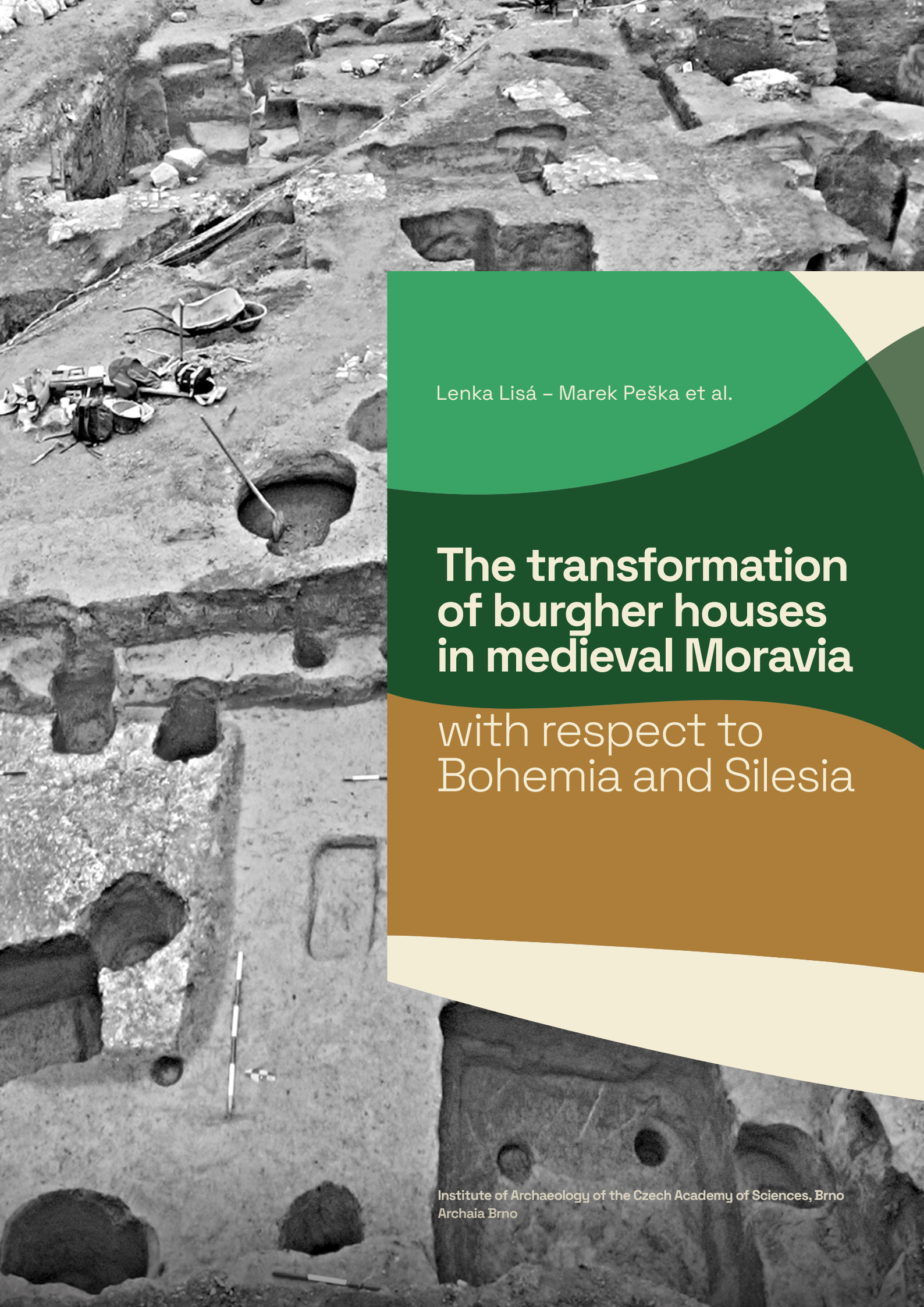

Lenka Lisá – Marek Peška et al.

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with respect to Bohemia and Silesia

Institute of Archaeology of the Czech Academy of Sciences, Brno
Archaia Brno

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Brno 2022

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Foreword

This book is one of the main outputs of the 'Transformation of Burgher Houses in the 13th Century (Brno-Prague-Wrocław)' project supported in 2017 by the Czech Science Foundation. The project pursued the objective of compiling an exceptional inventory of defunct burgher wood-and-clay buildings from the area of medieval Brno obtained over the past thirty years as part of hundreds of rescue archaeological excavations in an effort to better understand the character of building development at the time. While the topic of the genesis and transformation of the medieval town was periodically discussed between 2002 and 2019 at *Forum urbes medii aevi* conferences, the most recent synthesising FUMA II and III proceedings focused on the earliest burgher houses are now more than 15 years old (Merta, Peška eds. 2005). The many new findings that have been collected during that period of time promise a deeper understanding of the beginnings of burgher development in the Czech lands. In terms of geography, we concentrated on the territory of historical Moravia and the neighbouring parts of Upper Silesia, not with the aim of an exhaustive processing of the given subject in this territory but rather to present the most important research or synthesising views of the development of the oldest houses in various towns in the form of studies by a range of authors. To a certain extent, a representative research probe has been created for Moravia that includes the most important information we have today on former wood-and-clay buildings. We have also attempted to capture the remarkably diverse and unrestrained character of early urban development as well as its gradual stabilisation. And while hotly discussed questions concerning typology, the placement of buildings on plots, the existence of above-ground parts and the transition to masonry construction mostly remain unresolved, they have often been significantly expanded. Although the inclusion of a paper on the geological conditions around the selected towns may seem somewhat misplaced, it was our intention to point out the natural environment that largely determined the use of building materials, especially in the period after the founding of the town. Many shorter chapters are devoted to a micromorphological analysis of floor sandwiches with the aim of understanding the formation processes of floors and offering interpretations of the residential or storage function of analysed spaces. Since the study of the phenomenon of the medieval burgher house is one path towards searching for a common Central European past, we invited scholars from Prague and the Silesian city of Wrocław to join our team of authors. Both of these erstwhile major royal towns are crucial to our understanding of the transformation processes in 13th-century secular architecture in Central Europe. As such, they are also an appropriate comparison revealing that much of contemporary Moravia is a mere periphery of the Western world.

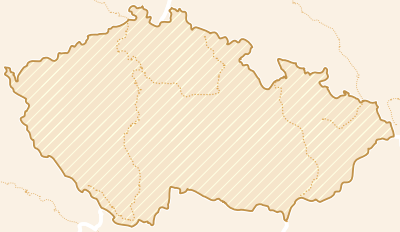
To make the collected information available to foreign scholars, the entire publication has been translated into English. Our original goal has broadened considerably since 2017 and we are therefore delighted that the book was published with support from the Institute of Archaeology of the Czech Academy of Sciences in Brno. Finally, great thanks go to Martin Ollé, who carried a substantial amount of the load on his own shoulders.

Marek Peška

Chapter 1

Micromorphology in the archaeological context – A tool for understanding the formation history of the floor horizons of a medieval city

Lenka Lisá



1. Introduction

This introductory micromorphological chapter begins by explaining what exactly is meant by the method of 'micromorphology applied in the archaeological context of a medieval city'. The results from individual cities are then discussed in separate chapters of this book and focus on the floor sandwiches of recessed and above-ground buildings in the area of medieval Brno, Prague, Opava and several examples from medieval rural contexts. The book also contains a chapter dedicated to the geo-ethnoarchaeological study of the creation and modification of floors. So, why floors? This phenomenon is often neglected along with its informative value required to interpret the practices related to the daily life of medieval society. In this chapter, the reader will be able to comprehend how sampling takes place, what must be ignored when deciding on the method and place of sampling, what information micromorphology in the archaeological context can provide, and, information about what sampling strategies were used in researching floor sediments in the area of medieval Brno.

2. What is the method of micromorphology in the archaeological context?

Micromorphology is the method used to study various types of sediments and soils at more detailed magnifications. Imagine that you can 'pull' a thin film from the sediment or the soil, which can then be studied under a microscope. This is exactly what the micromorphology method allows. The disadvantage is the limited view from one angle, so it is not a 3D view, which must be taken into account when conceiving what the sediment looks like 'inside'.

Such a 'film' is technically called a thin section. Although the preparation is not complicated, a precise production protocol must be maintained. However, the work of a micromorphologist begins long before the cut can be observed under the microscope. A micromorphologist is usually a geoarchaeologist, geologist, pedologist or archaeologist who is fully knowledgeable of the archaeological context, the parameters of the geological subsoil and has a good idea of the formation processes at the site. Sampling from specific contexts must respect pre-determined questions as with any analytical method it is necessary to proceed from the so-called macro to the micro, and it is not possible to create a basic framework for the formation processes at the site based on the study of cuts. Micromorphology in the archaeological context is therefore this method applied directly to sediments or soils that are related to the interpretation of the archaeological site (Karkanas, Goldberg 2019; Goldberg, Macphail 2006; Macphail, Goldberg 2018).

3. Collection and preparation of micromorphological samples – some practical advice

How is a micromorphological sample taken? In principle, it involves removing an intact block of sediment from the archaeological context, which can be transported to a laboratory where it will then be dried and impregnated in a vacuum with resin. As a result of the impregnation in the vacuum, the pores

contained in the sediment will be filled with resin and their exact shape will thus be maintained. It will also be possible to retain the softer parts of the sample such as the organic matter in the resulting cut due to the impregnation.

Sampling methods vary depending on the type of material collected. The most suitable material for sampling is usually sorted dusty or clayey sediments (e.g. loess or fine-grained fluvial sediments). From these sediments, it is usually possible to 'cut out' a cube (Fig. 1) of the sediment without the need for any supporting sampling structure (box). In the case of sandy and gravelly sediments or sedimentary sets with changing grain sizes, it is necessary to use the so-called Kubiena box (Fig. 1). This is a sampling box named after the founder of soil micromorphology and can be made of thin sheet metal or paper, or, for example, a milk carton. If the exact shape cannot be removed, as this is prevented, for example, by the number of coarse clusters, ceramics or bones, it is necessary to remove a larger amount of material by fixing it in gypsum or gypsum dressings. A stronger bed must be created where the sample remains intact during the sampling. After each sampling, the individual samples must be wrapped tightly in clink foil so that they do not disintegrate or dry out quickly. Orientation and context must be indicated on the samples. If it is not possible to transport the samples to the laboratory, it is advisable to store them in a dry, cool place. Samples must not be mouldy or frozen.

Those samples that are transported to the laboratory will be unwrapped from the protective foils, dried for several days at a temperature of approximately 30°C and impregnated with resin in the vacuum (a desiccator or a vacuum chamber). It must be the same type of resin that will then be used to make the cuts. Therefore, if sending samples to a commercial laboratory, it is advisable to send them unpacked. The specialist in the production of cuts then cuts a flat surface of the sample from the impregnated block, which usually hardens for several weeks, and then glues it under pressure to the matted slide. After hardening, the specimen is placed in a machine where most of the sample is gradually removed with diamond wheels. The goal is that only a thin layer of the sample (the previously mentioned film) remains on the slide, which can be illuminated when studied under a polarizing or binocular microscope. A thickness of 30 µm is ideal for minerals in order to recognise and correctly identify their optical properties.

4. What information can micromorphology provide in an archaeological context?

The micromorphology method provides a detailed insight into the sediment structure. This means that it provides information on the type of pores, their relationship to the coarse-grained and

Fig. 1. The way how to sample the micromorphological blocks from the section. Photo by P. Lisý.

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