

INTEGRATING MACRO- AND MICRO-ARCHAEOBOTANICAL PROXIES TO ACTIVITY AREA ANALYSIS OF SEMI-SUBTERRANEAN BUILDINGS.



AN EARLY IRON AGE (EIA – HALLSTATT CULTURE) CASE STUDY FROM THE CARPATHIAN BASIN.

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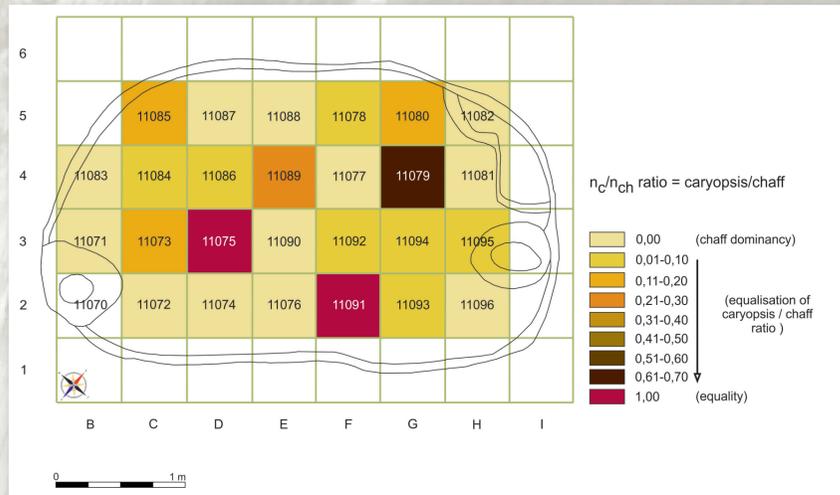
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Introduction. Everyday life in past human societies and the use of specific activity areas within settlements can be explored through the study of the remains of material culture as well as through the application of soil and plant remains analyses. We are presenting the results of complex archaeobotanical and geoarchaeological analyses conducted on 27 samples of Hallstatt culture (800-450 BC) semi-subterranean building excavated at the site of Győr-Ménfőcsanak, western Hungary. The aim of this study was to identify the inner space use of the building with the help of macro- and micro- archaeobotanical and geoarchaeological data. Samples from cultural sediment layers were collected in accordance with a total horizontal sampling strategy using a grid of 50x50 cm quadrats. The identified micro- and macrofossils found in the samples from the activity layer imply that a large amount of plant material connected to cereals (stem, leaf, glume, spike fragment, cereal grain fragment etc.) was either processed or deposited inside the building. The overall interpretation of the distribution patterns projected on the inner space and the spatial evaluation of the data have enabled us to put forward hypotheses regarding the use of the building. Significant differences were detected within the interior space of the feature, which reflect a well-defined selectivity in internal space usage and distinction in activity areas.

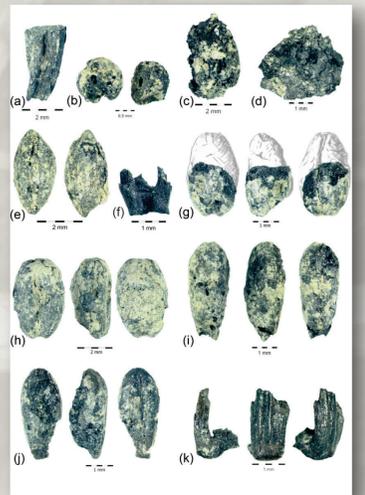


Location of Győr-Ménfőcsanak archaeological site near Győr (Győr-Moson-Sopron county, NW Hungary) (left); Feature 210/7124 after excavation and sampling (centre); sampling plan/grid projected on the inner space of the analysed feature (right).

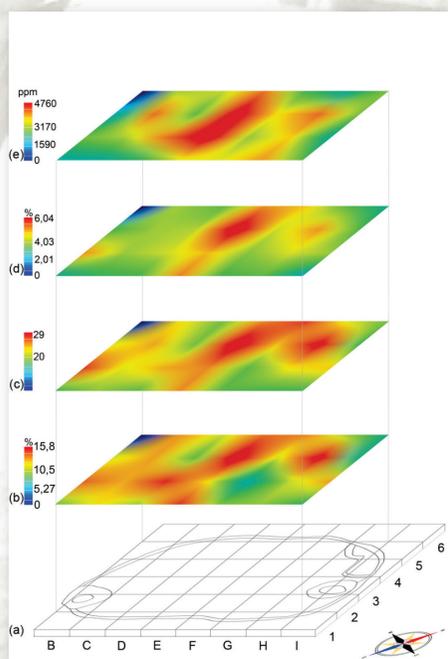


The distribution map (left) shows the ratio of caryopsis and chaff remains identified for each quadrat. In general cereal cleaning by-products (e.g. chaff) dominate the archaeobotanical record of the feature. The only exceptions are quadrant D3 and F2, where cleaning byproducts equal whole grain remains.

Cereal species identified during the analysis of the feature (right): (a) *Hordeum vulgare* L. subsp. *distichum* var. *nudum*; (b) *Panicum miliaceum* L.; (c) *Triticum* cf. *aestivum* L. subsp. *aestivum*, (d) gruel or mash like food remain; (e) caryopsis of and (f) glume base of *Triticum monococcum* L. subsp. *Monococcum*; (g) *Triticum turgidum* L. subsp. *dicoccum* (Schrank) Thell.; (h) *Triticum aestivum* subsp. *spelta* L. Thell., (i-j) caryopsis of cf. NGW ('new glume wheat'); (k) glume base of cf. NGW ('new glume wheat').



The cereal assortment of the feature is diverse and covers ancient hulled, as well as 'modern' naked wheat types. One of the most important finds is the recovery of possible 'New Glume Wheat' chaff and caryopsis remains.



The heat maps (left) present the weighted distribution of four basic soil parameters projected on the ground plan (a) of the building: (b) $\text{CaCO}_3\%$; (c) Arany-type (K_A) coefficient values (texture); (d) TOC% (Total Organic Carbon); (e) P_{total} (total phosphorus).

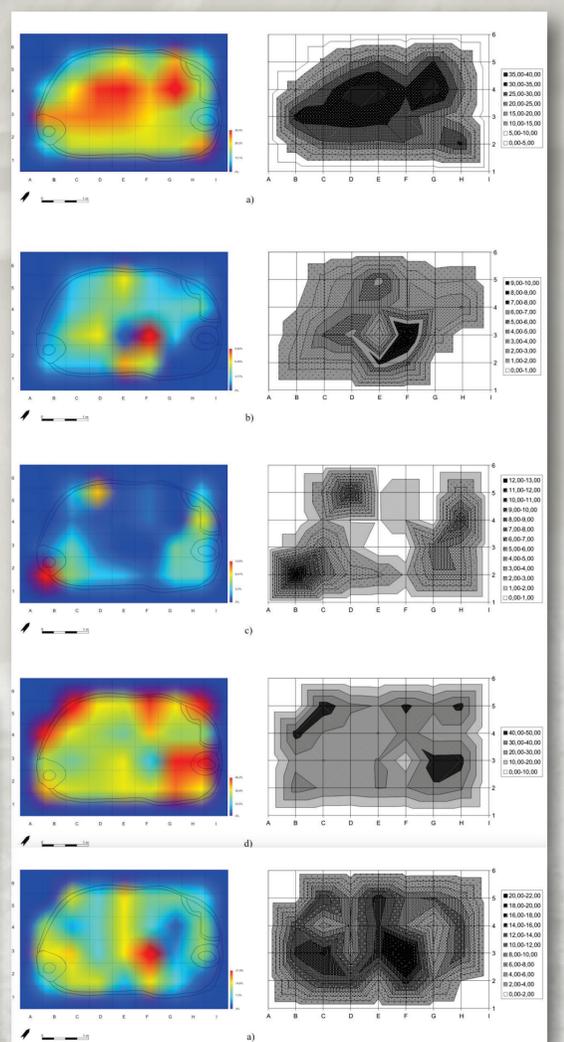
The TOC% and P_{total} concentrations are considered as chemical fingerprints of human activity related to organic matter management on the surface. The concentration of both TOC% and P_{total} reflect local primary organic matter input, and therefore both the increased TOC and the P_{total} of the anthropogenic sediment refer to human activity, which resulted in C and P rich material deposition.

The alternation of the K_A coefficient within the inner space of the feature is assumed to be in relation to human activity.

The distribution patterns of the micro-archaeobotanical indicator (phytoliths) (right) refer to the selective deposition of different plant parts. The concentration of elongate dendritic LC morphotype in the samples is high compared to undisturbed natural soil environments. Its accumulation represents the presence of cereal inflorescence material, however it is difficult to separate the presence of stored crops representing storage activity from cereal by-products representing processing activity. This phenomenon is further supported by the high ratios reached by the rondel SC morphotypes and the recovery of articulated silicified tissue elements that can be linked to cereal chaff.

In our view, this visible separation of the anatomically non-identical micro-indicators might refer to conscious space use shown in the deposition of different plant materials in different parts of the feature.

From the top: Heat map and distribution model of (a) rondel SC; (b) bilobate SC; (c) bulliform morphotypes; (d) elongate smooth psilate LC and (e) elongate dendritic LC (see also microphotograph below).



This reconstruction of an Iron Age storage building at 'Matica' Museum and Archaeological Park (Százhalombatta, Hungary) serves as analogue to the feature excavated and examined at Győr-Ménfőcsanak archaeological site.

Not only the similarities in its architectural elements (e.g. non-centric posthole position), but its possible function and the botanical and geoarchaeological patterns deriving from its function is notable.



Acknowledgement

This work was partly undertaken with the support of Research Centre of Excellence at Szent István University (9878-3/2016/FEKUT)