

Eötvös Loránd University Faculty of Humanities

PhD thesis

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**The Settlement History of the Baden Culture in the
Southern Lake Balaton Region Based on New Research
Results**

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Budapest, 2014

The aims and sources of the thesis

Among the archaeological periods of the Carpathian Basin, the Baden cultural complex is the first which – after a long time – seems to have unified large areas again, and transgressed traditional geographical boundaries. The complex plays a major role in the Late Neolithic of Central Europe and the Late Copper Age of the Carpathian Basin. However, in order to understand the background of the economic and cultural changes that took place during the Late Copper Age, it is important to examine one of the building blocks of society: settlements and their structures.

The main aim of this doctoral dissertation is to describe in more detail than previously the characteristics of the settlement structure of a smaller, but representative geographical region. The selected study area is a region of the Baden cultural complex characterized by open settlements in the Southern Lake Balaton region. In recent years the questioning of the concept of the Baden culture as a cultural unit has made the characterization of the settlement patterns of the period, especially at a regional scale, increasingly important. The sources for such an analysis were primarily the settlement historical data from the large-scale excavations preceding the construction of the M7 highway and the track correction of Route 67, and a large amount of complex find material.

In order to understand the settlement characteristics of the Southern Lake Balaton Baden population and its regional deviations from an assumed unified character, we had to map that area of activity where processes influencing these took place. These are spaces of various levels of community life within these settlements; the level of households, the level of activity areas used jointly by all households, and the level of the settlement unifying all the households.

The archaeological traces of households and household units as the scenes of community interaction form an important interpretative level, determining numerous characteristics of the life and material culture of the community. My primary aim was to outline the average household of the regional Baden population that forms the most basic unit of society. In my opinion, through the identification and characterization of household units we can achieve a better understanding of Baden settlement patterns in the study area.

The starting point of the research is provided by the finds and observations on settlement structure made during the excavations at Balatonkeresztúr-Réti-dűlő in 2003 and 2004. The study of the site is complemented by natural scientific – archaeozoological, anthropological, petrographic, geochemical, and radiocarbon dating – analyses, and environmental archaeological data from Transdanubia, which enable the reconstruction of the environmental history of the region as well. Among the sites of the Southern Lake Balaton, located in similar environmental settings, the sites of Zamárdi-Kútvölgyi-dűlő, Balatonszemes-Egyenes-dűlő, Balatonszemes-Szemesi-berek, Balatonlelle-Rádpuszta-Temetőalja dűlő, Balatonlelle-Rádi út mellett és Balatonlelle-Rádi domb provide an opportunity to test the observed phenomena and expand the conclusions reached at Balatonkeresztúr to a wider region.

The aim of my dissertation was to prepare a work that based on the evaluation of archaeological information from the large-scale excavations carried out in the region may serve as a starting point for the analysis of the internal structure of the Late Copper Age settlements in the Southern Lake Balaton region. The comprehensive, monographic analysis of the sources was not possible within the framework of the dissertation. The main focus of the study was the identification of the basic units of the settlement structure and their comparison, and the interpretation of the results. The analysis of the finds was carried out accordingly. In the research on the settlement structure of even a small micro-region, it is the joining of small pieces of a mosaic, requiring fundamental, detailed work that may provide crucial information, which will ultimately lead to the formation of an authoritative, comprehensive regional picture.

Methods and results of the research

My research is based on the premise that the archaeological identification of households is possible, since the basic activities of everyday life were carried out in a delimited area and within a delimited timeframe. It is possible even if we do not know the archaeologically identifiable remains and the structure of the houses belonging to the households. In this case, households may be delineated with the help of observed or statistically demonstrable groupings of features, since pits leaving identifiable traces are connected in specific ways to residential areas, even if the traces of house structures are not preserved. In my work I made an attempt to define the spatial and temporal limits of

households and to determine the remains of which activities within a household have been preserved.

The other aspect of the analysis of settlement patterns is the mapping of wider environmental factors that determined the location of the settlements, which enables comparison at a macro scale in the Southern Lake Balaton region.

The study area is located in the northern part of the Transdanubian hill-country, and includes the Lake Balaton Basin and Inner Somogy regions. The Baden culture settlements investigated during the excavations preceding the construction of the M7 motorway along the southern shore of Lake Balaton and the correction of Route 67 are located primarily on the Marcali ridge, along the Nagyberek and the Somogy lakeshore plain. The most important element of their surroundings is Lake Balaton, since before water level regulations its level fluctuated much more intensively, which may have influenced the life of the communities that had settled on the lakeshore. The water level of Lake Balaton, the extension of the surface of the lake and the impact of the water of the lake on groundwater levels determined in all periods the location and extension of areas on the loess ridges that were suitable for human settlement and the mode of their economic exploitation.

The starting points of the investigation are the traces of the Baden settlement at the site of Balatonkeresztúr-Réti-dűlő and its archaeological finds. The first step was the definition of the various phases of Late Copper Age occupation and of the roughly contemporary features based on the finds of the site. The typo-chronological analysis of the ceramic material shows that three larger Late Copper Age phases can be distinguished with certainty at the site. The statistical analysis of the vessel forms and decorations attested at the site confirmed the separation of these three phases, and showed the clear separation of the Boleráz and Classical Baden phases, and a stronger connection between the classical Baden phases. The typo-chronological observations at the site are confirmed by radiocarbon dates as well. Currently seven AMS dates are at our disposal from the Late Copper Age horizon of the settlement.¹ The primary criterion for the selection of the samples was that those features should be dated that provided relative chronologically clearly datable ceramic material with typologically well-defined forms and decoration. In terms of absolute chronology, the Boleráz phase of the Late Copper Age settlement can be dated to ca. 3550-3440 cal BC, the Early Classical Baden

¹¹ The measurements were made at the Vienna Environmental Research Accelerator.

phase to 3475-3140 cal BC, and the Late Classical Baden phase to 3345-2945 cal BC. Due to the small number of samples and the plateaus and wiggles of the relevant section of the calibration curve, the length of the life of the settlements and of its phases must be handled with caution. Based on the analyses, however, it is safe to say that the large phases of the Late Copper Age settlement of Balatonkeresztúr and the transitions between them are identical with those experienced in the whole distribution area of the culture.

Based on the analysis of the roughly contemporaneous settlement features and their mapping on the whole area we tried to find recurring patterns. Among the groups of features in all three phases of the Baden occupation empty areas could be identified that were surrounded primarily by storage pits and regular pits. These were identified conditionally as household units, while the empty areas are considered the location of houses or dwellings. Six such groups of pits were found in the Boleráz period, four in the Early Classical Baden and one in the Late Classical Baden phase.

This was followed by the detailed qualitative and quantitative analysis of the material of the pits and the pits themselves according to the observed groupings. With the help of the spatial statistical and GIS analysis of the finds, the mapping of the distribution of the finds enabled the quantitative and qualitative study of the various classes of finds. Based on the location of various types of pits and the spatial distribution of finds, certain areas could be identified at the site where empty areas were surrounded by pits of variable types and possibly with diverse find material. This combination of phenomena could be identified in many cases as a group of features within a radius of 15-20 m.

The study of the distribution of features and the cluster analysis of the faunal remains carried out previously had similar results.² Four of the six households identified with the help of these two household localization methods were identical, thus the two methods confirmed each other.

The use of further statistical methods enabled the more thorough mapping of the relationship between the finds and the pits scattered across the excavated area. The correspondence analysis of the finds and implements from the pits showed a general homogeneity of the variables, indicating that most objects and implements were

² Csippán Péter.: Óskori települések kulturális ökológiai és zooarchaeológiai vizsgálata. A késő rézkori háztartások és a konyhahulladék kapcsolata. Doktori Disszertáció. ELTE BTK 2012, 205-215.

uniformly used in these households. One-way correlation analysis was aimed at the objective investigation of the connections between the finds unearthed in the pits (objects, implements). One-way correlation investigated the co-occurrence and relationship of variables included in the table. The matrix showed the strongest correlation between chipped stone implements and bone tools, indicating that these objects were part of the fundamental set of implements in a household, and in certain groupings they may indicate household activities, such as manufacturing of tools, leather working or textile production.

Based on the above, five hypothetical households were identified for the Boleráz phase, three/four for the Early Classical Baden phase, and one for the Late Classical Baden phase at the Late Copper Age settlement of Balatonkeresztúr-Réti-dűlő.

The interpretation and comparison of these hypothetical households as units was carried out from a variety of standpoints: among others from that of consumption, specialization and diversity. The following conclusions could be drawn.

The hypothetical households surrounding the houses had the following constituents:

- 2-6 storage pits,
- 2-3 smaller or larger, regular pits (presumably some of them could have been storage pits deformed by later soil processes),
- 2-3 irregularly shaped pits or pit complexes nearby,
- and a hearth or oven (not in all household units), in most cases a hearth placed in a pit.

The composition of features constituting a household unit obviously could vary with each household. The accumulation of ceramic sherds and animal bones could be observed in the southern, southwestern part of the group of pits, which – based on ethnoarchaeological examples – may indicate the location of the entrance. The storage pits were located in a row along the side of the house. The differences in size between them were probably due to functional differences, or a damaged storage pit may have been replaced by a new one, while the old took on a new function. The irregularly shaped pits located a bit further away may have served as household refuse pits. Larger pits and pit complexes of this type may have been originally clay extraction pits, but many also contained temporary hearths, or may have served as workshop areas a bit further away from the house. Stand-alone ovens were not found in most units, thus it may be assumed that either smaller, temporary hearths were used for cooking outside the buildings, or food production may have been carried out within the houses of a yet

unknown structure. Based on the above it is possible that ovens were primarily not connected to cooking, but to other activities that were carried out not at the household, but at a higher, settlement level. Such activities may have included drying, smoking, roasting grain or firing pottery. The presence of wells in the settlement can be assumed only based on rather uncertain data. If there were some, they were not connected to the households, but to the whole community, or at least a number of households used them together.

All assumed households contained the implements needed for food processing necessary for subsistence production, like vessels, grinding stones and cutting implements, and the kitchen waste associated with these activities. The process of grinding seemed to be especially important in two places, and in one it was associated with increased storage capacity, the large number of vessel sets and kitchen waste.

In some of the household units the possibility of some form of domestic specialization may be suggested that satisfied local demand and was probably part-time based on the division of labour between the households. Bone tool manufacture and the repair of bone and stone tools was identified in almost all households. The manufacture of stone tools, however, is not that obvious, the remains of production are very scarce, and special raw materials were probably obtained regionally. Based on the distribution of finds, traces of textile production and leather working could be found in all three phases, but not in all households, and one household never had both, indicating some form of division of labour. In the light of the distribution of activities it can be stated generally that there was a division of labour among the households of the Baden settlement. Based on the available data, a group of pits identified as a household unit of the Boleráz period can be highlighted due to its special character. It will be the task of further analyses to determine if we see the traces of a single, special status household or of a simple household and of spatially and temporally divergent activities at a higher, settlement level, compressed together.

In two cases we can hypothesize the existence of special areas for certain elements of food production outside the area of households. One connected to grinding was identified in the settlement of the Boleráz period based on the concentration of large and heavy, intact grinding stones of the primary or 'de facto' waste category. The other is the domed oven and the surrounding group of pits in the settlement of the Late Classic phase, which – besides cooking – could have been used for food conservation,

like drying and smoking. The quantity and quality also raised the possibility to look for the place of pottery manufacture as a household activity. Based on the distribution of the finds, we have data only in the Boleráz period for such an activity. Pottery manufacture, especially of fine ware, is considered an activity carried out above the household level, whose location may have been on the western edge of the settlement; due to the lack of sufficient data, however, production at a regional level cannot be ruled out either.

Symbolic activities were frequently attested in all three phases of the Baden settlement of Balatonkeresztúr. During the span of occupation, traces of symbolic activities were observed in almost all household units, which seem to have pervaded the everyday life of the community. The various rituals, which in our case may be connected with feasting based on the finds, are a manifestation of these.

Their strong presence in the life of the settlement indicates that these symbolic activities were of great significance at the level of households, the settlement and the region as well. This is also shown by the change of function of the central area of the settlement. After the leading role in sacral life of the centrally located household unit in the centre of the plateau in the Boleráz phase, the area gradually changed into an empty area between households during the Classical Baden period, and in the Late Classical Baden phase a series of pits with animal sacrifices was found here. By this time the function of the area changed and became the place of symbolic activities.

In contrast to the general dominance of cattle in sacrificial pits in the period, at Balatonkeresztúr pigs seem to dominate. If the animal sacrificial pits mirror the close connection of the population to, or even dependence on, animal husbandry, then the strong presence of pigs in the sacrificial pits may have had a special meaning for the settlement, which may be explained by the changes observed at the level of the whole settlement and the environment. This may indicate that responses to environmental changes that greatly influenced the everyday life of people were immediately incorporated into the set of activities aimed at the influencing of the transcendental world.

These – according to our current knowledge, very much everyday – impacts that the community tried to influence with transcendental means could be identified through the study of the settlement and its various types of finds. During the geomorphological study of the settlement features connected to the three phases of the Baden occupation at Balatonkeresztúr, we found archaeological evidence for the shift of the centre of the

settlement. Until the end of the Boleráz period it could be observed in the structure of the settlement that the features of the period appeared even in the area close to the edge of Nagyberek. (In these parts, even at the current, regulated level of Lake Balaton, groundwater appeared in the pits.) Furthermore, the animal husbandry practices of the inhabitants of the settlement are characterized by the significant presence of the drought tolerant small ruminants like sheep and goat. The geochemical analysis of the excavated shells indicates a balanced climate for this period. From the Early Classical Baden period on a period with wetter, more extreme climate followed based the isotope values measured from the shells. Based on the archaeological data, as a consequence the inhabitants abandoned the lower lying areas of the settlement and never used it again, and the wet tolerant pig became dominant among the exploited animals. However, while the archaeological data suggest the continuation of wetter and more extreme climate, the oxygen isotope composition of shells indicates that by the Late Classical Baden period the climate of the region was again balanced. Nevertheless, neither the structure of the settlement, nor the composition of exploited animals reflects a return to earlier practices during a more favourable period. The Copper Age community did not react to the slow and gradual rearrangement of the climate and environment. In contrast, through symbolic activities, the characteristics of animal husbandry became strongly embedded in the sacral life of the South Lake Balaton region.

In order to test the observations made at Balatonkeresztúr-Réti-dűlő and to expand to a wider area the conclusions drawn, we analyzed the settlement features of other Late Copper Age sites in the South Lake Balaton region. We included the material of Zamárdi-Kútvolgyi-dűlő, Balatonszemes-Egyenes-dűlő, Balatonszemes-Szemese-berek, Balatonlelle-Rádpuszta-Temetőalja dűlő, Balatonlelle-Rádi út mellett and Balatonlelle-Rádi domb in the analysis.

The Late Copper Age settlements were located in an identical geomorphologic environment, and the region was densely settled throughout the time of the Baden culture. The investigated settlements yielded material from both the earlier and later phases of the Baden culture. The settlement concentration observed on the meridional ridge following the valley of the Tetves Creek shows that the area was continuously settled. The settlement parts from various phases excavated here indicate that the various areas of the hillside were used in turns. Although at present we see only a

narrow strip of the whole hillside settlement, it can be assumed that occupation moved with time from the south to the north.

The scattered household units had generally 2-4 storage pits, although there were a few with more (7-8) as well. The pits, primarily used for storage, surrounded the area of the assumed houses on two or three sides. At this stage of research we may establish that no significant differences can be observed in the internal structure of the settlements inhabited during the various phases of the Baden culture. At the level of the assumed households, however, the outstanding character of a single household unit at the more thoroughly analyzed settlement of Balatonkeresztúr could be shown in terms of storage capacity. Similar phenomena indicating larger storage capacities could also be observed at Balatonlelle-Rádi út mellett and Balatonlelle-Rádpuszta-Temetőalja-dűlő, although their character will need further analysis. The existence of emergent social inequalities in the Baden culture has already been suggested in connection with rare copper finds, like the diadem from Vörs, or the copper dagger and knife from Sármellék. Perhaps it is the other side of this phenomenon that by the Classical Baden period a shift towards increased symbolic activities in public areas can be observed at other sites as well.

In some cases, like leather working or spinning and weaving, traces of the activity could be observed only in a few places, in a few household units, which may indicate a certain level of specialization among the households. In the case of the acquisition of the raw materials of chipped and ground stone tools and their manufacture, however, it is conceivable that the raw materials were acquired at a regional level, while exotic materials at a superregional level, and that mostly only the tools reached the settlements. Based on the analyzed data in this region the leading role in this activity was played by the Baden community of Balatonőszöd-Temetői-dűlő. Another special phenomenon is the group of animal and human burials at Balatonkeresztúr-Réti-dűlő, and the intensive ritual activities demonstrated in a number of places at Balatonszemes-Szemesi-berek, which indicate the outstanding importance of sacral life in this corner of the Baden cultural complex as well. Based on the large number of large, communal sacrifices and of animal sacrificial pits, and the frequent occurrence of objects connected with the transcendent at the Baden site of Balatonőszöd-Temetői-dűlő, the central role of the settlement in the sacral life of the region is highly likely. The regional leading role of the settlement at Balatonőszöd will become evident, if the settlement network and

hierarchy of the region, similarly sized settlements and a similar volume of material will be analyzed in the future.

The South Lake Balaton region is characteristically rich in special and cultic objects, which may mean that the region played an important role in the life of the Baden cultural complex. Based on the results we may assume that so-called agglomerations emerged along the southern shore of Lake Balaton in the vicinity of ritual places, or a few settlements functioned as ritual centres within a scattered settlement network. Other research on the South Lake Balaton region reached similar conclusions, thus we can agree with the statement that there was some sort of hierarchy or status difference between the settlements, and settlements with higher population within a micro-region certainly indicate some sort of political, economic or cultic centre. These places were the foci of trade activities and of the regular ceremonies strengthening group coherence.

Summary

Based on the results of research it is clear that sketching the picture of settlement networks, spatial use and settlement hierarchy in the South Lake Balaton region of the Baden complex is in itself a complicated task. Furthermore, this is just the first step of a comprehensive reconstruction of the population and its society, and of the reconsideration of the traditional, uniform archaeological concept of the Baden cultural complex.

The fundamental aim of the research leading to the dissertation was the delineation of the fundamental unit, the average household of the Baden population characteristic for the region, and through this a better understanding of the structure of Baden settlements. This is the first level of the above-mentioned research process, and also indicates the future directions of study. Naturally, in order to complete this picture an integrated analysis of the work and research methodologies of numerous researchers will be needed.

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