

Archaeology of Conflicts II

Pavel Drnovský – Petr Hejhal – Ladislav Rytíř (eds.)



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Current state and perspectives of conflict archaeology in the area of the Iron Mountains (Chrudim District, Pardubice Region, Czech Republic)

Jan Musil

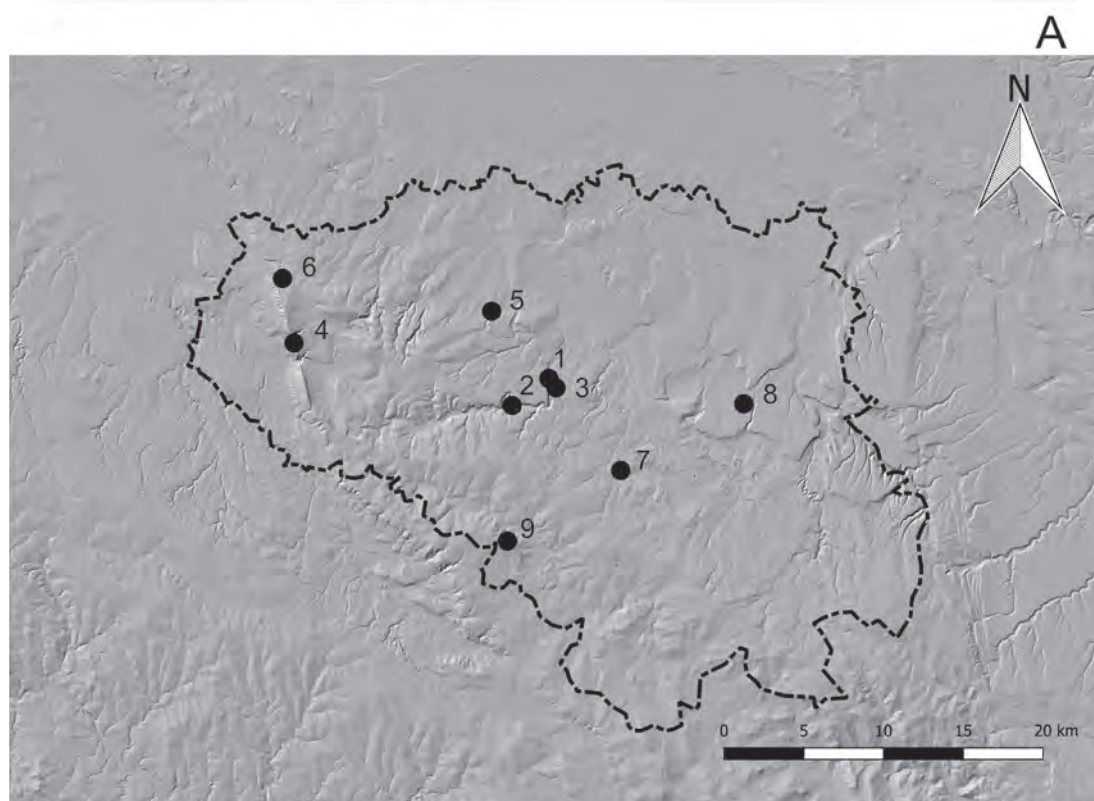
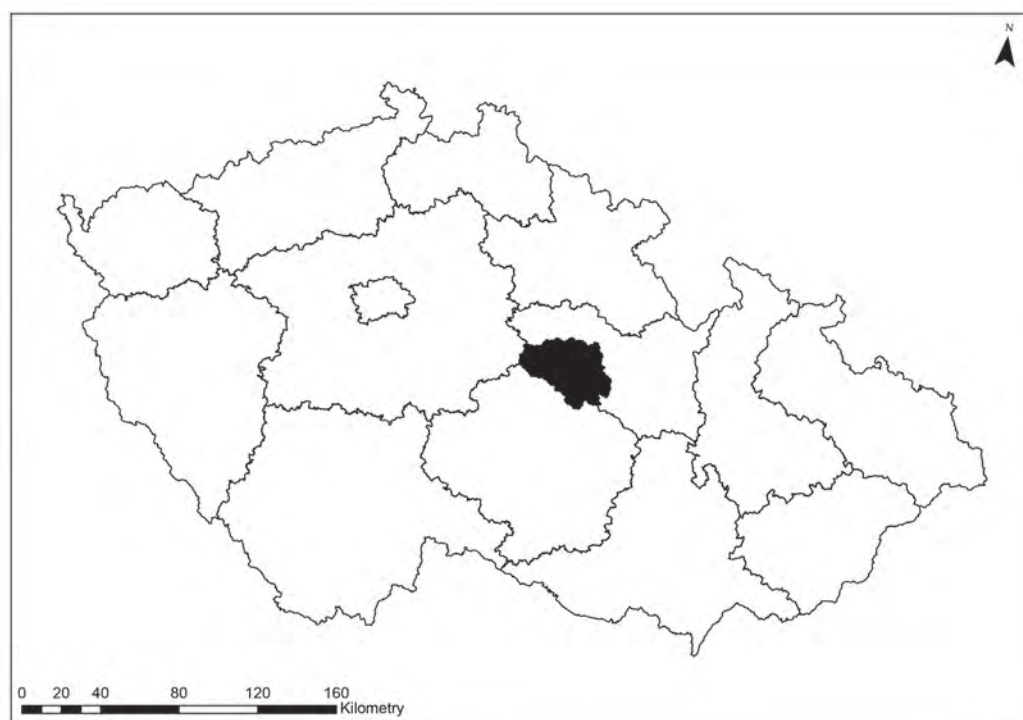
Abstract: *The predominantly wooded landscape of the Iron Mountains and their foothills enabled to conserve terrain relics of human activity from prehistory to recent times, which are also studied by conflict archaeology. In the earliest period, we follow up the occurrence of fortified sites (hill forts, castles and fortified manor houses) and the decline of rural settlement due to military operations. An exceptional position is occupied by the Lichnice Castle with preserved relics of siege works. Also important are a modern field fortification from the time of the War of the Bavarian Succession, Imperial and Royal shooting ranges, partisan dugouts from the period of World War II, defensive fighting positions from the August 1968 invasion, and protected emplacements for rocket forces from the Cold War period.*

Keywords: Iron Mountains (Železné hory) – non-destructive methods – siege works – field fortification – shooting range

Introduction

Systematic archaeological survey of the Iron Mountains started in 2010. The term Iron Mountains (Železné hory in Czech) in the present-day sense of the word was introduced into common usage and into professional literature by geologist Jiří Krejčí (1877; Krejčí – Helmhacker 1891). The area of about 900 km² extends between Týnec nad Labem, Hlinsko and Skuteč in the Pardubice Region. In terms of geomorphology, the area of interest belongs to the province Bohemian Massif, Bohemian-Moravian subprovince, macroregion Bohemian-Moravian Highlands, unit Iron Mountains. The unit of the Iron Mountains is divided into two subunits – Chvaletice Hills and Seč Highlands. The Seč Highlands is further subdivided into four geomorphological districts: Kamenice Highlands, Skuteč Hills, Stružinec Hills and Podhradí Hills (Bárta – Faltysová eds. 2002, 21–27). The Iron Mountains cover an approximately triangular area adjacent to Žďárské vrchy Mts. in the southeast and to the Kutná Hora Plateau in the north. The Iron Mountains have a flat georelief, moderately inclined towards the northeast. This “plateau” is delimited by a distinct slope in the south-western direction. From a hydrological point of view, the most important watercourse in the area is Chrudimka River (also called Kamenice in the Middle Ages), which represents an important left tributary of the Elbe. The river rises near Svratouch village, flows through the major part of the Seč Highlands, crosses the Chrudim Plateau and meets the Elbe in Pardubice. The western tip of the district is drained by the river Doubrava (Bárta – Faltysová eds. 2002, 33–34).

The core of the studied area, to which we will pay more attention, represents approximately two-thirds of former Chrudim District (Fig. 1). The densely wooded terrain in the area of interest helped to preserve many anthropogenic relics related to conflict archaeology (Morris 2003; Schofield 2003; 2005; summary for the Czech lands – Rak 2013) or archaeology of modernity (cf. Buchli – Lucas 2001).



B

Fig. 1 – An overview map of locations mentioned in the text. A) Chrudim District within the Czech Republic; B) 1 – Práčov, hill fort; 2 – Hradiště u Českých Lhotic, oppidum; 3 – Strádov Castle, with an Auersperg shooting range in its neighbourhood; 4 – Lichnice Castle (Lichtenburg); 5 – Rabštejnská Lhota, Austro-Hungarian military shooting range; 6 – Zbyslavce, headquarters of the partisan brigade Mistr Jan Hus; 7 – Majlant – Dachovské Paseky, encampment from 1968; 8 – Hroubovice – Nová Ves, encampment from 1968; 9 – Hluboká u Trhové Kamenice, a battery of mobile rocket forces. The bold dashed line marks the border of Chrudim District. Background map DMR5G (source: Czech Office for Surveying, Mapping and Cadastre). Created with the QGIS software.

In comparison with the northern lowland part of Chrudim region in the catchment area of the rivers Elbe, Chrudimka and Novohradka, which has already been inhabited in prehistoric times and has been intensively explored by archaeologists (cf. Frolík – Sigl 1995), the Iron Mountains partly remained in the shadow of major interest. The current knowledge about the dynamics of medieval and early modern settlement in the studied region was recently published in a monograph by J. Musil, P. Netolický and M. Preusz (Musil – Netolický – Preusz 2020). The problems related to the effects of the Thirty Years' War, particularly to its impact on rural settlement, were treated in a separate study (Musil – Netolický – Preusz 2019). The mapping and analysis of the studied region have also detected features from recent times, which remained unnoticed until that time (Musil 2019a; Musil – Netolický 2014; Musil – Netolický 2017; Musil – Netolický – Vářeka 2016).

In this paper, I will try to at least partly summarize the current state of knowledge, to show some not very known aspects of study on ten selected examples, and to present the still unexploited potential of this interesting region.

Research methods

The almost continuous forest cover in the studied region enables to apply a wide spectrum of non-destructive archaeological methods, whose main advantages are a careful approach to immovable monuments, repeatability, low price and short time. The archaeological methods used in the Iron Mountains involved surface collecting combined with metal detector survey, surface survey of relief features in wooded landscape, geophysical measurements (especially magnetometry) and remote sensing methods. The analysis of data from the Airborne Laser Scanning is probably the most important one among the last mentioned methods. The fastest method to explore large forest plots was that including the identification of individual potentially interesting areas. These areas with their closest neighbourhood were subsequently verified by a terrestrial team, who carried out a detailed measurement with the help of a total station, or GNSS/GPS (cf. Gojda – John et al. 2013). The detected anthropogenic relics were described according to a formalised descriptive system used with database applications. The acquired data are then compared with data from other published locations (for more details on methods see Musil – Netolický – Preusz 2020, 9–12).

The results of archaeological survey are subsequently confronted with information from available written, narrative, iconographic and cartographic sources, whose quantity and quality for individual areas are very varied within individual periods of our history (cf. Kovář – Musil – Musílek – Sýkora 2021, 81).

Conflict areas in prehistory

Conflict archaeology in the territory of the Iron Mountains did not yet fully exhaust the potential of the prehistoric hill fort at Práčov (cad. dist. Svídnice u Slatiňan – Fig. 1: 1) and the only East Bohemian oppidum in Hradiště u Českých Lhotic (Fig. 1: 2).

The hill fort situated in the built-up area of Práčov village (Fig. 1: 1) has already been known since the end of the 19th century. Archaeological excavation of this site has yielded multiple hoards of bronze artefacts and a distinct burnt horizon (Diviš-Čistecký 1887). The hill fort in the present-day village extends on a rocky spur above the river Chrudimka (Fig. 2). The northern, eastern and southern sides of the fort are protected by steep slopes, the western side was enclosed by a defensive wall partly built of stone. This perimeter fortification is best preserved on the north-western side, where its relics reach up to 2 metres in height. The remaining fortification remnants are not visible with the naked eye in today's built-up area

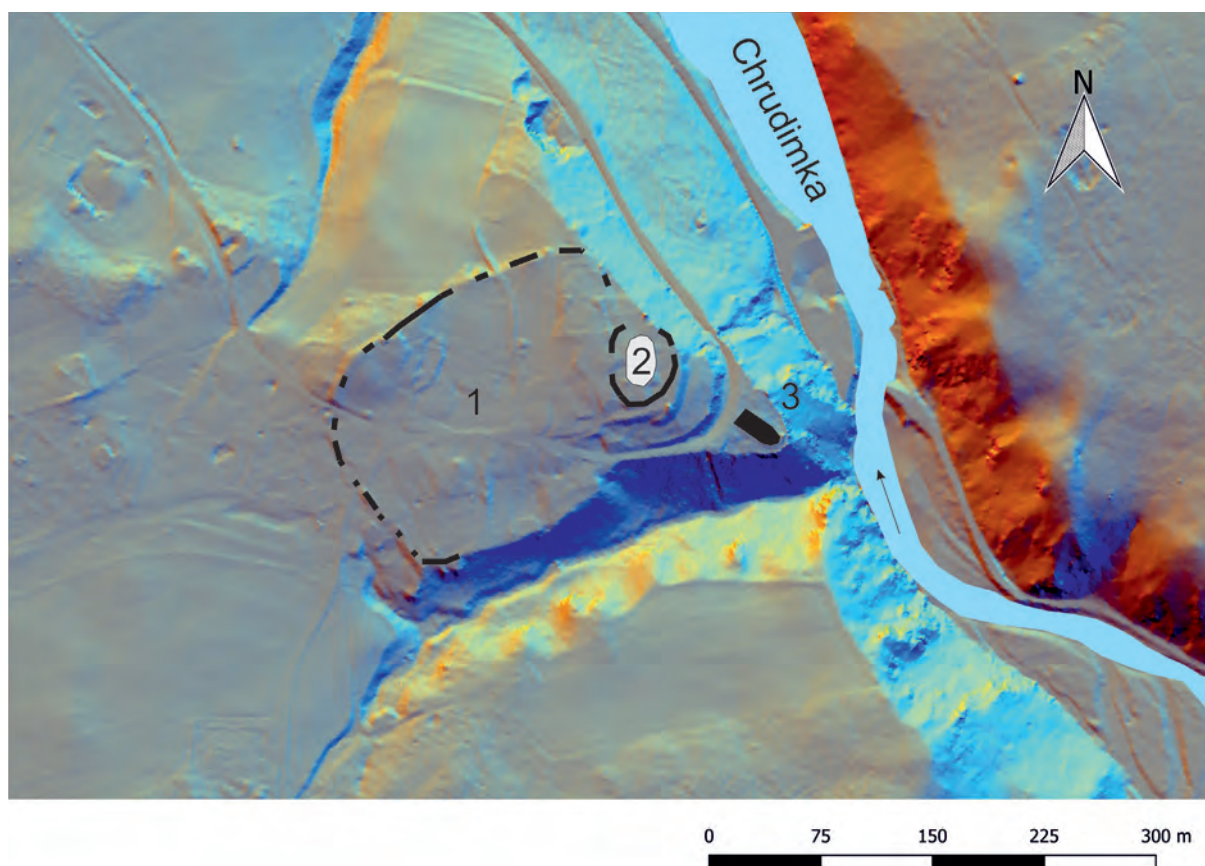


Fig. 2 – Práčov (cad. dist. Svídnice, Chrudim District). 1) the area of a prehistoric hill fort; 2) acropolis; 3) the area of former provostry of the Benedictine monastery at Podlažice with Church of St. James the Great. Solid line marks the preserved fortification segments, dashed line marks the supposed course of the fortification. Based on DMR5G (source: Czech Office for Surveying, Mapping and Cadastre), visualised by the Multidirectional Hillshade method. Created with the RVT software.

of the village, but they can be reconstructed on the basis of an analysis of data acquired by Airborne Laser Scanning (Fig. 2: 1). The hill fort covers an area of about 3.3 hectares, with a separate fortified acropolis sized 100 x 55 metres in the central part north of the Church of St. James the Great (Fig. 2: 2). Its fortification is composed of a ditch of up to 8 metres in width and a rampart reaching up to 4 metres in height. Violent destruction of this hill fort is indicated by a sequence of burnt strata and by several hoards of bronze artefacts. The decline of the hill fort is dated by the occurrence of a shield brooch of type Gamów-Práčov (Podborský 1970, 123) to the end of the Bronze Age, to Silesian phase of the Silesian-Platěnice Culture, more precisely to Reinecke stage HB 2–3 (horizon of hoards Lžovice and Práčov – Kytlicová 2007, 37). These brooches are found in the territory of East and Northeast Bohemia, in Northwest Moravia and in East Poland (cf. Vích – Kalábek – Němcová 2020, 24–25). The Gothic Church of St. James the Great (Fig. 2: 3), first mentioned in 1349, was built in the south-eastern tip of the spur (Kurka 1914, 647). Between 1361 and 1366, lord Jaroš Lacembok of Chlum founded here the provostry of the Podlažice Monastery (MVB IV, 136–137 No. 228). The provostry has declined under unclear circumstances on 9 February 1421, i.e. still before the Hussite offensive to East Bohemia in April (Charvát ed. 1945, 57; cf. Teplý 2005, 36). The church was probably restored around the mid-15th century (Chytil 1900, 1841–1842; Poche et al. 1980, 149; Vlček – Sommer – Foltýn 1997, 656; Sommer 2001, 204–212).

Another significant site is the only East Bohemian oppidum nearby the hamlet Hradiště u Českých Lhotic (Fig. 1: 2). The hill fort, which covers an area of about 23 hectares, is situated on a salient spur flowed around by a meander of the river Chrudimka at a height of 390–460 metres above sea level (Fig. 3).

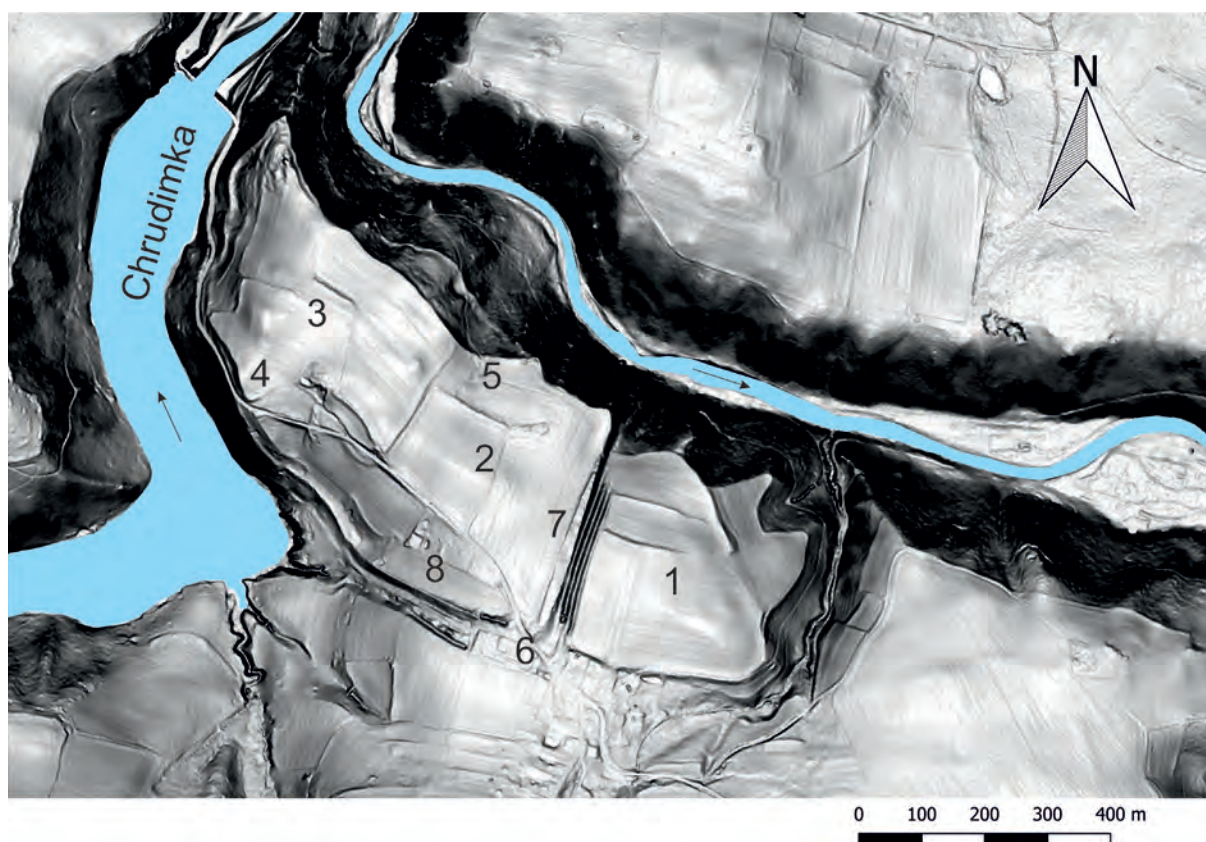


Fig. 3 – Hradiště u Českých Lhotic (cad. dist. České Lhotice, Chrudim District) – oppidum. 1 – outer ward; 2 – inner ward; 3 – acropolis; 4 – south-western entrance; 5 – northern entrance; 6 – main gate; 7 – eastern fortification line; 8 – southern fortification line. Based on DMR5G (source: Czech Office for Surveying, Mapping and Cadastre), visualised by the method of slope gradient analysis. Created with the RVT software.

The outer ward in the east (Fig. 3: 1) is separated from the inner ward (Fig. 3: 2) by an impressive system of triple ramparts with ditches. The acropolis (Fig. 3: 3) is located in the highest western part of the whole area. The perimeter fortification is best preserved on the southern (Fig. 3: 8) and eastern (Fig. 3: 7) sides. The area of the main entrance (Fig. 3: 6) on the eastern side was already destroyed in 1910 due to construction of a road to Křižanovice. From the southern pincer gate (Fig. 3: 4) only several small terrain relics are preserved, and the traces of the northern entrance are very indistinct (Fig. 3: 5). The site was introduced to the professional community by M. Lüssner (1857) and the results of archaeological excavations were summed up by B. Danielisová (2010). Archaeological research has revealed that the fortification system on this site underwent a complicated development. First of all, vegetation was removed using the slash-and-burn method and the surface of the prospective building site was levelled to the ground. As indicated by archaeological finds, it has happened during the stage LT C2 or at the beginning of stage LT D1. Afterwards, two rampart fortifications with advanced ditches were laid out on this levelled and cleared surface within two different periods of time. The construction consisted of two palisades, which created a bracing for the gravelly infill in between. The fortification was destroyed by fire and was probably temporarily repaired. In the final third phase, dated to the end of stage LT D1, a triple earthen rampart was built, which represents the last phase of existence of the oppidum in about the mid-1st century BC (cf. Danielisová 2010, 43–50, 106–107).

Another group of questions is connected with an intensive use of the area of the oppidum in early medieval times. The elevated location with older settlement relics indicates with a high probability that

an administrative centre might have existed here at least in the early medieval period during the mid-10th to the 12th centuries (cf. Musil – Netolický – Preusz 2020, 14, 15 and 29). It is pretty interesting that a spur with pyramidal spike was found in the area of former oppidum (Danielisová 2010, tab. 36: 12) and early medieval axes were found in the closest neighbourhood of the site (Musil 2020a, 122, 131, obr. 2:3; Musil 2021).

Fortified feudal residences

The best explored group of archaeological sites in the Iron Mountains is probably represented by the fortified feudal residences – castles and fortified manor houses (basic summary of the problem Musil – Netolický – Preusz 2020). In this contribution, we will pay attention to two sites – Strádov Castle (Fig. 1: 3) and Lichnice Castle (Lichtenburg – Fig. 1: 4).

The ruin of Strádov Castle (cad. dist. Ochoz u Nasavrky) is located in the forest complex Slavická obora about 0.7 kilometres south of Práčov. The castle is situated on a rocky spur projecting from the Nasavrky Plateau, directly above where the Libáňský Brook meets the Chrudimka River (Fig. 4). The castle was probably founded in the second half of the 14th century. Its name was mentioned for the first time in the nobiliary particle of Jaroš Lacembok of Chlum and Strádov in 1374. Another known owner of the castle is Jaroš's son Jindřich Lacembok of Strádov, mentioned in 1382. A. Sedláček reported (1882, 160) that Jindřich sold the castle approximately at the turn of the 14th and 15th centuries, entered the service of King Wenceslas IV and resided at Potštejn in 1396–1400 and at Košumberk in 1402. In 1409–1411, Bleh of Lipka and Strádov has been mentioned. The name mentioned in 1438 is Jan of Strádov, who put the castle in pawn. The castle was soon abandoned and became deserted, probably after having suffered damage during the Hussite Wars. August Sedláček (1882, 160) in his monumental work mentioned the existence of a marauding company, but he did not reference the necessary sources, so that we are at a loss about how to deal with this information. The castle is mentioned to have been completely desert in 1457 and ruined in 1459 (most recently on the castle holders see Musil – Netolický – Preusz 2020, 128–131).

At the eastern edge of the spur, before the advanced fortification on a plateau southwest of the castle's inner ward, there was an accumulation of temporary sunken features (Fig. 4: 4 and Fig. 5), some of which show the attributes of residential buildings or storerooms. The features are characterised by a stone cladding of their walls and orientation of their entrance corridors towards the castle (Fig. 5). The most recent analysis (Musil 2019b) rejected the theory that these features were relics of a farmstead and instead hypothesized about a temporary settlement of an armed retinue basing on finds of militaria in the immediate neighbourhood. The only problem is the absence of relevant written sources. The existence of the castle falls within the period 1374–1457, i.e. from the mid-14th to the mid-15th centuries. There are basically two main intervals, during which this settlement may have existed, namely 1374–1421 and 1421–1457. The first interval encompasses the figure of Jindřich Lacembok of Chlum, who served both Margrave Prokop of Luxembourg and King Wenceslas IV. It is possible that he was already militarily involved in fights between the Moravian Luxembourgs. From May to June 1399, Jindřich Lacembok as an adherent of Wenceslas was besieged in the Potštejn Castle by Boček of Kunštát and Poděbrady, John IV of Bucca and Smil Flaška of Pardubice and Rychmburk. Already at that time, Jindřich might have had an armed retinue at his disposal but we know nothing about their activity. The conciliation after the siege of Potštejn in 1399 has temporarily resulted in a peace treaty, but Jindřich Lacembok felt disgrace about being besieged. He therefore wanted to settle accounts with other opponents, against whom he undertook many armed marauding raids in 1403–1404 (Musil 2019b). However, the question is whether he still held the Strádov Castle at that time. Bleh of Lipka is not mentioned as the castle owner until 1409.

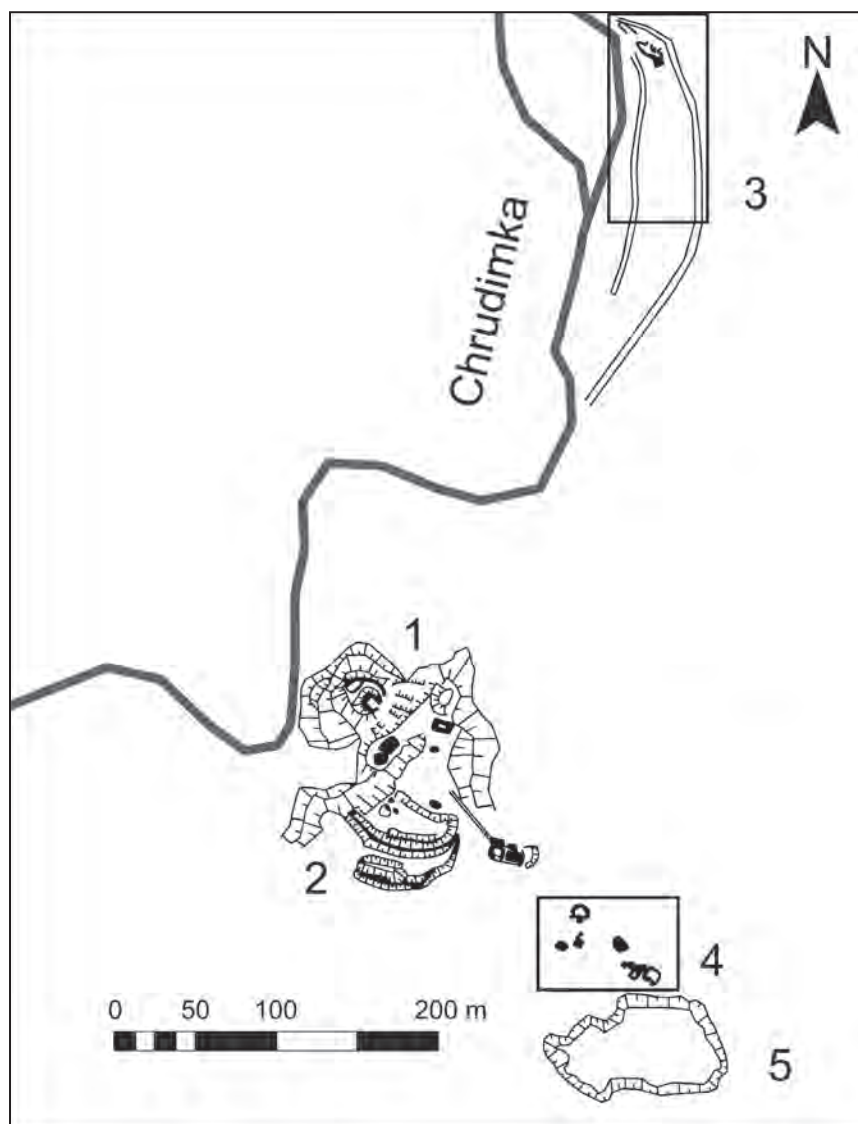
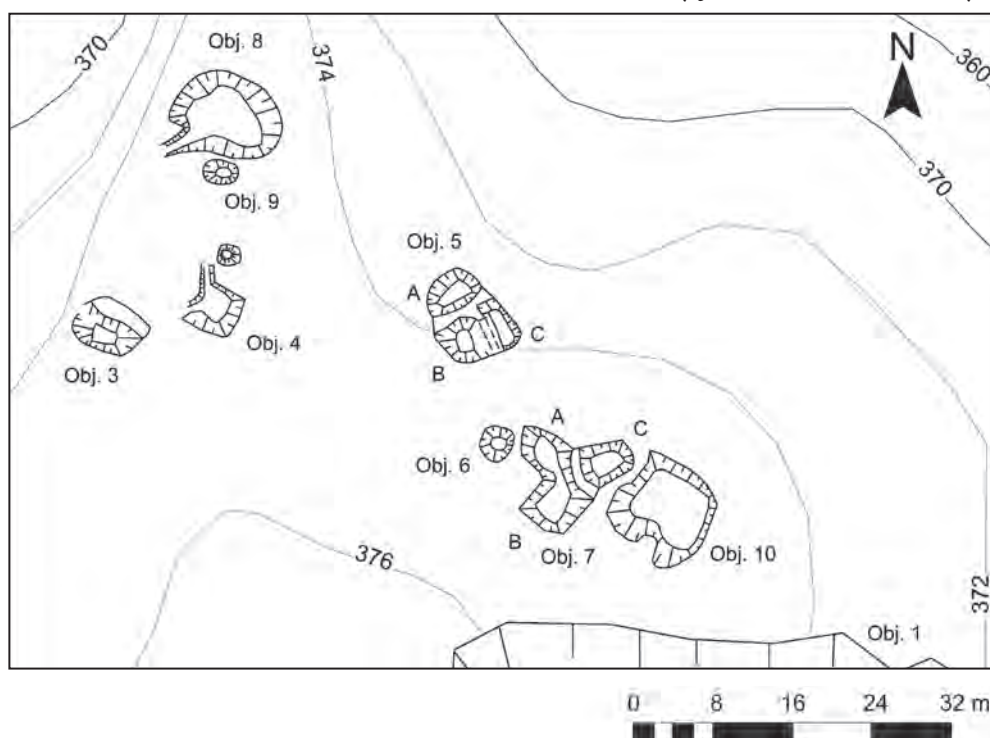


Fig. 4 – Strádov Castle (cad. dist. Ochoz u Nasavrč, Chrudim District). 1 – castle; 2 – outer ward with unfinished fortification on the south-western side; 3 – medieval mill in the suburbium; 4 – settlement of an armed retinue (?); 5 – recent quarry. Surveying of the castle J. Musil and P. Netolický.

Fig. 5 – Presumed settlement of an armed retinue in the forefield of Strádov Castle (cad. dist. Ochoz u Nasavrč, Chrudim District). Surveyed by J. Musil and P. Netolický.



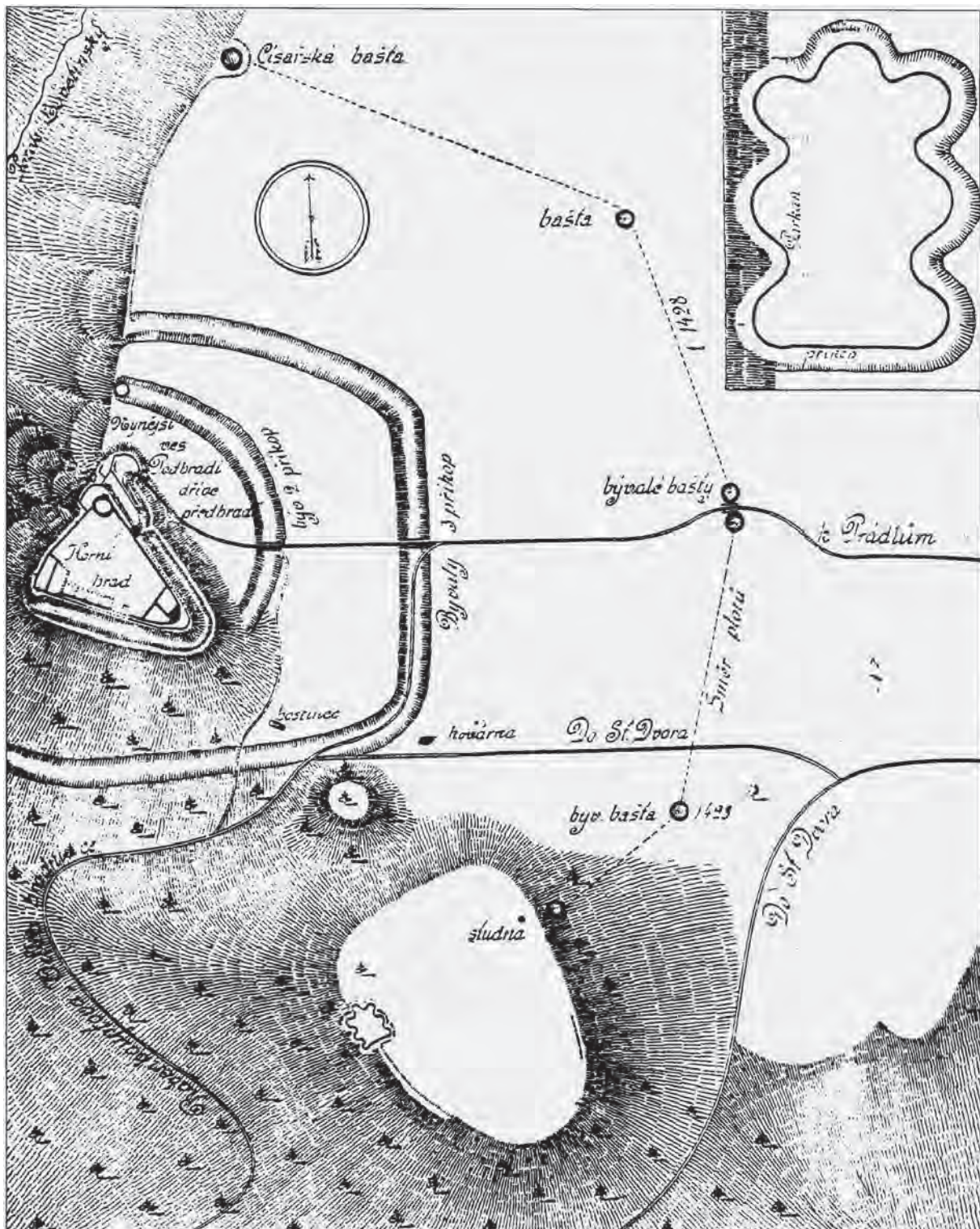


Fig. 6 – Lichnice Castle (cad. dist. Podhradí v Železných horách, Chrudim District) and its closest neighbourhood with detected traces of siege works from 1428–1429 (after Sedláček 1936).

Another milestone is the spring campaign of the Hussites to East Bohemia in 1421. This direct threat could be connected with the unfinished fortification of the outer ward (cf. Fig. 4: 2). An impulse to the build-up of this defensive structure might have also been the accession of Aleš of Bítovany to an alliance of four regional *Landfrieden* in 1440. If so, we would have to interpret the features in the forefield of the castle as winter quarters of the above-mentioned “company of Strádov”, about which A. Sedláček

has informed (1882, 160). This alternative is not evidenced in written sources, but it may be supported by traces of a counterfeiter's workshop which was recently detected in the outer ward of Strádov Castle (Musil 2020b).

A typical site for conflict archaeology is undoubtedly the majestic Lichnice Castle (cad. dist. Podhradí v Železných horách – Fig. 1: 4). The castle was founded by Smil of Lichtenburg after the mid-13th century (cf. Bláha – Kovář – Musil 2017). One of the most interesting chapters in history of the castle is its siege during the Hussite Wars, which lasted more than one year from July 1428 to November 1429. This siege was treated in a study by Jan Frolík (2002), who analysed a small assemblage of metal artefacts from a command post of the Orphans' Union, stored in the Regional Museum in Chrudim. Another study by Jaroslav Teplý (2005b) dealt with identification of terrain relics of siege works near the castle. Kateřina Doležalová (2012) in her diploma thesis analysed the finds from archaeological trenching in 1968 and 1978 and supplemented them by her own geodetic-topographic surface survey and analysis of LiDAR images. During this research, new and still unknown siege elements were identified on the opposite slope of the Lovětín Gorge. Other studies were mainly focused on analysis of movable archaeological finds related to the long-term siege of the castle (Frolík – Musil 2013; Těsnohlídková – Slaviček – Všianský 2019).

At the beginning of the Hussite Wars, Lichnice was held by Queen Sophia of Bavaria who installed here Petr of Chlum as the burgrave. The castle passed peacefully over to the hands of the Hussites in April 1421 (Sedláček 1936, 36–37). The castle holder mentioned in 1427 was Jan Městecký of Opočno, who in 1421 temporarily changed sides to the Hussites, but later again became supporter of King Sigismund. Seated at Lichnice Castle, he undertook war campaigns against the Hussites. This is why the army of the Orphans' Union, led by the hetmans priest Prokůpek and Jan of Kralovice, set out for a punitive campaign on 25 July. The castle was besieged and enclosed by a zone of ditches, bastions, blockhouses and fences, but no cannons and siege engines were used. The siege lasted more than one year. The castle garrison finally surrendered in November 1429 and was allowed to leave in peace. The new castle lord became Jan Hertvík of Rušínov (overview of sources see Frolík – Musil 2013). The siege works left distinct traces in terrain, which were still well visible at the beginning of the 20th century (Fig. 6; Sedláček 1936, 39). At that time, there were preserved traces of a total of five bastions enclosing the castle in the north, east and southeast and situated at regular distances from one another. On the southern side, the line of bastions adjoined a larger area surrounded by a fragmentarily preserved earthen bank and containing a water well at the north-eastern edge. The vast majority of these relics were wiped out by intensive agricultural activity. On the western border of this special area (Fig. 6), the plan pictures an unusual feature with seven "lobes" enclosed by a ditch, which has been interpreted as a command post (Figs. 7: 4 and 8: 2). As follows from the analysis of archaeological finds, the besiegers have partly adapted the site for residential purposes. The assemblage of finds comprised remnants of ceramic floor tiles, tile stoves and a relatively large collection of local tableware and kitchen pottery (Frolík – Musil 2013; Těsnohlídková – Slaviček – Všianský 2019). Lighting was provided by clay lamps (Frolík – Musil 2013; Fig. 17: 3). Metal artefacts can be divided into five basic categories – militaria, equestrian equipment and wagon components, agricultural and craftsman's tools, builder's hardware and unidentifiable objects. The largest group comprises militaria, most of which represent ammunition for ranged weapons and firearms. Tanged arrowheads are found in a small amount but the vast majority of projectiles represent typical 15th century ammunition – massive socketed bolts with square heads. In the area of the command post, the crossbow is directly evidenced by a fragment of the cocking stirrup and a fragment from the middle part of the trigger mechanism (Frolík – Musil 2013, obr. 3: 4, 5). The use of firearms is evidenced by lead projectiles in the form of balls (Fig. 9: 8–9) or cylinders (Fig. 9: 2–5). As evident from use-wear marks, the balls bear traces of two-part casting moulds, where the sprues were removed by pincers (cf. Fig. 9: 8). Cylindrical projectiles were cut off lead bars. The used calibres vary between 12 and 24 mm, where the mean value is within the interval of 15–20 mm. This would suit best the hand cannons or harquebuses. Very rare are projectiles belonging

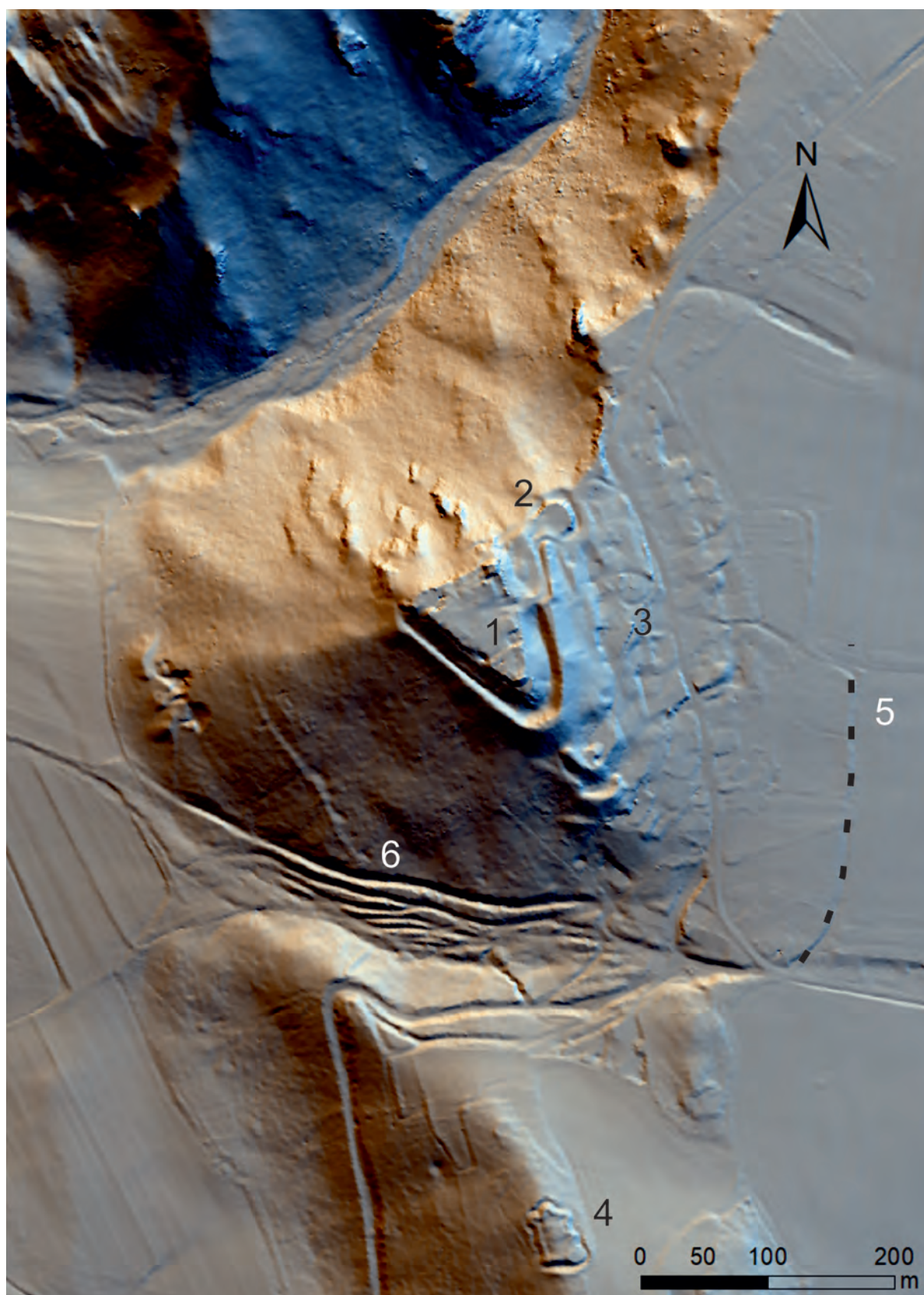


Fig. 7 Lichnice Castle (cad. dist. Podhradí v Železných horách, Chrudim District) with detected traces of siege works from 1428–1429. 1 – inner ward; 2 – Late Gothic barbican; 3 – small extramural town; 4 – command post; 5 – partly preserved outer border of the siege area; 6 – bundle of medieval hollow ways. Based on DMR5G (source: Czech Office for Surveying, Mapping and Cadastre), visualised by the Multidirectional Hillshade method. Created with the RVT software.

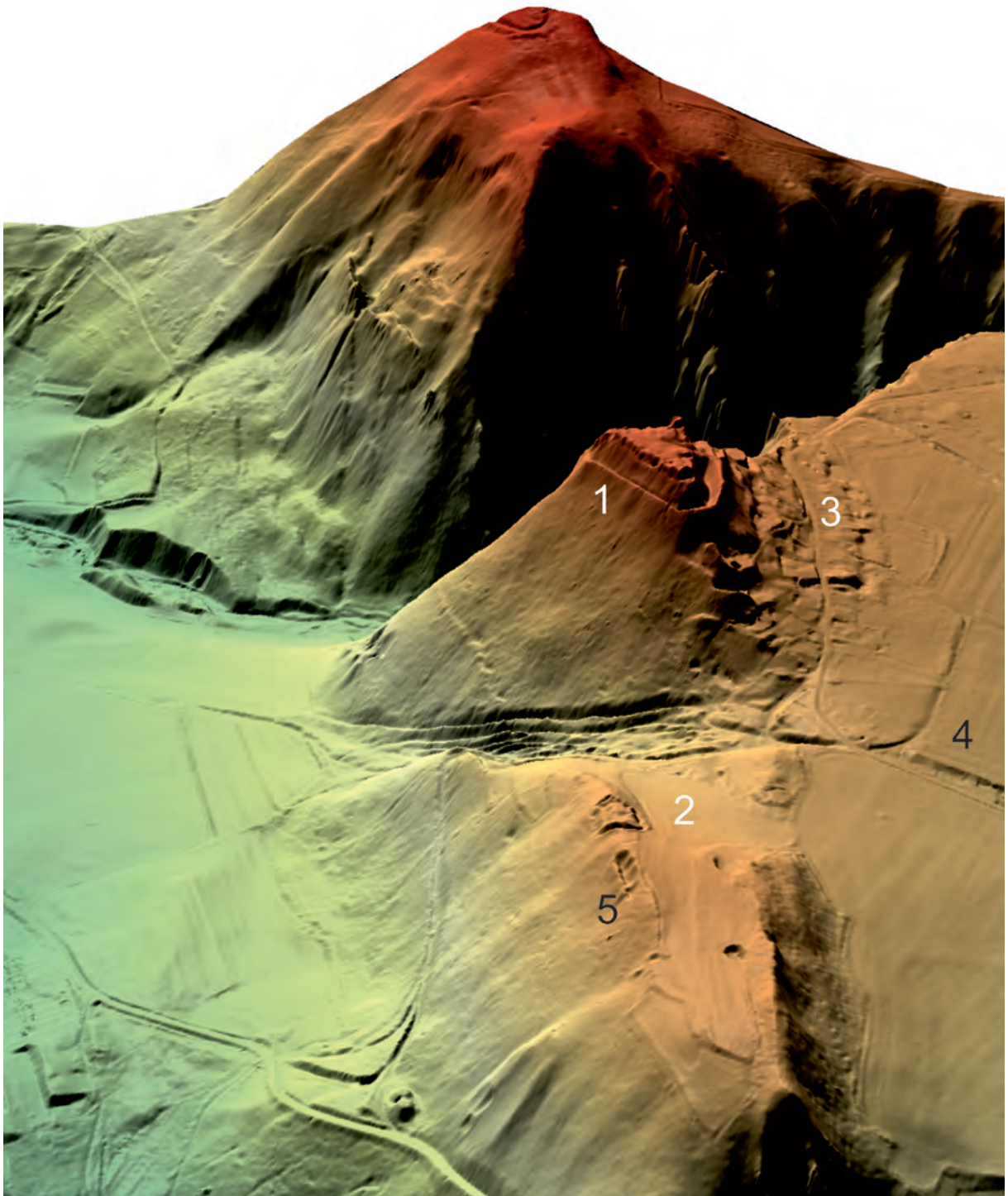


Fig. 8 – Digital elevation model of Lichnice Castle (cad. dist. Podhradí v Železných horách, Chrudim District) and its closest neighbourhood. 1 – castle; 2 – siege command post; 3 – small extramural town; 4 – partly preserved outer border of the siege area; 5 – features from the period of World War II. Based on DMR5G (source: Czech Office for Surveying, Mapping and Cadastre), created with the SURFER software.

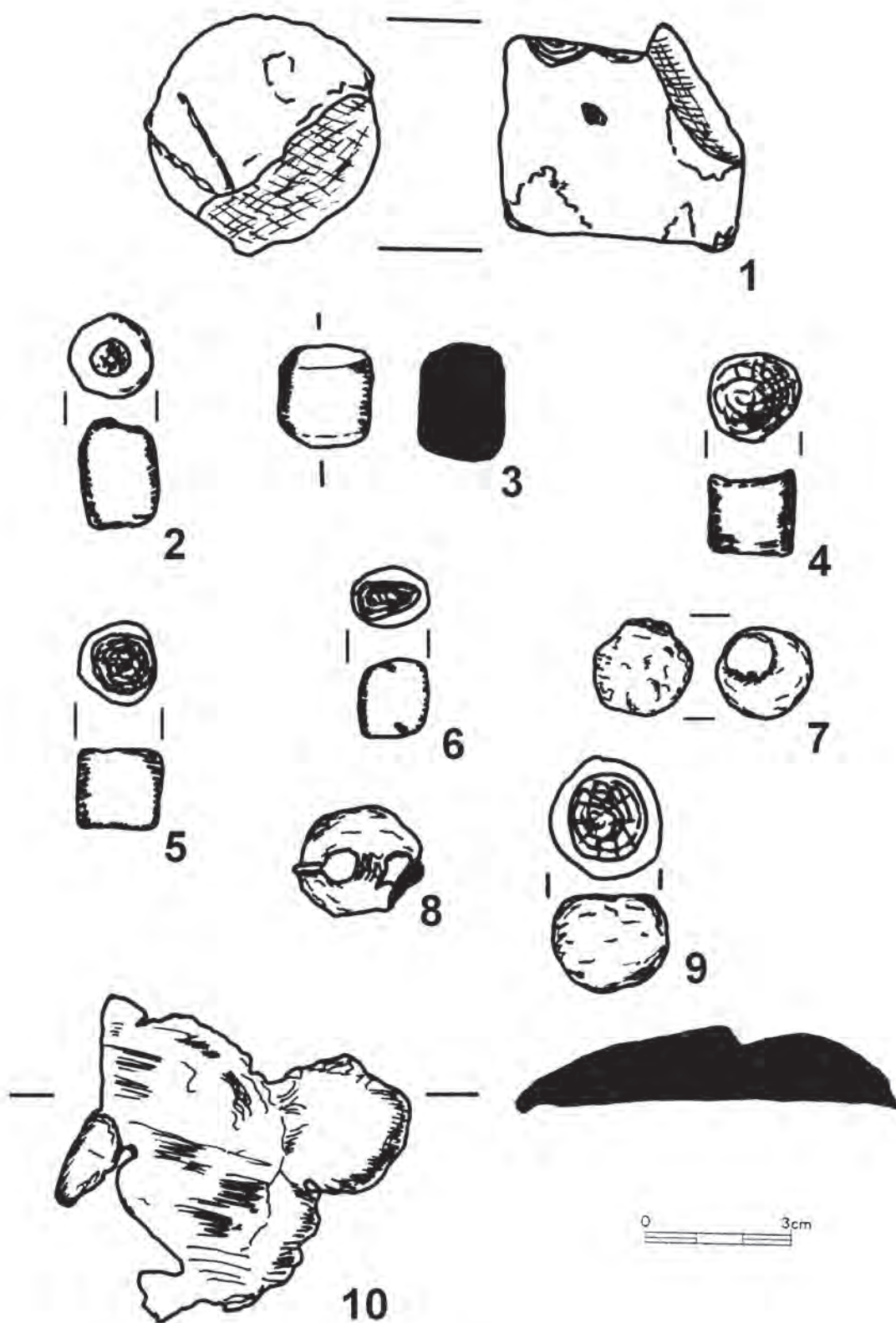


Fig. 9 Podhradí v Železných horách (Chrudim District), command post in the siege camp at Lichnice Castle. Ammunition for firearms. Lead. Drawing J. Musil.



Fig. 10 Lichnice Castle (cad. dist. Podhradí v Železných horách, Chrudim District). Trebuchet projectile. Photo J. Musil.

to light artillery (Fig. 9: 1 and 9: 10). Paradoxically enough, these projectiles were used by the castle garrison, who fired from a much higher position and was able to repeatedly hit the command post at a distance of 415 metres (cf. Fig. 8). A tiny iron polygonal shrapnel, which was found in the area of the command post, comes from a firearm of octagonal cross-section. The category of militaria also comprises a trebuchet projectile sized 500 x 450 x 480 mm, which was found sticking in the masonry of the castle palace (Fig. 10). This find is particularly interesting because historical written sources explicitly mentioned that heavy artillery was absent. The presence of edged melee weapons is evidenced by cross-guards of falchions, and protective armour is represented by a roll of iron lamellae. The category of tools includes a chisel, knives, blade shears, hoes, an iron wedge and pincers. The collection also contains a cauldron hanger. The category of builder's hardware comprises a large variety of finds, above all the dominant nails – both lath nails and shingle nails (cf. Frolík – Musil 2013).

Private and military shooting ranges

A completely unknown group of terrain relics is represented by the remnants of outdoor shooting ranges for hand firearms. A common characteristic of both previous and contemporary facilities used for this purpose is the presence of one or more backstop berms for catching the shots (height about 2.5–3 metres, width 4–5 metres). Building structures, mostly of a light construction, do not leave any clear traces in terrain (cf. Ewing – Casey – Wilson 1909). Targeted archaeological survey and documentation of these specific sites have been mainly conducted in the United Kingdom and in the

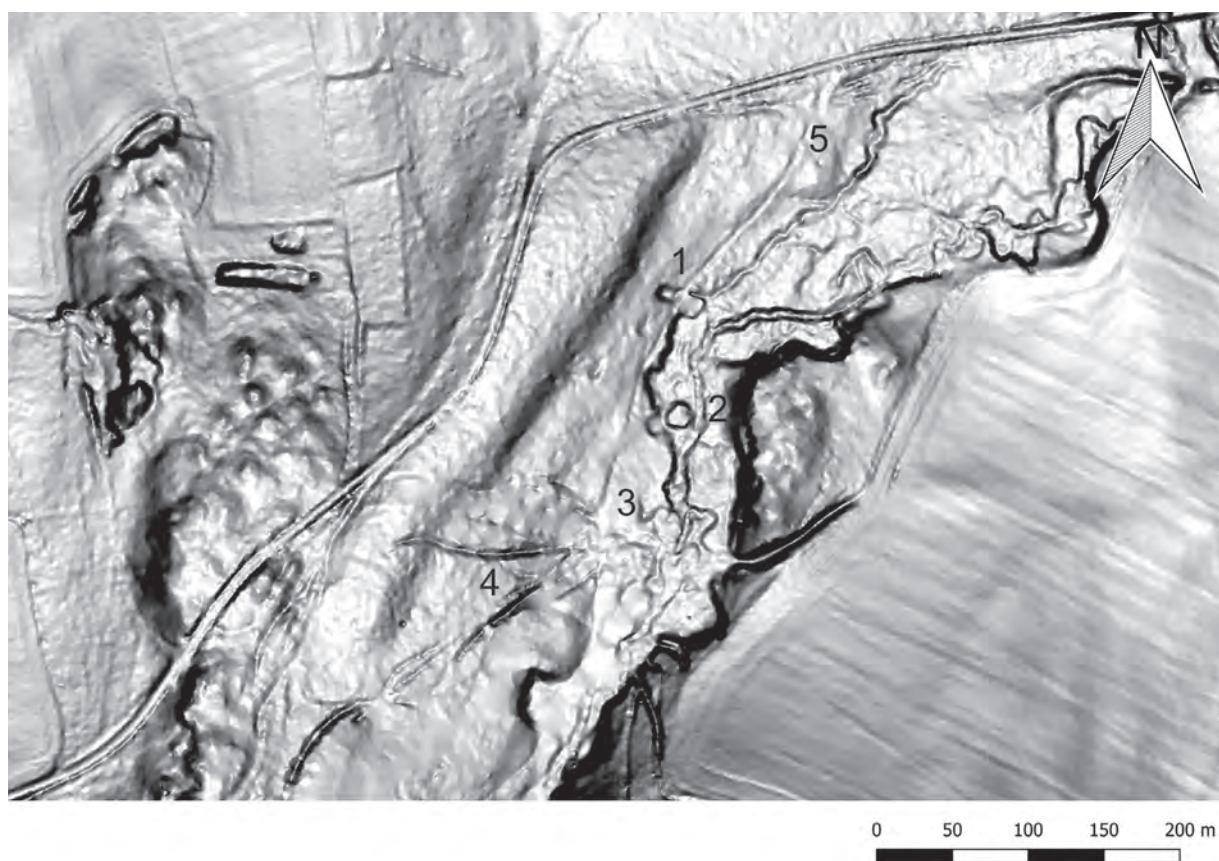


Fig. 11 Rabštejnská Lhota (Chrudim District), Austro-Hungarian military shooting range. 1 – relics of the shooting range building; 2 – first backstop berm; 3 – second backstop berm; 4 – bundle of defunct hollow ways; 5 – original access to the shooting range. Based on DMR5G (source: Czech Office for Surveying, Mapping and Cadastre), visualised by the method of slope gradient analysis. Created with the RVT software.

USA since the 1990s (e.g. Alexander – Blatchford 2013; Alexander 2014; Baker – Hoverd 2015; English 2004; Hanson 2005; McOmish – Field – Brown 2002, 142–144). As regards our country, this category of archaeological features just recently began to be studied by experts (cf. Rak 2013, 120). The only exception is an extraordinarily well preserved SS shooting range in the military training area at Benešov (Kos 2011).

The category of military facilities is in our case represented by relics of an Austro-Hungarian military shooting range in the cadastral district of Rabštejnská Lhota village (Fig. 1: 5). Relics of a shooting range are situated 0.7 kilometres southeast of the edge of the inner built-up area of the village, in the valley of the Markovický Brook (Fig. 11).

The preserved equipment of the shooting range is represented by very poorly visible substruction remnants of a building (Fig. 11: 1 and Fig. 13) on the northern side of the area and by two backstop berms (Fig. 11: 2–3 and Fig. 14). The building was partly recessed into the western slope. The berms are situated 50 and 100 metres away from the southern edge of the building. The southern berm is fronted by a ditch. The meandering brook has strongly levelled and partly damaged the original relief between individual berms. The metal detector survey in this area detected 14 mm Wänzel projectiles for the 1867 rifle. The shooting range, which was used by the garrison from Chrudim, is depicted for the first time on maps of the Third Military Survey from 1877–1889 (Fig. 12). The depiction shows a building (Fig. 12: 1) and only one of the backstop berms (Fig. 12: 2).

Civil shooting ranges, which were used by shooting associations (e.g. Kostelec nad Orlicí – Musil 1999a; 1999b) or private persons, are very rarely preserved in terrain. The last mentioned category of



Fig. 12 – Rabštejnská Lhota (Chrudim District), Austro-Hungarian military shooting range. 1 – shooting range building; 2 – backstop berm. Cutout of map sheet No. 4055/2 at 1:25000 map scale of the Third Military Survey from 1877–1880 (Source: http://oldmaps.geolab.cz/map_viewer.pl?lang=cs&map_root=3vm&map_region=25&map_list=4055_2).



Fig. 13 Rabštejnská Lhota (Chrudim District), Austro-Hungarian military shooting range. A furrow in the slope for the shooting range building. View from the southeast. Situation as in 2007. Photo J. Musil.

facilities is represented by an Auersperg shooting range in the Strádov hunting preserve (Fig. 1: 3). The shooting range was built on the right bank of the river Chrudimka before 1880 (Fig. 15; cf. Stehlíková – Štěpán 2014, 48). Its western side was delimited by the riverbed and by a still visible stone riverbank wall (Figs. 17–18), and a floodway on the southern side turns the whole area into an artificial island. The shooting range itself reached a length of about 100 metres. The shooters fired against a backstop berm with targets placed at its foot (Fig. 16: 2). The area of the shooting range was bordered by a maple alley and a well maintained threshing road (Fig. 15). A circular gazebo was situated at the southern end of the shooting range (Fig. 15). The preserved stone substruction of this gazebo adjoined the riverbank wall (Fig. 16: 1 and Figs. 17–18).



Fig. 14 Rabštejnská Lhota (Chrudim District), Austro-Hungarian military shooting range. A view from the north on two backstop berms. Situation as in 2007. Photo J. Musil.



Fig. 15 Auersperg princely shooting range in the Strádov hunting preserve (cad. dist. Ochoz u Nasavrk, Chrudim District). The photo shows the shooting range gazebo on a stone substruction. Postcard from around 1905 (after Stehlíková – Štěpán 2014).

Contexts related to the period of World War II

The tragic fate of inhabitants from Ležáky village in the Chrudim region, which ended with total destruction of this settlement site, counts among troubled events of the World War II. A commemoration site was already established at the place of the burnt-down village in 1945. The current design does neither conserve nor present any part of the original buildings. A small-scale archaeological rescue excavation was conducted in the area of the destroyed village in 2015. It has yielded an important evidence for not only its tragic end but also its origins (cf. Frolík – Musil 2016). The events of World War II also left

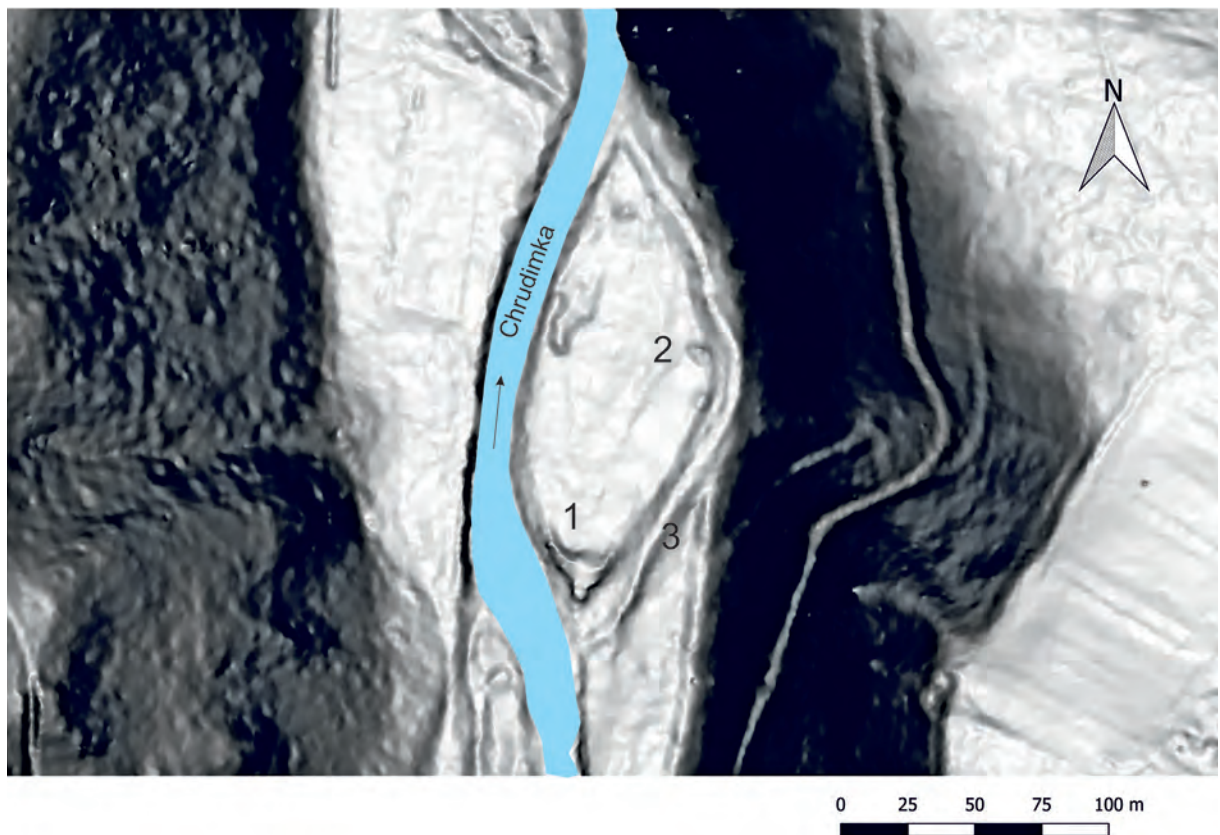


Fig. 16 Plan of the Auersperg princely shooting range in the Strádov hunting preserve (cad. dist. Ochoz u Nasavrku, Chrudim District). 1 – raised area with a gazebo; 2 – backstop berm; 3 – access road. Based on DMR5G (source: Czech Office for Surveying, Mapping and Cadastre), visualised by the method of slope gradient analysis. Created with the RVT software.



Fig. 17 – Auersperg princely shooting range in the Strádov hunting preserve (cad. dist. Ochoz u Nasavrku, Chrudim District). A view from the southeast on the gazebo substructure. Situation as in 2008. Photo J. Musil.



Fig. 18 Auersperg princely shooting range in the Strádov hunting preserve (cad. dist. Ochoz u Nasavrk, Chrudim District). A view from the northwest on the area of the defunct gazebo. Situation as in 2008. Photo J. Musil.

numerous traces in forests of the Iron Mountains. We find here features which are associated with activity of partisan brigades. The probably most important documented relic of this type is the headquarters of the partisan brigade Mistr Jan Hus, which is situated in the area between Licoměřice and Zbyslavce (Fig. 1: 6 and Fig. 19; Musil – Netolický – Vařeka 2016). It was the first non-destructive survey focused on relics of partisan activity in the Czech lands. The paratroop unit Mistr Jan Hus was established in Kiev on 22 September 1944. The troop had twelve members and was led by captain, later major, Alexander Vasilyevich Fomin. The airdrop took place at night on 26 October 1944, after two postponements. A navigation error caused that the unit was airdropped into the piedmont of the Iron Mountains. The headquarters was built in the forest near Zbyslavce, where a group of four men led by N. Kolesnik was left to organise the activity. The remaining troop members moved over to Polom, Trhová Kamenice and farther to Ždírec nad Doubravou, i.e. into the originally planned operation zone. The headquarters near Zbyslavce was abandoned in early December 1944 after being disclosed (Jelínek 1994, 12–65). On 19–20 December 1944, German soldiers encircled the villages Lipovec and Licoměřice and then launched a massive arresting and ransacking of the forest. The rugged terrain and early warning enabled Kolesnik's group to escape from the tightening grip. Their headquarters in the form of a dugout (Fig. 20; Chmela 1989, 23; Jelínek 1994, 124) was destroyed on the next day (i.e. on 21 December 1944).

The site is located on the forest plot Na Kozině three kilometres north of Zbyslavce and one kilometre southeast of Licoměřice, in the upper part of the valley of Starkočský Brook, about 300 metres below its spring area in what was once a medieval gold placer (cf. Musil – Netolický – Preusz 2020).

Feature 1, which is remnant of a partisan shelter (Figs. 19 and 20), corresponds to the description and photographs in a gendarme's report from 31 December 1944 (Musil – Netolický – Vařeka 2016, notes 18 and 19). Larger dimensions of the sunken feature (5.4 x 5.6 metres instead of the reported 4 x 4 metres) are caused by the destruction of walls, whose erosion still continues. The current depth (1.5 metres), compared to the reported two metres, indicates that the pit was filled with the destruction material from the dugout and the earth from its collapsed walls. The low convex structures at two sides of the feature probably represent soil that was acquired by digging and was thrown out of the pit. One part of this soil



Fig. 19 – Zbyslavce, Na Kozině (Chrudim District). Dugout for the staff of the partisan brigade Mistr Jan Hus. Situation as in 2016. Photo J. Musil.



Fig. 20 Zbyslavce, Na Kozině (Chrudim District). Dugout after being demolished by the Waffen-SS troops in December 1944 (after Chmela 1989).

was used to cover the round roof logs and served thereby as insulation and camouflage. The dugout fully corresponds to partisan bunkers uncovered in Lithuania (Petrauskas 2011; Petrauskienė – Petrauskas 2014, 231–234) or to somewhat smaller features of this kind in Vietnam (Rottman 2006, 24–30).

Field fortifications from the time of invasion of armies of the Warsaw Pact in August 1968

In 2016, we detected for the first time a camp that was built after the 1968 invasion of occupation forces from countries of the Warsaw Pact (cf. Musil – Netolický 2017). As followed from the analysis of written sources, from testimonies of local contemporary witnesses and from the conducted non-destructive archaeological survey, we currently register a total of 14 military camps in the territory of

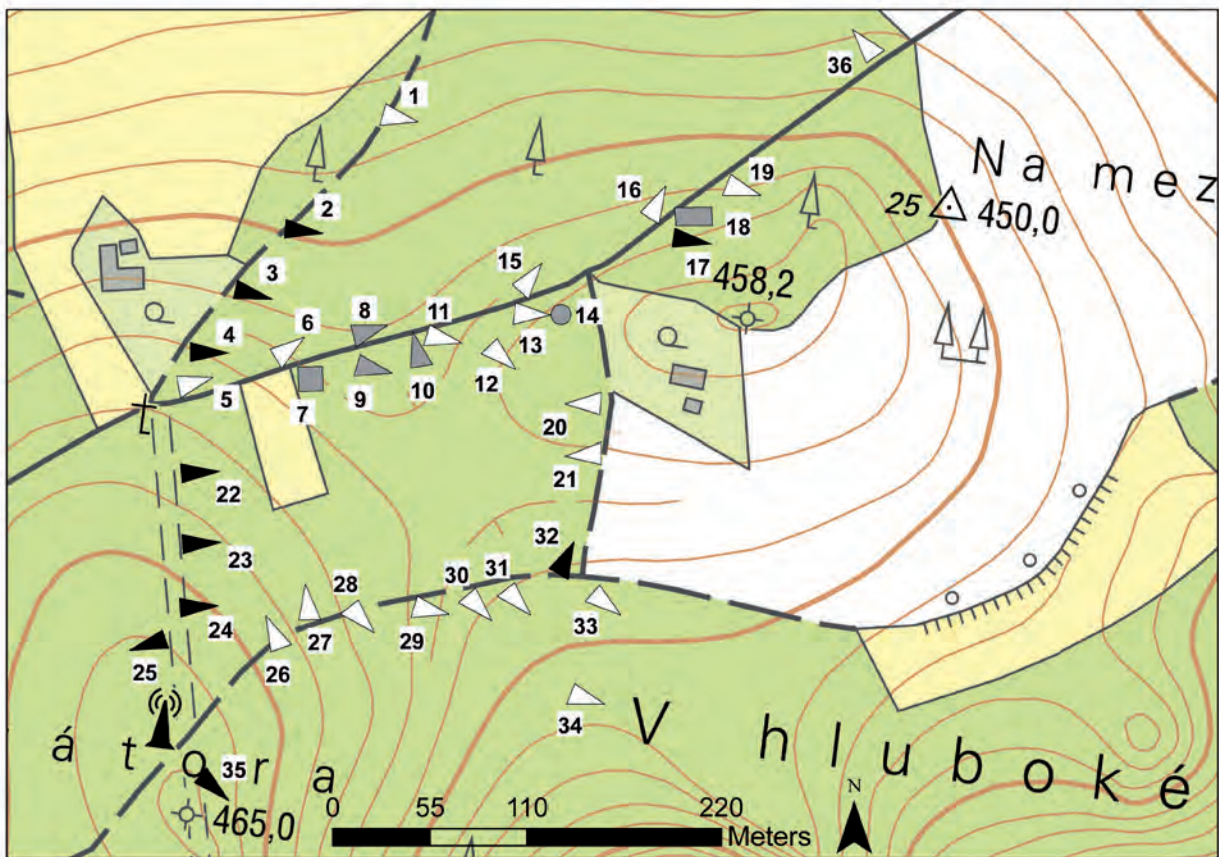


Fig. 21 Majlant (cad. dist. Dachovské Paseky, Chrudim District) – a military field camp from 1968. Ground plan. Black triangle – emplacement for tank T-54/55; white triangle – emplacement for an unspecified armoured personnel carrier; grey triangle – machine gun position (the tip points to the frontal direction); square – emplacement for a bazooka/RPG; rectangle – skirmish's trench; circle – unspecifiable features. Based on the Base map of the Czech Republic 1:10 000 (source: Czech Office for Surveying, Mapping and Cadastre). Created with the QGIS software.

Chrudim District (Musil 2019a, Fig. 1). The invasion started with the code signal VLTAVA – 666 on 20 August 1968 at 22:15 CET. Invasion troops entered the territory of Czechoslovakia upon previously arranged support (Povolný 2008, 97–104). East Bohemia was meant to be seized by the 10th and 11th Tank Divisions of the 2nd Army (Pajórek 1998, 134; Povolný 2008, 119). When we specify our information on the testimonies of contemporary eyewitnesses and communal chronicles, we can delimit the operation interval of military camps of the Polish Army in 1968 by the dates 22 August 1968 or 27 August 1968 respectively, and 23 October or 26 October 1968, when the Polish contingents withdrew from our territory (Musil 2019a).

We were able to explore in detail two camps with different characteristics. The first one extends in a forest complex nearby the village Majlant (cad. dist. Dachovské Paseky – Fig. 1: 7). A total of 36 anthropogenic relief relics were detected and geodetically surveyed. They can be with certainty identified with remnants of field fortification features. The rectangular core of the enclosed military camp has the dimensions of about 150 x 250 metres. Other strongpoints of the military contingent were distributed along the forest roads inside the rectangle. The military facilities were thus spread over an area of approximately 1.2 hectares. All military features are easily accessible from forest roads. In particular, there is a small encampment of members of the Polish 10th Tank Division of the 2nd Army, consisting of eight emplacements for tanks T-54/55 (Figs. 22 and 23), 20 emplacements for armoured personnel carriers and five defensive fighting positions for infantry (Musil – Netolický 2017).



Fig. 22 – Majlant (cad. dist. Dachovské Paseky, Chrudim District) – a military field camp from 1968. Emplacement for a tank T-54/55 in the hull-down position. On the right is a niche after a collapsed emergency shelter. View from the east. Photo J. Musil.

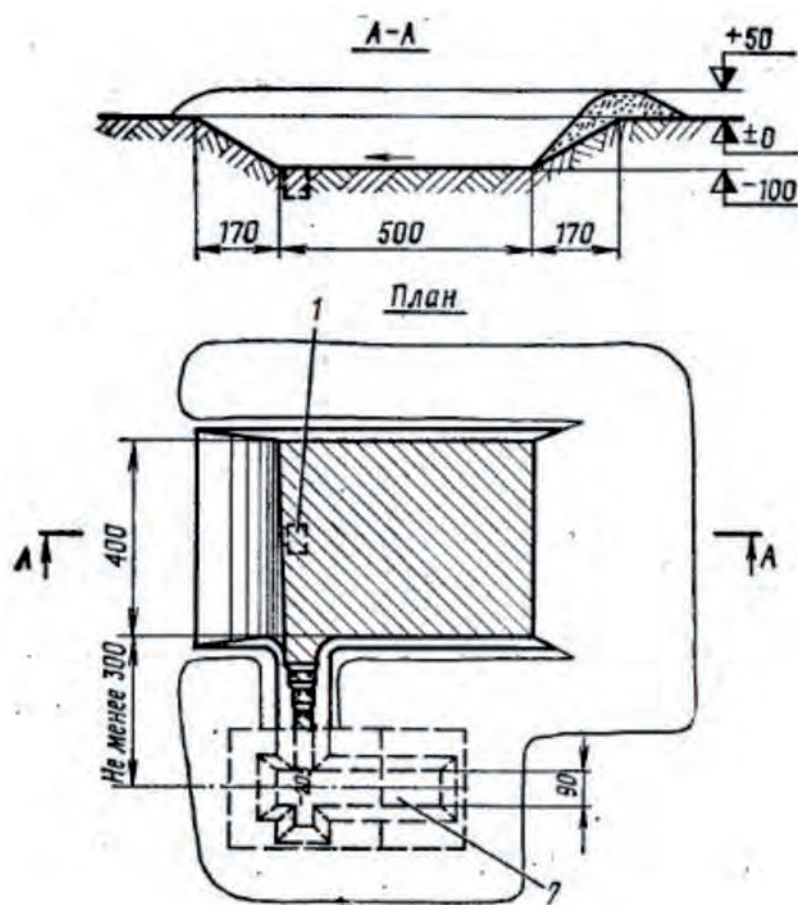


Fig. 23 – Emplacement for a tank T-54/55 in the hull-down position in a contemporary Soviet military manual (after Ермолаев – Сафошкина 1984).

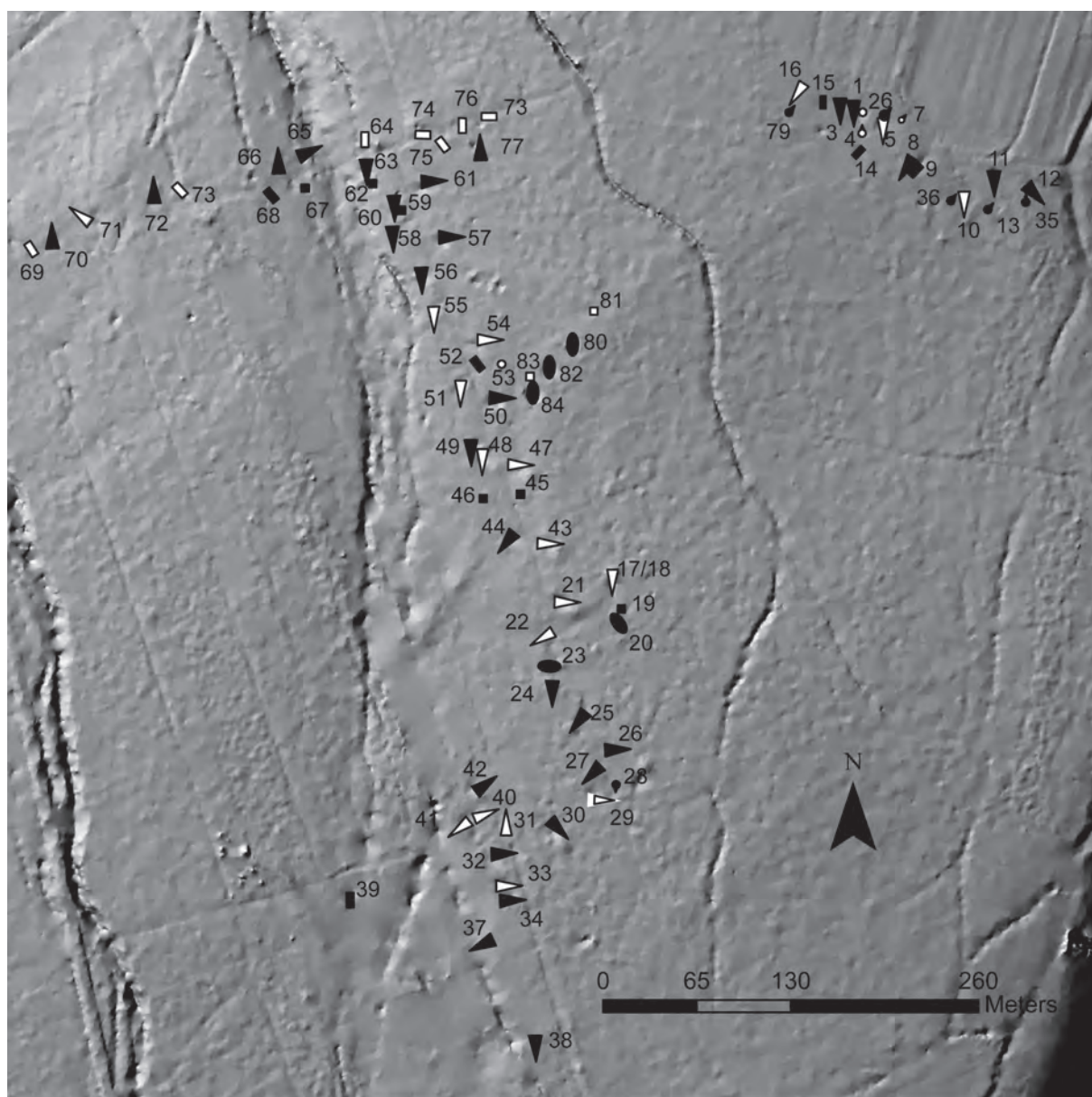


Fig. 24 Hroubovice – Nová Ves (Chrudim District). Plan of a field camp of the Polish Army Staff from 1968. Black triangle – emplacement for tank T-54/55; white triangle – emplacement for armoured personnel carriers BRMD-1, BRMD-2 and BTR-50 (the tips point to the frontal direction); ellipse – dugout; black rectangle – emplacement for trucks Ural 375C, GAZ 69 and GAZ 66; white triangle – emplacement for UAZ452 and for machinery; black circle – machine gun position; white circle – one-man foxhole and skirmisher's trench; black square – covered shelter, uncovered shelter and two-man shelter; white square – military feature. Hillshade model based on DMR5G (source: Czech Office for Surveying, Mapping and Cadastre). Created with the RVT software.

Important knowledge resulted from the analysis of a field camp between the villages Hroubovice and Nová Ves (Fig. 1: 8). A total of 84 anthropogenic relief relics were detected and geodetically surveyed. They can be reliably identified with remnants of field fortification features. Artefacts that provide evidence for the presence of a foreign military contingent are still found on the ground surface to this day (Fig. 26). The features are forming two distinct concentrations (Fig. 24). The first one extends along the forest edge on the plot U Hřiště about 0.3 kilometres south of the edge of the inner built-up area of Hroubovice village. The features are bordering a field road, which runs along the forest edge.



Fig. 25 Hroubovice – Nová Ves (Chrudim District). Staff facility from 1968. Situation as in 2018. Photo J. Musil.

The features protected the northern and north-eastern sides of the encampment. The rectangular core of the enclosed military camp forms the second distinct accumulation of features. It is situated in the cadastral district of Nová Ves village, about 0.2 kilometres southwest of Hroubovice. Similarly as in the first case, the features are distributed along forest roads – the northern and southern borders are formed by parallel forest roads turning from the main road towards Skuteč, the western border is represented by a forest road that interconnects the previous two ones. This military base extends over an area of 28 hectares. The good state of preservation enabled to identify 29 emplacements for tanks T-54/55, 12 emplacements for armoured personnel carriers BRMD-1, four emplacements for armoured personnel carriers BRMD-2, two emplacements for armoured personnel carriers BRT-50, 13 emplacements for military trucks (Ural-375, ZIL-157, UAZ-452 and GAZ-69), shelters for storage of equipment and supplies and long-term dwelling facilities. The first group of shelters comprises three L-shaped features (cf. Ермолаев – Сафошкина 1984, ris. 114 and 175). The longer sunken arm represented a storeroom, which was accessed through stairs in the shorter arm. Five other features might be interpreted as relics of dugouts (cf. Ермолаев – Сафошкина 1984, ris. 118). Special attention deserve three very spacious features, which are situated on the same axis in the central part of the documented encampment (Fig. 25). They can be most probably identified with military headquarters. This group also comprises two semi-sunken features, which cannot be clearly interpreted due to their poor state of preservation. The last group of features is represented by fox-holes and skirmisher's trenches.

From the structure and amount of documented features we can infer that it is local headquarters of a military unit equal to a battalion. The staff itself used three very spacious features, which were situated on the same axis in the central part of the documented encampment. This core was surrounded by a total of 29 emplacements for medium tanks, 18 emplacements for three different types of armoured



Fig. 26 Hroubovice – Nová Ves (Chrudim District). Detail of a gas mask filter SchM-M41 in situ. Photo J. Musil.

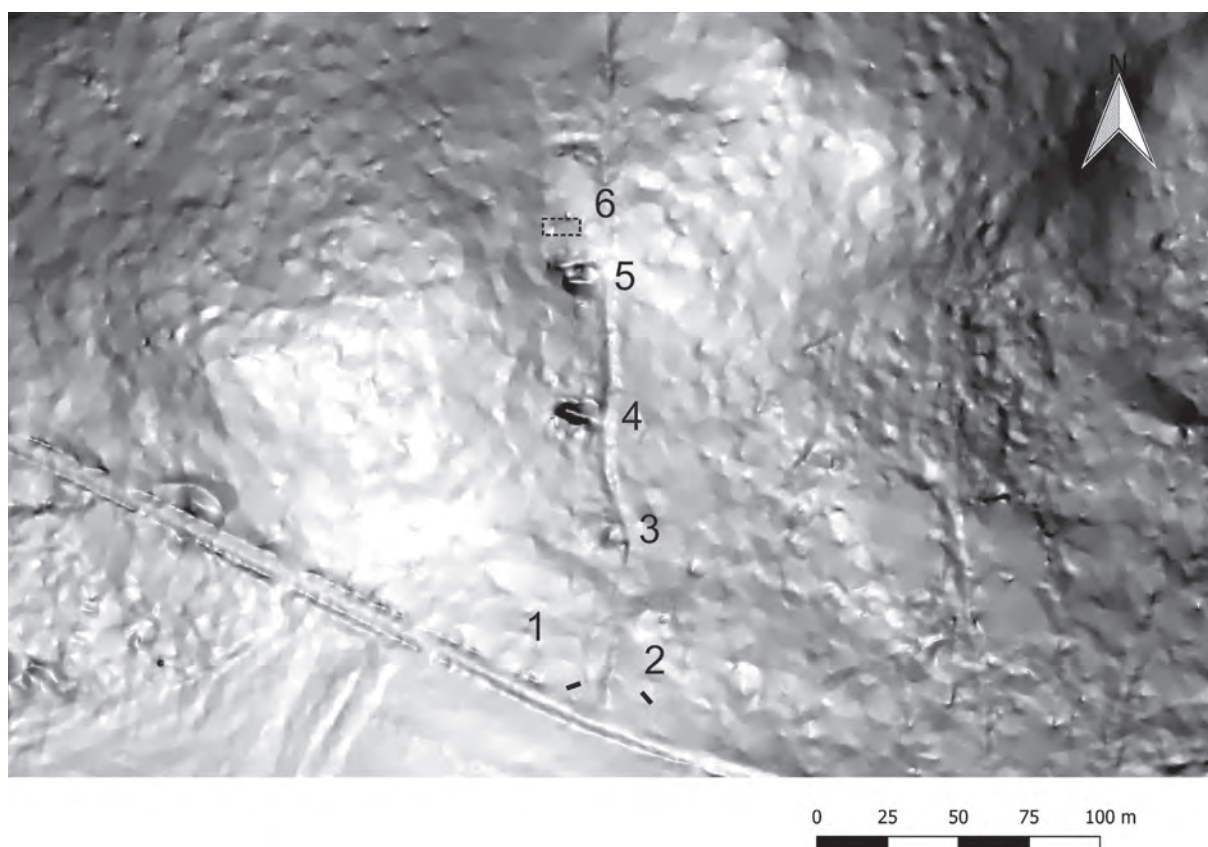


Fig. 27 – Hluboká u Trhové Kamenice (Chrudim District), emplacement for a battery of mobile rocket forces with shelter, 1970s–1980s. 1–2 – skirmish's trenches; 3–5 – emplacements for a missile launcher, a transporter and a maintenance and repair centre; 6 – shelter. Based on DMR5G (source: Czech Office for Surveying, Mapping and Cadastre), visualised by the method of slope gradient analysis. Created with the RVT software.

personnel carriers, 13 emplacements for trucks and other machinery. This layout corresponds to a military force including at least two tank companies, one company of motorized infantry and independent reconnaissance and anti-chemical troops. Other necessary staff personnel is not added (cf. Kajetanowicz 2005, 428). As follows from rough calculations of interpreted features and crews of individual types of vehicles, the 1968 encampment in the forest complex between Hroubovice and Nová Ves may have accommodated a military contingent of at least 288 men (Musil 2019a).

Features from the Cold War period

The last group of terrain relics associated with the problems of conflict archaeology falls within the period of the so-called Cold War (cf. Rak – Starková – Funk 2014). At the turn of the 1950s and 1960s, a new Soviet doctrine was announced, according to which the armies of the Warsaw Pact were allowed to use weapons of mass destruction. This led, among other things, to the establishment of Rocket Forces within the Czechoslovak Army. On the basis of collusive agreements, the Soviet Union provided Czechoslovakia with necessary missile complexes in 1961 and 1963 and the nuclear warheads should have been provided in the case of an armed conflict. The newly founded Rocket Forces were originally meant to have four brigades, but in reality only three were established (Čížek 2014, 31–33).

Since the beginning of the 1960s, Czechoslovak Army had both tactical and tactical-operational ballistic missiles at its disposal. Tactical ballistic missiles are able to carry conventional or nuclear warheads within a range of 30 to 100 kilometres, while the range of operational tactical missiles is 100 to 1,000 kilometres. The first rocket units were established in Hranice na Moravě in 1961 (311th and 321st Technical Brigades), the first mobile missile launchers were received in the summer of 1962 and the first live rocket launches took place at the missile test range Kapustin Yar in the Soviet Union. Another rocket unit – the 331st Technical Brigade – was established in Hranice na Moravě in 1963. The missile complexes R11M and Luna were presented to the general public for the first time during a military parade in Prague on 9 May 1965. Still in 1962–1963, mobile rocket technical bases were established in Hranice, Žamberk and Kostelec nad Orlicí. Luna rockets belonged to the armament of not only heavy artillery brigades, but also independent artillery troops in Terezín, Mladá-Milovice, Jistebnice, Jemčina, Stružná, Vysočany, Holýšov, Vimperk and Práslavice (Čížek 2014, 32–33; Tomek 2012, 73).

Brigades were divided into two to three units, each of them consisting of two to three batteries. A battery initially comprised one rocket launcher OTRS R-170 with an R-11M rocket. The remilitarisation in 1972 replaced this older device by the mobile rocket launcher 9K72 Elbrus, which was used as the R-17M rocket carrier (SS-1c Scud C in the NATO code). Between 1982 and 1985, the second-generation mobile rocket launcher 9K71E4 Oka was implemented (SS-23 SPIDER in the NATO code). These devices were then decommissioned after ratification of the Intermediate-Range Nuclear Forces Treaty between the USA and the Soviet Union in 1987 (Tomek 2012; 2016; 2017). After the Velvet Revolution in November 1989 and restoration of democracy in our country, the Rocket Forces were reorganised on a large-scale. The last rocket unit in the Army of the Czech Republic was the 6th Mixed Rocket-Launcher Regiment, which was dissolved in 2000.

The Czechoslovak People's Army was equipped with Soviet operational tactical missiles type R-11M (also referred to as SS-1 Scud-A in the NATO code), which were replaced later by the type R17M (SS-1 Scud-C in the NATO code), tactical missiles Luna (referred to as Frog in the NATO code) and Točka (Scarab in the NATO code). The rocket missiles Točka still belonged to the equipment of the Czech Army in 2000. The Soviet occupation forces in our territory were equipped since 1983 with the mobile missile launcher OTR-22 Temp-S (SS-12 Scaleboard in the NATO code), which was able to launch tactical-operational rocket missiles bearing nuclear warheads with a power of 500 kilotons TNT at a distance of up to 900 kilometres. These weapons were removed from our territory in 1988 already. All rocket weaponry and technology were kept top secret (Čížek 2014, 32–33; Tomek 2012; 2016; 2017).



Fig. 28 – Hluboká u Trhové Kamenice (Chrudim District), emplacement for a battery of mobile rocket forces with shelter, 1970s–1980s. A view into the shelter interior. Situation as in 2014. Photo J. Musil.

A firing post of a mobile rocket battery is situated in the extensive forest complex north of the road between Trhová Kamenice and Hluboká u Trhové Kamenice (Fig. 1: 9), at its crossing with a forest road leading from north to south (Fig. 27). The point of exit to the forest road was guarded on each side by a diagonally situated skirmisher's trench (current dimensions 1.58 x 0.6 metres – Fig. 27: 1–2). Emplacements for heavy machinery (Fig. 27: 3–5) and a ferroconcrete shelter (Fig. 27: 6 and Fig. 28) are situated about 70 metres away from the road. The core of the firing post is represented by three large emplacements (length 13 m, width 4.98 m, depth 1.5 m) located approximately 40 metres from one another: for a missile launcher, a transporter and a maintenance and repair centre. Adjacent is a semi-sunken shelter with a ferroconcrete rib vault and steel-plated gate, which is currently used by the forest administration (Fig. 28). The preserved dimensions indicate that the emplacements served for a mobile rocket battery of the 9K72 Elbrus or the 9K714 Oka system during the 1970s–1980s. The construction of the ferroconcrete shelter excludes that it may have been built during a short-term military exercise (e.g. ŠTÍT 84).

Conclusions

Systematic surface survey of the area of the Iron Mountains has been conducted continuously since 2010. It has largely contributed to the knowledge of settlement dynamics and exploitation of natural resources, and made it possible to identify some previously unknown relics of human activity (cf. Musil – Netolický –

Preusz 2020). Deep forests enabled to preserve many anthropogenic relics dating from prehistoric times until the recent past. A complex non-destructive survey of the given region, including the mapping of individual components, has identified the most suitable method for this territory. The presented spectrum of studied issues has shown which potential the above-mentioned territory has for conflict archaeology. As evident from the current state of research, the most threatened group of relics is represented by features from the recent past (cf. Musil – Netolický – Vařeka 2016; Musil – Netolický 2017; Musil 2019a), which do not enjoy any level of heritage protection like e.g. in the United Kingdom. Regarding the advancing bark beetle calamity in Czech forests, it is evident that it will soon also considerably affect the Iron Mountains. It is probably not necessary to deeply contemplate about the impact of possible intensive large-scale mechanised logging on archaeological heritage in this area. All relief relics without exception will be extremely threatened.

Electronic sources

Third Military Survey - http://oldmaps.geolab.cz/map_viewer.pl?lang=cs&map_root=3vm&map_region=25&map_list=4055_2 (accessed on 2 January 2022).

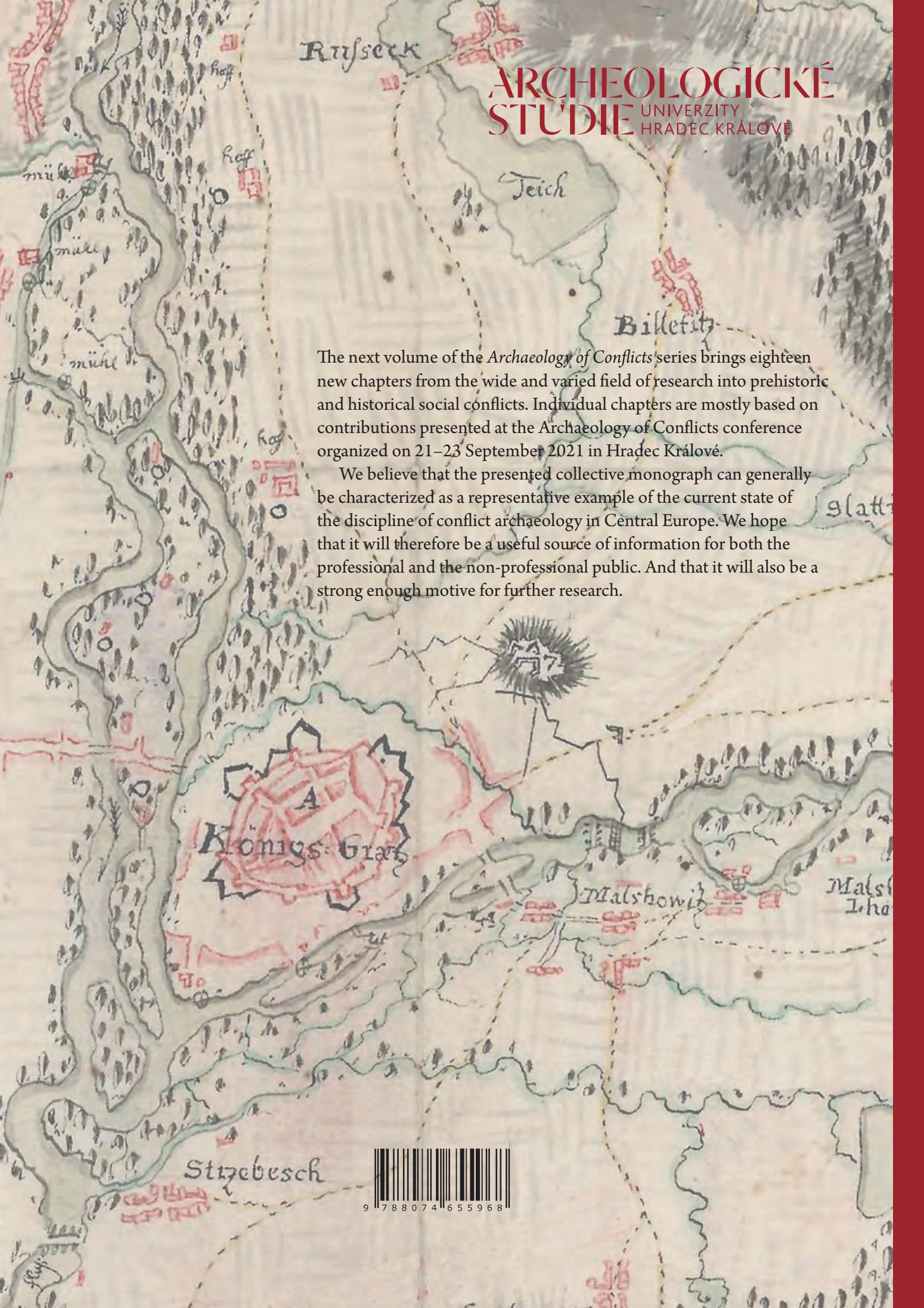
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A historical map of the Hradec Králové region, showing the city of Hradec Králové (Königs-Gratz) in the center, surrounded by a river and various settlements. The map is drawn in a hand-drawn style with red and black ink. The title 'ARCHEOLOGICKÉ STUDIE' is printed in large red letters at the top right, with 'UNIVERSITY HRADEC KRÁLOVÉ' in smaller black letters below it. The text 'The next volume of the Archaeology of Conflicts series brings eighteen new chapters from the wide and varied field of research into prehistoric and historical social conflicts. Individual chapters are mostly based on contributions presented at the Archaeology of Conflicts conference organized on 21–23 September 2021 in Hradec Králové.' is printed in black. Below this, a paragraph in black text states: 'We believe that the presented collective monograph can generally be characterized as a representative example of the current state of the discipline of conflict archaeology in Central Europe. We hope that it will therefore be a useful source of information for both the professional and the non-professional public. And that it will also be a strong enough motive for further research.' At the bottom center, there is a barcode with the number 9 788074 655968 below it. The map includes labels for 'Russek', 'Teich', 'Biletitz', 'Königs-Gratz', 'Malshowitz', 'Mals I. h.', 'Stizebesch', 'glatt', 'mühl', 'hoff', 'Roff', 'Kog', 'A', 'A7', 'A8', 'A9', 'A10', 'A11', 'A12', 'A13', 'A14', 'A15', 'A16', 'A17', 'A18', 'A19', 'A20', 'A21', 'A22', 'A23', 'A24', 'A25', 'A26', 'A27', 'A28', 'A29', 'A30', 'A31', 'A32', 'A33', 'A34', 'A35', 'A36', 'A37', 'A38', 'A39', 'A40', 'A41', 'A42', 'A43', 'A44', 'A45', 'A46', 'A47', 'A48', 'A49', 'A50', 'A51', 'A52', 'A53', 'A54', 'A55', 'A56', 'A57', 'A58', 'A59', 'A60', 'A61', 'A62', 'A63', 'A64', 'A65', 'A66', 'A67', 'A68', 'A69', 'A70', 'A71', 'A72', 'A73', 'A74', 'A75', 'A76', 'A77', 'A78', 'A79', 'A80', 'A81', 'A82', 'A83', 'A84', 'A85', 'A86', 'A87', 'A88', 'A89', 'A90', 'A91', 'A92', 'A93', 'A94', 'A95', 'A96', 'A97', 'A98', 'A99', 'A100'.

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