

Reviewer's report on a habilitation dissertation of Petra Goláňová

This review concerns the author's contribution of Petra Goláňová in the publication below:

**Petra Goláňová with Peter Milo and Mária Hajnalová eds.: Oppidum as an urban landscape. A multidisciplinary approach to the study of space organisation at Bibracte.**

Collection Bibracte 33. Glux-en-Glenne: Bibracte - Centre archéologique européen 2023. 463 pages, 319 figures, 9 digital appendices. ISSN: 1281-430X, ISBN: 978-2-490601-14-1.

The author's contribution concerns the archaeological parts of the book, her participation in the natural science chapters and the synthesis of the entire project. In addition to Petra Goláňová, 22 other authors of various natural science specializations from the Czech Republic, Slovakia, Hungary, Poland and Britain contributed to the book, so it is necessary to appreciate the demanding editorial work of Petra Goláňová and her co-editors.

The publication makes available the results of a project of Masaryk University in Brno, which was carried out in cooperation with the Institute of Geology of the Academy of Sciences of the Czech Republic in 2019-2022, and with the support of the Czech Academy of Sciences. The project concerned the La Tène oppidum Bibracte – Mont Beuvray in France, where archaeological research has been ongoing for years, with the participation of European teams, including the Czech team. However, the research led by Petra Goláňová and described in the book differs from other projects implemented at the site by its completely different concept, as it focused on examining the spatial organization of the oppida through the archaeo-environmental analysis of so-called “empty/open spaces”. These are areas without archaeological objects, which occur at relatively numerous places within the oppidum. Various functions are generally attributed to these spaces, which, though, have not been tested in the past using appropriate methods.

Petra Goláňová's work covers all five main parts of the book. In the first (Empty spaces in context) she deals with empty spaces in the European Iron Age and earlier, in the second (Bibracte: a case study) she presents the investigated site and the state of its research. She contributed to the third, geophysical part (Examining "urban landscape" and empty spaces at Bibracte) and the fourth, presenting her own field research and natural science analyses (Excavating and analysing the empty spaces in Bibracte: test-pits and trenches 2019-

2020). In the fifth part (Oppidum as an urban landscape?), the author provides an interpretation of the results of the entire project and deals with the urban landscape in detail and in general.

The first part serves as a dedicated introduction to understanding the issue of empty spaces, which are studied in enclosed as well as unenclosed settlements from the Neolithic onwards and especially on examples from the Iron Age. The condition for this was an understanding of the spatial organization of these settlements. The author pays attention not only to large hillforts, but also to small courtyards and enclosed units. Open settlement agglomerations of the Roseldorf-Němčice type are also included. Good knowledge of the state of research in this field, including the latest works, allowed the author to classify undeveloped areas, showing, in addition to the dimensional scale, their formal variability and apparently also various functions. These range from subsistence and other economic purposes to public and possibly even ritual activities.

The state of research on the Mont Beuvray site is presented in the second part of the book. This will become an invaluable basis for all further research activities on the site, as it summarises, using detailed documentation, data on the natural environment of the site, its fortification system, but also presents current field relics (roads) and of course all archaeological trenches and geophysically prospected areas. Such rich documentation, collected in a clear and complete manner in one place, has not been available before. Overviews of the natural science research and analyses carried out in the past are attached. For the topic studied, it was necessary to study and evaluate the current opinions and ideas about the urban situation and chronological development in all parts of the oppidum, which is the subject of a separate chapter.

The results of geophysical survey and airborne laser scanning (Lidar) at the oppidum, described in the third part, served the author and her team as a basis for selecting undeveloped sites for the implementation of their own project.

The fourth part presents the project objectives, the selection of sites for investigation, and the methods and results of environmental analyses. The strategy, not to use large open-area excavations but to study deposited sediments by means of small test-pits should be appreciated. The necessity of combining different proxy data is explained by the author very clearly showing their presumed manifestation of management and function of empty spaces. The author participated in the examination of archaeological finds from prehistory to the Roman period, which were obtained mainly by floating, also studying their fragmentation and



abrasion. She is aware of the fact that the finds document the waste management and the formation of individual layers, but cannot serve as reliable dating material.

The fifth part is a synthesis of the entire project, which the author accomplished by combining and evaluating all the obtained data. The essential conclusion is that empty spaces are of fundamental significance for understanding the spatial organisation of the oppidum and its urbanism. Their functions were apparently very diverse. The author turned attention, among other things, to the important role of open spaces in waste management. This issue, also including the cleaning of waste areas has not yet been systematically investigated neither for the given period, or for prehistory in general. It should be appreciated that the work does deal with this subject. The study of organic waste would not be possible without the use of environmental methods. The list of questions that require further research, such as the management of human as well as animal waste, but also of production waste, is inspiring. The author stresses that it is necessary to monitor aspects such as intentional or spontaneous waste management, or whether waste was left in the vicinity of structures. For the latter, at least as far as the 2nd half of the 1st century BC is concerned, obtained data is not assessed as conclusive by the author.

It is obvious to the author that identifying empty spaces poses many problems, and it is particularly problematic in the case of long-used places that have had different functions over time. Small empty spaces tend to be interpreted as courtyards or squares. Larger undeveloped areas may have served as public gathering spaces. Another type of open space is unplanned free space, i.e. neglected or abandoned areas that are difficult to identify and there are only indications of their existence.

The chapter devoted to subsistence and the areas that served this purpose reveals how little is known about them. The project team found the presence of small Late Iron Age fields at only two locations on Bibracte. The logical conclusion is that there was probably not enough space for fields and grain had to be grown outside the walls. Unfortunately, the hinterland of Bibracte is not known at all and the author makes suggestions for its future research. Storage facilities are also related to the issues of subsistence. Storage pits and granaries are rare in the oppidum and it is possible to consider the use of the above-ground parts of houses for this purpose, and of course storage jars. It is noteworthy that communal storage facilities are absent on Bibracte, although these are considered to be an attribute of urban centers. Due to the poor preservation of bones, very little is known about domestic animal breeding and no stables or barns were found at the site. It is apparent that empty areas that could have served as pastures would not have supported enough livestock for the entire

community and fodder for the animals had to come from the surrounding area. Many concrete suggestions for further research on this issue are provided.

The final section summarizes the findings and provides further comments on urban life at the site. It points out what archaeobotanical evidence brings to the understanding of spatial structuring and its organization; the benefit of the work is obvious, as such an approach has not been applied before. The reconstruction of vegetation on oppida in general is worth attention, including the influence of trees on the quality of urban life. We should ask whether the quality of life in urban settlements was really taken into account in the La Tène period? The author does not assume that there was any centralized planning at Bibracte; urbanism here appears to be heterogeneous, not uniform.

In conclusion, empty spaces are evaluated in the context of all existing knowledge not only of the Bibracte oppidum, but in a broad European context. The author's wide perspective in this field is remarkable.

The Mt Beuvray site is important for understanding the development of settlement and landscape use during a long time period from prehistory to the Middle Ages. It should be stated, though, that for the same reason it does not seem to be most suitable for studying individual periods. It is difficult to relate the manifestations of identified activities to single time phases. This makes the approach of the Goláňová's project all the more welcome, as it uses the entire spectrum of research methods for a detailed and chronologically based interpretation of anthropogenic activities in individual areas and time periods. The pioneering approach of the author, who used a synthesis of methods of archaeology and geophysics, and especially multi-proxy analyses in the study of empty spaces and succeeded in evaluating them, deserves high appraisal. In doing so, Petra Goláňová demonstrated a broad view on the issue.

The publication brings inspiration not only with its methods, but also with prospects for future research on the Bibracte oppidum and other sites of this type. It offers a large number of questions that should be addressed by further projects. It testifies to the high quality of Petra Goláňová's scientific work as well as her organizational and editorial skills. I therefore recommend her work for the habilitation procedure.

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