

Archaeology of Conflicts II

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



Archaeology of Conflicts II

edited by
Pavel Drnovský – Petr Hejhal – Ladislav Rytíř

Published by Pavel Mervart Publishing,
P. O. Box 5, 549 41 Červený Kostelec,
2023
Translation Jana Kličová, Urszula Baron and authors
Printed H.R.G., spol. s r. o.
www.pavelmervart.cz

Reviewed:
PhDr. Jan John, Ph.D.
doc. Mgr. Petr Květina, Ph.D.

© Univerzita Hradec Králové, 2023

© Pavel Drnovský, Petr Hejhal, Ladislav Rytíř, 2023

© Jacek Adamiec, Judyta Bąk, Arpád Balogh, Jozef Bátora, Yann Béliez, Radek Bláha, Ondřej Čmelák,
Dominik Drozd, Mirosław Furmanek, Paweł Kalisz, Radim Kapavík, Jaromír Kovárník, Monika Lis,
Radosław Liwoch, Lech Marek, Václav Matoušek, Jana Mazáčková, Weronika Mazur, Jan Musil,
Martin Neumann, Tomáš Pancíř, Jan Petřík, Naďa Profantová, Milan Procházka, Andrej Púčať,
David Rakušan, Peter Tajkov, Jakub Těsnohlídek, Aneta Gołębiowska-Tobiasz, Jasper Willem Daniël Tuinstra,
Daniela Vaněčková, Miloš Vávra, Jan Vladař, Martin Vojtas, Katarzyna Zdeb, Jiří Zubalík, Petr Žaža,
Magdalena Żurek, 2023

© Pavel Mervart, 2023

ISBN 978-80-7465-596-8

Content

Editorial	9
Velim – Skalka and the Middle Bronze Age. Archaeological excavations in 1984–2014	
<i>Miloš Vávra – Yann Béliez – David Rakušan</i>	11
The archaeological evidence of conquest of an Early Medieval fortified site / residence on the example of the Kal stronghold (Pecka), Jičín District	
<i>Nada Profantová</i>	23
Medieval Mace Heads and Flail Striking Heads from the Old Collections of the Archaeological Museum in Cracow	
<i>Radosław Liwoch</i>	41
Downfall of the Rokštejn castle in 1467	
<i>Jana Mazáčková – Petr Žaža – Andrej Púčať – Daniela Vaněčková</i>	55
Locating the battle of Byczyna (1588). First archaeological survey	
<i>Lech Marek – Mirosław Furmanek</i>	75
Enclosed in time and space Excavating an encampment from the Dutch War of Independence (1568–1648) in Spijk, the Netherlands	
<i>Jasper Willem Daniël Tuinstra</i>	87
What the lion is keeping quiet about: The battle of Vel'ké Vozokany (1652) from the perspective of the KOCO analysis	
<i>Dominik Drozd – Martin Neumann – Jozef Bátora</i>	95
Transformation of Modern Period Fortifications into Sanitary Frontier Network	
<i>Milan Procházka</i>	109
Krakow Fortress. Fort 47. Łysa Góra – state of preservation, prospects and threats	
<i>Aneta Gołębiowska-Tobiasz – Paweł Kalisz</i>	121
Archaeological research in the area of former bastion VIII and cavalier XXXIII at Gayer's Barracks in Hradec Králové	
<i>Radek Bláha</i>	141
The Battle of Znojmo/Znaim 1809. A redoubt and two types of mass graves of fallen soldiers	
<i>Jaromír Kovárník</i>	161
Archaeological survey of trenchline from First world war over Sukov (NE Slovakia)	
<i>Radim Kapavík – Martin Vojtas – Jan Petřík – Jakub Těsnohlídek – Jiří Zubalík – Ondřej Čmelák – Peter Tajkov – Arpád Balogh</i>	185
The Napoleonic Battle of Rogoźnica – geophysical and archaeological research	
<i>Katarzyna Zdeb – Jacek Adamiec – Judyta Bąk</i>	195
Geophysical and archaeological research of soldiers' burials from the Second World War	
<i>Katarzyna Zdeb – Jacek Adamiec – Weronika Mazur – Monika Lis</i>	203

Burials from Boreczno – an episode of the January Offensive in the past East Prussia <i>Magdalena Žurek</i>	213
Aviation Archaeology in South Bohemia. Rescue excavation at Airport Planá České Budějovice <i>Tomáš Pancíř</i>	225
Archaeology of the Air War 1939–45. Documentation of Messerschmitt Me 262 crashes in Bohemia <i>Jan Vladař</i>	245
Current state and perspectives of conflict archaeology in the area of the Iron Mountains (Chrudim District, Pardubice Region, Czech Republic) <i>Jan Musil</i>	267

Archaeological survey of trenchline from First world war over Sukov (NE Slovakia)

Radim Kapavík – Martin Vojtas – Jan Petřík – Jakub Těsnohlídek –
Jiří Zubalík – Ondřej Čmelák – Peter Tajkov – Árpád Balogh

Abstract: *At the end of winter 1915, in February and March, the frontline stalled on the hill over village Sukov (dist. Medzilaborce) in the territory of nowadays north-east Slovakia. Part of the Austrian trenches was built in open terrain at mountain meadow. This position was occupied by Landwehr infantry regiments nr. 8 (from Prague) and 9 (from Písek). Presence of trenches on this place led to its quick erosion and disappearance in a short time after the war and today it is impossible to visually locate.*

This article presents experimental use of magnetometric survey for localisation of Austro-Hungarian trenchline from the First World War. It is the first use of geophysical methods for this purpose in this kind of territory.

Keywords: World War One – archaeology – magnetometry – Slovakia

Introduction

During the clash in the Carpathians 1914-1915, the Laborec Valley was one of the most important areas of conflict between the Russian and Austro-Hungarian armies due to its strategic location (the railway line leading through the Lupkow Pass through the Carpathian ridge). The front line settled near the village of Sukov for a month (from February to March), when a surprise attack of Russian troops took place here. Due to this attack, a large part of the Austro-Hungarian 8th Landwehr Infantry regiment, who was defending the positions above the village, was captured.

The current research of trench lines in Carpathians took place mainly in forested areas, where their remnants are clearly visible. Above Sukov, however, the section of trench line passes through an economically used meadow. Remote sensing in the form of aerial photography did not reveal any crop marks and soil marks, indicating the presence of below-ground remains. Even a surface survey to the site did not reveal the remains of the trenches. Therefore, it was necessary to use modern geophysical survey methods, which allows us to look under the earth's surface without disturbing it.

The purpose of geophysical measurements is to detect objects below the surface that differ from the surrounding environment, without physical intervention in the terrain. It is therefore a non-destructive archaeological survey using the laws of physics. In this case, the method of magnetometry was used, which deals with the monitoring of the Earth's magnetic field and regional and local disturbances in the geomagnetic field. In archeology, magnetometric methods are among the techniques that can be widely used to search for below-ground remains such as pits, ditches, palisades, and graves. Also, they are suitable for searching for burnt objects, such as furnaces, fireplaces or structures destroyed by fire (Kuna et al. 2004, 122). Theoretically, they can be an ideal for searching trench systems.

The main purpose of the survey is to find the trench line and thus to confirm or refute its presence in this tactically unfavorable position. Another issue was also the documentation of combat operations

in the area. This type of geophysical survey has not been applied on the battlefields of the Eastern Front yet.

We have also realized a metal detector prospecting at the site as part of research. Its aim was to determine the density and spectrum of signals (thus identifying the scale of combat operations), prediction of areas with the highest concentration of metal artefacts, assessment of the degree of contamination of the site with metal waste and the impact of illegal looting of artifacts (Křivánek 2006, 319; Kuna 2006, 327; Zubalík et al. 2017, 556).

Site description

The surveyed site is located on the hill Cingov, which lies about 1 km northwest of the center of the village Sukov (district Medzilaborce). It is an unforested hill with an altitude of 411 m above sea level, where positions of II. battalion LIR 8 was built. The terrain was probably used for agriculture in the past, therefore it is not possible to identify remains of trenches nowadays. Already during the time of 2nd Military Mapping Survey of Austrian Empire (1819-69), the borderline between forest and meadow was at the same place as nowadays.

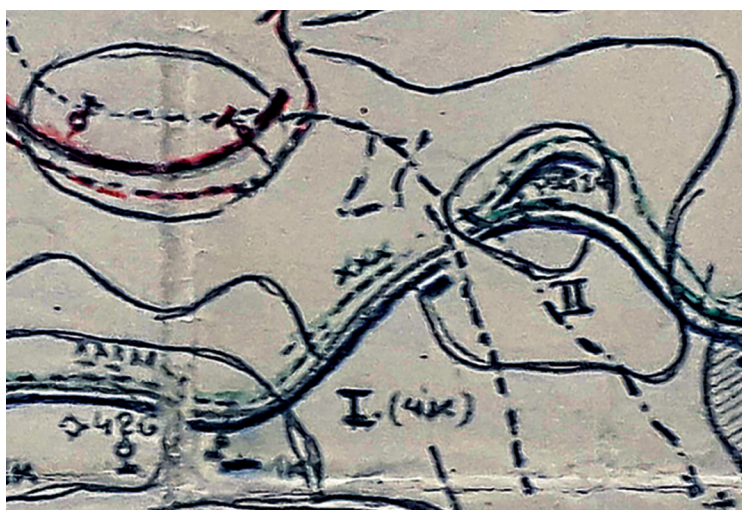
The position of the trench line can be estimated from a detailed sketch, which has been preserved to this day. According to this sketch, there was an advanced or double defensive line (see map2; OeStA – 21. Sch. Div III).

Soil conditions indicate that the meadow on Cingov hill provided relatively good conditions for LIR 8 members to dig trenches. In the overburden of the Eocene sandstones (<https://apl.geology.sk/gm50js/>), saturated (pseudogley) cambisols (<http://www.podnemapysk/poda400/>) have been



Fig. 1 Photographs of the current state of the Russian trench at elevation 500. The dashed line marks the bottom of the trench (by J. Zubalík).

Fig. 2 Detail from the sketch of the section LIR 8 and LIR 7 under the Russian fulcrum with a clearly visible doubling of the defensive line at the top of elevation 242 (OeStA – 21. Sch. Div III).



developed, which have more soil horizons and were agriculturally cultivated and consequently suitable for excavation of trenches.

It can be assumed that the morphologically insignificant position in the open space required deeper trenches, which stands out when compared to the Russian lines in the forest.

Contrary to the Austrian positions are the positions of the Russian army, which were located west of Cingov on relatively steep slopes of an unnamed hill at a height of about 500 m above sea level. It was one simple trench line running approximately along the contour. There were no traverses in the trench or expanding positions connected to the line were recognized here. Due to an erosive activity, the current depth of the trenches does not exceed several dozens of centimeters. The distance between the Russian and Austrian positions is approximately 500 meters, they are separated by a shallow pass.

While the Russian positions on the constantly forested hill are still clearly visible in the terrain, positions of II. battalion of LIR 8 on the slope of Cingov cannot be identified today. The appropriate spot for survey can be estimated with the help of a plan, which shows the course of the defensive line.

Combat operations on site

After the New Year of 1915, when the Eastern Front moved between Lviv and Krakow, the Carpathians became the main focus of the Austro-Hungarian and Russian armies. After less than a month of rest, which both exhausted troops desperately needed, fierce fighting broke out again along the front between Gorlice (now Poland) in the west and Volovecky Pass (now Ukraine) in the east, which was supposed to last several months in extremely demanding natural and climatic conditions. The initial offensive of the right wing of the Austro-Hungarian 3rd Army with a center along the San River (in Bieszczady) began on January 23, 1915, but only a few days later the Russian 8th Army launched its own offensive against the left wing of the same army (center at Dukelsky Pass). While the Austrian offensive was stuck in place after several days of fighting, the Russian one was developing successfully, and in early February the fighting approached the Laborec Valley. (OULK1, OULK 2)

On the night of February 5, 1915, the attacking forces of the Russian 19th Infantry Division conquered Medzilaborce and completely broke the Austro-Hungarian 2nd Infantry Division, the remnants of which retreated through the Laborec Valley to Čabiny, where they restored – rather symbolically – the defensive line. On the same day, Sukov fell into Russian possession without fighting, and Russian troops, which did not continue to put pressure further south through the Laborec Valley, took up positions on the heights around it and began to fortify.

The 21st Landwehr Infantry Division (GM Podhajský) of Prague, which was on its way from the Balkan battlefield, was hastily conducted by the Austrian command to defend the Laborce Valley. Its first unit (Cheb's LIR 6 with three battalions) arrived on February 9, 1915, and immediately reinforced the fragile defensive line at Čabiny. The second regiment (Písek LIR 28) was sent to defend the Olšava valley (east of the Laborec valley). It was subordinated to the neighboring 24th Infantry Division and did not intervene in subsequent events around Sukov. A counterattack through the Laborec Valley could only be launched as soon as the second half of the division (Pilsen LIR 7 and Prague LIR 8, but each with only two battalions) arrived and the division's artillery was deployed (February 12, 1915).

The goal was to advance back to Krásný Brod, to close the threatening gap in the Austro-Hungarian front, which had been here for several days, and at the same time to shorten the defensive line. However, this proceeded very slowly. In the early days of counterattack, the Austrian artillery shelled the area north of Čabiny and the infantry slowly occupied it, however, Russian troops had only their advanced positions there. It took place on 16 February 1915 and Pilsen LIR 7 managed to occupy the heights west of the of Sukov; but the neighboring Prague LIR 8 failed to advance to the same level on the east of the valley. Therefore Sukov remained in Russian hands. Another attack executed by both regiments two days later (February 18, 1915) led to its evacuation. LIR 7 and LIR 8 occupied the heights on both sides of the northern edge of the village and so controlled Sukov itself. But that was the end of the Austrian counteroffensive. Exhausted troops dug themselves in the positions they achieved – and eventually spent the whole month in them. (OeStA – 21. Sch. Div II and III).

As a result of an unsuccessful counterattack, Austro-Hungarian army held a tactically unfavorable line of defense, which descended from the ridge separating the Laborec valley from the Olšava valley

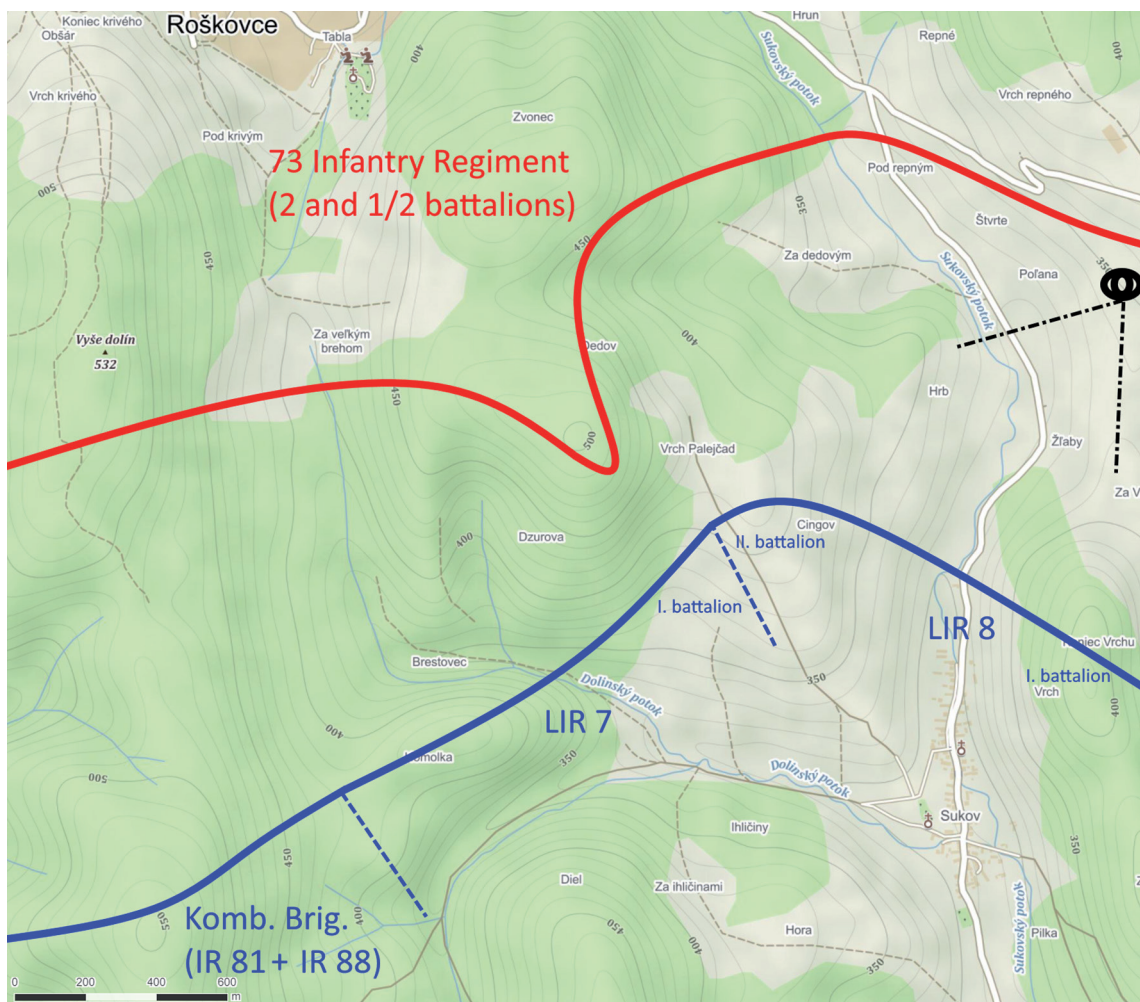


Fig. 3 Position above Sukov after the end of the Austrian counteroffensive – 18.2.-20.3.1915 (by R. Kapavík)

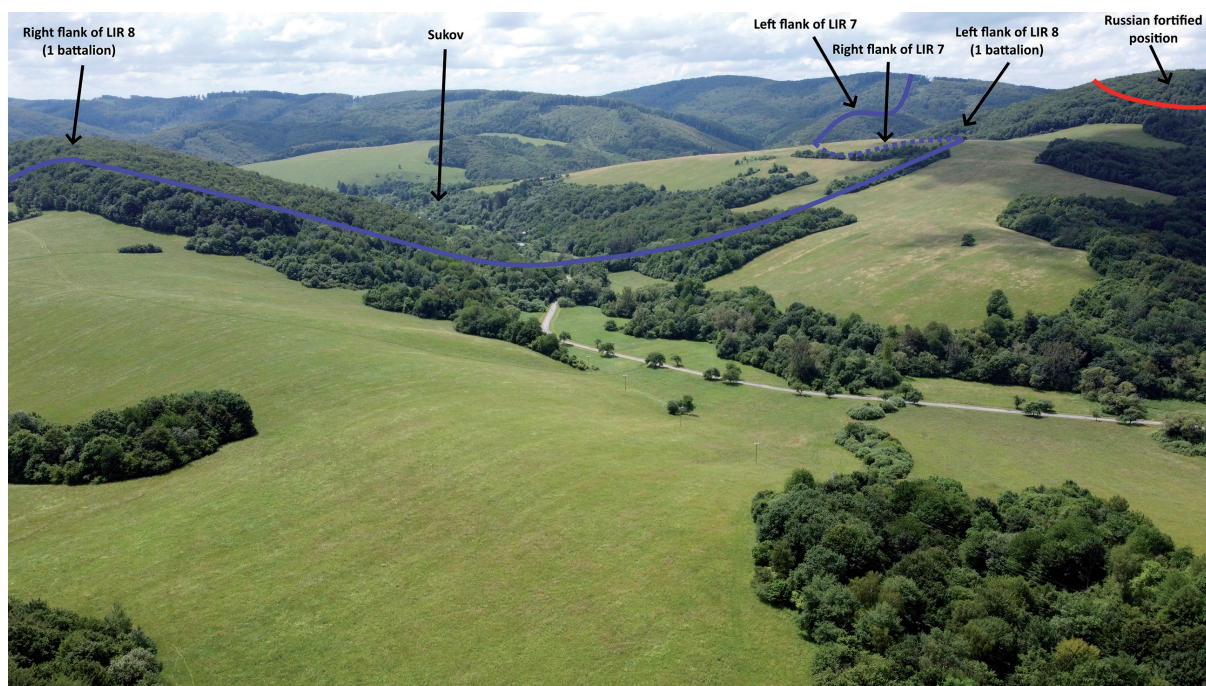


Fig. 4 View of the area from the point and in the direction marked on map No. 1 with a schematically drawn course of the Austro-Hungarian defensive line and the Russian fulcrum above Cingov (by R. Kapavík).

through the Homolka hill (over 420 m above sea level, referred to as Hill 426 on the contemporary maps) to Sukov, then north of Sukov it turned to a height called Cingov (referred to as Hill 424 on contemporary maps), from where it continued further east through the Sukov stream valley around the northern edge of the village to a height called Vrch (over 410 m above sea level) and then further through the Laborec valley. However, the forested hill (over 500 m above sea level; Hill 500) west of Cingov remained in the hands of Russian troops, who built heavily fortified positions there. These positions were situated on a hill, which is almost 100 meters higher than a spot, where were trenches of the Austrian army.

This extremely endangered position was held by one battalion of the Prague LIR 8. Here, it was connected to the right wing of the LIR 7. Its right wing (also one battalion with a machine gun section) was then located on the other side of the valley at the height of Vrch. Contrary to both regiments, which together formed less than 5 battalions (including reserve companies), there stood the Russian 73rd Crimean Infantry Regiment, consisting of 4 battalions. At least two regimental companies with machine gun divisions held the dominant peak (over 500 m above sea level) west of Cingov. (OeStA – 21. Sch. Div III)

Methods

For the geomagnetic survey a Magneto DLM device from Sensys, with 5 gradimetric sensors, has been used. The survey has been conducted by geophysicists from the Herman Ottó Museum in Miskolc, led by Daniel Kiss (Kiss 2018). The device measured to a depth of 0.75 – 1 meter below the surface, where it collected sufficient data to evaluate the area. Thus, an area of 150 × 50 m was measured geophysically in a meadow on Cingov Hill. This area is currently a hunting ground and there is a perch and a feeder on it.

In addition to geophysical survey, the research was supplemented by a random metal detector survey using Golden Mask GM4 Pro metal detector. The area in which the Austro-Hungarian trenches were



Fig 5 Area measured by a magnetometer (by D. Kiss).

located and the area of the saddle descending into the valley between the Russian and Austrian positions were surveyed. The exact position of each discovered artifact was recorded, all artifacts were also photographed. After the work, the terrain and vegetation were restored to their original condition.

Results and interpretations

The measurement did not reveal the presence of the trench itself, as the body of the trench line did not appear in the visualization of the geophysical measurement (Fig. 3). However, the results of the survey are affected by the presence of magnetic and ferromagnetic objects, such as metal artifacts or magnetic substrates. In our case, where we assume a larger amount of metal artifacts on the site, this effect can be used to our advantage. The obtained data were filtered and converted into a visual form. The location is provided by the placement of interfering magnetic signals, which certainly reveal metal objects. In a certain section, they are clearly concentrated in a line passing through the entire measured field from

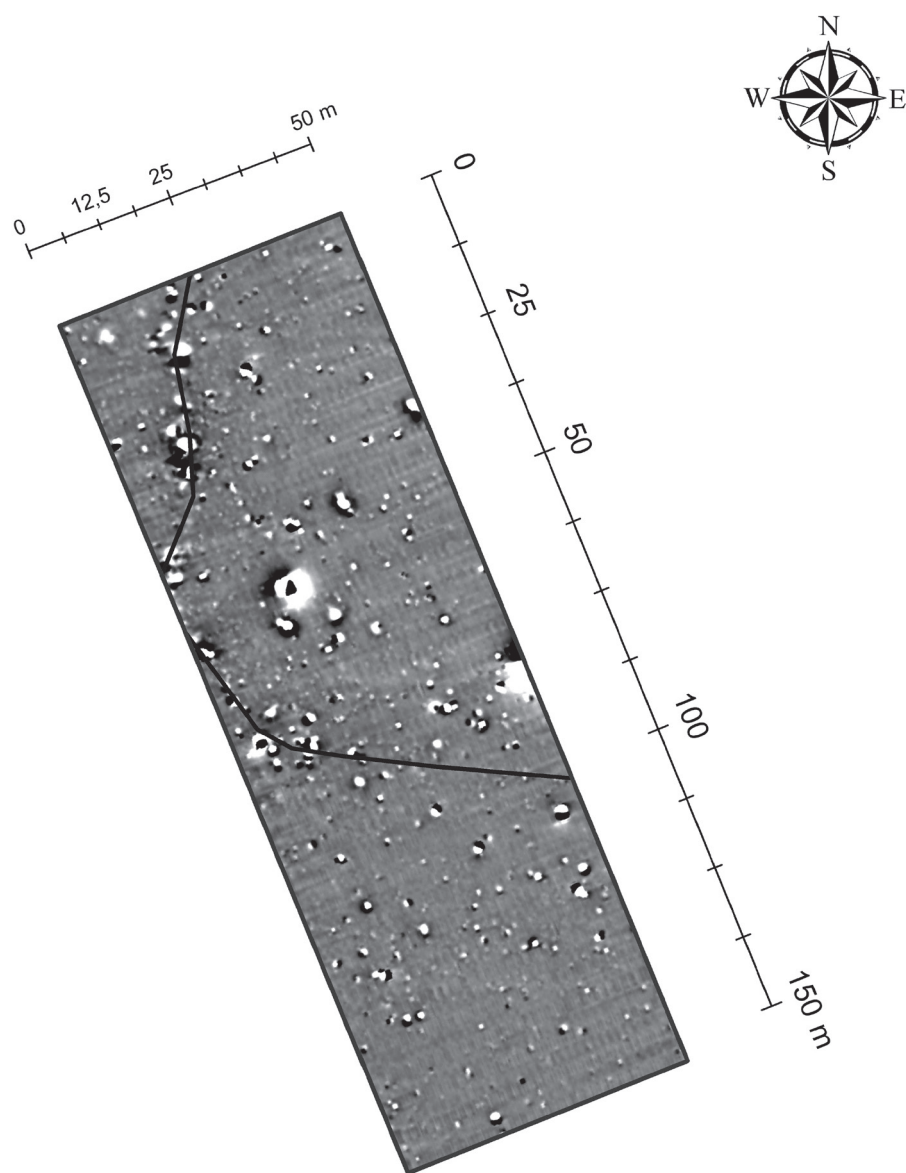


Fig. 06: Visualization of magnetometric measurement results at the site. The line marked the expected course of the trench according to the concentration of magnetic objects in the ground (by D. Kiss).

north to west and from west to east. This indicates the existence of a firing line in these places, respectively, the filling of the trench in which there are metal artifacts, such as cartridges from fired ammunition. In addition, the area contained small burnt surfaces, which, however, did not correspond to any pattern and were distributed randomly. Theoretically it could be the result of an explosion of artillery ammunition.

Three fragments of artillery ammunition were obtained by detector survey in the area between the trenches of both armies. The bottom part of the shrapnel with a brass sealing rim could be a fraction of 7 cm M.99 shrapnel. The flat dispenser with a diameter of 9 cm probably comes from Austro-Hungarian 10 cm shrapnel M.99. The last object is the tip of the projectile, perhaps a 10 cm ecracite grenade M.10/9 (Fig.4; Col. 1913, 49, 53). Recent artifacts (garbage, forestry parts) were also found in the area. The obtained findings were found at depths of up to 30 cm from the surface, most often in a layer of forest substrate, or in brown to light brown sandy soil below it. The finding of artillery fragments confirm shelling of these places by Austro-Hungarians.



Fig. 7 Fragments of Austro-Hungarian artillery ammunition. From left: bottom part of 7cm shrapnel M.99, dispenser of 10cm shrapnel M.99 and the tip of 10cm ecracite grenade M.10/9 (by O. Čmelák and J. Těsnohlídek).

Conclusion

During the archaeological survey of the Cingov hill near the village Sukov (district Medzilaborce, SK), a geophysical survey with a magnetometer was performed in order to locate the Austro-Hungarian trench line from the spring of 1915. This survey was the first application of geophysical methods aimed at battlefield archaeology on the Carpathian front (in 2018). Its results are significant not only because of successful localization of a trench line, but also from a methodological point of view. It turned out that it is not necessary to search directly for the below-ground structure, (the body of the trench), but it is possible to evaluate secondary symptoms of its presence – metal artifacts in the fill of the trench.. The line marked this way traces the trench line. In addition, burnt surface signals can indicate the location of the impact of artillery ammunition and thus can help us to evaluate an extent of combat operations. It should be noted, however, that this may also be the result of local fires from various historical periods unrelated to war operations.

A metal detector survey, performed mainly in the area between the Russian and Austrian positions, has demonstrated that the site is suitable for detector survey and it is not too contaminated with recent artifacts. The high concentration of artillery ammunition fragments is a complication in terms of detecting other types of artifacts (personal items, infantry ammunition, etc.), but it can be used for spatial analysis. Also, it might make it difficult for souvenir hunters to loot the site.

The goals of the research, i.e. the location of the trench line on the Cingov hill by geophysical survey, were achieved with a method slightly different from the original expectations. However, this survey laid the groundwork for further work using modern survey methods to research WWI battlefields on the Carpathian front.

References

- OULK 1: GLAISE VON HORSTENAU, E. (ed.) 1932: Österreich-Ungarns letzter Krieg 1914–1918, Band 1. Wien.
- OULK 2: GLAISE VON HORSTENAU, E. (ed.) 1932: Österreich-Ungarns letzter Krieg 1914–1918, Band 2. Wien.
- OeStA – 21. SCH. DIV II: AT-OeStA/KA, NFA, DK, Kt. 1194 – 21. Schützendivision Februar 1915.
- OeStA – 21. SCH. DIV III: AT-OeStA/KA, NFA, DK, Kt. 1194 – 21. Schützendivision März 1915.
- KISS, D. 2018: Non-Invasive Research into a First World War Battlefield on Kobyla Hill. Unpublished geophysical Survey Report by Herman Ottó Múzeum. Miskolc.
- KUNA, M. et al. 2004: Nedestruktivní archeologie. Praha.
- KŘIVÁNEK, R. 2006: Nelegální využívání detektorů kovů není problém několika jednotlivých lokalit. Archeologické rozhledy LVIII, 313–321.
- VÚA-VHA, Sbíрка vojenských předpisů, Karton 236 – 5. Zusammenstellung der wichtigsten Adjustierungs- und ballistischen Daten der Geschützmunition der k. u. k. Artilleriefolder. Wien 1913. Available at <https://kramerius.army.cz/search/i.jsp?pid=uuid:8f3a6e9c-f39c-4a54-9d61-269a4f32abbb>
- ZUBALÍK, J. – TĚSNOHLÍDEK, J. – PETŘÍK, J. – BÍŠKO, R. – VOJTAS, M. – KAPAVÍK, R. – PETR, L. – TAJKOV, P. – DROBŇÁK, M. 2017: Nedestruktivní průzkum bojiště první světové války na kótě Kobyla (okres Medzilaborce). Archaeologia historica 42/2, 539-559.

Arpád Balogh
Technical University of Kosice
Faculty of Arts
arpad.balogh@tuke.sk

Peter Tajkov,
Technical University of Kosice
Faculty of Arts
peter.tajkov@tuke.sk

Ondřej Čmelák
Archaia Brno
cmelak.ondrej@gmail.com

Jakub Těsnohlídek
Archaia Brno

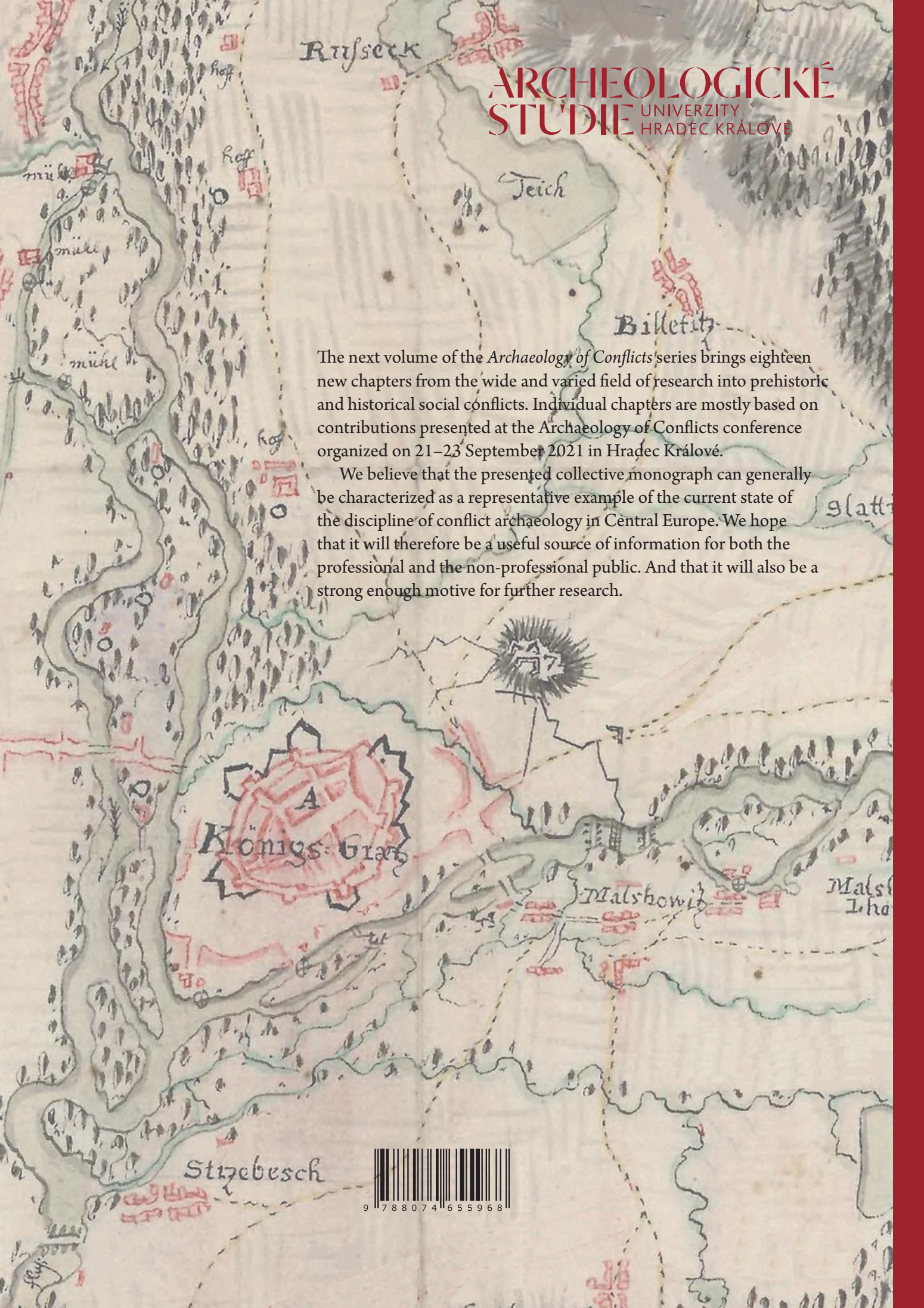
Martin Fojtík
martuf2@gmail.com

Martin Vojtas
Department of Archaeology and Museology
Masaryk University Brno
Republic215438@mail.muni.cz

Radim Kapavík
Signum belli 1914
<https://signumbelli1914.cz>
signumbelli1914@gmail.com

Jiří Zubalík
Institute for Archaeological Heritage Brno
zubalik@uapp.cz

Jan Petřík
Department of Geological Sciences
Masaryk University Brno
petrik.j@sci.muni.cz



ARCHEOLOGICKÉ STUDIE

UNIVERSITY
HRADEC KRÁLOVÉ

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.

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.



9 788074 655968