GEOSPATIAL APPROACH TO A THIRTY-YEARS-WAR MILITARY ENCAMPMENT IN CENTRAL MORAVIA USING ICONOGRAPHIC SOURCES

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Abstract

Documentary engravings that have appeared in the spectacular historical publications are a valuable source for the study of the Thirty Years’ War, opening up the possibility of researching the fortification techniques and identification of terrain relics of the war era. The paper examines the accuracy and completeness of capturing topographic features, settlements and military fortification and objects depicted on the engraving of a military encampment by a Moravian village Horní Moštěnice near Přerov. Within the interdisciplinary research, besides historical, art-historical or archaeological approach, the methods of digital cartography and GIS are applied in studying the historical engravings published in 17th century. The iconographic sources could be treated as maps in a certain sense of the word. By comparing the engravings with other relevant (younger) cartographic sources, e.g. historical military mappings or imperial imprints of stable cadastre maps, it is possible to identify individual depicted objects, to study the captured military situation or to visualize the changes of historical landscape. The aim of the work is to combine the results of a field survey of the area where the camp was located with a geospatial research of the engraving (georeferencing the imprint of the engraving, cartometric analyses, use of a digital terrain model from LIDAR data etc.) in order to support the study of historical military situation and landscape. The interpretation of such plans of military engineers is not yet entirely clear. The research suggests that the plans could represent a kind of strategic plans or documentation of an ideal course of combat operations. In each case, the description of reality on them has much to say even today.

INTERDISCIPLINARY RESEARCH

Introduction

Engraving of an encampment situated in a valley near village of Horní Moštěnice near Přerov, with the original name Abriss des Schwedischen Lägers Bey Bröhraw im August 1643 (Fig. 1), was published in Volume V of the work Theatrum Europaeum between pp. 206 and 207 (in the second edition of 1651). In this epic publication being issued from the early 17th to the mid 18th century, other engravings of the more than two dozen locations have been also published, which are systematically examined by a team of specialists at Charles University and the Czech Technical University in Prague (more to the project in Matoušek & Blažková, 2012 or Janata & Zimová, 2013).

The engraving is signed by Swedish Colonel C. Mardefeldt and represents one of the few works that are directly signed. The plan shows a high oblique view of the immediate vicinity of the fortified encampment containing the village of Horní Moštěnice itself. The camp was created and abandoned within the year 1643 in the context of wartime events connected to the town Olomouc

Description of the engraving

Letter A of the legend attached to the engraving states that the Swedish camp was built around the village of Moßwitz, which was the seat of the headquarters. After familiarization with historical sources and the section of landscape depicted in the engraving, we can specify that it is a present-day village of Horní Moštěnice, in written documents for the first time mentioned in 1131. Müller’s map of 1716 (specifically, edition of 1790, map sheet № 11) states it as a settlement named Mostienitz. 1st Military Survey, sheet № 68 depicts Mostenitz in this area. In the maps of Austrian Stable Cadastre of 1830, the village is listed as Moschtienitz as well as in the Second Military Survey (map sheet O–8–VI), where Ober Moschtienitz is stated.
The author portrayed in detail the village and its immediate surroundings constituting the majority of the Swedish camp. Obviously, the engraving, mostly of the set of similar representations in the Central-European area, resembles a detailed topographical plan. It displays from a high oblique view an almost rectangular segment of landscape measuring approximately 4 × 2.5 km viewed from southwest to northeast, roughly in the area between today's settlements Horní Moštěnice, Přestavíky, Beňov and today’s town part of Přerov – Újezdec (Fig. 2). Despite the obvious similarities with a map, the engraving is not oriented according to the current cartographic usage. The frame dimensions are 320 to 231 mm.
Figure 2. Estimated extent of the depicted area

Excluding the lines of field fortifications and positions of individual units, additional redutes are rendered outside the camp area. In an unusually detailed way and according to studies of younger cartographic sources also quite faithfully, the road network is shown. Also the composition gives an unusual impression – the author apparently began plotting the central parts of the camp, because of which the drawing has been cut off in the northeast and southeast bordering villages – Beňov and Přestavlky. Probably because of the indication of wider relations, Mardefeldt drew mainly Přestavlky somewhat closer to the Swedish camp; together with Beňov they fit in the plan for at least a few of their houses. Beyond the constituents of the military camp, none of the elements in the image are accompanied by labels and thus it can be concluded that the author did not give a great importance to them.

Also the display of fields and other land parcels around the village looks very truly. This is based on a comparison with Stable Cadastre maps of 1830, where it can be seen that even after two centuries since making the engraved images the land around the village indicates a significant consistency in the orientation of the field ploughs (Fig. 5). It can not be generally said that the author did not pay particular attention to surrounding elements of landscape outside the military camp – the engraving is fairly consistent.

The redute in the upper part of the image (at an elevation of 298 northeast of the main village; in the engraving a northernmost object labeled I) is even depicted in maps of the 2nd Military Survey (30s of the 19th century) and, until today, the contemporary name of the hill – “Swedish chances” – still commemorates the then stay of troops in Horní Moštěnice. The locality is outlined in a great detail within the map of 1st Military Survey and accompanied by a label “Schweden Redoute” (Fig. 3).

At the end of 2015, an archaeological survey was conducted in the site, during which a geodesic company also performed a detailed survey of the redute. There are no remains of the camp itself preserved to the present day, thus the accuracy of its plot can hardly be expressed. Based on the experience of other depictions, however, field fortification represents one of the most accurate regions of engravings.
Figure 3. Area depicted in the engraving in the 1st Military Survey maps (boundary between sheets № 53 and 68)

ACCURACY ANALYSIS

Because of the obvious similarity to a map, selected cartometric analyses can be performed for the digital image of the engraving. For the georeferencing of it, affine transformation using 7 ground control points has been performed within MapAnalyst software. MapAnalyst represents a widely used application for analyzing old map works and apart from classical georeferencing and evaluation of its accuracy, it provides also rendition of scale lines and distortion parameters of the image.

The parameters of the affine transformation used indicate a greater value of accuracy compared to other engravings in the set of analyzed engravings in the area of Bohemia and Moravia. The Root mean square position error of 203 m (standard deviation of 142 m) is comparable only with the most accurate ones; the mean position error of the georeferenced engravings within the set is about two times worse.

The engraving also evinces a rare consistency of the drawing, without any noticeable areas of distortion. This is well shown in Fig. 4 in which the lines of distortion and scale number are plot. The scale number of the engraving as a whole varies around the value of 13,000 and the work is one of the largest-scale engravings in the area of the Czech lands. The scale number in the bottom-center part of the image is slightly lower than in the left or right parts which could be connected with the attempt to capture the peripheral villages. Necessary to say that the overall variance of scale number is very low and the rotation distortion of the drawing is almost imperceptible.
CONCLUSION

The engraving represents one of the most faithful and accurate ones of the examined set of engravings of the Thirty Years’ War battlefields in the Czech lands. As shown in the lower right corner of the drawing, the author of sketches for the final form of the graphic sheet was Konrad (Conrad) Mardefeldt (von Massberg), who lived from 1610 to 1688. In the Swedish army he had worked since 1628. In the 40s, colonel Mardefeldt was a general inspector of Swedish fortresses in northern Germany. Thanks to his drawing talent he became a collaborator M. Merian, for whose engraving workshop he made a large amount of drawing templates for war battlefields – in the Czech territory eg. a series dedicated to the Battle of Jankov (Altová et al., 2007) and according to the handwriting it is likely that he is also the author of an unsigned engraving depicting the siege of the town of Olomouc. In the area on the border between Swedish and German spheres of influence on the Baltic coast, he drafted another depictions of localities in this area, for example Bremervörde or Rendsburg.

We can classify the engraving of the Swedish camp in Horní Moštěnice into a large group of engineering plans, which are characterized by an emphasis on a detailed plan of field fortifications. In these works, all other elements of the landscape are shown suppressed and often reduced to a rendition of individual items using simple icons, in the contemporary context generally understood (to detail Matoušek & Blažková, 2012; Janata, 2016). In the contrary, the discussed engraving differs from other engineering plans in a considerably greater precision and fidelity.

*Figure 4. Results of scale estimation. Red lines represent distorted 250-m grid after geometrical transformations used. Blue lines represent scale number isolines*
The causes of the high value of the documentary plan can be seen partly in sufficiency of time to make a detailed and realistic documentary drawing due to an era of ceasefire. The fact that Mardefeldt was an excellent observer and documentalist is evidenced by the already mentioned series of three engravings of Battle of Jankov. Here was Mardefeldt able to make a thorough documentation of the landscape and course of the battle in the large, very complex and confusing area within a very short time – a maximum several hours that have elapsed since the end of the battle to the further march of the Swedish army. For another, an important factor is the small size and very good visibility in the terrain at Moštěnice and its vicinity. From any point of the two parallel ridges between which the camp was founded, it is even now possible to conveniently overlook the glen. Probably not coincidentally, an open space to the east of the camp, respectively southward of Beňov, is only superficially indicated. These relatively remote locations Mardefeldt apparently no longer considered necessary to document. For the same reason, he documented nor a clear situation north of the camp, at the low ridge with the “Swedish chance”. In the engraving this deficiency is covered by a plaque with legend. Contrarily, Přestavlčí les apparently represented a potential threat and therefore otherwise minor forest paths are rendered in this area.

A thorough documentation of paths within the camp can be considered as probably the artist’s preoccupation. No other engraving of battlefields in the Czech lands depicts the path network in such detailed manner. The careful documentation of the landscape contrasts with errors in the rendition of Moštěnice itself. It can be only speculated that the village, although being the seat of the camp’s general staff, was the least interesting element of the landscape from the Mardefeldt’s perspective. The location of the village in the landscape and its overall character has been captured exactly, but the details already seem not to be considered important.

ACKNOWLEDGEMENT

This paper was financially supported by the Grant Agency of the Czech Republic, grant No. GA15-03380S.

SOURCES

Imperial mandatory imprints of Stable Cadastre maps

ÚAZK (Central archive of surveying and cadastre). Cadastre unit “Horní Moštěnice”. 300 DPI, JPEG format.

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Maps of military surveys

1st Military Survey, Section Morava: sheet 068; 300 DPI, TIFF format

2nd Military Survey, Section Morava: sheet O–8–VI, 400 DPI, TIFF format

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REFERENCES


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As a post-graduate student of cartography, Tomáš Janata mainly focuses on geospatial data processing and analyses. As a part of an interdisciplinary research team he also deals with historical iconographic sources of the Czech lands and their processing. He teaches several courses thematically connected with digital cartography and geographic information systems. In grant projects in several past years, he participated in the creation of the Academic Atlas of Czech History and other cartographic works.

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