

Issues of Georeferencing Iconographic Sources Related to Thirty Years' War in the Czech Lands

Tomáš Janata – Růžena Zimová

Documentary engravings that have appeared in the spectacular historical publications, as *Theatrum Europaeum* printed in 17th century, are a valuable source for the study of the Thirty Years' War (1618–1648), opening up the possibility of researching fortification techniques and identification of terrain relics of the war era. Related to this topic, several papers examining the accuracy and completeness of capturing topographic features, settlements, military fortification and objects depicted in the engravings, have been published in the recent past.

Within the interdisciplinary research, besides historical, art-historical or archaeological approach, methods of digital cartography and GIS are applied in the study of historical engravings. It is important to realize the origin of the works (first half of 17th century) and utilizable techniques available to military engineers who mainly were responsible for the topographic content of the engravings; they were not primarily intended as maps but rather as documentary images accompanying texts in the particular publications. Although, a major part of the set of engravings 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 process combines results of field surveys and archaeological probing with methods of geospatial research of the engraving in order to support the study of their credibility and contribute to interpretation of the former landscape. These methods include study of spatial orientation, extent and scale of the engravings, possible observation points from which the drawing could have been made up, modelling using a digital terrain model, etc. Georeferencing the landscape images depicted on historical engravings represents an essential part of their analysis using digital technology. The main purpose of this paper is to discuss possible ways of georeferencing similar map works and to show differences in the interpretation which occur in case of a lack of suitable control points usable when defining a plane transformation.

Recently, also a variety of tools is available to so called crowd-source georeferencing, which allows a short-term georeferencing of extensive sets of cartographic works but often without a necessary analysis of accuracy and utility of specific methods. Apart from classical methods also robust approaches to georeferencing are presented, which involve methods to estimate the transformation parameters and possible ways of detecting outlying measurements (blunders

within the sets of control points), which can cause substantial deviations in the overall observed precision of the evaluation and which are, at low amounts of control points, difficult to detect via other means.

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. This study was supported by the Grant Agency of the Czech Republic within the project 15-03380S: „A Land Transformed: An Interdisciplinary Investigation into the Impact of the Thirty Years' War on the Rural Landscape of Bohemia“.