

The Minice Hillfort and its Hinterland. Putting the Archaeological Data Together

Viktorie Čistáková – Petra Tušlová – Miloslav Slabina

ABSTRACT

The present study aims to put together the archaeological data known up to date about the Minice hillfort and its immediate hinterland. Archaeological sites, pottery scatters and single objects found within a four-kilometre perimeter of the hillfort were collected and their approximate location marked on the GIS based map together with refined excavation plans from the 1970s and 1980s. The current knowledge of the site was further extended by a small-scale field survey and metal detector prospection on and around the hillfort, with the preliminary result of season 2015 and 2016 included in the text.

KEYWORDS

Late Hallstatt period; Bohemia; Hillfort; XRF; field survey; metal detector prospection.

INTRODUCTION

The Minice hillfort is located about 18 km north-west of Prague, about 2.5 km west of the Vltava River (**Fig. 1**). The site was excavated during 1970–1989 under the National Museum of Prague and published only in the form of short preliminary reports (SLABINA 1975; 1977; 1979; 1981; 1982; 1987). A selection of finds from the excavations, as well as a basic interpretation of the unearthed architectural structures, had been awaiting publication until quite recently (TREFNÝ – SLABINA 2015). A small-scale metal detector prospection undertaken on the site in 2013 and 2014 brought to light a collection of metal finds, including the first bronze fibula (*Fusszierfibel*) so far uncovered on the hillfort's acropolis. Some of the other finds recovered from the ground could be interpreted as bronze casting waste which might suggest possible production activity undertaken at the hillfort in prehistory (BURSÁK – DANĚČEK – SMÍŠEK 2016).

The presented study builds on the previous research, starting by putting together archaeological data known up to the present about the Minice hillfort and its immediate hinterland. The area of our interest is bordered by Holubický Stream on the south-west, Zákolanský Stream on the north-west and by Turský Stream on the north-east; all within the delimitation of the cadastral units of the villages Holubice and Minice in the District of Kralupy nad Vltavou (**Pl. 1/1**).

The archaeological data were collected either from the excavation reports or from field observations carried out by the personnel of local museums and entered into the GIS database, which facilitates their visualisation in the maps, marking known settlements, settlement components as well as single and chance finds. We aimed to survey some of the areas where surface scatters were previously noted and verify them in the field – to mark their exact location, measure the extent of the scatter, and to determine the chronological range of the collected material.

The repetitive intensive field survey and total pickups were tested together with extensive metal detector prospection. So far, only the Minice hillfort and its closest vicinity were surveyed, with the potential for a further extension of the area.

Regarding the hillfort itself, the excavation plans were digitalized and put into the context of the landscape, especially of the rocky promontory it stands on (**Pl. 1/2**). The intensive field survey was then focused on the hillfort's surroundings with the main aim to detect Hallstatt (or other) period pottery scatters, which would help to understand better the settlement dynamics of the site and its connection with its immediate hinterland (**Pls. 1/3-5**).

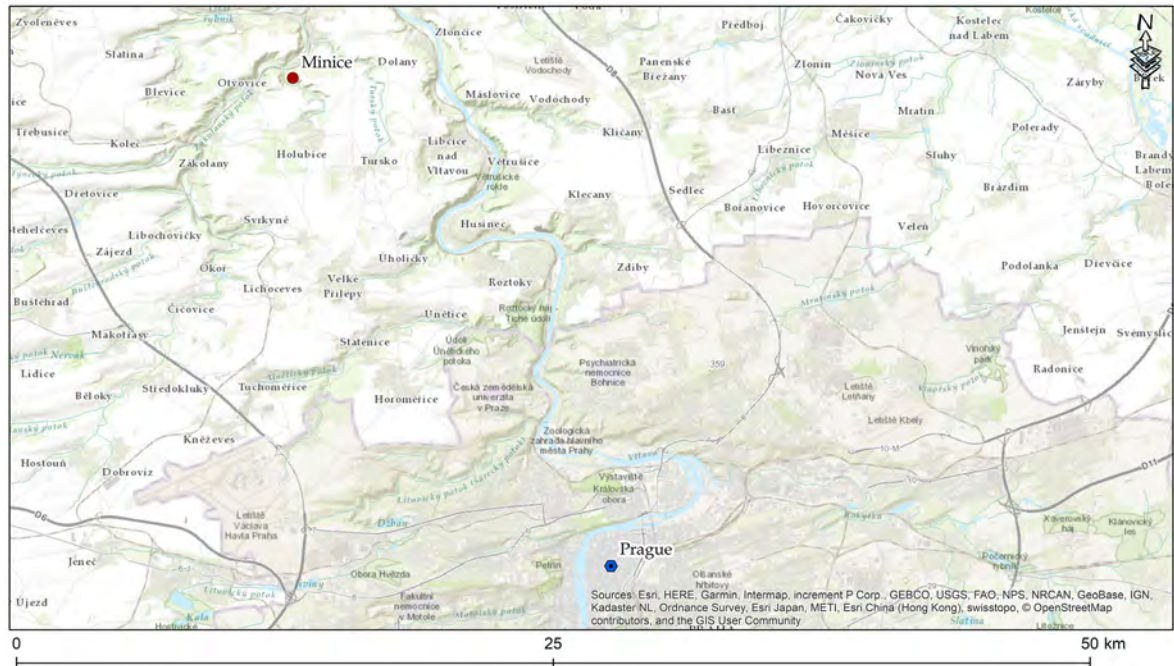


Fig. 1: Map of the Minice hillfort location within the map of Central Bohemia.

THE MINICE HILLFORT NEAR KRALUPY NAD VLTAVOU

HISTORY OF RESEARCH

The earliest mention of the Minice hillfort can be found in the works of Krolmus (1854), although he mentioned solely the local name 'Minice hillfort' without any archaeological context (SKLENÁŘ 1992, 142). The hillfort was added to the list of prehistoric archaeological sites about 90 years later by Prokop Masner, who described the hillfort in detail as a significant archaeological site and accompanied the description with its first sketch, made by a local artist Josef Holub (**Fig. 2**). As an amateur archaeologist, Prokop Masner collected the main written and archaeological sources about the Minice hillfort and its hinterland; he also described in detail the topography of the site. Further, he identified the hillfort as a Late Bronze Age and Early Iron Age settlement which was repopulated during the Early Middle Ages (MASNER 1934, 53–55).¹

The first, and so far, the last, systematic archaeological excavations of the site took place in 1970–1989, examining about 10 % of the presumed area of the hillfort. The main focus of the excavations was the hillfort's so-called acropolis (SLABINA 1975; 1977; 1979; 1981; 1982; 1987). A selection of the finds and the first interpretation of architectural structures uncovered during these excavations was however published quite recently (CHYTRÁČEK *et al.* 2010; TREF-

¹ Inaccurate interpretation applicable in the context of the beginning of the 20th century.

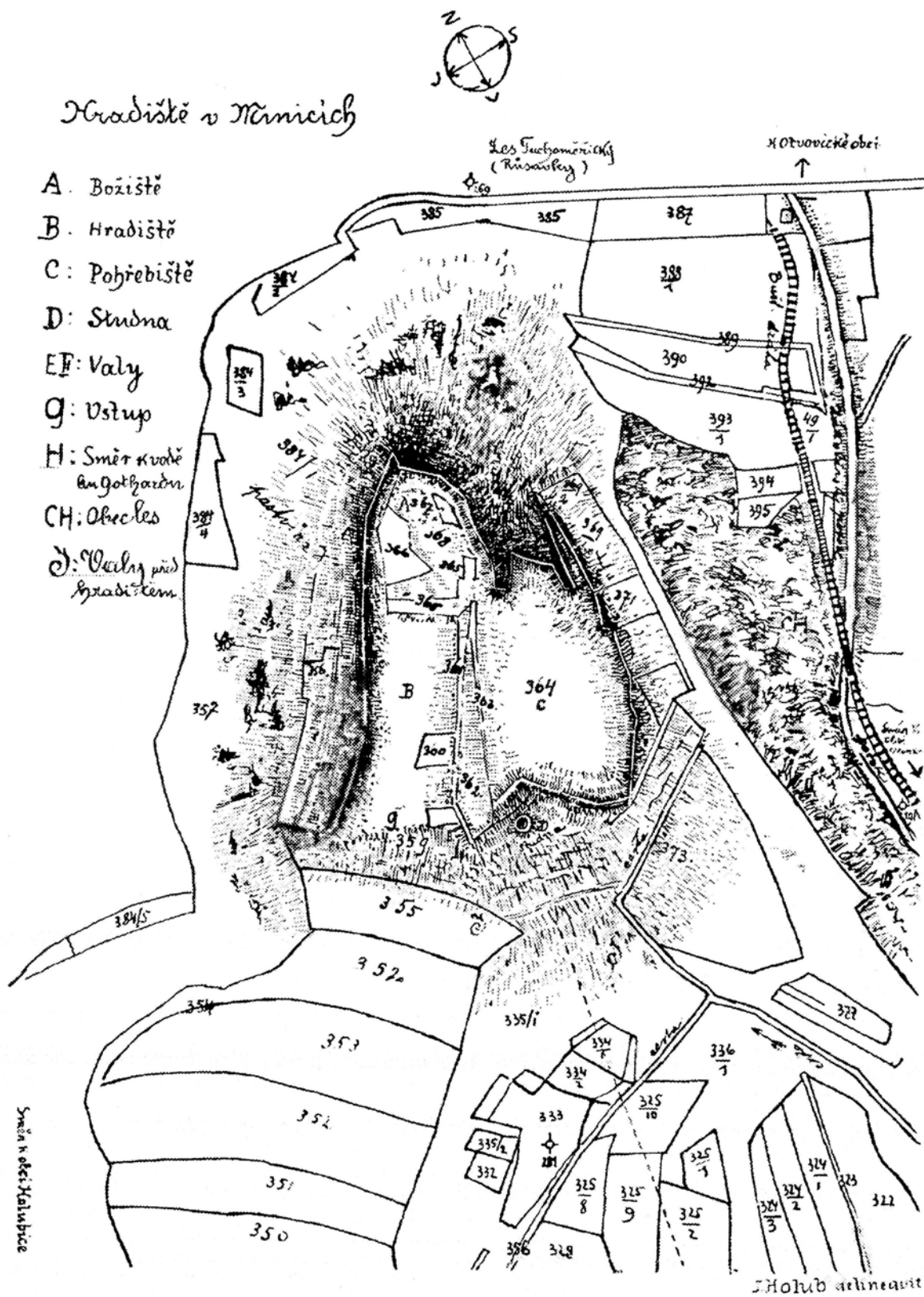


Fig. 2: Plan of Minice hillfort by P.F. Masner and J. Holub (MASNER 1934, 59).

NÝ – SLABINA 2015). Since the time of the excavation, only small-scale investigations including metal detector and random collections of surface finds have been made (BURSÁK – DANĚČEK – SMÍŠEK 2016).

From the immediate hinterland of the Minice hillfort are known several chance finds dating back to the 19th century, such as two armbands dated to the Únětice culture period (SKLENÁŘ 1982, 265; PÍČ 1905, 328–331; MOUCHA 2005, 130) or a hoard of 16 bronze objects dated to the Tumuli culture which was found in 1893 by a group of workers (SCHMIDT 1893, 139) (**Tab. 1:31, 36, 37; Pl. 1/1:31, 36, 37**). From the beginning of the 20th century onwards, many pottery finds are known from the hillfort's hinterland, featuring fragments mostly dated to the Knovíz and Bylany cultures. Prokop Masner mentioned the existence of cremation and inhumation graves with numerous grave goods: fragments of cremation urns, bronze armbands, a sword, etc. (MASNER 1934, 54). Later on, several archaeological excavations revealed rich settlements and graves surrounding the area of the hillfort with a chronology stretching through prehistory (HORÁKOVÁ-JANSOVÁ 1931a, 45–50; HORÁKOVÁ-JANSOVÁ 1931b, 54; FENCL 1971, 45–54) (**Tab. 1:32–34; Pl. 1/1:32–34**).

SETTLEMENT TOPOGRAPHY

The Minice hillfort (**Tab. 1:37; Pl. 1/1:37**) is situated on a narrow promontory stretching from west to east over the Zákolanský and Holubický streams (**Pl. 1/1**). The location provides perfect natural protection, as the promontory is barely approachable from the southern and western sides where the slope is extremely steep with a relative elevation of 72 m over the valley.² The northern part is partly protected by a rocky range creating a natural wall.³ The already favourable natural location of the hillfort was reinforced by a sophisticated fortification system.

The area of the hillfort stretches over ca. 330 × 100 m (covering approximately 1.5 ha),⁴ with the elevation ranging from ca. 270 to 275 m.a.s.l. On a moderate hillock on the western part of the promontory, the so-called acropolis is situated, stretching over ca. 100 × 85 m (covering ca. 0.3 ha). This is the finding place of the unique stone platform (the green square in **Pl. 1/2**) which attests to the exceptional role of the Minice hillfort during the Late Hallstatt period. The elaborate system of stone walls, ditches and ramparts surrounding the acropolis also belongs to one of the most exceptional examples of a fortification system in the territory of prehistoric Bohemia. The traces of the fortification walls were located by the excavators on the northern part of the acropolis and on the southern edge of the promontory. The acropolis was separated from the rest of the hillfort by a deep ditch (5–6 m wide and 3 m deep); another ditch together with a stone wall used to enclose the area of the hillfort from the eastern side (ČTVERÁK *et al.* 2003, 203; TREFNÝ – SLABINA 2015, 46–48). The existence of one more ditch, located within the Eastern outer annexe, is probable.

The original surface of the promontory was disturbed during the 19th and first half of the 20th century by four quarries. The biggest one is located on the western edge of the acropolis. During its active years, 1937–1939, the quarry extracted about 50 × 50 m of the rocky surface of

2 The elevation is taken from: <http://ags.cuzk.cz/dmr/#>, measured from DMR 5G.

3 The rocky range was partly disturbed by stone quarrying (ČTVERÁK *et al.* 2003, 201).

4 The georeferenced excavation plans helped us to better estimate the size of the settlement. The north-south dimension is measured from the Northern to Southern fortification wall, the east-west dimensions from the western border of the acropolis to the eastern ditch separating the promontory from the Eastern outer annexe.

the promontory together with the so called altar, identified and described by the local painter Josef Holub (MASNER 1934, 56) (**Fig. 2:A**).

Two flat areas are attached to the hillfort itself: one on the north, delimited by a ca. 2 m steep partition and covering approximately 1.6 ha, the other on the east, delimited on the north by a line of rocks, on the south by the steep slope of the Holubický Stream basin (locally known as Rusavky), and on the east by a low partition. It covers an area of ca. 7.5 ha. These areas were interpreted as the settlement's outer annexes – Northern and Eastern (SLABINA 1987).

The area of the Northern outer annexe was identified by Masner as a necropolis, where numerous graves are said to have been found. Unfortunately, Masner mentioned only a short list of possible grave goods without any documentation or detailed descriptions (MASNER 1934, 56). The same area was partially excavated from 1970 to 1989 revealing several settlement features and pit-houses dated to the late Hallstatt period. The Eastern outer annexe was briefly excavated in the 1980s, when one test pit (12 × 3 m) was placed there, uncovering the so-called eastern 'ditch' (**Pl. 1/1:39, 1/2**). Up to the present, only a low pottery scatter might be identified there (c.f. SC01).

HINTERLAND OF THE MINICE HILLFORT

Based on the chance finds, rescue excavations, and field surveys, almost 50 archaeological components have been found within a 4 km radius of the Minice hillfort within the last 180 years.⁵ Most of them are presumed settlements, although burial grounds, black-smith workshops, furnaces or single finds have also been identified (**Pl. 1/1; Tab. 1⁶**). The finds attest to the habitation of the area spanning from the Neolithic up to the present day. The majority of the finding places are located in the immediate vicinity of water courses – such as of the Holubický and Turský streams –, as well as in the area of the Holubice village itself, nowadays very active in construction works bringing new discoveries to light every year, pointing to its rich history and settlement continuity. Consequently, the list of finding places in this area of the Holubice village is simplified, marking only the rather unusual or important findings uncovered within its territory.

THE DIGITALIZATION OF THE EXCAVATION PLANS

To create an understandable digital picture of the archaeological site and its hinterland, the excavation plans from the 1970s and 1980s created at a scale 1:1250 (Archives of NM) and placed into the JTSK coordinate system in 2009 (KUNA 2009), were georeferenced and digitalized using GIS. Based on the main grid, additional areas, such as the trench marking the presumed ditch of the Eastern outer annexe, were added from the original excavation plans and redrawn into the final map (**Pl. 1/2**).⁷ The correct placement of the additional structures within the

5 The survey area is delimited by the Turský Stream on the north and east, Holubický Stream on the south-west and south, and by the Zákolanský Stream on the west. The list of the sites does not include the town of Kralupy nad Vltavou, where numerous prehistoric sites have been detected. The area of Kralupy nad Vltavou could be identified as a prehistoric ford, which seems to have, in fact, significantly influenced the settlement development in the region (SKLENÁŘ 1994, 39).

6 Many of the 19th century chance finds have unclear finding locations.

7 Up to one-meter measurement error might be expected due to the trenches' deterioration and the deviation of the modern measuring technologies.

Nr.	Local name and district	Feature	Main finds
1	Holubice, Prague-west distr. Kozinec, Holubí Háj	Settlement; blacksmith workshop	Metal finds; pottery; gold-plated hair ring
2	Holubice, Prague-west distr. Kozákova zahrada	Settlement	Pottery
3	Holubice, Prague-west distr. Kozákova zahrada		Pottery
4	Holubice, Prague-west distr.	Settlement; burial ground; fortification; furnaces	Pottery; grave goods
5	Holubice, Prague-west distr.	Settlement	Pottery; grinding stone; flints; stone mace
6	Holubice, Prague-west distr.	Settlement; furnace?	Pottery; grinding stone; flints; iron slag; animal bones; bronze mirror
7	Holubice, Prague-west distr.	Settlement	Pottery; daub
8	Holubice, Prague-west distr.	Settlement; furnace	Pottery; slag
9	Holubice, Prague-west distr.	Settlement; furnaces	Pottery; slag; stone axe; animal bones; grinding stone; flints
10	Holubice, Prague-west distr.	Settlement	Pottery; animal bones; slag; daub
11	Holubice, Prague-west distr.	Settlements; furnace?	Pottery; bones; slag; stone axe; daub
12	Holubice, Prague-west distr.	Middle Bronze Age tumulus; pottery scatter	grave goods (pottery, bronze finds); pottery
13	Holubice, Prague-west distr. Nad průhonem	Cremation burial	grave goods (bronze vessels, other bronze finds)
14	Holubice, Prague-west distr.	Settlement	Pottery

Chronology	Bibliography	Methods of investigation	Hallstatt	Plot no.
Early La Tène (LT A) period	STOLZOVÁ – ŠULOVÁ 2011, 349–365; ŠULOVÁ 2007a, 99	Rescue excavation 2006		
Knovíz culture (LBA); Late Hallstatt (HaD) period; Early Roman Iron Age	SCHMIDT 1893 and 1893–1895; SAKAŘ 1981, 41; SAKAŘ 1987, 50; SAKAŘ 1989, 47; SAKAŘ 1998, 51; MOTYKOVÁ 1981, 194	Archaeological excavation 1981	Yes	old nr. 89 (Na ovčárně 98)
Eneolithic; La Tène; Roman Iron Age		Field survey (D. Daněček, Muzeum of Roztoky) 2006–2014		
Funnel Beaker (EEn), Baden (MEn), Únětice (EBA) and Knovíz (LBA) cultures; Early Roman Iron Age (A)	HLOŽEK – MENŠÍK 2013, 13–18	Rescue excavation 2008		
Stroked Pottery (Ne); Funnel Beaker (EEn); Řivnáč (MEn) and Únětice (EBA) cultures; Early Roman Iron Age	DANĚČEK – SMÍŠEK 2010, 103–104; ŠULOVÁ – TUREK – KUBÁLEK 2008, 161–174	Rescue excavation 2009		64/56
Eneolithic; Late Bronze Age; Roman Iron Age	DANĚČEK – SMÍŠEK 2009b, 111–112; DANĚČEK – SMÍŠEK 2010, 100–101	Rescue excavation 2009		64/175, 64/146
Funnel Beaker (EEn), Řivnáč (MEn) and Únětice (EBA) cultures; Roman Iron Age	DANĚČEK 2006, 137; DANĚČEK 2007, 102–103; DANĚČEK – NOVÝ 2007, 102–103	Rescue excavation 2005–2007		64/120, 64/91
Eneolithic; Roman Iron Age	DANĚČEK – SMÍŠEK 2009a, 104	Rescue excavation 2008		77/3, 77/4
Funnel Beaker (EEn), Řivnáč (MEn) and Únětice (EBA) cultures; Late Bronze Age; Roman Iron Age	DANĚČEK 2006, 137; DANĚČEK – SMÍŠEK 2007, 101; DANĚČEK – SMÍŠEK 2008, 102; DANĚČEK – SMÍŠEK 2009a, 101, 103	Rescue excavation 2006–2008		64/87, 64/92, 93, 99, 103
Early Roman Iron Age (A)	DANĚČEK – SMÍŠEK 2009a, 103			77/9
Funnel Beaker (EEn) and Řivnáč (MEn) cultures	DANĚČEK – SMÍŠEK – ŠULOVÁ 2007, 106	Rescue excavation 2006		64/109
Funnel Beaker (EEn), The Tumulus (MBA), Knovíz (LBA) and Štítary (FBA) cultures; Hallstatt period	SCHMIDT 1893, 137–142, tab. XI, 374–378; PÍČ 1899, 192; SPURNÝ 1947, 16	Field survey 1975–2002 (V. Fencel)	Yes	212
Early Roman Iron Age	MOTYKOVÁ – ŠNEIDROVÁ 1963, 19; SKLENÁŘ 1992, 61	Accidental find 1879		
Neolithic ? Bronze Age? Late La Tène (LT D) period; Middle Ages	DANĚČEK 2005, 100	Rescue excavation 2004		W part of 64/40

Nr.	Local name and district	Feature	Main finds
15	Holubice, Prague-west distr. Za humny	Settlement	Pottery
16	Holubice, Prague-west distr. Rusavky	Semi-pit house	Pottery; metal finds
17	Holubice, Prague-west distr. Rusavky	Pottery scatter	Pottery
18	Holubice, Prague-west distr. Za humny	Semi-pit houses	Pottery
19	Holubice, Prague-west distr. Za humny	Pottery scatter	Pottery
20	Holubice, Prague-west distr. Near Kozákova zahrada - Boží muka 93	Burial ground; settlement; pottery scatter	Pottery; slag; grave goods (bronze finds; pottery; amber)
21	Holubice, Prague-west distr.	Settlement	Pottery
22	Holubice, Prague-west distr.	Settlement	Pottery
23	Holubice, Prague-west distr. Kozákov, Holubí háj	Pottery scatter	Pottery
24	Holubice, Prague-west distr. Za humny	Semi-pit houses (part of nr. 18)	Pottery
25	Holubice, Prague-west distr.	Inhumation burial	Bronze items
26	Holubice, Prague-west distr.	Inhumation burials; settlemet	Pottery
27	Holubice, Prague-west distr.	Settlement	Pottery
x	Holubice, Prague-west distr. Without lokation	Cremation burials	?
x	Holubice, Prague-west distr. Between Holubice and Trnový Újezd, Na Ratavi. Without location	?	Pottery; bones; sword?
28	Holubice, Prague-west distr.	Inhumation burials	Bronze arms bands; fibulas
29	Holubice, Prague-west distr.	Settlement	Pottery; flints; stone pendant
30	Holubice, Prague-west distr.	Burials; settlement	Pottery

Chronology	Bibliography	Methods of investigation	Hallstatt	Plot no.
Linear Pottery (Ne), Stroked Pottery (Ne) and Knovíz (LBA) cultures; Hallstatt period	JUSTOVÁ 1969, 33; NOVÝ – FENCL 2007, 100	Archaeological excavation 1968; Rescue excavation 2005–2006	Yes	
Late La Tène (LT D) period	MOTYKOVÁ 1981, 193–199	Archaeological research 1968		
Neolithic; Late La Tène (LT D) period		Field survey (D. Daněček) 2006–2014		
Late Bronze Age; Late Hallstatt (Ha D) period; Early La Tène (LT A) period	FENCL 2008, 64; DANĚČEK <i>et al.</i> 2015, 127–128	Rescue excavation 2014–2015; Field survey 1975–2002 (V. Fencl)	Yes	244; 256
Knovíz (LBA) culture		Field survey (D. Daněček), 2006 – 2014		
Únětice (EBA) and Knovíz (LBA) cultures; Hallstatt (Ha D) period	SCHMIDT 1893, 113–138; MOTYKOVÁ 1963, 18–19	Archaeological excavation 1983		old nr. 93
Únětice (EBA) culture; Late Hallstatt (Ha D) period; La Tène (LT B–D) period	DANĚČEK – SMÍŠEK 2013a, 127	Rescue excavation 2006	Yes	
Štítary (FBA) culture	ŠULOVÁ 2007b, 104	Rescue excavation 2006		
Hallstatt period		Field survey (D. Daněček), 2006–2014	Yes / ?	
Late Hallstatt (Ha D2/D3) period	DANĚČEK <i>et al.</i> 2015, 127–128	Rescue excavation 2009–2016	Yes	
La Tène period	VENCL 1975, 26; MOTYKOVÁ 1981, 194			
Linear Pottery (Ne) culture; Early Middle Ages	AÚ AV ČR Praha č.j 3569/1956	Rescue excavation		
Linear Pottery (Ne) and Knovíz (LBA) cultures	AÚ AV ČR Praha č.j 3569/1956			
Roman Iron Age?	SKLENÁŘ 1992, 61	Accidental find, 1839, no location		
?	SKLENÁŘ 1992, 61	Accidental find, 1845–1846, no location		
La Tène period	AÚ AV ČR Praha č.2850/1950	Accidental find, 1950		
Řivnáč (MEn) and Únětice (EBA) cultures	DANĚČEK – SMÍŠEK 2010b, 92–93	Rescue excavation 2009		64/144
Únětice (EBA) and Knovíz (LBA) cultures	VENCL 1975, 26			

Nr.	Local name and district	Feature	Main finds
31	Minice - Kralupy nad Vltavou, Mělník distr.	Settlement, burial or hoard (?)	Pottery; 2 gold arm bands
32	Minice - Kralupy nad Vltavou, Mělník distr. Na klínku	Settlement? Hallstatt period inhumation burial	Pottery
33	Minice - Kralupy nad Vltavou, Mělník distr.	8 inhumation burials	Pottery; bronze items; amber beads
34	Minice - Kralupy nad Vltavou, Mělník distr. U Křížku	Settlement	Pottery
35	Minice - Kralupy nad Vltavou, Mělník distr. Pod hájkem/Pod hájem?		Bronze axe
36	Minice - Kralupy nad Vltavou, Mělník distr. Road to Tursko	hoard	Bronze finds
37	Minice - Kralupy nad Vltavou, Mělník distr. Minice hillfort	Settlement	Pottery; bronze finds
38	Minice - Kralupy nad Vltavou, Mělník distr. Under the Minice hillfort	Pottery scatter	Pottery
39	Minice - Kralupy nad Vltavou, Mělník distr. Minice hillfort - The Eastern annexe	Pottery scatter	Pottery
40	Minice - Kralupy nad Vltavou, Mělník distr. Minice hillfort - The Northern annexe	Settlement	Pottery
41	Minice - Kralupy nad Vltavou, Mělník distr. SE field	Pottery scatter	Pottery
42	Turský stream		Pottery; flints
x	Between Minice and Tursko		Bronze pin
43	Debrno - Dolany, Mělník distr.	Settlement	Pottery; flints
44	Debrno - Dolany, Mělník distr.	Settlement; inhumation burial	Pottery

Chronology	Bibliography	Methods of investigation	Hallstatt	Plot no.
Únětice culture	PÍČ 1905, 328–331; SKLENÁŘ 1982, 265; MOUCHA 2005, 130	Accidental find 1904		old nr. 70, 76, 80
Corded Ware (LEn) and Knovíz cultures (LBA); Hallstatt period	HORÁKOVÁ–JANSOVÁ 1931a, 45–50; HORÁKOVÁ–JANSOVÁ 1931b, 54; SKLENÁŘ 1982, 266	Accidental finds 1925 and 1931	Yes	
Únětice (EBA) culture	HORÁKOVÁ–JANSOVÁ 1931a, 45–50; SKLENÁŘ 1982, 266	Archaeological excavation 1931		old nr. 72
Stroke Pottery (Ne) culture; Late Hallstatt (Ha D2/D3) period; Early La Tène (LT A) period	FENCL 1971, 45–54; SKLENÁŘ 1982, 270	Rescue excavation 1970–1972; Field survey 2003 (V. Fencel)	Yes	
Únětice (EBA) culture	HORÁKOVÁ–JANSOVÁ 1932, 92–100; SKLENÁŘ 1982, 270	Accidental find 1924		
Tumulus (MBA) culture	SCHMIDT 1893, 137–140	Accidental find 1893		
Linear Pottery (Ne); Funnel Beaker (EEn); Únětice (EBA) and Knovíz (LBA) cultures; Late Hallstatt (Ha D2/D3) period	MOTTL 1877, 699–712; SLABINA 1975, 83–85; SLABINA 1977, 83–84; SLABINA 1979, 125–134; SLABINA 1981, 80–81; SLABINA 1982, 56–57; SLABINA 1987, 91–92; SKLENÁŘ 1982, 271; TREFNÝ – SLABINA 2015, 45–78	Archaeological excavation 1970–1989	Yes	
?		Field survey 2002		
Eneolithic; Knovíz (LBA) culture; Hallstatt; La Tène (LT B) period	ČTVERÁK <i>et al.</i> 2003, 201–204; TREFNÝ – SLABINA 2015, 45–78	Field survey 1970–1989	Yes	
Hallstatt period	ČTVERÁK <i>et al.</i> 2003, 201–204	Archaeological excavation 1970–1989	Yes	
Neolithic; Únětice (EBA) culture		Field survey (D. Daněček) 2006–2014		
Funnel Beaker (EEn) and Knovíz (LBA) cultures; Hallstatt period	SKLENÁŘ 1982, 271			
Únětice (EBA) culture	MOUCHA 2005, 130	Accidental find, no location		
Neolithic/Eneolithic; Knovíz (LBA) culture	AÚ AV ČR Praha č.j 39/1937; AÚ AV ČR Praha č.j 787/1960; AÚ AV ČR Praha č.j 2020/1983	Field survey 1971–1975		101, 146
Knovíz (LBA) culture	AÚ AV ČR Praha č.j 1062/1954; AÚ AV ČR Praha č.j 1063/1954			

Nr.	Local name and district	Feature	Main finds
45	Debrno - Dolany, Mělník distr.	Pottery scatter	Pottery
46	Debrno - Dolany, Mělník distr.	Pottery scatter	Pottery
47	Debrno - Dolany; Mělník distr.	settlement; inhumation burials (?)	Pottery
48	Scatter SCo3	Pottery scatter	Pottery
49	Tursko, u Křížku - 'Čestmírova mohyla'	Burial mound	Pottery
50	Tursko, Krlíš	Burial mound?; inhumation burials	
51	Holubice, Ers	Burial mound?	
52	Chýnovský (Libčický) háj	Burial mounds	Pottery, bronze items
53	Libčice nad Vltavou, Chýnov - Na špičce	Settlements	Pottery

Tab. 1: List of the most important archaeological sites and finds in the surroundings of the Minice hillfort. Abbreviations: Ne - Neolithic period; EEn - Early Eneolithic period; MEN - Middle Eneolithic period; LEn - Late Eneolithic period; EBA - Early Bronze Age; MBA - Middle Bronze Age; LBA - Late Bronze Age; FBA - Final Bronze Age.

trenches - including the eastern wall with the ditch, the stone structures and walls - was refined by the supervisor of the long-term excavation, Miloslav Slabina.

Additionally, a shaded-relief image⁸ was added as a background to the final plan (**Pl. 1/2**), as it helps to identify individual features in the landscape better than topographical maps or satellite images, c.f. the ridge line of the presumed Northern outer annexe and the terraces on the south-east slope of the hillfort, previously discussed in the literature (ČTVERÁK *at el.* 2003, 203).

THE FIELD SURVEY

An intensive field survey was combined with total pickups and metal detector prospection to investigate the approximate vicinity of the Minice hillfort. Emphasis was placed on selecting the right methodological approach and to experiment with the results of the repetitive survey.

8 Available free of charge for the whole Czech Republic at: <http://ags.cuzk.cz/dmr/>.

Chronology	Bibliography	Methods of investigation	Hallstatt	Plot no.
Funnel Beaker (EEn) and Řivnáč (MEn) culture		Field survey 1976 and 2001		
Únětice (EBA) and Štítary (FBA) cultures		Field survey 1970–2003		
Bell-Beaker (LEn) culture	ANONYM 1908, 216; HÁJEK 1968, 19	Accidental find 1906		
Prehistory		Field survey 2015–2016		
Early La Tène (LT A) period?	STOCKÝ 1923, 339; LUTOVSKÝ 1994, 236–237			
Únětice (EBA) culture; Hallstatt period ?; Early medieval period	FELCMAN 1904, 131–138; LUTOVSKÝ 1994, 236–237; VOJTĚCHOVSKÁ 2001, 347–356	Archaeological excavation 1902–1905		
?	SKLENÁŘ 1992, 260–261; LUTOVSKÝ 1994, 236 – 237; VOJTĚCHOVSKÁ 2001, 351		?	
Middle Bronze Age to Early La Tène (LT A) period	FELCMAN 1902, 42–45; SKLENÁŘ 1992, 83–84; VOJTĚCHOVSKÁ 2001, 348	Archaeological excavation 1901–1903, 1982	Yes	
Middle Bronze Age to Early La Tène (LT A) period	VOJTĚCHOVSKÁ 2001, 348	Archaeological excavation 1970s	?	

Abbreviations: Ne – Neolithic period; EEn – Early Eneolithic period; MEn – Middle Eneolithic period; LEn – Late Eneolithic period; EBA – Early Bronze Age; MBA – Middle Bronze Age; LBA – Late Bronze Age, FBA – Final Bronze Age.

Only a limited area has been walked up to now, however an extension to the four-kilometre boundary is planned for future campaigns.

The area of the hillfort has not recently been cultivated, consequently it is covered by dense vegetation such as high grass, bushes and small-size trees. The surface visibility⁹ is very low, making it unsuitable for a field survey. In contrast, the fields surrounding the hillfort are regularly ploughed and as such they offer much better conditions for a field survey. In January and February 2015 and 2016 an area of 37 hectares (represented by 146 polygons), was intensively surveyed. Fields free of vegetation were walked up to 2 km to the east and 1.4 km to the north of the Minice acropolis. Apart from two areas consisting of 13 polygons (8.9 %) which

9 i.e. the visibility of the archaeological material (artefacts and ecofacts) on the land's surface. High visibility = 100 %, i.e. there is no obstacle / vegetation covering the surface and all the material located on the fields is well visible; very low visibility = 0 %, i.e. the land is covered by dense vegetation so that not even the land's surface (ground) is visible. There is usually no point in surveying land with low to very low visibility unless we are looking for distinctive features in the landscape.

were basically pasture with low visibility and dense vegetation cover, all of the other fields featured a surface visibility of 100–80 % (79 polygons, 54.1 %) and 80–60 % (54 polygons, 36.9 %).

The resurvey took place in late March 2016 when 9.1 hectares (37 polygons) – the presumed area of the Eastern outer annexe – were walked again. The surface visibility conditions were worse due to the later date featuring a higher amount of vegetation cover. The best visibility (100–80 %) was achieved only in 12 polygons (32.4 %), good visibility (80–60 %) in 16 polygons (43.2 %), and slightly worse visibility (60–40 %) in nine polygons (24.3 %).

INTENSIVE FIELD SURVEY

The fields were surveyed in polygons of ca. 75×75 m. They were walked by five people at 15 m intervals. The surface finds were counted and written down after every ca. 15 m, while the polygon was closed after five such rows. Each walker collected all the surface material located one meter to either side of their walking line, with five people thus covering 75×10 m of each polygon.¹⁰

All the material located in the walked strip was counted, the clearly modern fragments were excluded from the final count and left on the spot, while the pieces which were prehistoric, medieval or unidentifiable in the field were taken to the National Museum in Prague for further study and documentation.

Three areas with a higher surface material density were identified, one directly on the Eastern outer annexe (SCO1), the other two (SCO2 and 03) further east from the hillfort. They are briefly described in the following text, where each scatter is marked as ‘SC’ + serial number. Besides the pottery, only a small amount of other material was found: ten pieces of daub,¹¹ three pieces of slag, and several dozen brick fragments (both the slag and bricks are most likely recent). Additionally, three worked stones including two chipped stones and one grinder were detected (**Pl. 1/5**).

SCO1

The first scatter corresponds to the so-called Eastern outer annexe, where a pottery concentration had previously been identified (SLABINA 1981; ČTVERÁK *et al.* 2003, 201–204; TREFNÝ – SLABINA 2015). During the first-year survey on freshly furrowed fields with 100 % visibility only three polygons, located ca. 550 m away from the acropolis, revealed a higher amount of pottery. They covered an area of ca. 160×160 m with 25 pottery pieces in total (**Pl. 1/3**). The following year, the fields were ploughed, harrowed, and by the time of the survey seeds had been sowed with resulting rising grain. Despite the slightly worse surface visibility (ca. 80 %) there was a much higher amount of surface material spread across the fields. In 13 polygons, 126 pottery pieces in total were counted, covering an area of 480×240 m (**Pl. 1/4**).

Based on the merged results of the two-year survey, 151 ancient pottery fragments were revealed within 17 polygons on the Eastern outer annexe covering an area of 480×320 m. The core of the prehistoric pottery scatter was identified within seven polygons, featuring altogether 101 pottery pcs. (**Pl. 1/5**).

10 In cases when it was impossible to create a regular-sided polygon, at least a similar surface area was covered to gain comparative data.

11 Much daub was found during the long-term excavation (TREFNÝ – SLABINA 2015, 66). The pieces recovered during the field survey are very small (about the size of a coin) and their date is barely determinable.

The surface material contained a high amount of modern pottery and architectural ceramics (bricks and tiles). Regarding the prehistoric pottery, several fragments from the core scatter could be preliminarily dated to the Eneolithic period (**Fig. 3:1, 3:3**); one rim fragment is dated to the La Tène period (**Fig. 3:4**).

SC02

The second pottery scatter is located about one kilometre south-east of the Minice hillfort. The surface concentration corresponds to the previously predicted area (surface finds noted by D. Daněček, Museum of Central Bohemia in Roztoky, **Pl. 1/1:41**). The core of the scatter was localised below a sloping hill at the southern end of the field. The finds seem to have accumulated at the foot of the hill by the cultivation processes – ploughing and harrowing.

The core of the scatter is in the shape of a strip ca. 260 × 60 m, containing 32 prehistoric pottery fragments. Its margin includes another four polygons with 18 prehistoric sherds. No modern pottery fragments were found, and we observed only a few fragments of architectural ceramics. Despite the high amount of prehistoric material, there were no clearly identifiable fragments, although some of the pieces could be dated to protohistory.

SC03

The last scatter is located north of SC02, from which it is clearly divided by a strip the width of two polygons (ca. 160 m). The whole scatter contained 265 pottery fragments in total, from which 185 prehistoric pieces were scattered within 18 polygons. The core of the scatter lies within ten polygons and contains 151 prehistoric pottery fragments. The total dimensions of the scatter cover 500 × 250 m, which makes it the largest surface scatter out of these three identified near the hillfort. Despite its size, this concentration was not identified before, and we have included it among the list of find-spots in the area (**Pl. 1/1:48**). Once again, a closer chronological classification of the sherds is difficult due to the poor preservation of the fragments as we may only classify several pieces to protohistory.

THE TOTAL PICKUP

The method of total pickups is complementary to the systematic survey. It is based on a selection of an area featuring a higher amount of the surface material and placing a smaller polygon on the top of the scatter. The polygon is then completely surveyed, and all the material collected (SOBOTKOVÁ *et al.* 2010, 61).

We placed four total pickups with the dimensions of 20 × 20 m just after the first-year survey. Two of them were located on the hillfort's Eastern outer annexe (SC01) within the polygons featuring the highest amount of surface material. The other two were placed further east, each of them on one of the above described scatters – SC02 and SC03 (**Pl. 1/5**).

The main aim of the total pickups was to gain more (diagnostic) sherds to better understand the chronology and character of the pottery scatters, since we did not collect much pottery from the fields in general (375 prehistoric pottery fragments are associated with the three scatters including the core and the margin all together, in the case of SC01 also including the resurvey).

The first goal has been met, and the four pickups revealed 307 fragments of prehistoric pottery altogether, which almost equal the total number of the surveyed material. However, the fragmentation of finds was very high (2nd and 3rd group), the fragments were badly worn and mostly represented by undecorated body fragments, giving us only a few diagnostic pieces for evaluation. In total, 19 rims, one base and several sherds with a specific surface treatment

were found within the four total pickups. Despite the still small number of diagnostic sherds both from the pickups and the scatters, at least an approximate chronological classification of the material could be established (see *Pottery* below).

THE METAL DETECTOR SURVEY

The metal detector survey conducted first in 2013 and 2014 brought to light important finds such as a bronze brooch of the *Fusszierfibel* type, and several bronze pieces identified as possible metal production waste (BURSÁK – DANĚČEK – SMÍŠEK 2016). Consequently, the metal detector survey was repeated in 2015 to enrich the collection of finds.¹² The prospection focused on the areas with a lower amount of surface vegetation directly on the hillfort, and on the fields with no or little surface cover on the Northern and Eastern annexes, where about 1/3 of the field area was walked.¹³ The main aim of the metal detection was to find more traces of the assumed metal production in the area of the hillfort and to map the distribution of the metal finds in the context of the hillfort and its surrounding. The fields under discussion are heavily polluted by modern metal waste; in spite of that, 22 metal fragments were collected for further study and evaluation (**Pl. 1/6**).

THE FINDS

In 37 hectares which were fully walked and partly investigated by metal detection, 1632 ceramic fragments, 22 metal objects, 10 pieces of daub, and three worked stones were found. The ceramic fragments were divided into pottery and architectural ceramics, while the other finds kept their own material category: worked stone and lithic, daub, slag, and metal.

POTTERY

Regarding the repetitive field survey and the total pickups, 1022 pottery pieces were collected altogether, out of these, 734 prehistoric fragments were identified, including 33 rims, 4 bases and 3 handles.¹⁴

The pottery sherds were further evaluated by degree of fragmentation, morphology (rim, base, handle, body frag., etc.), ware (coarse, common, fine), surface treatment (roughening, polishing, decoration or untreated surface), and, if possible, assigned to a time-period.

Based on a metric analysis, the pottery collection was divided into four main groups reflecting the fragment preservation/dimensions. The groups are as follows: G.1: up to 2 cm (109 frags.); G.2: up to 3 cm (224 frags.); G.3: up to 5.5 cm (392 frags.); G.4: up to 10 cm (9 frags.). The higher degree of fragmentation indicates intensive agricultural activities progressively destroying archaeological material on the fields. The poor state of preservation also reflects the low possibility of chronological classification of the material with the biggest potential for dating represented by the sherds with decoration, specific surface treatment or by characteristic types of ware. However, the majority of the found fragments have no surface treatment, only 58 frags. have a roughened surface, 45 frags. are polished and 4 frags. have added graphite.

¹² The metal detector prospection was made in cooperation with the group Archeus DW.

¹³ The area was prospected in several phases with groups of five to ten people.

¹⁴ The clearly modern fragments were sorted out directly on the field, the rest was further processed.

DIAGNOSTIC FRAGMENTS

The high fragmentation of the pottery makes the identification and reconstruction of the individual shapes of vessels difficult. However, based on the morpho-typological features, the identification of several fragments might be proposed.

The only fragment which can clearly be attributed to a certain chronological period is a T-shaped rim with a combed decoration – a zigzag motif (SCO1; **Fig. 3:1**). The shape and the specific decoration of the rim are related to the Bell Beaker culture tradition (HÁJEK 1968, 17–18). The T-shaped wider rim from Minice might be described as a part of a shallow bowl, a form that appeared both at the settlements and as a part of grave goods of the Bell Beaker culture.¹⁵ Settlement pottery of the Bell Beaker culture mainly includes large storage vessels (jars, large coarse ware pots, amphorae) which could be decorated with straw impressions, relief slashed cordons and various bands with imprints. The percentage of fine ceramic with comb-impressed decoration at Bohemian settlements of the Bell Beaker culture is low (TUREK 1996, 57; TUREK 1998, 108–109; TUREK – PEŠKA 2001, 421–422).

Another fragment (SCO1; **Fig. 3:2**), is a part of a ceramic vessel that is traditionally identified as a ceramic strainer, cover, or ‘fumigator’ (SKLENÁŘ 1988; KOS 2016, 735). The sporadic distribution of this shape with a partly perforated surface had started during the Neolithic period; finally, the globular strainers with perforations densely covering the body were widely used in the settlement context during the Únětice culture (KOS 2016, 735; JIRÁŇ 2008, 45). Similar thick wall strainers with wider holes appeared among the Hallstatt period settlement material (SOUDSKÁ 1966, 583; MICHÁLEK – LUTOVSKÝ 2000, 149; SKLENÁŘ 2018, 240–241) and were in use until the later protohistoric periods.

One fragment (SCO1; **Fig. 3:4**) represents an everted slightly thickened rim. Based on the close parallels with ceramic material from La Tène culture settlements such as Praha-Běchovice 9 or Praha-Hostavice 2, it is possible to date the fragment into the time-span of LT C1–D1 (VENCLOVÁ 2008a, 37–65, 97–129).

Two fragments of a bowl with an inturned rim (both SCO1; **Fig. 3:12–13**) might be included among the ceramic material of the Late and Final Bronze Age. They had been continuously in use during the Hallstatt and La Tène periods (SMEJTEK 2011, 131).

One thick-walled coarse ware fragment (SCO1; **Fig. 3:2**) is decorated with a relief band with impressions, the type of decoration which had started to appear on ceramic vessels during the Eneolithic period. The relief band continued to be in use during the later periods, with a higher occurrence in the Late- and Final Bronze Age and Early Iron Age (CHVOJKA 2001, 53–57; ERNÉE 2008, 121–125; NEUSTUPNÝ 2008, 74).

Three fragments have traces of imprint decoration (all SCO1) and one fragment (SCO1, **Fig. 3:15**) is decorated with a row of nail imprints. The site also yielded three fragments with knobs (SCO1 and SCO3; **Fig. 3:5, 7, 14**) – the decoration elements that appeared across prehistory. The fragment 1025/1, a rim with a small flap (SCO1; **Fig. 3:14**), has close parallels in the Middle and partly Late Bronze Age pottery (CHVOJKA 2001, 43).

Four body fragments of graphite ware were also found (all on the Eastern outer annexe). The ceramic with graphite inclusions started to be used during the Late Hallstatt period (Ha D2), a more common occurrence of graphite ware is dated to LT A (GOLEC 2003, 119–120; VENCLOVÁ ed. 2008, 114). However, the graphite ceramic was frequently used during the La Tène period (LT B–D) (VENCLOVÁ ed. 2008c, 81–82).

15 Disturbed graves of the Bell Beaker culture were found in Kralupy nad Vltavou; more sites connected with this culture are also known from the Mělník District (SKLENÁŘ 1994, 34–35).

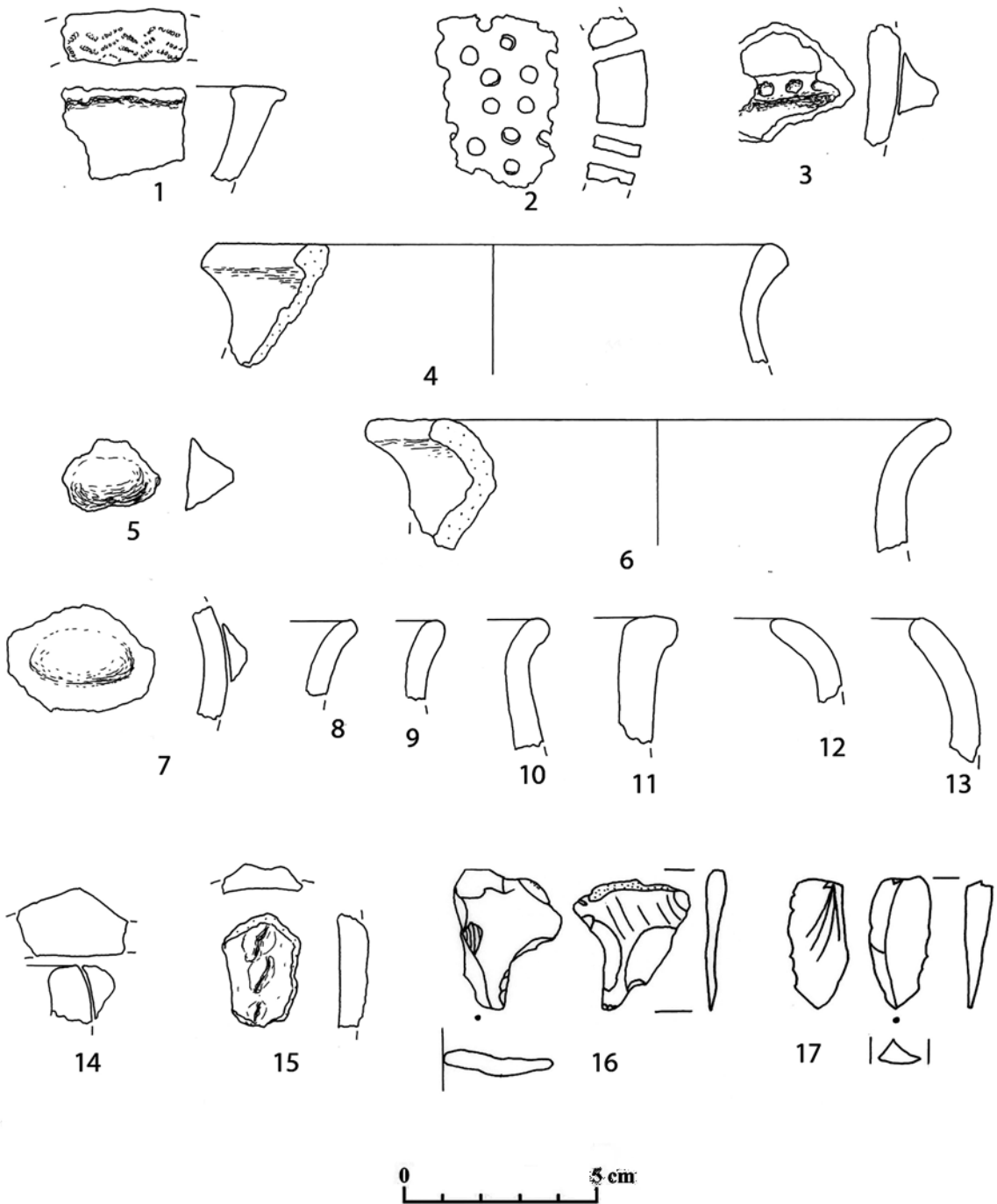


Fig. 3: Minice, Central Bohemia. Selected pottery finds collected in the years 2015–2016.

STONE FINDS

Three worked stones were found during the field survey, including two chipped stones and one grinder (**Pl. 1/5**). The first lithic tool, found at SCo2, is a flake of erratic silicite (length 36 mm) with visible traces of facets and damaged on the ventral side (**Fig. 3:16**; SFM16_001).

The second one, found on the Eastern outer annexe, is a flake with a lateral cortex (33 mm in length), with several less visible facets on the worked area (**Fig. 3:17**; SFM16_002). However, the material is quite unusual for chipped stone tools. It is impossible to propose a closer chronological identification of these fragments (post-Mesolithic production), than stating a time span ranging from the beginning and end of the Neolithic–Eneolithic periods.¹⁶

The last item found at SCO1 is a grinder (SFM16_003), oval in shape and partly damaged, however the working surface is still clear on both ends. Grinding stones appear across pre-history without any special typology.

METAL FINDS

The majority of objects found within the metal detection were either recent waste or iron slag. Besides that, 21 bronze objects (including a bronze pin, simple rings, and several lumps/casting spills) and one piece of tin were collected and taken for further study (**Tab. 2**). The bronze pin (**Fig. 4:1**; **Tab. 2:9**) might be identified and closely classified, while for some of the other finds we can at least find some parallels.

The bronze ‘Cypriot pin’/*Zyprische Schleifennadel* (**Fig. 4:1**; **Tab. 2:9**), which was found on the acropolis just to the west of the ditch with the wall, belongs to the bronze dress decoration common in the Únětice culture territory. The knot-head of the Cypriot pins is normally formed by a bronze wire, which is twisted into multiple loops turned around the pin body (SKLENÁŘ 1989, 12). However, the pin from the Minice hillfort is badly damaged and the head of the pin is partly missing. Cypriot pins are best known from hoards or grave goods¹⁷ (HÁJEK 1954, 152; MOUCHA 1996, 27, Abb. 1). In Bohemia, the pins of this type date to the Early Bronze Age; the place of their origin is the area along the Danube River up to the Pannonian Basin. Similar pins were also common in the Near East, Cyprus, and Egypt (FLOURENTZOS 1978, 408–409; BARTELHEIM 1998, 67).

Regarding the other metal finds, the small bronze rings (**Fig. 4:2–4**; **Tab. 2:12, 16, 19**) belong to the typical objects which appear in settlements and grave contexts. Similar bronze rings with a diameter of 20–26 mm appeared during the Únětice culture and were used as segments of decorative chains (MOUCHA 2005, 150). These small bronze rings (with a lens-shaped section), are characteristic of hoards dated to Ha A2/B1 and Ha B2–3, and were popular during the Late- to Final Bronze Age periods, with a possible use as a costume or horse harness decoration (SMEJTEK 2011, 224). Finally, similar bronze rings of different sizes were continuously used during the Hallstatt period, usually as a part of horse harness or personal decorations – pendants or belts (FRANZ 1906, 225; VENCLOVÁ ed. 2008b, 57, 74). The closest find of a bronze ring to Minice hillfort is from the site of Rusavky (**Tab. 1:16**; **Pl. 1/1:16**), where the La Tène period sunken house was found (MOTYKOVÁ 1981, 196).

X-RAY FLUORESCENCE (XRF) ANALYSES

In order to exclude the possible modern objects and to study the potential traces of the metal production activities, six of the bronze items were tested with an XRF analysis (**Tab. 3**). The measurements were taken in 2016 by Ing. M. Fikrle, Ph.D.¹⁸ For the analyses, X-ray fluorescence was used, a radioactive source of ²⁴¹Am ($E\gamma = 59.54$ keV; $T_{1/2} = 432.2$ with power $3.7 \cdot 10^{10}$ Bq)

16 Consultation with Mgr. Jan Eigner (National Museum, Prague).

17 Únětice culture cemetery in Malé Čičovice.

18 The Nuclear Physics Institute of The Czech Academy of Science.

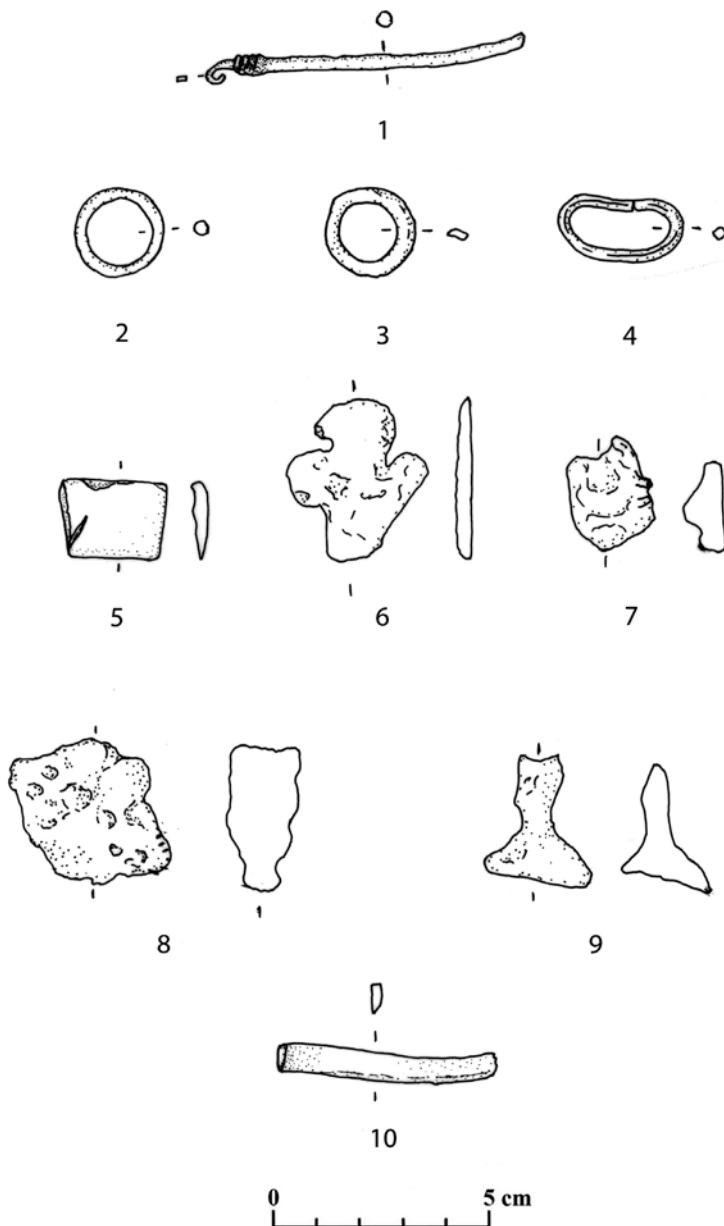


Fig. 4: Minice, Central Bohemia. Selected metal finds collected in 2015-2016.

was used for the excitation of characteristic X-ray radiation.¹⁹ The results of spectral analyses were evaluated with the Program RAFAN.²⁰ The XRF analysis is a surface analytic method

19 X-ray is detecting on an Si(Li) monitor with a 3 mm detecting layer and resolution of 170 eV with a power of 5.9 keV. The advantage of this setting is the ability to eliminate the influence of surface irregularities on the intensity of signal of individual elements in the sample. The collimator (made of lead and alloy) limited the analysed segment of the sample to a ring with a diameter of approximately 3.5 mm. The usual measuring time varies between five and thirty minutes, the range depends on the sample composition. The described system enables one to determine the presence of elements with Z higher than 24 (chromium). The setting was consulted with Ing. M. Fikrlé, Ph.D.

20 For calibration, MBH Analytical LTD (UK) and ČKD (Prague) were used.

with a potential margin of error caused by the inner heterogeneity of the artefact itself and in most of the cases and most seriously by the surface corrosion. In the case of the bronze finds from Minice hillfort the corrosion layer was carefully removed in order to prevent the possible distortion of the final results.²¹ In several cases the samples for analyses were taken from different parts of one item. The bronze samples showed a considerable spread of content values of the analysed elements, a fact that complicates the general analytic evaluation. The chemical structure of the sample could have been defined by the technology applied in the course of manufacturing the given object.

One fragment (**Tab. 2:14; Tab. 3:M 006/2015; Pl. 1/3:14; Fig. 4:5**), found at the eastern part of the acropolis, was originally identified as a part of a Bronze Age knife. However, it features a high content of zinc (Zn 9 %) and as such the alloy could be rather identified as brass.²² The percentage of zinc corresponds with Group 4 (brass with a medium amount of Zn 5–10 %) after J. Reider (DROBERJAR – FRÁNA 2004, 444–445).²³ However, the majority of the Late Bronze Age knives that have been analysed in the past have a typical composition of an alloy with a variable content of tin, no brass knife has been detected (JIRÁŇ 2002, 10–11). The items with an admixture of zinc dated to the Bronze and Early Iron Age did occur in small quantities (FRÁNA *et al.* 1995, 197; FRÁNA *et al.* 1997, 32, 83, 182; HAMMER 2001, 613), but the relatively high zinc content in the studied object points to its intentional addition during the working process – a technology that had started during the end of the 1st century BC.²⁴ The question of the appearance of brass alloys across prehistory is a case for a separate study, regarding the knife fragment from Minice, it is possible to assume its modern date.

Another analysed item, the bronze edged ring (**Tab. 2:12; Tab. 3:M_004/2015; Fig. 4:2**), was found at the western part of the acropolis. The chemical composition of the bronze ring featuring a high content of arsenic (As 1.6 %), silver (Ag 1.1 %), and antimony (Sb 1.7 %), is very close to the composition of the miniature ring bar from the Únětice culture (Br A2) from Dřínov cemetery and to a bronze pin from an Early Bronze Age cemetery in Brodce nad Jizerou. The fairly high content of arsenic, silver, and antimony seems to be characteristic for the Únětice culture as are also the very low (or not detected) lead contents (FRÁNA *et al.* 1995, 177). The higher content of arsenic and antimony appears as well in the Late- and Final Bronze Age items, where, in most cases, also the presence of lead is attested (FRÁNA *et al.* 1997, 74).²⁵ Another bronze ring (**Tab. 2:19; Tab. 3: M_011/2015; Fig. 4:4**) has a higher content of lead (Pb 16.4 %), tin (Sn 6.1 %), and antimony (Sb 1.4 %). The use of lead bronzes started to appear in Western and Southern Europe during the Late Bronze Age and lasted into the Hallstatt period (TYLECOTE 1987; JOHANNSEN 2016, 153–154), however, these bronze finds had a lower percentage of lead.²⁶ The technology of the local production of alloys with a higher lead content continued to be

21 However, the results should be presented as preliminary, as the surface corrosion could also reach into the lower layers and cause a potential error to the final analyses (FRÁNA – FIKRLE – CHVOJKA 2007, 35).

22 In modern terminology the term ‘tombak’ is used for brass with a lower percentage of zinc.

23 The wider appearance of brass items in Central Europe is usually connected with the Early Roman Iron Age – B1a (DROBERJAR – FRÁNA 2004, 444–445).

24 Consultation with Ing. Jiří Kmošek (University of Pardubice, Faculty of Restoration).

25 On the other hand, several finds dated to the Late Bronze Age could exceptionally contain similar admixtures, such as a bronze armband from Chvojenec, Lusatian culture (Ha A2–B1), a bronze armband from Hradištko, Silesia-Platěnice culture (Ha B3), etc. (FRÁNA *et al.* 1995, 177, 200, 201).

26 In the context of the Czech lands, there was still a prevalence of bronze items with a higher amount of tin. Several extremes of a high lead concentration also appeared, such as in the case of a ring from the vicinity of Žatec (FRÁNA *et al.* 1997, 83, 183).

Nr.	Object	Description	Chronology	SOURCE	Cross reference number	Fig.
1	Bronze fibula	<i>Fusszierfibel</i> , variant F2. Missing pin and winding	Ha D2/D3	MDP 2013 and 2014; BURSÁK - DANĚČEK - SMÍŠEK 2016	GPS: MIN 001	
2	Copper lump/raw material	Rectangular shape		MDP 2013 and 2014; BURSÁK - DANĚČEK - SMÍŠEK 2016	GPS: MIN 002	
3	Bronze cast waste	In a shape of irregular drop		MDP 2013 and 2014; BURSÁK - DANĚČEK - SMÍŠEK 2016	GPS: MIN 003	
4	Lump/raw material	Rectangular shape; ferric-copper		MDP 2013 and 2014; BURSÁK - DANĚČEK - SMÍŠEK 2016	GPS: MIN 004	
5	Tiny rod	Irregular shape		MDP 2013 and 2014; BURSÁK - DANĚČEK - SMÍŠEK 2016	GPS: MIN 005	
6	Bronze knife (?)	Very corroded		MDP 2013 and 2014; BURSÁK - DANĚČEK - SMÍŠEK 2016	GPS: MIN 006	
7	Bronze cast waste (?)	Irregular shape: flat, tortuous slightly concave		MDP 2013 and 2014; BURSÁK - DANĚČEK - SMÍŠEK 2016	GPS: MIN 007	
8	Band/finger ring (?)	Unclosed and deformed band		MDP 2013 and 2014; BURSÁK - DANĚČEK - SMÍŠEK 2016	GPS: MIN 009	
9	Bronze pin	Fragment of a bronze pin; badly damaged; rest of bronze wire twisted around the upper part; length max. 70.2 mm; thicknesses max. 2.4 mm	Únětice (EBA) culture, type <i>Zyprische Schleifennadel</i>	MDP 2015	M_001/2015	Fig. 4:1
10	Bronze cast waste	Cast waste in a shape of irregular drop; cut/broken lump from a cast form; length max: 28.1 mm; width max: 22.8 mm; thicknesses max: 6 mm		MDP 2015	M_002/2015	Fig. 4:9
11	Bronze coin	Coin - small, badly preserved. Size: diameter max. 13.1 mm; thickness max: 0.2 mm		MDP 2015	M_003/2015	

Nr.	Object	Description	Chronology	SOURCE	Cross reference number	Fig.
12	Bronze ring	Small ring with an irregular shape diamond section; diameter max: 20.6 mm; thickness max: 2.2 mm		MDP 2015	M_004/2015	Fig. 4:2
13	Bronze cast waste	Cast waste, amorphous shape; length max: 37.5 mm; width max: 31.1 mm; thickness max: 27 mm		MDP 2015	M_005/2015	Fig. 4:6
14	Bronze knife blade (?)	Brass knife with triangle section, probably cut as semiproduct; length max: 23.8 mm; width max: 17.3 mm; thickness 2.5 mm		MDP 2015	M_006/2015	Fig. 4:5
15	Bronze band	Band of rectangular section; partly deformed; length max: 48.9 mm; width max: 5.4 mm; thickness max: 2 mm		MDP 2015	M_007/2015	Fig. 4:10
16	Bronze ring	Small bronze ring with round section; diameter max: 20.1 mm; thickness max: 2 mm		MDP 2015	M_008/2015	Fig. 4:3
17	Bronze cast waste	Cast waste slightly concave irregular shape; length max: 39.4 mm; width max: 29.2 mm; thickness max: 15.5 mm		MDP 2015	M_009/2015	Fig. 4:8
18	Bronze cast waste	Cast waste amorphous shape; length max: 25.6 mm; width max: 18.3 mm; thickness max: 9.2 mm		MDP 2015	M_010/2015	Fig. 4:7
19	Bronze ring	Deformed bronze ring with a lozenge section; length max: 28.1 mm; width max: 14.6 mm; thickness max: 1.9 mm		MDP 2015	M_011/2015	Fig. 4:4
20	Bronze coin	Coin – almost entirely damaged surface; diameter max: 23 mm; thickness max: 0.8 mm		MDP 2015	M_012/2015	
21	Bronze coin	Coins – small size; diameter max: 13.9 mm; thickness max: 0.2 mm	17 th century	MDP 2015	M_013/2015	

Tab. 2: Metal artefacts collected in 2013–2014 (BURSÁK – DANĚČEK – SMÍŠEK 2016) and in 2015–2016. For spatial distribution of metal finds cf. Pl. 1/6.

Identification - Description	nr. of measuring	Fe [%]	Cu [%]	Zn [%]	As [%]	Ag [%]	Sn [%]	Sb [%]	Pb [%]	Bi [%]
Minice 2015/16 - M_004/2015 bronze ring, cleaned part	22532	n/d	76.2	n/d	1.6	1.1	19.4	1.7	n/d	n/d
Minice 2015/16 - M_005/2015 cast waste, cleaned part	22533	n/d	1.9	n/d	n/d	n/d	81.7	n/d	16.4	n/d
Minice 2015/16 - M_006/2015 knife fragment, partly abrading	22537	n/d	89.2	9.9	n/d	n/d	0.4	<0.05	0.5	n/d
Minice 2015/16 - M_009/2015 cast waste, 'grey' corrosion on the surface	22538	4.3	68.1	n/d	n/d	0.2	16.8	n/d	10.1	0.4
Minice 2015/16 - M_009/2015 cast waste 'red' corrosion on the surface	22539	10.2	51.5	n/d	n/d	n/d	9.3	n/d	28.8	0.1
Minice 2015/16 - M_009/2015 cast waste, abrasion	22540	n/d	74.7	n/d	n/d	n/d	16.3	n/d	8.9	<0.05
Minice 2015/16 - M_010/2015 cast waste upper side, cleaned part	22534	n/d	1.8	n/d	n/d	n/d	68.5	n/d	29.7	n/d
Minice 2015/16 - M_010/2015 cast waste lower side, cleaned part	22535	n/d	56.6	n/d	n/d	n/d	34.2	n/d	9.2	n/d
Minice 2015/16 - M_010/2015 lower side, partly abrading	22536	n/d	17.6	n/d	n/d	n/d	60.5	n/d	21.9	n/d
Minice 2015/16 - M_011/2015 bronze ring, cleaned part	22531	n/d	75.6	n/d	n/d	0.4	6.1	1.4	16.4	n/d

Tab. 3: Result of spectrometric analyses of selected metal artefacts from Minice hillfort.

in use later during the La Tène period, when the new technology was completely adopted in the territory of the modern Czech Republic (FRÁNA *et al.* 1997, 91).

Two bronze casting spills/lumps were found north-east of the Northern annexe of the Minice hillfort, two more in the area of the Western annexe (**Tab. 2:10, 15, 17-18; Fig. 4: 6-8, 10**). The group has shown a high variability of the detected elements. The sample M.005 (**Tab. 2:13; Tab. 3: M_005/2015**) from the Western annexe, shows a high percentage of tin (Sn 81.7 %) and a low percentage of lead (Pb 16.4 %). The occurrence of raw tin during prehistory is very rare; furthermore, the published prehistoric finds of tin are usually in the form of the oxide mineral cassiterite SnO₂ (FRÁNA *et al.* 1997, 180). Consequently, our well-preserved fragment could rather belong to recent material. Another casting spill/lump M.010 (**Tab. 2:18; Tab. 3: M_010/2015**), from the north-western area, features an apparent heterogeneity of detected elements. Therefore, the analyses were taken from three different places. The samples from two places have shown a high percentage of tin (Sn > 60 %) and a significant percentage of lead (Sb 21-29 %), the percentage of copper is very low, the ratio of the metals in the alloy is untypical, as is the precipitated copper on the surface. For these reasons we tend to classify this fragment as recent material.

The fragment M.009 (**Tab. 2:17; Tab. 3: M_009/2015**), from the north-western area, has also shown a heterogeneous structure, mainly on the surface. It was identified as a bronze alloy with a significant percentage of tin (Sn 16.3 %) and lead (Pb 8.9 %), as well as traces of iron (Fe 10.2 %). The lumps of molten bronze from the Late- and Final Bronze Age display the presence of iron amounting to several percent (FRÁNA *et al.* 1995, 196), the higher percentage of Fe in the corrosion layer/subcorrosion layer is a common phenomenon caused by the presence of iron in the soil where the object is deposited. In the context of the area of the Czech Republic, lead bronzes started to be widely used from the La Tène period (LT B2), however from the Late

Hallstatt and LT A periods several finds are known with a high lead content (WALDAHAUSER 1993, 189–193; FRÁNA *et al.* 1997, 83; BURSÁK – DANĚČEK – SMÍŠEK 2016, 122).²⁷

DISCUSSION

Regarding the pottery material collected on the fields, it is in such a poor state of preservation that we cannot base any precise chronological classification of the scatters on it. Generally, we may date the SCo2 and SCo3 to protohistory. The most numerous diagnostic fragments were found in the area of the so-called Eastern outer annexe where we may identify sherds resembling Eneolithic, Late Hallstatt (Ha D), and La Tène periods (LT C), pointing to a cultural heterogeneity of the area. These results could lead to the interpretation that the area of the Eastern outer annexe was settled only sporadically during the Late Hallstatt period and might not have been used as a settled hinterland of the hillfort itself, as had previously been suggested (ČTVERÁK *et al.* 2004). The vast area could have offered refuge to smaller hillforts and their population located nearby in case of imminent threat; it could have been used for keeping cattle or for temporary settlements as well. Moreover, small-size hillforts built on elevated positions have a good strategic and defensive potential (HRUBÝ 1998, 15), which could support their important function in the landscape for controlling transit corridors or smaller territories.

The metal detector prospection was meant to complement the data from the field survey and prove or disprove a possible metal production place in the hillfort and/or in its Eastern outer annexe. Unfortunately, most of the material could not be morphologically or chronologically classified. Moreover, to sort out recent amorphous material from the metal detector prospection is even harder than recognizing modern pottery among the field survey. The XRF analyses provide additional information needed for a chronological evaluation of the bronze finds: three analysed finds (M_005/2015, M_006/2015, and M_010/2015) could be considered intrusions from later backfill, while the rest (M_004/2015; M_009/2015; M_011/2015) could be, for now, classified to protohistory. The heterogeneous composition of the bronze casting waste, furthermore, does not prove the proposed function of the hillfort as a production centre (BURSÁK – DANĚČEK – SMÍŠEK 2016). The metal collection shows a high proportion of recent finds, which is typical for the exploited areas and tourist sites (as is the hillfort). An exceptional find is, however, the bronze pin found directly in the hillfort, which might be securely dated to the period of the Únětice culture. A similar pin was also found during the excavation of the hillfort.²⁸

The Minice hillfort has so far been presented in several publications (CHYTRÁČEK *et al.* 2010; TREFNÝ – SLABINA 2015), where the main attention focused on two specific topics – the imported artefacts found in the acropolis, and, the stone structures. The interpretation of the site's immediately surrounding landscape was partly omitted and thus, it became one of the main topics of this study. The field survey, which was chosen as one of the methods, did not, on the one hand, detect intensive settlement activities in the Eastern outer annexe, on the other hand, it also did not exclude the use of this area during the Late Hallstatt period. The proper function of the Northern and Eastern outer annexes needs to be specified with further examination methods such as geophysics or systematic archaeological excavations.

27 For other analyses of metal finds from Minice hillfort see STRÁNSKÝ – REK – SLABINA 1990 and BURSÁK – DANĚČEK – SMÍŠEK 2016.

28 The pin was found on the northern part of the hillfort, where the Late Eneolithic pottery fragments were detected as well (ČTVERÁK *et al.* 2003, 203).

The hinterland of the Minice hillfort was intensively settled in prehistory (**Pl. 1/1**) and we should specifically mention here its main components dated to the Late Hallstatt period such as the settlement 'Na Křížku' (**Pl. 1/1:49**) located on the north slope next to the hillfort, which was partly excavated in the 1970s.²⁹ The settlement was dated to the Late Hallstatt period and the finds of wheel turned bowls of the Braubach type (SLABINA 1982, 270; ČTVERÁK *et al.* 2003, 203; SKLENÁŘ 2018, 250) suggest the continuity of the settlement to the Early La Tène period (MOTYKOVÁ – DRDA – RYBOVÁ 1984, 403–404; VENCLOVÁ ed. 2008b, 114). Furthermore, during the rescue excavation in Holubice 'Za humny' a large Late Hallstatt settlement (**Pl. 1/1:15**) with several pit-houses was found (DANĚČEK *et al.* 2015, 127–128). For further information regarding the settlement/production background of the hillfort see BURSÁK – DANĚČEK – SMÍŠEK 2016. A necropolis that could be directly connected with the hillfort has not yet been identified. Several burial mounds (Krlíš, U Křížku, Ers) are located 5–6 km from the hillfort (**Tab. 1:49, 50, 51; Pl. 1/1:49, 50, 51**). The mounds were excavated at the beginning of the 20th century and were preliminarily classified to the Hallstatt and/or Early La Tène period, though the precise chronology has not yet been clarified (VOJTĚCHOVSKÁ 2001, 347–356; CHYTRÁČEK *et al.* 2010, 162). A large necropolis with burial mounds was partly excavated in Chýnovský háj (**Tab. 1:52; Pl. 1/1:52**) and its major part was dated from the Middle Bronze Age to the Early La Tène period. However, it is still unknown whether the necropolis in Chýnovský háj was connected to the settlements located in the area of present day Libčice nad Vltavou (Chýnov, Na špičce) (**Tab 1:53; Pl. 1/1:53**), and/or to the Minice hillfort. Also, it is possible that the necropolis in Chýnovský háj and the burial mounds (Krlíš, U Křížku, Ers) were parts of one cemetery (VOJTĚCHOVSKÁ 2001, 348).

For a more detailed understanding of the Minice hillfort function and its settlement development it is more than important to conduct an elaborate study and consequent publication of the excavated material. The revision of the finds is necessary for a refinement of the hillfort's chronology. Although the Minice hillfort is commonly dated to the stages Ha D1–D2 (CHYTRÁČEK *et al.* 2010, 158), newly discovered fibulae (*Fusszierfibel*) could indicate the longer existence of the hillfort with the possibility of extending its chronology into the early phase of Ha D3 (BURSÁK – DANĚČEK – SMÍŠEK 2016). Consequently, a detailed interpretation of the character and role of the Minice hillfort within the regional and supra-regional contexts, as well as its comparison with other Late Hallstatt period sites, still needs to be the topic of future research.

CONCLUSION

The presented study offers an overview of more than a century of archaeological research into the Minice hillfort and its hinterland. The available archaeological data regarding the area in question were collected, organized in a database, and elaborated into GIS to visualize them as a complex set of information with the potential for interpretation in a spatial context.

For the time being, small scale field work followed the initial step of the archaeological data collecting, to evaluate the possibilities of the intensive field survey, repetitive survey, and metal detector prospection (and their combination). Despite the possibility to identify individual pottery scatters and to estimate their location and dimensions, a classification of the surface material proved to be difficult. The fields are intensively cultivated, leaving behind very worn and fragmented pottery sherds, with a low number of diagnostic fragments.

29 The site has yielded other finds dated to the Neolithic period, Late Bronze Age, Early and Middle La Tène periods and Early Medieval period (SKLENÁŘ 2018, 250).

Nevertheless, several sherds could be classed and dated at least into a general chronological range, if not specifically. The majority of them were found during the repetitive field survey and total pickups, which seems to be a necessary approach for the respective area to be able to gain at least some representative data about the pottery scatters.

From the total of 50 known archaeological sites, pottery scatters, and single finds so far identified in the area of up to four kilometres from the Minice hillfort, only two were surveyed within this initial project (SC01 and SC02). The proper location and dimensions of both were securely identified in the field. Besides that, one new scatter (SC03) was found and described.

The extension of the field survey to the other predicted sites, as well as surveying the continuous area among them, should be the next step to gain the necessary field data for the area to continue the project in the style of already well known micro-regional studies. As a result, a comprehensive archaeological map of the area should be created, to deepen our understanding of the settlement pattern and development around the Minice hillfort in prehistory.

ACKNOWLEDGMENTS

The work was supported by the European Regional Development Fund-Project 'Creativity and Adaptability as Conditions of the Success of Europe in an Interrelated World' (No. CZ.02.1.01/0.0/0.0/16_019/0000734); by the Charles University program PROGRES Q 09: History – The Key to Understanding the Globalized World and; by Ministry of Culture of the Czech Republic (DKRVO 2019–2023/17.I.b, National Museum, 00023272).

BIBLIOGRAPHY

- ANONYM 1908: Sbírkou archaeologie praehistorické... *Památky archaeologické a místopisné* 22, 216.
- BARTELHEIM, M. 1998: *Studien zur Böhmischen Aunjetitzer Kultur. Chronologische und chorologische Untersuchungen*. Universitätsforschungen zur prähistorischen Archäologie 46. Bonn.
- BURSÁK, D. – DANĚČEK, D. – SMÍŠEK, K. 2016: Nové kovové nálezy z doby halštatské z hradiště u Minic, okr. Mělník [Some new finds from Hallstatt period hillfort Minice, district Mělník]. *Praehistorica* 33, 117–129.
- ČTVERÁK et al. 2003 = Čtverák, V. – Lutovský, M. – Slabina, M. – Smejtek, L.: *Encyklopedie hradišť v Čechách*. Praha.
- DANĚČEK, D. 2005: Holubice 2004. *Středočeský vlastivědný sborník* 23, 100.
- DANĚČEK, D. 2006: Holubice v Čechách, výstavba rodinných domů (př.č. 10/2005). *Středočeský vlastivědný sborník* 24, 137.
- DANĚČEK, D. 2007: Holubice ppč. 64/87 a 64/120. *Středočeský vlastivědný sborník* 25, 102–103.
- DANĚČEK, D. – KVĚCHOVÁ, E. – NOVÝ, P. – VÁVROVÁ, B. 2015: Holubice, okr. Praha-západ. *Středočeský vlastivědný sborník* 33, 127–128.
- DANĚČEK, D. – NOVÝ, P. 2007: Holubice v Čechách, kanalizační přípojky u penzionu č. př. 22/2006. *Středočeský vlastivědný sborník* 25, 102–103.
- DANĚČEK, D. – SMÍŠEK, K. 2007: Holubice v Čechách, vodovodní a kanalizační síť (př.č. 17/2006). *Středočeský vlastivědný sborník* 25, 101.
- DANĚČEK, D. – SMÍŠEK, K. 2008: Holubice k. ú. Holubice v Čechách, výstavba rodinného domu (př.č. 14/2007). *Středočeský vlastivědný sborník* 26, 102.
- DANĚČEK, D. – SMÍŠEK, K. 2009a: Holubice, výstavba rodinného domu (č. př. 8/2008). *Středočeský vlastivědný sborník* 27, 101–104.

- DANĚČEK, D. – SMÍŠEK, K. 2009b: Holubice, výstavba rodinného domu (č. př. 23/2008). *Středočeský vlastivědný sborník* 27, 111–112.
- DANĚČEK, D. – SMÍŠEK, K. 2010a: Holubice, k.ú. Holubice v Čechách (př. č. 21/2009). *Středočeský vlastivědný sborník* 28, 103–104.
- DANĚČEK, D. – SMÍŠEK, K. 2010b: Holubice, k.ú. Holubice v Čechách (př. č. 1/2009). *Středočeský vlastivědný sborník* 28, 92–93.
- DANĚČEK, D. – SMÍŠEK, K. 2013a: Holubice, k.ú. Holubice v Čechách (př. č. 13/2012). *Středočeský vlastivědný sborník* 31, 127.
- DANĚČEK, D. – SMÍŠEK, K. – ŠULOVÁ, L. 2007: Holubice v Čechách, výstavba rodinného domu (č. př. 33/2006). *Středočeský vlastivědný sborník* 25, 106.
- DROBERJAR, E. – FRÁNA, J. 2004: *Antická mosaz (aurichalcum) v českých nálezech časné doby římské* [Ancient brass in Bohemian finds of the Roman period]. *Archeologie ve středních Čechách* 8/2, 441–462.
- ERNÉE, M. 2008: *Pravěké kulturní souvrství jako archeologický pramen*. Památky archeologické – Suppl. 20. Praha.
- FELCMAN, J. 1902: Archeologický výzkum v roce 1901 předsevzatý nákladem J. Felcmana, em. ředitele cukrovaru. Mohyly v háji u Chejnova (okr. Smíchov). *Památky archeologické* 20/1, 37–50.
- FELCMAN, J. 1904: Archeologický výzkum v roce 1902 a 1903. *Památky archeologické* 21, 131–138.
- FENCL, V. 1971: Nové nálezy v Kralupech nad Vltavou. *Zpravodaj středočeské vlastivědy a kronikářství* 3, 45–54.
- FENCL, V. 2008: Holubice v Čechách, okr. Praha-západ. *Výzkumy v Čechách* 2005, 64.
- FLOURENTZOS, P. 1978: The so-called „Cypriot pin“ in the Near East and Europe. *Archeologické rozhledy* 30, 408–419.
- FRÁNA *et al.* 1995 = Frána, J. – Jiráň, L. – Maštalka, A. – Moucha, V.: *Artifact of copper alloys in prehistoric Bohemia from the viewpoint of analyses of element composition*. Památky archeologické – Supplementum 3. Praha.
- FRÁNA *et al.* 1997 = Frána, J. – Jiráň, L. – Moucha, V. – Sankot, P.: *Artifacts of copper and copper alloys in prehistoric Bohemia from viewpoint of analyses of element composition II*. Památky archeologické – Supplementum 8. Praha.
- FRÁNA, J. – FIKRLE, M. – CHVOJKA, O. 2007: Nový surovinový depot měděných žeber z Přídolí ze starší doby bronzové a problémy analýz prvkového složení. In: M. Vobecký (ed.): *Seminář radioanalytické metody IAA 07*. Praha 27.–28. června 2007. Praha, 34–38.
- GOLEC, M. 2003: *Těšetice-Kyjovice 6. Horákovská kultura v těšetickém mikroregionu*. Brno.
- HÁJEK, L. 1954: Jižní Čechy ve starší době bronzové. *Památky archeologické* 45, 115–192.
- HÁJEK, L. 1968: *Kultura zvoncovitých pohárů v Čechách*. Archeologické studijní materiály 5. Praha.
- HLOŽEK, J. – MENŠÍK, P. 2013: Sídlištní, pohřební a výrobní areály v Holubicích, okr. Praha-západ. *Živá archeologie* 15, 13–18.
- HORÁKOVÁ-JANSOVÁ, L. 1931a: Únětické nálezy z Minic. *Zprávy Státního archeologického ústavu* IV, 45–50.
- HORÁKOVÁ-JANSOVÁ, L. 1931b: Bylanský kostrový hrob v Minicích (o. Kralupy). *Zprávy Státního archeologického ústavu* IV, 54.
- HRUBÝ, P. 1998: *Výšinné lokality pozdní doby halštatské a časné doby laténské v jižních Čechách*. Zprávy české archeologické společnosti – Supplément 34. Praha.
- CHYTRÁČEK *et al.* 2010 = Chytráček, M. – Danielisová, A. – Trefný, M. – Slabina, M.: *Zentralisierungsprozesse und Siedlungsdynamik in Böhmen (8.–4. Jh. v. Chr.)*. In: D. Krause – D. Beilharz (eds.): *„Fürstensitze“ und Zentralorte der frühen Kelten*. Abschlusskolloquium des DFG-Schwerpunktprogramms 1171 in Stuttgart, 12.–15. Oktober 2009. Stuttgart, 155–173.
- JIRÁŇ, L. 2002: *Die Messer in Böhmen*. Prähistorische Bronzefunde VII/5. Stuttgart.
- JIRÁŇ, L. ed. 2008: *Doba bronzová*. Archeologie pravěkých Čech 5. Praha.
- JOHANNSEN, J.W. 2016: Heavy Metal – lead in Bronze Age Scandinavia. *Fornvännen* 111, 153–161.
- JUSTOVÁ, J. 1969: Holubice, o. Praha-západ. *Bulletin záchranného oddělení* 6/1968, 33.
- KOS, L. 2016: Dvě nové lokality mladší doby bronzové na Nymbursku (Nymburk, Palackého třída a Dvory, pol. Na Záušních). *Archeologie ve středních Čechách* 20/2, 723–740.

- KUNA, M. 2009: *Zaměření výzkumu hradiště u Minic, okr. Mělník*. Unpublished report, Archive of the National Museum.
- LUTOVSKÝ, M. 1994: Bustum Tyri. K topografii mohylových hrobů v okolí Turska. *Muzejní a vlastivědná práce* 32/4. *Časopis přátel starožitností* 102, 233–240.
- MASNER, P. F. 1934: Hradiště v Minicích a zaniklá ves Rusavky. Podřípský kraj. *Vlastivědný sborník krajského musea v Kralupech nad Vltavou* 1/2, 53–59.
- MICHÁLEK, J. – LUTOVSKÝ, M. 2000: *Hradec u Němčic. Sídlo halštatské a raně středověké nobility v česko-bavorském kontaktním prostoru*. Strakonice – Praha.
- MOTYKOVÁ, K. – DRDA, P. – RYBOVÁ, A. 1984: Opevnění pozdně halštatského a časně laténského hradiště Závist [Fortification of late Hallstatt and early La Tène hillfort Závist]. *Památky archeologické* 75, 331–444.
- MOTYKOVÁ, K. 1981: Doklady výroby z bronzu na laténském sídlišti u Holubic (okr. Praha-západ). *Praehistorica VIII. Varia Archaeologica* 2, 193–199.
- MOTYKOVÁ-ŠNEIDROVÁ, K. 1963: *Die Anfänge der römischen Kaiserzeit in Böhmen*. Fontes Archaeologici Praegenses 6. Praha.
- MOTTL, J. 1877: Stopy zaniklých osad v okrese Únhošťském. *Památky archeologické a místopisné* 10, 699–712.
- MOUCHA, V. 2005: *Hortfunde der Frühen Bronzezeit in Böhmen*. Praha.
- MOUCHA, V. 1996: Zu den Beziehungen zwischen Bayern und Böhmen während der älteren Bronzezeit. *Archäologische Arbeitsgemeinschaft Ostbayern/West- und Südböhmen* 1996, 26–32.
- NOVÝ, P. – FENCL, V. 2007: Horoměřice a Holubice, povrchové sběry (č. př. 15/2006, 25/2006). *Středočeský vlastivědný sborník* 25, 100.
- PÍČ, J.L. 1899: *Čechy předhistorické. Starožitnosti země České I/1*. Praha.
- PÍČ, J.L. 1905: Nález zlata v Minicích u Kralup. *Památky archeologické a místopisné* 21, 328–331.
- SAKAŘ, V. 1981: *Bulletin záchranného oddělení* 1976–77, 41.
- SAKAŘ, V. 1987: *Bulletin záchranného oddělení* 1984–85, 50.
- SAKAŘ, V. 1989: *Bulletin záchranného oddělení* 1986–87, 47.
- SAKAŘ, V. 1998: Holubice, okr. Praha-západ. *Výzkumy v Čechách* 1996–97, 51.
- SCHMIDT, V. 1895: Hromadný nález bronzů u Minic. *Památky archeologické a místopisné* 16, 137–142, 374–378.
- SKLENÁŘ, K. 1982: *Pravěké nálezy na Mělnicku a Kralupsku. Archeologický místopis okresu Mělník v pravěku a raně době dějinné I–II*. Mělník.
- SKLENÁŘ, K. et al. 1989: *Archeologický slovník 2. Kovové artefakty 1*. Praha.
- SKLENÁŘ, K. 1992: *Archeologické nálezy v Čechách do roku 1870*. Praha.
- SKLENÁŘ, K. 1994: *Pravěk na soutoku. Nejstarší osudy Mělnické kotliny a jejího sousedství*. Mělník.
- SKLENÁŘ, K. 2018: Pozdně halštatské sídliště v Kralupech nad Vltavou – Minicích, Pod Hradištěm. *Archeologie ve středních Čechách* 22/1, 237–252.
- SLABINA, M. 1975: Kralupy nad Vltavou – Minice, okr. Mělník. *Výzkumy v Čechách* 1972, 83–85.
- SLABINA, M. 1977: Kralupy nad Vltavou – Minice, okr. Mělník. *Výzkumy v Čechách* 1974, 83–84.
- SLABINA, M. 1979: Výsledky geofyzikálního průzkumu na halštatském hradišti u Minic – Kralupy n. Vlt., okr. Mělník. In: *Sborník referátů 1. celostátní konference „Aplikace geofyzikálních metod v archeologii a moderní metody terénního výzkumu a dokumentace“* 1979. Brno, 125–134.
- SLABINA, M. 1981: Hallstatt period walled site at Kralupy n. Vlt. – Minice, Central Bohemia. In: J. Hrala (ed.): *X. Congrès International des Sciences Préhistoriques et Protohistoriques Mexico. Nouvelles archéologiques dans la République socialiste Tchèque*. Praha – Brno, 80–81.
- SLABINA, M. 1982: Kralupy nad Vltavou – Minice, okr. Mělník. *Výzkumy v Čechách* 1978–1979, 56–57.
- SLABINA, M. 1987: Kralupy nad Vltavou – Minice, okr. Mělník. *Výzkumy v Čechách* 1984–1985, 91–92.
- SLABINA, M. 1999: *Kralupy nad Vltavou – Minice, okr. Mělník. Nálezová zpráva, úvodní část*. Národní muzeum.
- SMEJTEK, L. 2011: *Osídlení z doby bronzové v Kněževsi u Prahy, 1. Text*. Praha.
- SOBOTKOVÁ et al. 2010 = Sobotková, A. – Ross, S. – Nehrizov, G. – Weissová, B.: Tundzha Regional Archaeological Project Kazanluk Survey. Preliminary Report. Spring 2009 and 2010. *Studia Hercynia* XIV, 56–66.

- SOUDSKÁ, E. 1966: Obydli na pozdně halštatských sídlištích. *Památky archeologické* 57, 535–595.
- SPURNÝ, V. 1948: Kostrové pohřby v knovízské kultuře. *Památky archeologické* 43, 16.
- STOCKÝ, A. 1923: Zpráva o výkopech prehistorického oddělení Národního musea v r. 1921 a 1922. *Památky archeologické* 33, 339.
- STOLZOVÁ, D. – ŠULOVÁ, L. 2011: Nález spirálové náušnice u kovolitecké a kovotepecké dílny v Kozinci, okr. Praha-východ. Předběžná zpráva o halštatsko-laténském osídlení [The discovery of a spiral earring made near a prehistoric foundry and smithy at Kozinec, Prague-West District. A preliminary report about Hallstatt-La Tène settlement]. *Archeologie ve středních Čechách* 15/1, 349–365.
- STRÁNSKÝ, K. – REK, A – SLABINA, M. 1990: Analýza halštatského prstence z Minic u Kralup nad Vltavou. In: J. Merta (ed.): *Zkoumání výrobních objektů archeologickými metodami. Sborník Technického muzea v Brně*. Brno, 26–36.
- ŠULOVÁ, L. 2006: Holubice, k.ú. Holubice v Čechách, výstavba komunikací obytné zóny (č. př. 3/2005). *Středočeský vlastivědný sborník* 24, 132–141.
- ŠULOVÁ, L. 2007a: Holubice, k.ú. Kozinec (č. př. 12/2006 a 31/2006). *Středočeský vlastivědný sborník* 25, 99.
- ŠULOVÁ, L. 2007b: Holubice, k.ú. Holubice v Čechách, výstavba kanalizační sítě v obci (č. př. 27/2006). *Středočeský vlastivědný sborník* 25, 104.
- ŠULOVÁ, L. – TUREK, J. – KUBÁLEK, P. 2008: Komorový hrob z období zvoncovitých pohárů v Holubicích (okr. Praha-západ). *Archeologie ve středních Čechách* 12, 161–174.
- TREFNÝ, M. – SLABINA, M. 2015: K nejdůležitějším aspektům architektury, hmotné kultury a k významu halštatského hradiště v Minicích (Kralupy nad Vltavou, okr. Mělník) [About the most important aspects of architecture, material culture and importance of the Hallstatt period hillfort Minice (Kralupy nad Vltavou, Melnik District)]. *Archeologické rozhledy* 68, 45–78.
- TUREK, J. 1996: Osídlení Pražské kotliny v závěru eneolitu [Habitation of Prague Valley at the end of the Eneolithic period]. *Archaeologica Pragensia* 12, 5–58.
- TUREK, J. 1998: The Bell Beaker period in north-west Bohemia. In: M. Benz – S. Willigen (eds): *Some New Approaches to the Bell Beaker „Phenomenon“*. *Lost Paradise? British Archaeological Research, International Series* 69. Oxford, 107–120.
- TUREK, J. – PEŠKA, J. 2001: Bell Beaker settlement pattern in Bohemia and Moravia. In: Nicolis, F. (ed): *Bell Beakers today. Pottery, people, culture, symbols in prehistoric Europe*. Proceedings of the International Colloquium, Riva del Garda (Trento, Italy), 11–16 May 1998. Trento, 411–428.
- VENCL, S. 1975: Holubice, okr. Praha-západ. *Výzkumy v Čechách* 1975, 26.
- VENCLOVÁ, N. 2008a: *Hutnický region Říčansko* [The iron smelting region of Říčansko]. Praha.
- VENCLOVÁ, N. ed. 2008b: *Doba halštatská*. *Archeologie pravěkých Čech* 6. Praha.
- VENCLOVÁ, N. ed. 2008c: *Doba laténská*. *Archeologie pravěkých Čech* 7. Praha.
- VOJTĚCHOVSKÁ, I. 2001: Dějiny a topografie archeologických nálezů na území Turska a jeho okolí [History and topography of archaeological findings in central Bohemia]. *Archeologie ve středních Čechách* 5/1, 347–356.
- WALDHAUSER, J. 1993: *Die Hallstatt- und Latènezeitliche Siedlung mit Gräberfeld bei Radovesice in Böhmen*. Praha – Teplice.

Viktorie Čistáková

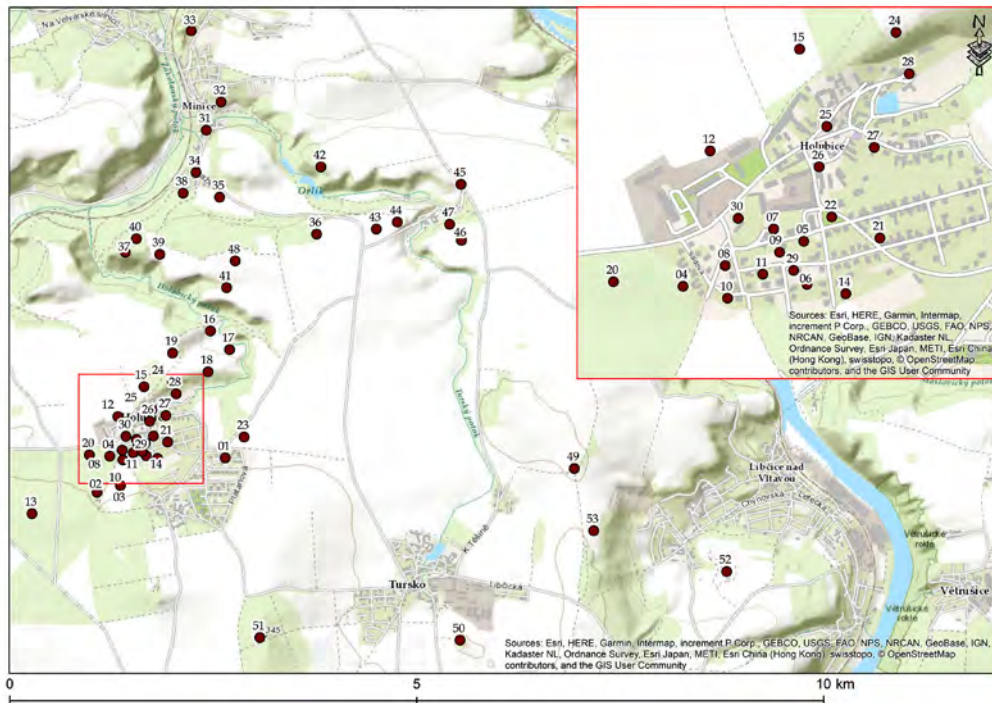
Department of Prehistory and Classical Antiquity
The National Museum
Vinohradská 1, CZ-110 00 Prague 1
viktorie.cistakova@nm.cz

Petra Tušlová

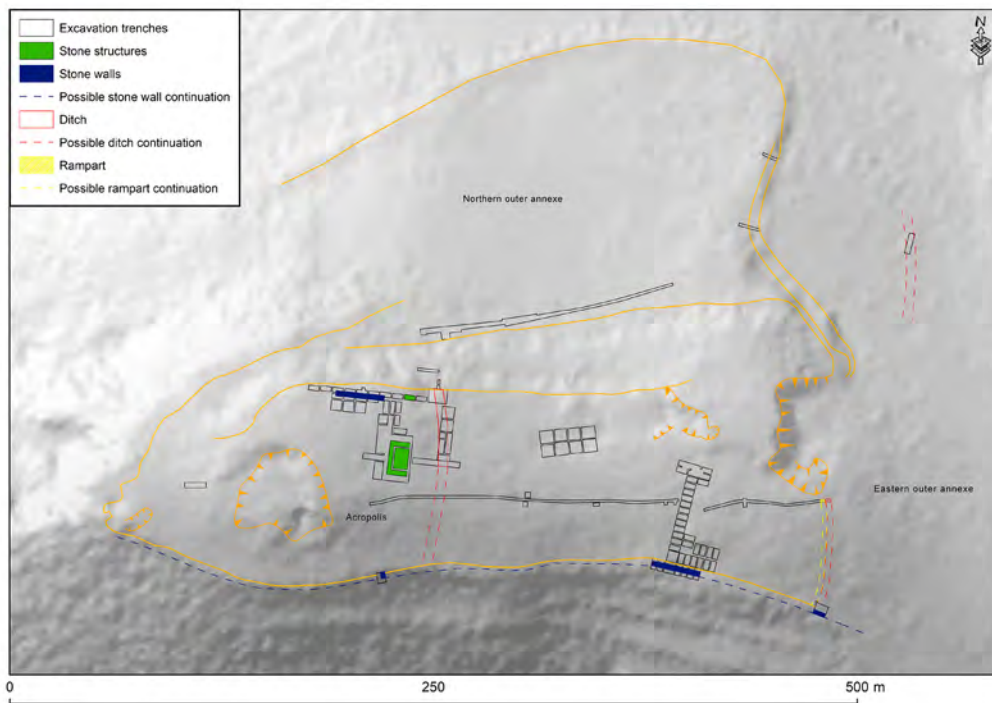
Institute of Classical Archaeology
Faculty of Arts, Charles University
Celetná 20, CZ-110 00 Prague 1
petra.tuslova@ff.cuni.cz

Miloslav Slabina

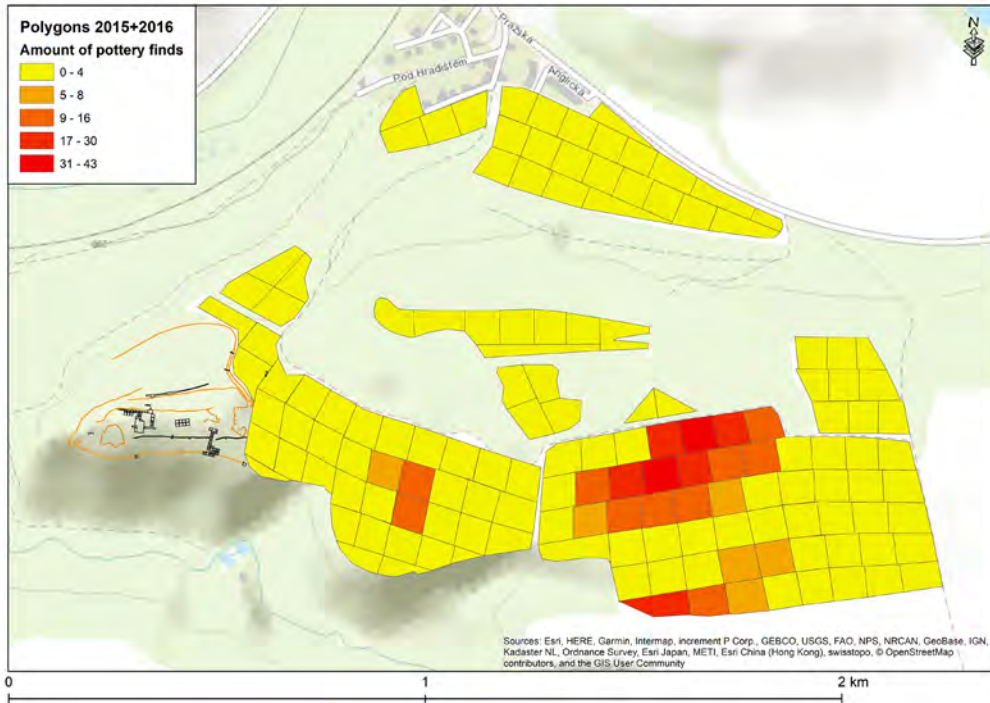
msslabin@email.cz



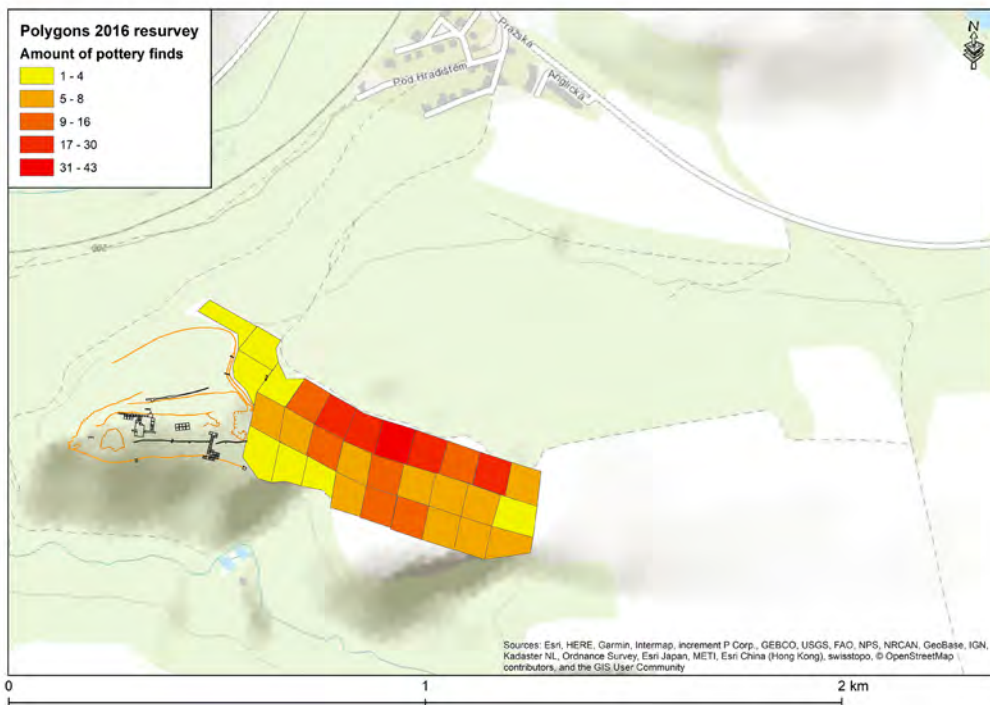
Pl. 1/1. Overview map of the Minice hillfort (no. 37) and of other archaeological sites, pottery scatters, and chance finds known from its immediate hinterland. For information on the sites cf. Tab. 1.



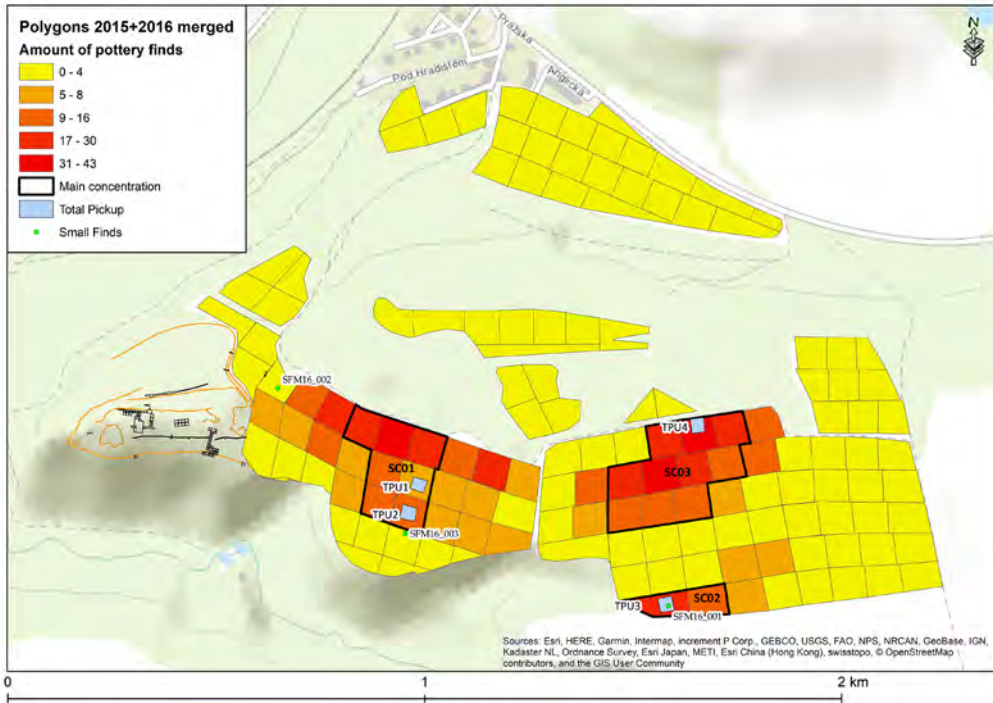
Pl. 1/2. Digitized plans of the 1970s-1980s excavation of the Minice hillfort with marked trenches and structures (stone platform, fortification walls, three ditches, and rampart) found during the excavation. Shaded-relief image on the background (<http://ags.cuzk.cz/dmr/>).



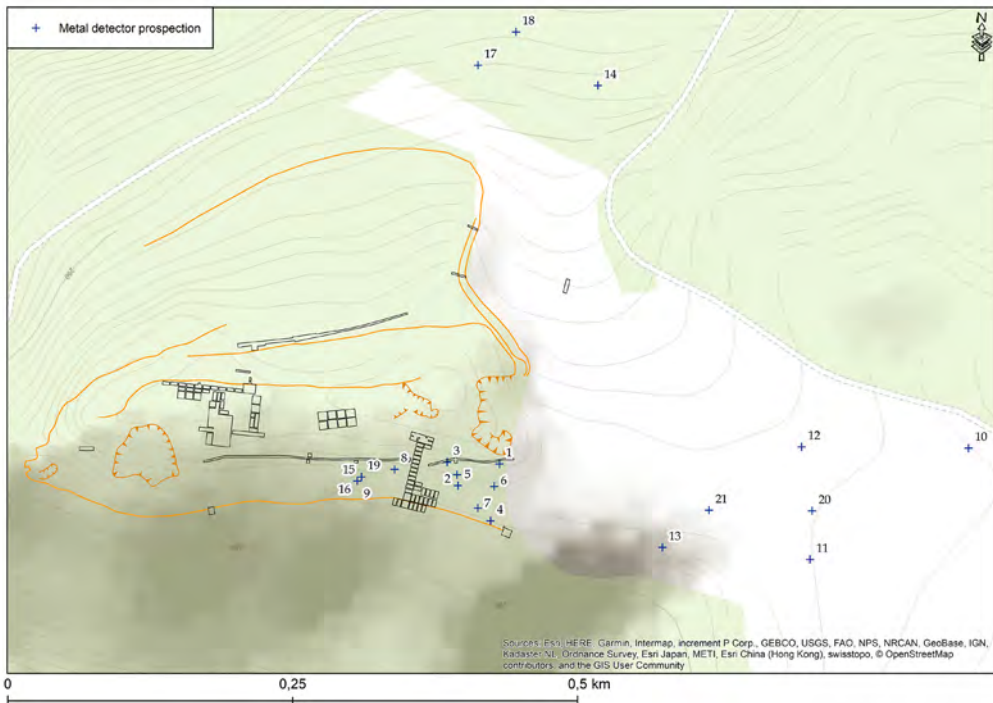
Pl. 1/3. Survey of January and February 2015+2016 with marked areas of higher pottery concentrations (red colour).



Pl. 1/4. Area of the Eastern outer annexe resurveyed in March 2016 with marked polygons of higher pottery concentration (red colour).



Pl. 1/5. Merged polygons of the survey and resurvey of 2015+2016 with the final amount of pottery finds. Three clearly delimited scatters were identified; the area of higher pottery concentrations is marked by the black perimeter line as well as the position of each total pickups within the individual scatters and the small finds (all stones).



Pl. 1/6. Map showing the joint results of the metal detector prospection conducted first in 2013-2014 (no. 1-8) and repeated in 2015 (no. 9-21). For individual information regarding each find spot see Tab. 2 in the text.