Quaternary International xxx (2016) 1–10

Contents lists available at ScienceDirect

Quaternary International

journal homepage: www.elsevier.com/locate/quaint

Middle to Upper Paleolithic transition in Moravia: New sites, new dates, new ideas

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ARTICLE INFO

Article history:
Available online xxx

Keywords:
Moravia
Bohunician
Szeletian
Aurignacian
Dating
Middle to Upper Paleolithic transition

ABSTRACT

There are several hundred recorded Early Upper Paleolithic sites in Moravia, most of which are surface sites. In the last 12 years we have been employing a new surveying method that has led to the discovery of 14 new stratified Early Upper Paleolithic sites. Some of those sites have now been excavated, yielding new data concerning the chronological position as well as technological–typological homogeneity of individual technocomplexes. Appearance of both MP/UP transitional technocomplexes – Bohunician and Szeletian – fit chronologically with Greenland Interstadial 12. While the Bohunician is characterized by the evolved Levallois technology, the Szeletian is characterized by bifacial knapping and intensive flat retouch. It is not known precisely which hominins made these techno-complexes. A recent study has argued that the Bohunician was made by the first Anatomically Modern Humans that migrated to this area while the Szeletian was made by the local Neanderthals. Early Aurignacian sites known from Danube Valley have never been found in Moravia. All the dates suggest a later Aurignacian occupation chronologically contemporaneous with Greenland Interstadial 8.

1. Introduction

The period between the Middle and the Upper Paleolithic, described as the Middle to Upper Paleolithic transition, Early Upper Paleolithic, or Initial Upper Paleolithic (Kuhn and Zwyns, 2014 with ref.) coincides with earliest penetrations of central Europe by Anatomically Modern Humans (e.g. Hoffecker, 2009; Hublin, 2012).

Moravia is located mostly within the catchment of the Morava River between the western Carpathians and the Bohemian Massif and at the intersection of two main pan-European connecting routes: a north-south route connecting the Mediterranean region and the Balkan Peninsula with the north European lowlands along the Danube, Morava, and Oder Rivers, and an east-west route along the Danube River (e.g. Schwabedissen, 1943; Svoboda et al., 1996; Lisá et al., 2013, 2014). Geographic features such as river valleys and mountain ridges undoubtedly played a role in 'directing' the first incoming Anatomically Modern Humans (AMH) spreading towards the European interior. The "Danube Corridor" hypothesis proposes that the Danube River valley acted as a corridor into the Swabian Jura (Conard and Bolus, 2003; Iovita et al., 2014). Moravia is located alongside this hypothetical route so it is a suitable candidate for a "zone of contact" during the expected "time of contact" of the first AMH and the local Neandertal population (e.g. Zilhão, 2006; Tostevin, 2007; Škrdla and Rychtaříková, 2012). Two different lithic techno-complexes have been attributed to this period (50–40 kyr) in Moravia – the Bohunician and the Szeletian.

The Moravian Bohunician with its intrusive character fits well with a complex of evolved Levallois industries known from the Near East (Boker Tachtit) (Škrdla, 2003a,b), the Balkan Peninsula (Temnata cave) (Ginter et al., 1996), Western Ukraine (Kulychivka) (Demidenko and Usik, 1993; Meignen et al., 2004) and far to the east (e.g. Kara Bom) (Derevianko and Rybin, 2003; Zwyns et al., 2012). The Szeletian is characterized by intensive bifacial reduction of tools and it is considered to have originated in the local Micoquian industries (Valoch, 1993; Neruda and Nerudová, 2009; Kaminská et al., 2011).

While the Bohunician is purported to be the oldest archaeological signature of immigrants from the Near East (Svoboda and Bar-Yosef, 2003; Škrdla, 2003a,b; Hoffecker, 2009; Richter et al., 2009; Hublin, 2012; Nigst, 2012), the Szeletian is thought to be the product of acculturation and the last archaeological signature of the Neandertals (Allsworth-Jones, 1986, 1990; Oliva, 1991; Valoch, 2000; Svoboda, 2005; Tostevin, 2007).

The fossil evidence for the earliest AMH in Europe is very limited (e.g. Pestera cu Oase ca 40.5 kyr cal BP, Trinkaus et al., 2003; Grotta

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http://dx.doi.org/10.1016/j.quaint.2016.07.029
1040-6182/

del Cavallo in Italy ca 45–43 kyr cal BP, Benazzi et al., 2011 – but see counter argument by Zilhão et al. (2015)). Tracing industrial types (techno-complexes) has limitations, as argued by Svoboda and Bar-Yosef (2003), and Tostevin (2012), who would prefer tracing specific knapping behaviors or behavioral packages. Tostevin and Škrdla (2006) have asserted the necessity of discovering (and excavating) new sites from the period of interest in order to advance technological studies in Moravia. An intensive survey project directed at the discovery of new stratified sites began in 2005 (Škrdla et al., 2016a). The result has been the discovery and excavation (mostly test pits and small scale-excavations) of 14 stratified sites including 2 Szeletian, 3 Bohunician and 4 Aurignacian sites. This work was a major contribution to Early Upper Paleolithic (EUP) studies in Moravia. The work presented in this article introduces newly discovered sites and presents a refined EUP chronology and some technological considerations (Table 1).

2. New Szeletian sites

The Szeletian (named after the type site of Szeleta Cave in Hungary; Červinka, 1927; Prošek, 1953) is based on flake and blade production by non-Levallois methods of reduction (Valoch, 1993). It is characterized by large numbers of end scrapers (including steeply retouched forms but not Aurignacian carinated forms) and side scrapers, and a low number of burins (Oliva, 1991). Bifacial reduction and bifacial retouch on different implements are common features of the Szeletian. The leafpoint is the type artifact of the Szeletian industry. Another important tool type is the Jerzmanowice-type point.

Data from the type site of Szeleta Cave (excavated at the beginning of the 20th century, Kadić, 1916) is problematic (Lengyel and Mester, 2008). While the single date from another Szeletian site Moravany nad Váhom – Dlhá (characterized by poplar shape

Table 1
Overview of radiocarbon dating. Calibrated using CalPal 2014 on INTCAL13.

Lab #	^{14}C age	STD	Cal BP	STD	Site	Reference
Bohunician						
GrN-12297	38,200	1100	42,310	820	Stránská skála III	Svoboda and Simán, 1989
GrN-12298	38,500	1400	42,580	1110	Stránská skála III	Svoboda and Simán, 1989
AA-32059	37,900	1100	42,030	840	Stránská skála IIId	Svoboda, 2001
AA-32060	37,270	990	41,500	810	Stránská skála IIId	Svoboda, 2001
AA-32061	35,080	830	39,620	890	Stránská skála IIId	Svoboda, 2001
GrN-11504	34,530	830	38,920	1000	Stránská skála IIId	Svoboda, 2001
GrN-11808	35,320	320	39,880	390	Stránská skála IIId	Svoboda, 2001
AA-41475	34,440	720	38,850	870	Stránská skála IIIc	Svoboda, 2003
AA-41476	36,570	940	40,940	850	Stránská skála IIIc	Svoboda, 2003
AA-41477	34,530	770	38,950	920	Stránská skála IIIc	Svoboda, 2003
AA-41478	36,350	990	40,730	920	Stránská skála IIIc	Svoboda, 2003
AA-41480	34,680	820	39,140	940	Stránská skála IIIc	Svoboda, 2003
AA-32058	38,300	1100	42,410	820	Stránská skála IIIc	Svoboda, 2001
GrN-12606	41,300	3100	45,300	2830	Stránská skála IIIa	Svoboda, 1986
GrN-6165	42,900	1700	46,450	1660	Bohunice-brickyard	Mook, 1976
OxA-14843	42,100	450	45,420	390	Bohunice-brickyard	Valoch, 2008
OxA-14844	43,250	550	46,490	570	Bohunice-brickyard	Valoch, 2008
OxA-14845	41,250	450	44,710	410	Bohunice-brickyard	Valoch, 2008
GrN-16920	36,000	1100	40,380	1060	Bohunice-brickyard	Svoboda, 1993
OxA-14846	43,600	550	46,840	620	Bohunice-Kejbaly	Valoch, 2008
OxA-14847	42,750	550	46,010	510	Bohunice-Kejbaly	Valoch, 2008
OxA-14848	41,350	450	44,800	400	Bohunice-Kejbaly	Valoch, 2008
Q-1044	40,173	1200	43,900	940	Bohunice-Kejbaly I	Switsur, 1976
GrN-6802	41,400	1400	44,900	1220	Bohunice-Kejbaly II	Mook, 1976
OxA-18320	29,490	240	33,650	220	Bohunice 2002	Richter et al., 2009
OxA-18298	36,050	260	40,690	320	Bohunice 2002	Richter et al., 2009
OxA-18299	38,690	320	42,660	220	Bohunice 2002	Richter et al., 2009
OxA-18300	38,770	330	42,710	230	Bohunice 2002	Richter et al., 2009
OxA-18301	40,050	360	43,690	360	Bohunice 2002	Richter et al., 2009
OxA-18302	34,770	240	39,280	310	Bohunice 2002	Richter et al., 2009
OxA-18303	38,200	330	42,350	230	Bohunice 2002	Richter et al., 2009
OxA-18343	36,540	310	41,140	330	Bohunice 2002	Richter et al., 2009
ANU-12024	32,740	530	36,950	730	Bohunice 2002	Škrdla and Tostevin, 2005
ANU-27214	35,025	730	39,580	790	Bohunice 2002	Škrdla and Tostevin, 2005
WK-17757	40,000	2000	43,870	1600	Bohunice 2002	Richter et al., 2008
Poz-37344	38,400	700	42,490	460	Líšeň/Podolí I	Škrdla et al., 2011a
Poz-45556	37,600	1000	41,790	780	Ořechov IV	Škrdla, 2013
Poz-51618	38,600	900	42,670	640	Ořechov IV	Škrdla, 2013
Poz-76203	41,000	1300	44,540	1080	Ořechov IV	Škrdla et al., 2016b
Szeletian						
GrN-12375	39,500	1100	43,410	850	Vedrovice V	Valoch, 1993
GrN-12374	37,650	550	41,970	380	Vedrovice V	Valoch, 1993
GrN-15514	37,600	800	41,860	590	Vedrovice V	Valoch, 1993
GrN-15513	35,150	650	39,710	710	Vedrovice V	Valoch, 1993
OxA-18297	36,820	250	41,410	240	Moravský Krumlov IV	Davies and Nerudová, 2009
OxA-18294	37,550	280	41,940	210	Moravský Krumlov IV	Davies and Nerudová, 2009
OxA-18295	37,980	290	42,220	200	Moravský Krumlov IV	Davies and Nerudová, 2009
OxA-18296	38,350	310	42,450	220	Moravský Krumlov IV	Davies and Nerudová, 2009
Poz-37821	37,770	800	42,000	570	Želešice III	Škrdla et al., 2014
Poz-51617	42,500	1500	46,010	1450	Želešice III	Škrdla et al., 2014
OxA-27342	41,300	700	44,720	620	Želešice III	Škrdla et al., 2014
GrA-44892	40,190	390	43,800	390	Vedrovice V	Haesaerts et al., 2013

Please cite this article in press as: Škrdla, P., Middle to Upper Paleolithic transition in Moravia: New sites, new dates, new ideas, Quaternary International (2016), http://dx.doi.org/10.1016/j.quaint.2016.07.029