., 1997; Eriksson, 2004; Eriksson et al., 2003; Katzenberg and Weber, 1999; Larsen, 1997; Lidèn and Nelson, 1994; Lidèn, 1995; Lillie and Richards, 2000; Richards and McCaulay, 2000; Richards et al., 2003; Schulting and Richards, 2000a, 2000b, 2002; Tauber, 1981, 1986, but see Bentley et al., 2002, 2003a, 2003b; Eriksson, 2003, 2006; Lillie and Jacobs, 2006; Lillie et al., 2003; Milner et al., 2004; Ogrinc

☆ Marek did not finish his contribution to this paper. The most general, synthesising conclusions were still missing at the time of Marek's passing. I was asked by John O'Shea, JAA Editor, to try and put myself in Marek's head and come up with a few insights to finish the paper on a more general note. I proceeded as asked and the last four paragraphs in the conclusion section were written by me. Obviously, I do not know to what extent Marek would endorse these comments; I only hope that he would. So, please, be kind to keep that in mind if referencing this paper (A.W. Weber).

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and Budja, 2005; Richards and Schulting, 2006). It was clear to us during the formation of the project that certain analytical techniques would complement each other and enable us to draw out elements of individual life histories that were otherwise invisible using single analytical approaches. The result of this synergy is an unprecedentedly detailed view into the human condition of Neolithic individuals, culminating in the reconstruction of specific individual life biographies which we present below. Thus, for the first time, the lives of people linked by a common tradition – the LBK or Linear Pottery Ware culture – are reconstructed in detail.

Vedrovice

Vedrovice should be regarded as a site complex, comprising several key components including the Early Neolithic settlement (Čižmář, 2002; Dočkalová and Čižmář, 2008; Lukes, 2005; Podborský, 1993, 2002) and its cemetery ("Široká u Lesa"). This latter, located adjacent to the settlement, has yielded one of the largest collections of Neolithic human remains in Central Europe, and is accompanied by a well documented record of material culture (Podborský, 2002). It is located in southern Moravia in the south eastern part of the Czech Republic, near Moravský Krumlov in the Znojmo district (Ondruš, 2002). Sections of the site were excavated between 1961 and 2000, and encompass the settlement, three enclosures as well as two cemeteries: the early LBK cemetery (our focus) and the "U Vinklerovy Cihelny" burial ground (Humpolová, 2001; Humpolová and Ondruš, 1999; Ondruš, 2002; Podborský, 2002).

"Široká u Lesa" is invaluable to the study of the Neolithic in Central Europe. The range of preserved material culture and osteological remains has few parallels at other Central European LBK sites, and the cemetery has been extensively (4500 m^2) and systematically excavated and documented between 1975 and 1982 yielding at least 85 burials (Ondruš, 2002). These provide an opportunity to apply objective bio-archaeological approaches as supplemented by material culture in the form of grave goods in order to construct individual biographies facilitating the exploration of the nature of individual identity in contrast to communal identity evident at the settlement.

Vedrovice is potentially located at the periphery of distribution of the earliest LBK, and in view of this the site provides information pertinent to the initial establishment of LBK populations and Neolithic life. Most researchers agree that the Formative LBK probably emerged in western Hungary, and some presume a distribution stretching from western Hungary to Slovakia, eastern Austria and southern Moravia (Pavúk, 1979, 1980, 1994; Tichý, 1960). Others postulate a distribution from western Hungary, Slovakia and lower Austria excluding Moravia and regions further west (Bánffy, 2004; Podborský, 1993). Thus the 'earliest' LBK is mapped throughout a large area of Central Europe (Bogucki, 2001; Gronenborn, 1994; Jochim, 2000; Lüning, 1988). This wide distribution has prompted a distinction between the 'earliest' LBK associated with the Formative LBK in the core area of Transdanubia and the Danube valley (present day northwest Hungary, southwest Slovakia, eastern Austria and southern Moravia; Gronenborn, 1999; Kalicz, 1995; Pavúk, 1980, 1994), and the remaining 'early' LBK assemblages distributed throughout the rest of Central Europe (Fig. 1).

The donor cultures of the Formative LBK are derived from the First Balkan Neolithic, spreading by colonisation, active participation of local hunting–gathering populations or some combination of these two (Lukes, 2004). In the case of the post-Formative LBK, the donor cultures arguably involved other LBK communities since the chronological time span between the two horizons has been approximated at a minimum of 100 and a maximum of 200 years (see for instance Gronenborn, 1998, 1999; compare Čižmář, 1998,

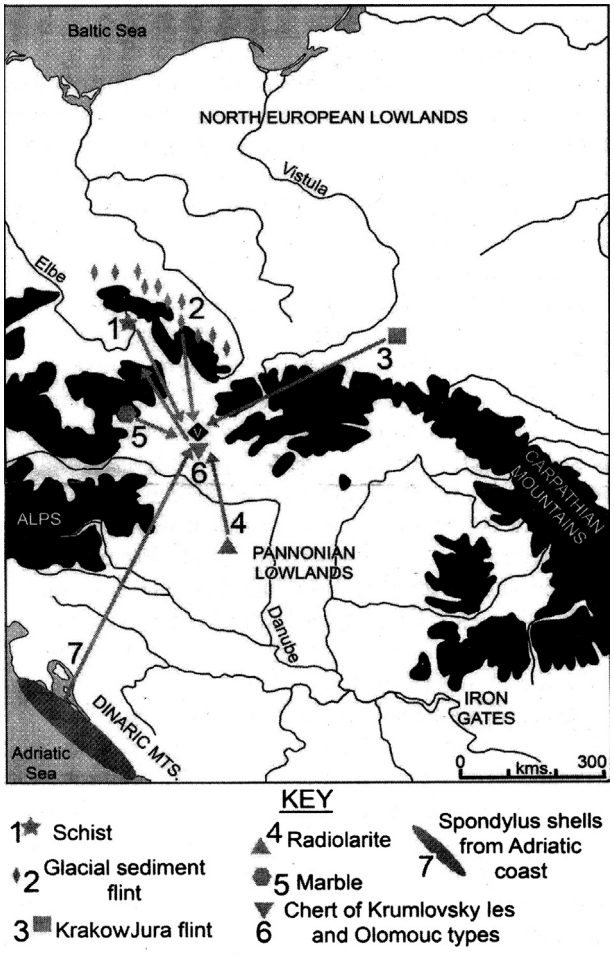

Fig. 1. Evidence of contacts between Vedrovice and other regions based on material culture.

2002; Gläser, 1993; Lenneis and Lüning, 2001; Neustupný, 1956; Pavlů and Vokolek, 1992; Pavúk, 1980, 1994; Tichý, 1960, 1962).

The burials of the "Široká u Lesa" cemetery are clearly associated with the early LBK (Čižmář, 2002), although prior to the commencement of our research its relationship with the Formative LBK remained unclear. Pottery excavated from settlement features displayed characteristics suggestive of establishment at the end of the Formative LBK (Humpolová pers. comm.; Lukes, 2005, 2006); and it is of interest that faunal remains recovered from these features were dominated by wild animal species, unlike any other area on-site (Nývltová-Fišáková, 2003, 2005). As will be seen below, the close chronological succession of cultural phases at the site suggests the potential for inter-generational transmission of culture and the opportunity to examine the changing negotiation of identity by individuals within the community precisely at the Mesolithic–Neolithic transition.

The project

Prior to our analyses, only two radiocarbon dates were available for Vedrovice: VERA-1831, 6220 ± 35 BP and VERA-1832, 6155 ± 35 BP (Podborský, 2002). We undertook a major series of radiocarbon measurements on human bone from the Vedrovice burials, coordinated by one of us (PP) and Prof. R.E.M. Hedges (Research Laboratory for Archaeology and the History of Art, Oxford University). Age and sex determinations, and demographic and paleopathological analyses were undertaken by Dr. Malcolm Lillie (University of