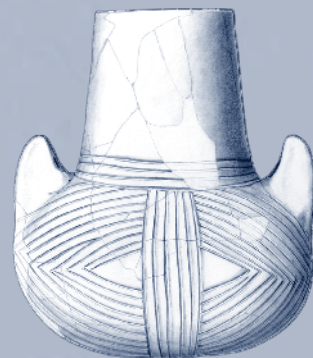


*Edited by  
Martin Furholt, Marzena Szmyt and Albert Zastawny*

# The **Baden Complex** and the Outside World



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# The Baden Complex and the Outside World

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Edited by

Martin Furholt, Marzena Szmyt and Albert Zastawny,  
in cooperation with Emily Schalk



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## PREFACE OF THE SERIES' EDITORS

The “Baden Complex” provides a highly relevant link to our understanding of the Late Neolithic in Eastern Central Europe, since it occurs in a time of major cultural change, marking an important step in the transition from a Neolithic to an Early Bronze Age Society. In particular, the wide distribution of the Boleráz-Cernavodă III Pottery, as traceable along the course of the river Danube, reveals the development of far-reaching cultural communication then co-occurring with the first appearances of major technological innovations in Central Europe.

What stands behind these cultural phenomena mentioned, how can we conceptualise the “Baden Complex” and how does it relate to other archaeological complexes? New evidence dealing with these issues has been presented by an international circle of archaeologists at the Annual Meeting of the European Association of Archaeologists (EAA) held in Cracow in 2006 and is addressed by the papers

in this volume. The studies presented here show the diversity of a broad international research community as represented by researchers from almost a dozen countries. In this way they reflect the current state of research on the Baden Complex.

With its clear regional focus on Eastern Central Europe the volume was predestined for our series “Studien zur Archäologie in Ostmitteleuropa (SAO) – Studia nad Pradziejami Europy Środkowej (SPEŚ)”. For the first time a volume of this series is published in English and may thus reach a broad international scientific audience.

We would like to thank the EAA and the organisers of the Annual Meeting in Cracow as well as the session organisers, the participants and the authors.

*Janusz Czebreszuk, Sławomir Kadrow  
and Johannes Müller*





## PREFACE

The Baden Complex denotes a set of traits in the material culture that has evoked a great deal of interest in the research of Late Neolithic/Eneolithic/Chalkolithic period, as it shows a wide distribution and far reaching influences into several regions of Europe. Parallels in the pottery style are visible as far as to the Aegean.

Apart from these patterns in pottery style, the Baden Complex has also played an important role in large-scale models of human prehistory, the most influential today still being Andrew Sherratt's model of a Secondary Products Revolution (Sherratt 1981). The wide spread distribution of the Boleráz-Cernavodă III pottery and the temporal coincidence with the earliest appearance of wheeled vehicles have, amongst others, recently been emphasized by Joseph Maran (1998; 2001; 2004). Joachim Köninger, Martin Kolb und Helmut Schlichtherle (2001) stress the presence of Boleráz and Baden pottery in southern Germany and Switzerland and the possible connections to a set of innovations. Thus, Sherratt's ideas of 1981 still seem up to date, in spite of much critique they have provoked.

A better understanding of the Baden Complex does not only mean to get a better grip on the prehistory of the Carpathian Basin and the adjoining areas but is of greater importance to the whole understanding of the prehistoric development of Central, Eastern and South-Eastern Europe. An improved chronological framework will help us to understand the processes of change, both in material culture as well as in technology and economy. This may help us to build up plausible models of social and ideological change that seems virulent at the start of the Bronze Age in South-Eastern Europe and at the turn to the Corded Ware/Beaker Period in Central Europe.

Thus, this volume aims at two main goals: The first is a better understanding of the cultural phenomenon itself, the other an examination of the supra-regional patterns mentioned.

In the last years there has been exciting new discoveries and also research on different aspects of the Baden Complex, much of which was presented at the EAA meeting in Cracow 2006. All papers discussed there have been included in this book as well as papers of some authors who had not been able to participate in the meeting (Eva Horváthová,

Hanna Kowalewska-Marszałek, Agnieszka Przybył and Piotr Włodarczak).

In the first parts of the book one can find a set of comprehensive papers, dealing with an overall understanding of the complex. The authors stress the encumbrance inherited bad concepts, weak methods and data acquisitions have caused to an understanding of the nature of the Baden Complex and try to give alternatives. Martin Furholt broaches the issue of the concept of the archaeological culture that has long been central to the „Culture History Approach” still dominant in Central and Eastern Europe. Although that concept is to be abandoned, the approach, in his opinion, remains an important constituent to the discipline. Maximilian O. Baldia, Douglas S. Frink and Matthew T. Boulanger deal with problems caused by what they term „our archaeological legacy” and demonstrate incongruities in the concepts, typologies and dating systems by confronting them to their field work on the „mixed” Funnel Beaker-Baden sites in Moravia. Claudia Sachße accounts for her in-depth analysis of the burial customs connected to the Baden Complex. Her results are very instructive in terms of an overall understanding of the cultural phenomenon. Regional traditions dominate burial customs in the Carpathian Basin and adjacent areas. Assuming that burial practises to a certain measure do reflect group identity, certain unifying tendencies among people using Baden style pottery may be observed, although the regional units emerging within that context seem to correspond quite well with the cultural borders observed in the time before the appearance of Baden pottery.

In the second part of the volume investigations of regional character are discussed. Tünde Horváth presents the results of a rescue excavation in the settlement site of Balatonőszöd, where large-scale exploration revealed extraordinary evidence concerning ritual behaviour and settlement structure. She also deals with the question of the identification of house structures in settlements connected to the Baden Complex as do Róbert Patay, Katalin Herbich and Pál Sümegi at the instance of the settlement site of Ecser, from where they also present macrobotanical evidence. Kitti Köhler discusses physical anthropological investigations on skeletons

from burial grounds in Hungary, containing Baden style pottery. They show a higher degree of heterogeneity than older samples connected to the Bodrogkeresztúr Complex. Köhler is also concerned with the question whether migration played any role in the formation of the Baden Complex. Jana Suteková presents her investigations on the pottery of the Jevišovice style of the Kočín site in south-western Slovakia, thus giving the first detailed account on this eastern periphery of that style whose existence has but recently been discovered. Moving to the north Paweł Valde-Nowak reports the find of an isolated grave containing a Baden style amphora in the Carpathian Mountains. Andrzej Pelisiak deals with the “most Badenian flint”, the Jurassic Flint type G, a raw material almost exclusively used in the settlements of the Zesławice-Pleszów group near Cracow, but also being subject to long-distance exchange.

The third part of the volume is dedicated to the problem of “outbound” relations, that is, the relations of the Baden Complex to material classified differently. Both encompass Baden influences in distant regions as well as the relations to different styles in one region. Lolita Nikolova shows a chronological scheme related to Eastern and South-Eastern Europe and proposes the existence of a far-reaching cultural network in the second half of the 4<sup>th</sup> millennium BC encompassing the regions of the Baden Complex, the Pontic area, the Balkans, the Aegean and even Western Anatolia. Christian Mayer presents a row of mappings of different complexes from the Late Neolithic in the Austrian Danube Region, along with a thorough critique of these sources. Albert Zastawny gives account of the Baden Complex in Little Poland, where quite different models of cultural influences are observable. Agnieszka Przybył discusses a new absolute chronology of “badenized” Funnel Beaker settlement on Polish Lowland. For the Kujavian region and adjacent areas Małgorzata Rybicka deals with the Baden influences on Funnel Beaker complexes, even speaking of a Funnel Beaker-Baden society. In her paper Marzena Szmyt gives a review of Baden patterns adopted by societies related to the Globular Amphora materials. She tries to explore their signi-

ficance and shows that such patterns were used as one of the components building a self-identity of the communities connected to the Globular Amphora regional group in Kujavia. Hanna Kowalewska-Marszałek examines a role of “Baden” elements in the syncretic assemblages of the Złota type. Piotr Włodarczak is concerned with Baden pottery typological traits in the Little Poland Corded Ware, even proposing an important role of these influences in the formation of the latter, but also pointing out the importance of Post Baden (Jevišovice B) influences on the later Corded Ware. Finally, turning to the east, Baden influences in the Cucuteni-Tripolye complex east of the Carpathian Mountains are discussed by Mikhailo Videiko.

Obviously, the papers reflect quite different, partially even opposing concepts concerning the nature of the Baden Complex. These differences are due to different schools and research traditions in the different countries. However, it seems appropriate to put them together in one volume, as the recognition of these conceptual differences is crucial to an understanding of the interpretations based on them. We are happy to be able to present such a wide range of papers from a highly international community. It seems beneficial to unite the papers, as diverse they may sometimes seem, into one volume, using one language. We chose English, as we believe it will reach the greatest audience, parts of which will so far have had problems to get an overview over the research on the Baden Complex.

We hope this volume will contribute to a better understanding of the cultural phenomena behind the „Baden Complex”. Maybe the compilation of different approaches, as presented here, will further international exchanges of ideas, knowledge and resources and promote discussions on the subject.

Finally, we wish to thank the editors of the SAO/SPEŚ for including this volume into the series, the sponsoring institutions for their support and Ines Reese, Emily Schalk and Holger Dieterich for their professional editorial and graphical work.

*Martin Furholt, Marzena Szmyt  
and Albert Zastawny*

## The Baden Complex: General Views





## Culture History Beyond Cultures: The Case of the Baden Complex

*By Martin Furholt*

### The Struggle with the Concept

The paradigm of Culture-Historical Archaeology has dominated research practises in Central and Eastern Europe since the first days of the discipline. While in English speaking countries and in Scandinavia theoretical debates connected to Processual or Post-Processual Archaeology led to a turn away from the concept, here a remarkable continuity can be observed. In this tradition the concept of the Archaeological Culture is the central unit of classification, a tool for dating and the starting point for most interpretations. It lies behind almost all works on Neolithic and Chalcolithic material culture in Central and Eastern Europe. So, when trying to work on any subject related to these periods in the area, one will be unable to escape the necessity to deal with the concept, as the classification system that is used defines the material base, upon which the respective models rest.

In the last years several authors have criticised the concept thoroughly (cp. LÜNING 1972; BERGMANN 1974; EGGERT 1978; RENFREW 1984; HACHMANN 1987; WOTZKA 1993; JONES 1996; SHENNAN 2002, 78f.) as well as demonstrated alternative approaches (LÜNING 1979; SCHIER 1993; MÜLLER 2001, WOTZKA in print; NAKOINZ 2005; MÜLLER-SCHESSEL/BURMEISTER 2006), which seem to lead the way to a more differentiated culture historical approach. It, however, must manage without the traditional concept of culture.

This concept of Archaeological Culture has a long and very susceptible tradition in Archaeology. It derives from G. KOSSINNA's "Siedlungsarchäologische Methode". There the premise that "sharply bounded cultural areas coincide at all times with certain peoples or tribes" (KOSSINNA 1919/1920, 396; translation by author) served as the basis for identifying prehistoric people, as KOSSINNA was steeped in 19th century theories about an essentialistic nature of ethnicity. For KOSSINNA the only conceivable mode of human organisation was that of people with a homogenous, coherent culture, inhabiting a certain geographical area, even sharing the same anthropological character. This view was modified by V.G. CHILDE, who explicitly demanded a constant, recur-

rent association of "certain pots, ornaments, implements, burial rites and house forms" prior to postulate the identification of a prehistoric people (VEIT 1984, 342). Although CHILDE took a more critical position on the identification of prehistoric cultures and their interpretation in terms of ethnicity, he still maintained the premise of cultural coherence. As the identification of such a "constant recurrence" of several different cultural traits was set out as the chief goal, he carried on one principal preconception of KOSSINNA. Human cultures were still thought of as being coherent.

CHILDE's more cautious position on the identification of human cultures seems most suitable to describe the basis of Culture Historical Archaeology in Central and Eastern Europe. Thereby at least two groups of culture historical archaeologists have emerged (WOTZKA 1993, 26). One group, which is still very strong, maintains that archaeological cultures do actually equal prehistoric social groups, although this group usually tries to avoid the terms "people" or "ethnos". But in most cases it becomes very clear that the "cultures" defined are thought of as a people that share a coherent culture. The other group follows LÜNING (1972), who acknowledged the fundamental insufficiency of the concept for interpreting past human cultural organisation. This group uses the concept only as a tool, a "terminus technicus", for the classification of finds and the establishment of a temporal order.

LÜNING (1979) favours a polythetic classification as proposed by CLARKE (1968) and the study of a continuous development in a holistic „Culture of the Neolithic“. This approach is very influential in Germany (cf. WOTZKA in print). Beyond these tendencies the premise of coherence as an essentialistic nature of partitive cultures still seems to dominate the research practice in Central and Eastern Europe. As the configuration of the archaeological evidence is dominated very much by pottery, the great majority of archaeological cultures of the Neolithic period is defined by specific stylistic groupings of ceramic vessels. As it is normally very difficult to identify a comparable amount of other materials,

for example, stone tools, ornaments, burial structures, house forms etc., a cultural homogeneity is claimed, whose lack of proof is then explained by the scarcity of archaeological sources. Often, however, a coherency in the distribution of different categories of finds in the archaeological record during a given period is claimed without really asking such questions at all. In both cases, a vicious circle started by KOSSINNA and maintained by CHILDE is at work, for the premise of cultural coherence inverts the explanans and the explanandum. Although the question whether there is coherence in our archaeological record should be a central point of investigation, coherence is taken as a premise, as if no other alternative possibilities would exist.

D.L. CLARKE's (1968) argument for a polythetic classification of the archaeological record surely is a tool to detect such alternatives, as the approach was trying to avoid the monothetic classification connected to the traditional concept. A polythetic classification allowed a non-coherent composition of the material that actually meets the reality of the archaeological record. However, as pointed out by H.-P. WOTZKA (in print), although CLARKE proposed a polythetic classification, he did not overcome CHILDE's culture-theoretical positions.

Nevertheless, it seems that a polythetic classification of the material should be the basis for any culture historical investigation in archaeology. But we must also change our culture-theoretical premises. As anthropology in the last decades has stressed, people are engaged in different, non-coherent (or at least potentially non-coherent)

cultural networks of different regional extent and social association (GEERTZ 1996; DRECHSEL ET AL. 2000). Furthermore, it has been demonstrated sufficiently that groups of different identities communicate their respective identity in very different ways, sometimes through certain traits of material culture, sometimes not, but certainly not necessarily within the realm of pottery.

In spite of these objections, in Central and Eastern Europe it is still common practice to view an archaeological culture as representative of a distinct group of social identity, a coherent culture with a particular economy, settlement pattern, specific burial rituals, even specific anthropological traits; in other words, to place an equation mark between 'pottery' and 'people'. Thus, the "people of the Globular Amphorae Culture" are thought to be herders, the "Corded Ware people" are warriors, etc. When discussing the "bearers of the Baden Culture" the coherence-premise is at work, although such a formulation should indeed be favoured over those mentioned above, as it exercises a certain degree of caution towards interpretations.

It is obvious that there are quite different opinions on this subject, even in this volume. This also means that different concepts lie behind the interpretations made. To be sure, I am not claiming that the concept presented here is right and the others wrong. Yet, it is my opinion that a more critical discussion on this issue would allow us to bridge many terminological borders and gain new and fruitful insight on the subject.

### The Case of the Baden Culture

Let us take a closer look at the main subject of this volume, the "Baden Culture". In recent research practice, the 'Baden Culture' is broadly viewed as an 'Archaeological Culture', in the traditional sense, and discussions have been centred around questions as to when the culture should be dated and how it is related to other Archaeological Cultures (cp. NĚMEJCOVÁ-PAVŮKOVÁ 1998 for a summary). The observation of the great amount of similarity between the early Baden Pottery, the phase called Boleráz and the neighbouring Cernavodă III Pottery, on the one hand, and the presence of at least one large Boleráz complex in Switzerland (ROMAN/DIAMANDI 2001), on the other, has been a serious challenge to this view. The distribution of this Boleráz-Cernavodă III pottery is much wider than that of material in the following Classical Baden period. The result of these observations has been a discussion about whether it would be justified to think of 'Boleráz-Cernavodă III' as a separate culture in order to distinguish it

from the rest of the "Baden Culture" (cp. ROMAN/DIAMANDI 2001).

In my opinion this kind of discussion is simply misleading, since it builds upon the premise of a cultural coherence, as discussed above. This premise encompasses the assumption that the Baden Culture Pottery has an even and delimited distribution, a sharp border to other pottery styles, and that there is a similar distribution pattern in the other spheres of material culture.

In fact, this premise is maintained despite its obvious discrepancy with the archaeological evidence. I have already named the so-called Boleráz-Cernavodă III-phenomenon and now must add the concept of a "Badenisation" of the different groups of the Funnel Beaker Complex in Moravia, (PROCHÁZKOVÁ/VITULA 2001), Bohemia (ZÁPOTOCKÝ 2000), Upper Silesia (BUKOWSKA-GEDIGOWA 1980), Lesser Poland (KRUK/MILISAUSKAS 1990) and Greater Poland (RYBICKA 1995; RYBICKA in this volume). All of these cases

demonstrate that there is no sharp boundary with the distribution of the Baden Culture, even when we restrict ourselves to the sphere of pottery.

Besides the lack of a clear border at the “outside” of the so-called Baden Culture, there is also a lack of coherence within. B. BALCER (1988) shows that flint industries display very little congruence with the distribution of the Baden pottery. BALCER’s industries subdivide the Baden area into several different regions, each linked to areas lying outside of this distribution area. Even in works that are directed towards the ‘flint industries of the Baden Culture’ the lack of uniformity is stressed (KACZANOWSKA 1982/1983; PELISIAK 1991).

The so-called ‘figurines with changeable heads’ are usually referred to as typical idols associated with the Baden Culture (NOVOTNÝ 1981; KALICZ 2002). The fact, however, that these figurines are distributed throughout the Carpathian Basin and southwestern Slovakia, whereas in Austria and Moravia animal figurines predominate (PAVELČÍK 1982; PAVELČÍK 1992; RUTTKAY 1995, 154), shows that the clay figurines constitute a cultural sphere whose boundaries cut right through the area of the ‘Baden Culture’.

Burial customs associated with Baden style pottery are to a great degree regional (SACHSSE, this volume). The account of the faunal remains (BENECKE 1994, 89ff.) reveals the dominance of sheep and goat in a number of Baden settlements in the Carpathian Basin (as well as in Bodrogkeresztúr and Balaton-Lásinja settlements), while in regions to the north cattle predominate. Again, a cultural boundary cuts through the area of the so-called ‘Baden Culture’, forming two areas that are connected to their respective surroundings. In fact, it is not possible to find a single sphere of material culture with a spatial pattern corresponding to that of the pottery style.

Thus, the Baden Culture cannot be treated as an Archaeological Culture in the sense of CHILDE. It would be much more correct to speak of a “Baden Pottery Style”, as this has been the initial subject of definition, while the rest of the Baden Culture seems to be mere construction.

But even here caution is advised. Are we really dealing with a homogenous pottery style? The large number of names for subgroups or related groups of the ‘Baden Culture’, all of them defined by pottery typology, raises serious doubts about this. I have already referred to the debate on the existence of a Cernavodă-III-Boleráz ‘culture’ (or, more neutrally, ‘phenomenon’).

The ‘remaining Baden Culture’ is divided into very different subgroups, such as ‘Viss’, ‘Ossarn’, ‘Ózd’, ‘Fonyód’, Mogiła, Zesławice-Pleszów etc. (NĚMEJCOVÁ-PAVÚKOVÁ 1998).

Actually, a look into the history of research on the Baden culture seems to tell the story of a piecemeal construction of the phenomenon as a uniform culture, whereas its component parts were viewed much more independently in the early days of research.

In the early 20<sup>th</sup> century J. PALLIARDI excavated the hilltop settlement of Starý Zámek near Jevišovice (PALLIARDI 1914). In layer C1, which became one of the central complexes for the definition of the Boleráz Style, the excavator recognised the presence of different pottery styles, Boleráz and stab-and-drag-ornamented pottery, while in the lowest stratum, C2, he stressed the connections both to the sub-alpine lakeshore-dwellings (he obviously meant Mondsee) and to the Nordic Funnel Beaker Culture (PALLIARDI 1914, 267).

The term “Baden Culture” was first used by O. MENGHIN (MENGHIN 1921, 15, cit. after BANNER 1956, 257) for the finds from the “Königshöhle” near the eponymous site in Lower Austria. Menghin also applied the term to certain complexes in Bohemia and Moravia, for example, Jevišovice C1. But he identified different influences and at least two different pottery styles within, again counting the stab-and-drag-ornamented pottery as part of the Baden Culture (MENGHIN 1926, 45ff). He also points to the mixed character of the western Moravian grave mounds. In his opinion, the channelled decoration that is so characteristic for Baden pottery derives from the Nordic Funnel Beaker Culture.

In 1928 J. BAYER published the first report about the site of Ossarn, in which he defined an “Ossarn Culture”, again a mixed culture containing elements from the southeast, such as Hungary and also Troy, as well as from the north, again referring to the Nordic Funnel Beaker Culture. Although BAYER saw parallels with Baden and Jevišovice sites, he still stressed the concept of a rather regional “Ossarn Culture”<sup>1</sup>.

Also in J. BANNER’s (1956) influential work, emphasis is placed upon the regional differences in his “Pecel Culture”. He distinguished areas of different burial rites and, partly corresponding, pottery styles. Unlike BAYER, besides acknowledging local roots BANNER highlighted stronger influences from the south (BANNER 1956, 174ff.). Yet, instead of making the different regional settings

<sup>1</sup> BANNER 1956; This term not only refers to specific burial customs, but also pottery styles. Thus, BANNER already

detected this occurrence of coherence between the two spheres.



an object of investigation, Banner tried to unify the Pecel, Ossarn and Baden Culture (BANNER 1956, 177), treating these appellations as synonymous (BANNER 1956, 257). Thus, differences in burial rites and different pottery styles were neglected in order to postulate an Archaeological Culture that was mainly based upon similarities in pottery typology.

In the work of N. KALICZ (1963), the Baden Culture ultimately emerges as a homogenous culture, as KALICZ tried to link it to the Aegean Bronze Age. What appeared to be differentiated both regionally and culturally in the works of BANNER and BAYER now emerges as an entity, out of which single elements could be compared in a supra-regional context.

E. NEUSTUPNÝ (1959; 1973) first established an internal chronological scheme for the “Baden Culture” that proved to retain validity in its basic features. He also emphasised the regional differentiation within the culture and the close connections to the Jevišovice B- and Řivnac Complex. In his 1973 paper, in view of what he sees as influences from different directions, NEUSTUPNÝ considers the possibility of a polycentric genesis. In the end, however, he favours a spread from the northwest to the southeast (NEUSTUPNÝ 1973, 345ff).

The publication of the meeting in Bratislava (CHROPOVSKÝ 1973), which also contained NEUSTUPNÝ’s paper marks a very important point, as for the first time research in the different regions was summarised and placed under the common label of “Baden Culture”. Differences between the material culture in the areas involved were acknowledged, but the concept of a “Baden Culture” was already too well established.

NEUSTUPNÝ words in 1973 seem indicative of this: ‘...in none of the regions is the whole of the development of the Baden Culture documented through representative find complexes. Always some of the phases are represented by complexes of doubtful character, often containing but a few vessels, sometimes indices of these and those phases are wholly lacking’ (Neustupný 1973, 328; translation by author). This is clearly not the description of a coherent culture, nevertheless the concept remained largely unquestioned.

To sum up, the premises that have thus far qualified ‘Baden Culture’ as an ‘Archaeological Culture’ in the traditional meaning clearly must be repudiated. The concept of the ‘Baden Culture’ as a homogenous, coherent cultural unit is misleading, even when restricting ourselves to the label of ‘Baden Pottery Style’.

#### Culture Historical Archaeology without cultures?

The position I wish to take here is not that there are no coherent cultures or that it would be impossible to identify them. Rather I propose that groups of people with a certain degree of coherence in their culture exist today and surely existed in prehistory. However, such coherence is not a premise, but instead the concrete outcome of historical developments, developments involving a higher degree of communication within a certain group as well some tendencies to delimit itself towards others. Other reasons for coherence are conceivable, like ideologically legitimised “cultural cores” (SHENNAN 2002, 78f.). In such cases and in the special situation that such a group of people used the majority of its material culture to communicate its identity, it would appear possible to detect its existence via the archaeological record. However, there seem to be very few incidences that are identifiable in this way. So the approach presented here is very different from the concept of the Archaeological Culture. The search for coherent cultures, groups constituted in a way that is similar to our concepts of ethnic groups, does not necessarily have to be the main concern of Culture Historical Archaeology.

Culture History in the sense favoured here is mainly concerned with the spatial patterns of

stylistic variation in material culture and how it relates to past human communication. When applying a semiotic approach to material culture, every artefact is seen as an act of communication, be it conscious, intentional or the outcome of habitus, by means of which unconscious stylistic decisions should be able to communicate the presence and activity of different cultural codes. Such premises, albeit usually implicit, underlie the whole culture historical approach, because the assumption of an Archaeological Culture maintaining a distinct and uniform cultural code, or sign system, is the basis for believing in the presence of homogenous, coherent cultures.

This new approach favoured here was taken by J. MÜLLER (2001) towards material of Neolithic Central Germany and by H.-P. WOTZKA (in press) for the Lake Shore dwellings in Switzerland or by MÜLLER-SCHESSEL (MÜLLER-SCHESSEL/BURMEISTER 2006 and NAKOINZ/STEFFEN 2006). In my opinion these works demonstrate how to deal with culture historical questions, thereby avoiding the pitfalls of the concept of the Archaeological Culture.

One of the main differences between this modern culture historical approach and the traditional ones that have been criticised by the Processual Archae-

ologists since the 1960s is that the former does not view the question for past cultural identities as the central aim of research that will explain all developments in the archaeological record. Instead it views itself as one important subarea of the study of past human reality. This subarea is concerned with the stylistic variation in material culture, seeing it as a sign of human communication; it attempts to identify areas of more or less intensive communication, to locate borders between these areas of communication and to investigate their nature and developments throughout time.

But being aware of both the polythetic setting of human culture and the variability in the different modes (in regard to intentionality and social context) in the use of material culture, the study of archaeological artefacts as a media of past human communication becomes a far more complex matter. We must take into account that the intentionality behind acts of communication through material culture may change over time and also may be quite different due to the different types of tools involved.

A polythetic culture theory sees the individual as involved in different cultural spheres, spheres that are connected to different collectives. Normally these collectives show a diverse regional setting and different significance in daily life.

The polythetic nature of human culture may be viewed in the archaeological record when identifying different categories of finds, such as burials, houses, pottery, stone or metal tools, jewellery, economic structures, technological know-how and so on as being potentially connected to different collectives. Analogous to our model, these find categories show diverse regional settings and surely different significance for the past lifeworlds. There will also be differences concerning the mode of production. The signs could have been produced intentionally or by what

J.R. SACKETT (1982, 67ff.) termed the “isocrestic variation”, which equals a habitual mode of production. In both cases they are valuable for the investigation of areas of communication or cultural borders, although they must be interpreted differently.

So, whereas we have fundamental difficulties in identifying past human social groups, we are able to define units of time and space, where there is more or less uniformity in the signs of the material culture. Moreover, we are able to study the developments in these units and their interrelations, divergences and correspondences that will provide us with suggestions about the presence of past human cultural identities.

However, such an approach as this must rest upon three foundations. Firstly, a polythetic classification has to be applied, unhampered by the concept of “Archaeological Culture” that presupposes a monothetic setting (coherent cultures) of the material. Secondly, the decision on contemporaneity – the dating – should not rest primarily on typological similarities, but found upon a basis of scientific dating methods. Of course, since we cannot date every find context, a combination of typological considerations and scientific datings still must be applied, but it should be clear that the results of the latter outrival the mere principle of “the contemporaneity of what looks alike”. The third foundation should be the awareness of the different modi possible in the use of material sign systems. We should consider the intentionality behind the production and use of material culture and keep in mind the differences in significance that certain signs might have as well as the temporal and regional change that might occur in all of these aspects. This, however, should not lead us into an interchangeable interpretation *ad libitum*, for such investigations must be founded in the specific contexts studied.

### Baden Style Pottery in a Polythetic Culture Model

In Part 2 we already saw how a polythetic classification of the material of the so-called Baden Culture reveals the dangers in the concept itself. A polythetic classification of the material points towards areas of quite incongruent location between the different spheres of the material culture. Thus, it is not possible to define a clear-cut Baden area or Funnel Beaker area any more. This makes things much more complicated, although I believe that it comes much closer to reality than the traditional model. One need think only of the mixtures of Funnel Beaker and Baden or Cernavodă III-Boleráz already mentioned.

Nevertheless, in applying the polythetic approach it is possible to detect areas with a different and

changing degree of cultural homogeneity. The following investigations derive from FURHOLT in print a.

As, in our opinion, the term “Baden Complex” should only refer to the pottery style, a style that should not be thought of as a homogenous unity (see above), the first question asked should be whether it is possible to distinguish between different substyles. This is indeed the case. A number of regional correspondence analyses on the pottery in the Carpathian Basin and north of it reveals the significance of several substyles already established in literature. Fig. 1 shows the analysis of decorative motifs in the regions of Moravia, Upper Silesia and Lesser Poland.

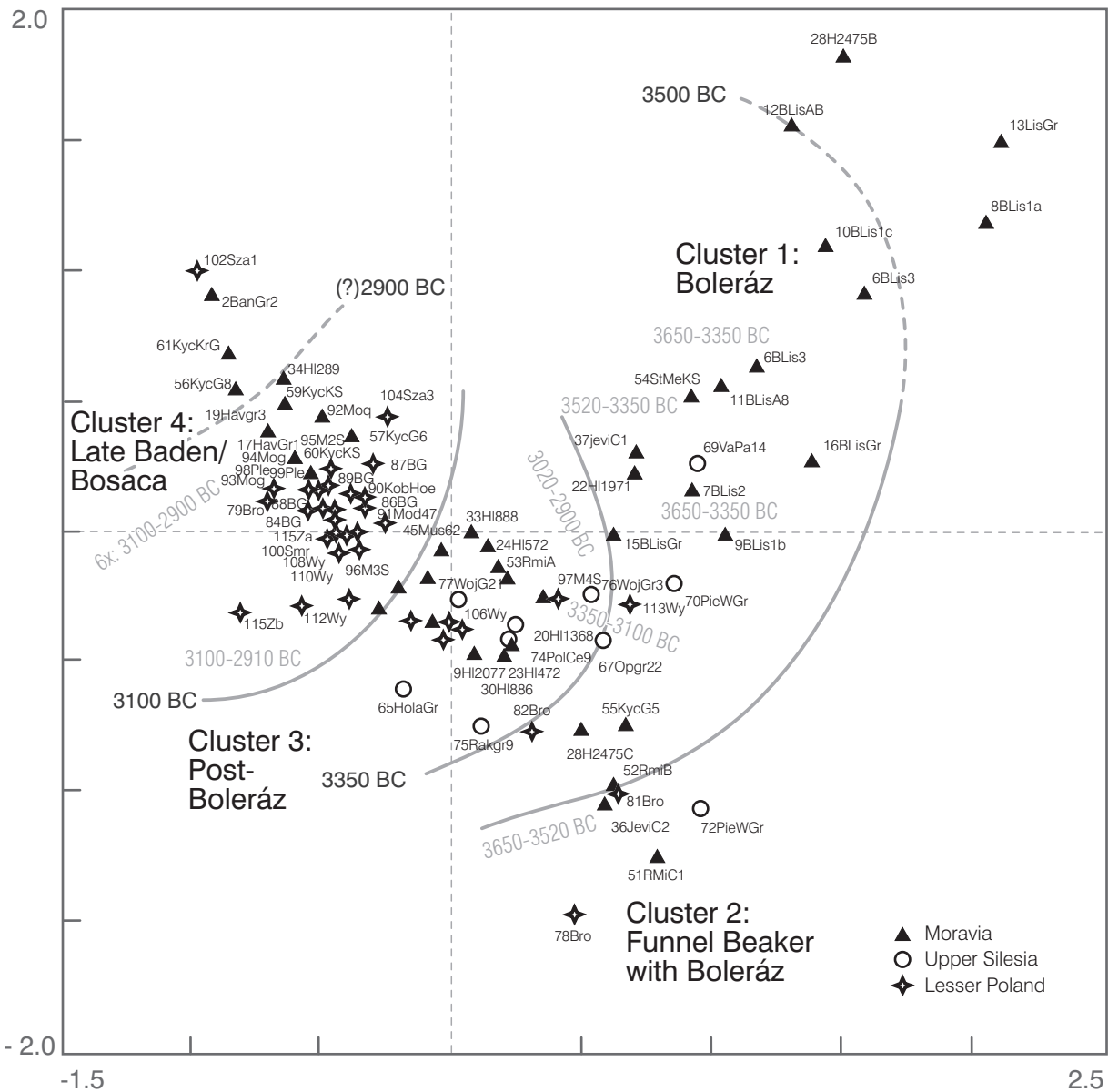


Fig. 1. Correspondence analysis of decorative motifs on settlement finds in the regions Moravia, Upper Silesia and Lesser Poland, 1st and 2nd Axis.

The units – in this case pits or cultural layers from settlements – display a distribution along the first axis that is clearly dominated by the time factor, as a number of radiocarbon dates reveals. The earliest dates on the right side lie between 3650 and 3500 BC, while the latest dates on the left side lie between 3100 and 2900 BC. This dating of the Baden Complex is in accordance with the dates known so far (DE CAPITANI 2002; Baldia et al. this volume), while the dates that Horváth (this volume) supplies for Balatonőszöd seem to deviate regularly towards a younger age.

The right part of Fig. 1 is separated into two clusters, denoted as Cluster 1 and Cluster 2. They corre-

spond to the Boleráz-Style (1) and Funnel Beaker with Boleráz-Influences (2). Complexes from Rmíz are also included in the latter (see Baldia et al. this volume). In the centre of the analysis is located a “Cluster 3”, referring to the so-called “Post-Boleráz” dating from 3350 to 3100 BC. On the left side of the graph there are late Baden and Bošáca-Complexes, dated between 3100 and 2900 BC. These clusters are also traceable in the sphere of decoration techniques as well as in the formal elements of the pots. Thus, we seem to be dealing with real sub-styles of the pottery, not only with decoration styles.

Fig. 2 shows a synthetic correspondence analysis of decorative motifs in the Carpathian Basin and

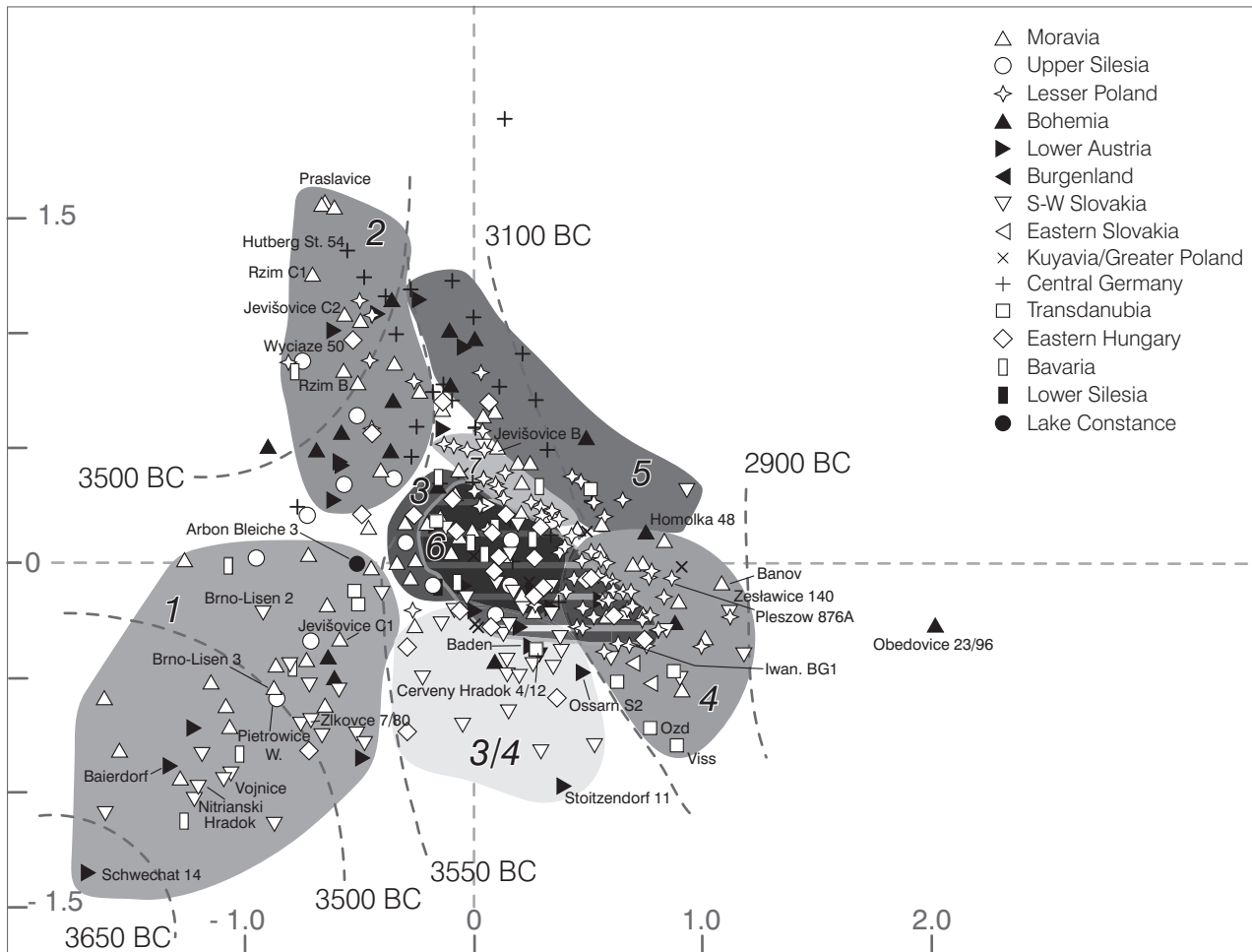


Fig. 2. Correspondence analysis for 389 find complexes from settlement assemblages in the Carpathian Basin and regions to the north and west, 1st and 2nd Axis. The grey shadings denote the clusters or styles identified.

adjacent regions, containing a sample (n=389) of closed settlement finds from these regions. Again, time dominates in the first axis. The complexes containing Boleráz Style pottery are located in the left part of the graph, the groups of Classical Baden and Post-Boleráz in the centre and the late Baden

and Bošáca Complexes to the right. The arrangement of the complexes shows a triangular form, as the dominant feature of the second axis is the opposition of a northern, “Funnel Beaker” and a southern “Carpathian” influence.

### The Spread of the Boleráz style to the North

This opposition is especially dominant in the early phase, 3650 to 3350 BC, where a successive spread of Boleráz Pottery – connected with the southern influence – to the north can be observed (FURHOLT in print a). This dissemination seems, at least in the western part of the area, to be connected mainly with high-quality fine ware pottery, while the coarse ware mainly is manufactured in local styles, be it the Moravian Funnel Beaker or the Pfyn-Horgen Style in Arbon Bleiche 3 (de CAPITANI 2002). Here a polythetic approach helps us

to understand the process of the spread of the Boleráz style, instead of sticking to the black-and-white discussions on migrations. Surely pots, or concepts of such, cannot move without people moving, but the processes involved seem to be more complex. The high-quality pottery seems to represent a medium that communicates social identity in long-distance networks, while the coarse, assumedly daily ware, follows another mode of stylistic production, perhaps of habitual nature (FURHOLT 2008). Such a marked difference between the production

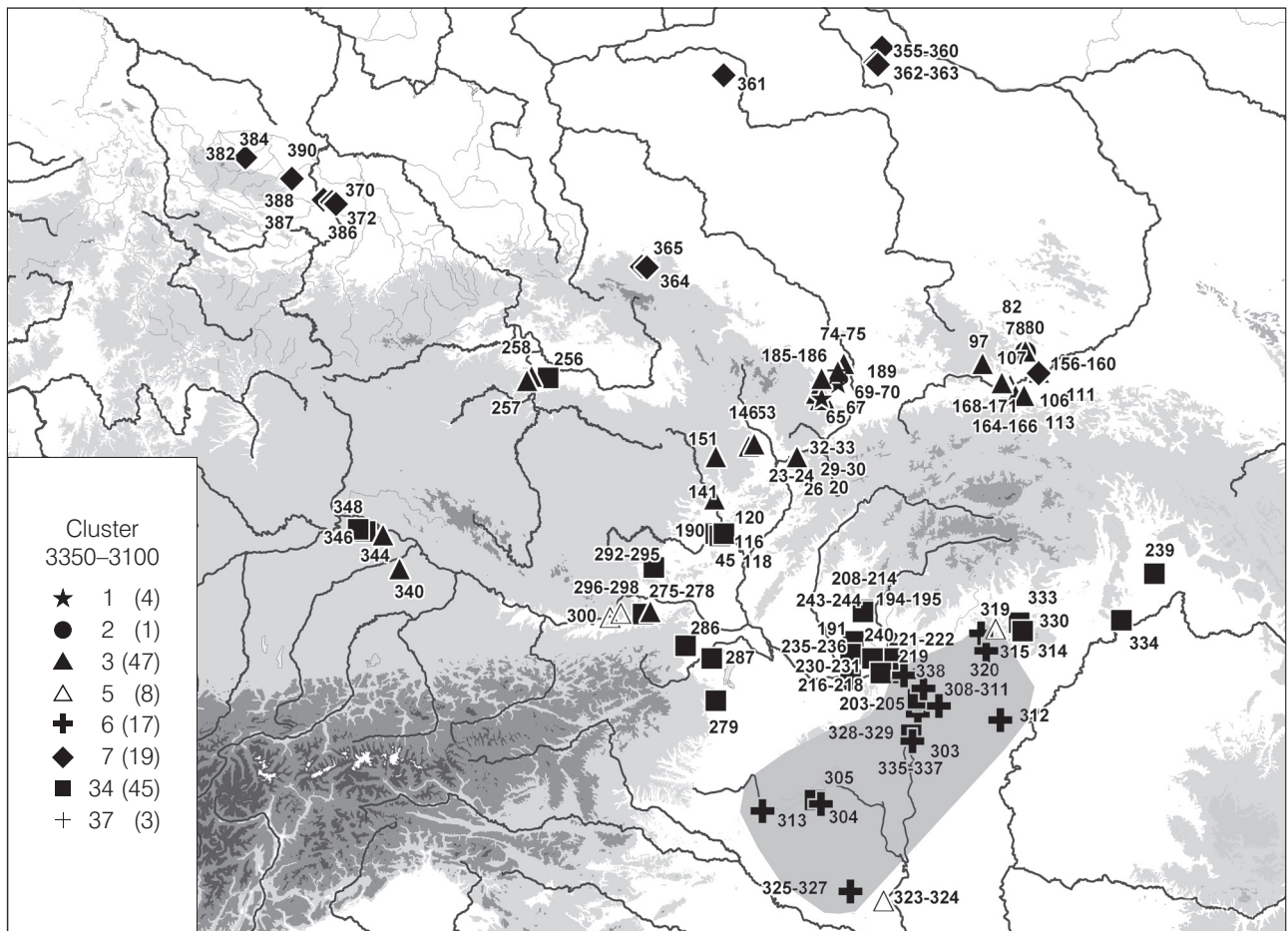


Fig. 3. Map of the Baden Pottery Styles in the Period 3350–3100 BC, the distribution of Style 6 is highlighted.

of fine ware and coarse ware pottery apparently derives from old southeast European traditions, observable in the painted pottery of the Early and Middle Neolithic and the Black Burnished Ware of the Middle and Late Neolithic. Thus, when applying what has been said above about the different modi of cultural communication via material culture, it may be assumed that the two spheres of pottery, the fine ware and the coarse ware, represent two different modi. The regional coarse ware vessels may have a habitual, unintentional character, while the supra-regional fine ware is produced, distributed, copied and used in a context of social relations playing a very different role and probably bearing a higher value function in the realm of supra-regional discourse. Hence, we must interpret the differences in distribution between these spheres quite differently. The supra-regional distribution of the fine ware pottery need by no means equal the movement of a greater number of people. Similar patterns in the sphere of the coarse ware, however, would have to be interpreted differently, whenever observed. Nevertheless, the spheres of the pottery need to be fitted into a broader spectrum.

In our polythetic framework we must next question whether there are other, corresponding observations in other cultural spheres or categories of archaeological remains. Burial mounds in Moravia allow remarkable insight into funerary practises (see BALDIA ET AL. this volume; SACHSSE this volume). While the overall burial practise, long burial mounds with stone constructions, can be connected with the Funnel Beaker tradition, especially its Baalberg phase, the gradual intrusion of southern influences is observable. First, fine ware Boleráz Pottery appears alongside the usual Funnel Beaker pots. At the same time cremation is introduced. Although not exclusively associated with Boleráz (see SACHSSE this volume), this custom clearly is of southern origin and in this case spreads synchronously with Boleráz style pottery. Cremation does not, however, show the same wide distribution as the Boleráz Pottery that reaches Bohemia (ZÁPOTOCKÝ 2000) and even Lake Constance (DE CAPITANI 2002). Also, the spread of Boleráz Pottery is not followed by a comparable pattern in any other sphere of the material culture. As stated above, a clear border remains between two different

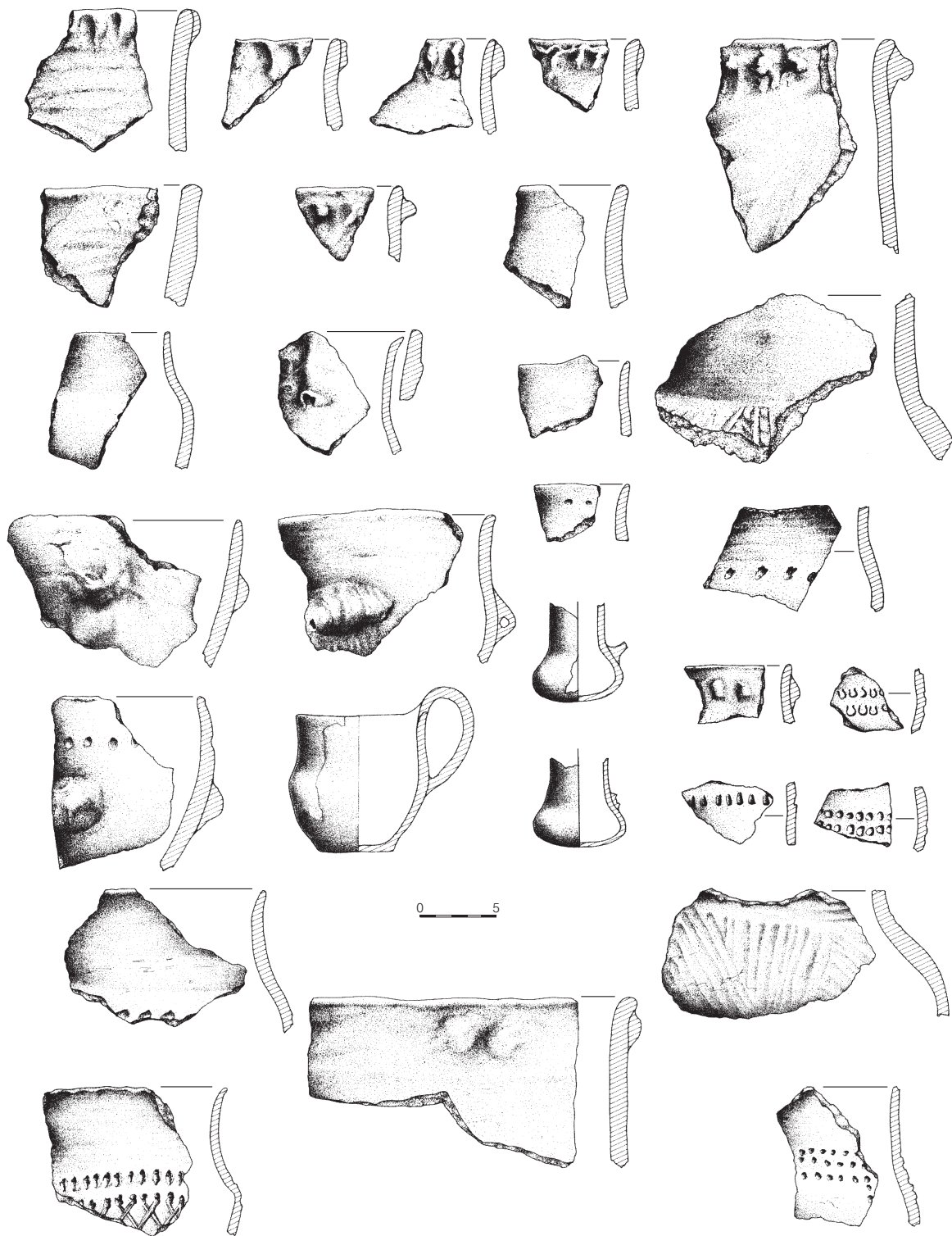


Fig. 4. An example of an inventory of the Style 6 from Békásmegyer (after Endrődi 2002).

traditions concerning the making of clay figurines, with a clear dominance of human representations in the south and animal figurines in the north. This border does not seem to be altered during the second half of the 4<sup>th</sup> millennium (FURHOLT in print a).

The difference in animal bone ratios stated above, with dominant cattle ratios in the northwest and sheep and goat dominance in the south, as seen in respectively high amounts of sheep and goat bones, continues, despite the spread of Boleráz-Pottery

and the cremation custom to the northwest. Also flint industries or stone tools are not affected by the spread of the Boleráz style.

Therefore, it appears that the spread of Boleráz-Pottery to the north is only partially accompanied by the custom of cremation, while most of the material culture pattern remains stable. In the period in question, 3650 to 3350 BC, it seems impossible to trace any areas of coherent material culture, the north-south dichotomy dominating the archaeological

record. Thus, although it can be assumed that groups of different cultural identity existed in the area in question, their use of the material sign systems do not reflect their regional setting, as it obviously is dominated by a north-south dichotomy and the successive diffusion of southern elements into the north. These southern elements are connected to a distinctive high-value social context that, as argued elsewhere (FURHOLT in print a), may be connected with the spread of wagon technology.

### Cultural Coherence in Hungary?

In the time following, 3350 to 3100 BC, the pattern of material culture apparently changes. The pottery now reveals several small-scale groupings that are much less affected by the dichotomy of Funnel Beaker and Carpathian influence. Nevertheless, it is not possible to point out any areas of coherent material culture, with one exception. The distribution of the Style 6 (Fig. 3–4) – the Hungarian variant of the Classical Baden Pottery – exhibits a range that more or less matches the distribution of BANNER'S "Group of Skeletal Burials". SACHSSE (this volume) is able to present a more differentiated picture of the burial costumes in Hungary, making clear that the coherence is but a relative one. Nevertheless, there also seems to be a certain congruence with other cultural spheres. The area in question, that is, the greatest part of Transdanubia and the Alföld south of the northern Hungarian highlands, displays a homogenous structure with regard to human figurines and animal bone ratios. Although both of these spheres, human figurines and animal bone ratios, are connected to a greater, southeast European area, the borders to the north seem to be very well marked. Although of relative quality, we do observe a coherency in the material culture that clearly exceeds most findings from other regions. Thus, a development towards a relative coherence in the material culture is detectable, obviously in reference to a period of more intense communication within this area. However, ultimately older and more stable cultural areas may appear more dominant, as SACHSSE (this volume) demonstrates in the case of burial customs.

There will also have been human groups of a common homogeneous cultural identity in the other regions, but their material culture might have been either much more subject to supra-regional influences or simply not detectable in the archaeological record. The material culture in these cases may have been connected to other networks, to cultural

spheres other than those of a regional cultural identity, an identity whose nature and pattern might have been quite variable. But in cases in which coherence is found, it seems quite reasonable to assume the presence of such cultural identities.

But, as stated above, the identification of such cultural identities is not the chief aim of the polythetic culture historical approach put forward here. This approach will not find "cultures" in every place at any time, but instead reveals a quite complex set of incongruent patterns of stylistic elements in different cultural spheres, which are less appropriate for clear-cut interpretations. Nevertheless, it is clearly preferable to the traditional concept of the Archaeological Culture, which should be given up. Yet, this should not lead to the abandonment of the whole culture historical approach. The reconstruction of patterns in cultural communication areas still remains a central foundation of the archaeological discipline that seriously tries to build its models upon the archaeological record.

These incongruent patterns of stylistic elements established through the polythetic classification may seem hard to handle, but they provide the possibility to implement them into a quantitative approach to stylistic variation. We have the possibility to quantify similarities and dissimilarities of distinct units through methods like, among others, the correspondence analysis or the social network analysis (see e.g. MÜLLER-SCHEESSEL/BURMEISTER 2006; FURHOLT in print b) and to apply such quantities to a model of social interaction. But this leads us beyond the scope of this paper.

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## Abstract

In contrast to the situation in the English-speaking countries and Scandinavia, in Central and Eastern European Archaeology a Culture Historical approach is still dominant and has been since the formation of the discipline. The paradigm holds severe pitfalls, some of them leading to very disparate concepts and interpretations about the Baden Complex, as this volume clearly demonstrates. Despite these problems it is argued that a total abandonment of the whole approach cannot solve all

of problems, because the assessment of the spatial patterns of stylistic elements in material culture as conducted by Culture Historical Archaeology provides the factual basis upon which any other approach has to be based. Thus, critically reviewed culture historical approaches have been developed and implemented during the last years. In this paper, both a polythetic and a semiotic concept of culture is proposed together with its application to the Baden Complex.

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## Problems in the Archaeological Legacy: The TRB/Lengyel-Baden Conundrum

by Maximilian O. Baldia, Douglas S. Frink and Matthew T. Boulanger

### Introduction

The relationship between the Funnel Beaker Culture (Trichterbecherkultur, abbreviated: TRB) on the one side and the Lengyel and Baden Cultures on the other is a conundrum. A conundrum is defined as a problem that has no satisfactory answer. It arises from our archaeological legacy, according to which North and Central European cultures have clashed in Central Europe for millennia. This tradition leads to opposing ideas, including the view that the origin of the material culture is either Nordic or Danubian/Southeast European (SHERRATT 2003). For Moravia and its periphery, the legacy has it that the “Nordic” Funnel Beaker Culture comes into contact with both the late Lengyel and the early Baden Culture (Fig. 1). This period is traditionally dated c. 4400–2600 BC<sup>1</sup>, but depending on the region, not only the dating but also the nomenclature describing this period varies. Thus, this period is called Neolithic, Eneolithic, Chalcolithic, the Copper Age or even the Early Bronze Age.

Regardless of terminology the period provides critical information for understanding the evolution of European civilization, because it entails the development of metallurgy, wheeled vehicles, stone-walled earthworks, monumental funeral architecture and a proliferation of settlement locations ranging from hilltop settlements to lake dwellings. Moreover, given today’s concern about global warming, the late Lengyel, TRB and Boleráz timeframe is vital to our understanding of human behavior during times of dramatic climate change, since climatic oscillations increased drastically after the introduction of farming to Central Europe by the Linearbandkeramik (LBK) and early Lengyel cultures (M. BALDIA 2004; in print;

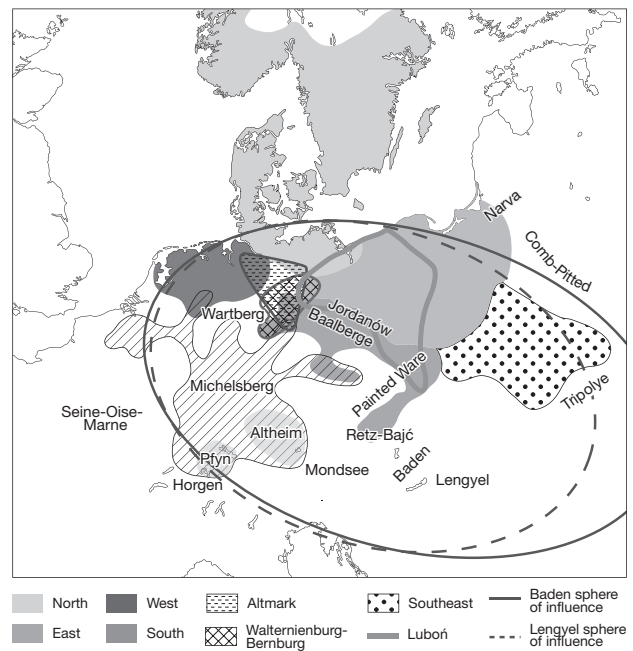


Fig. 1. Funnel Beaker Culture interaction sphere, related cultures/groups and superimposed hypothetical Lengyel and Baden spheres of influence.

BOULANGER in print a; FRINK in print). Therefore, the purpose of this paper is to stimulate a reexamination of our archaeological legacy and its effect on current archaeological method and theory in order to further our understanding of cultural evolution and human interaction (M. BALDIA 1982 a; 1982 b).

The next section shines a harsh light on our archaeological legacy to reveal a provocative black-and-white picture that will kindle an overdue debate

<sup>1</sup> All dates are given in calendar years BC and <sup>14</sup>C-dates are calibrated using Atmospheric data from REIMER ET AL. (2004) and OxCal 3.10 by BRONK RAMSEY (2005). Capi-

tal letters are used to signify calibrated or calendar years, while lower case (bp) is used to indicate uncalibrated dates.

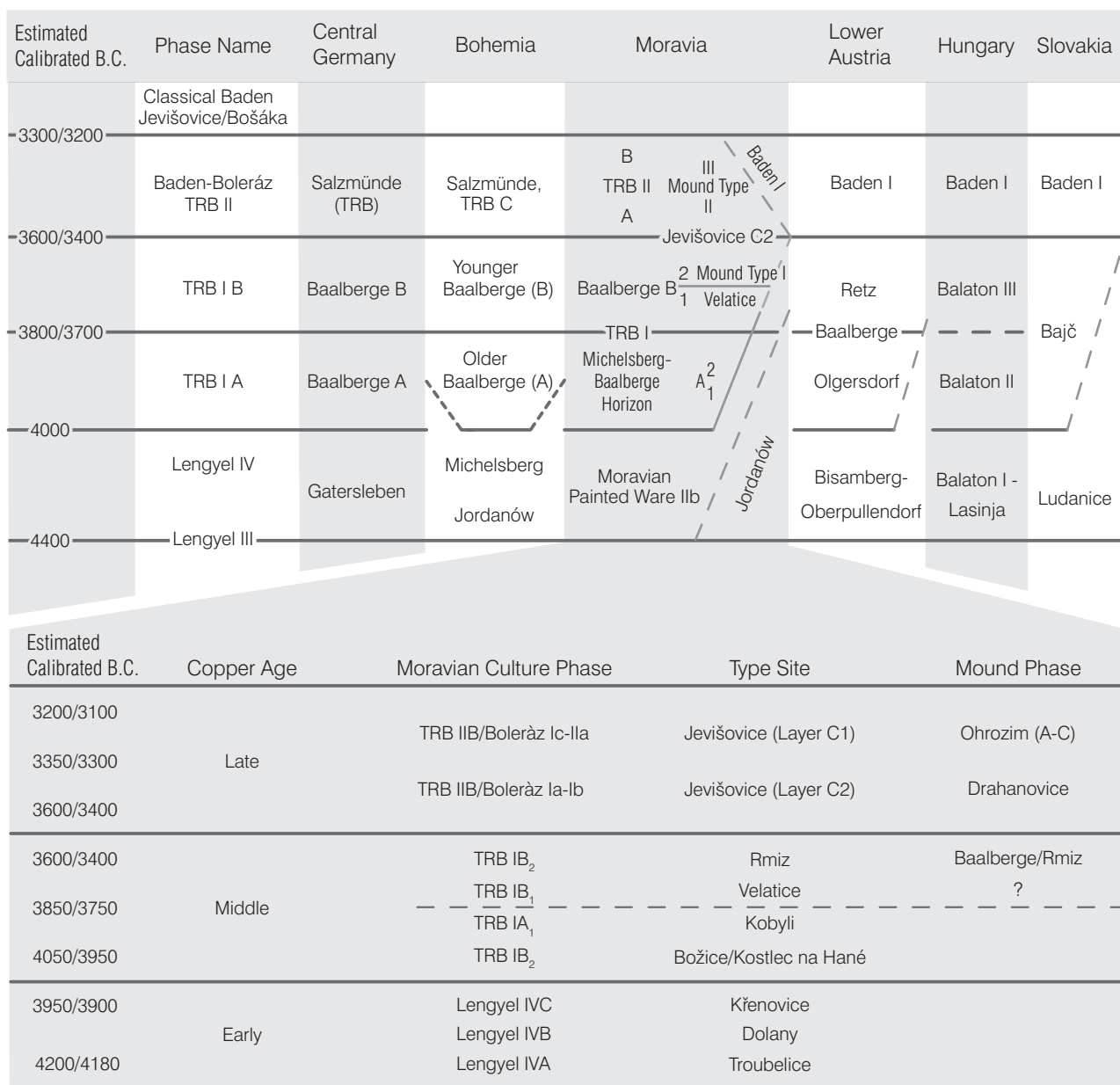


Fig. 2. Lengyel IV and TRB South Group Chronology. Top: Traditional comparative relative chronology (ŠMÍD 1993 a) with estimated calibrated <sup>14</sup>C-dates (M. BALDIA). Bottom: Moravian relative chronology, cultural classification, representative type sites and mound phases (ŠMÍD 2004) with estimated calibrated <sup>14</sup>C-dates (M. BALDIA).

aimed at improving archaeological methods and theories and the linkage between them. This is followed by a case study based upon our Moravian excavations, examples of archaeological incongruencies in classification systems and absolute (direct) dating. Results from new methods applied to pottery

analysis are outlined. It is concluded that our traditional typological approach must be replaced by new methods and theories. Abandoning our legacy will, unfortunately, lead to an even greater conundrum than the traditional effort to delineate the interaction between the TRB, late Lengyel and Baden Cultures.

### The Legacy: Kindling the Archaeological Debate

The Central European archaeological legacy has produced confusing and unwieldy cultural clas-

sification systems/chronologies that hamper the understanding of human interaction. This can be

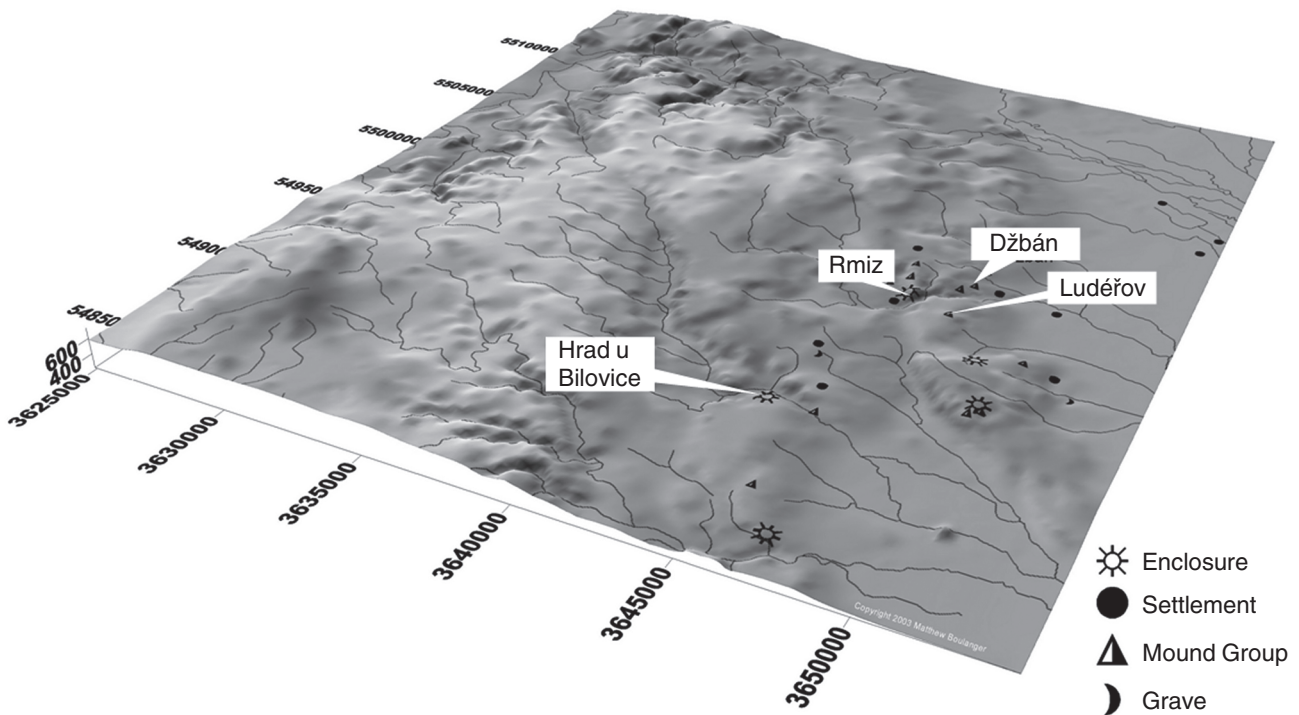


Fig. 3. Location of Central Moravian TRB Sites (map Boulanger). Named sites are those excavated by the Czech-American Research Program.

illustrated by various competing nomenclatures. For the Baden (Pécel or Channeled Ware) Culture alone there is a plethora of regional names, such as Ześlawice-Pleszów, Mogiła-Kopiec, Šturovo, Červený Hrádek, Ossarn, etc. Such terms are intended to indicate regional differences, yet they often double as chronological categories. There are also phase names such as Proto-Boleráz, Boleráz and Classical Baden.

Historically the bewildering nomenclature developed in an ad hoc and provincial manner. This legacy has led to numerous competing classification systems, each one more elaborate than the other. For instance, the Moravian TRB has the designations IA1–IIB (Fig. 2). TRB I covers the TRB's Baalberge Group, but also the Jordanów Group (Lengyel IV). TRB II includes the Channeled Ware Culture known in adjacent Austria as Baden and designated as Bronocice IV–V in Lesser Poland. Each TRB II classification needs to be translated into part of the more universal Slovakian system by V. NĚMEJCOVÁ-PAVÚKOVÁ'S (1981), dividing Baden into Ia–c, II a–b and IV a–b. This complexity makes it seem as though archaeologists compete with each other through the size and length of their typology, staking their reputation on the resulting indirect chronologies, while applying absolute-dating methods only when they support the typochronology. However, in some cases the

typochronology seems to be adjusted to fit new insights derived from absolute dating, even though this is not always made clear in the literature.

All this is complicated by arguments concerned with long-standing notions, such as cultural origins and boundaries, population movements, human agency versus environmental determinism etc., all without solid archaeological data acquisition and appropriate methods of analysis. As a result, these notions are often glorified as (archaeological) “theory”, leading to disparate theses based upon a traditional paradigm. This is exacerbated in areas by a dichotomy between the supposedly “Nordic” TRB on one side and the Danubian Lengyel and Baden Cultures on the other. Worse yet, when modern theories and methods are borrowed from the English speaking world – which has its own peculiar legacy – they are often blindly grafted onto the Central European legacy. Sometimes this leads to perplexing hybrid notions, indicating misunderstandings or poor translations. This together with long-suppressed religious zeal, individual psychological predilections and youthful fervor can lead to perspectives that are disconnected from what is actually found in the ground. The situation makes it impossible to understand the prehistoric human behavior and interaction, which underlie the supposed culture change.

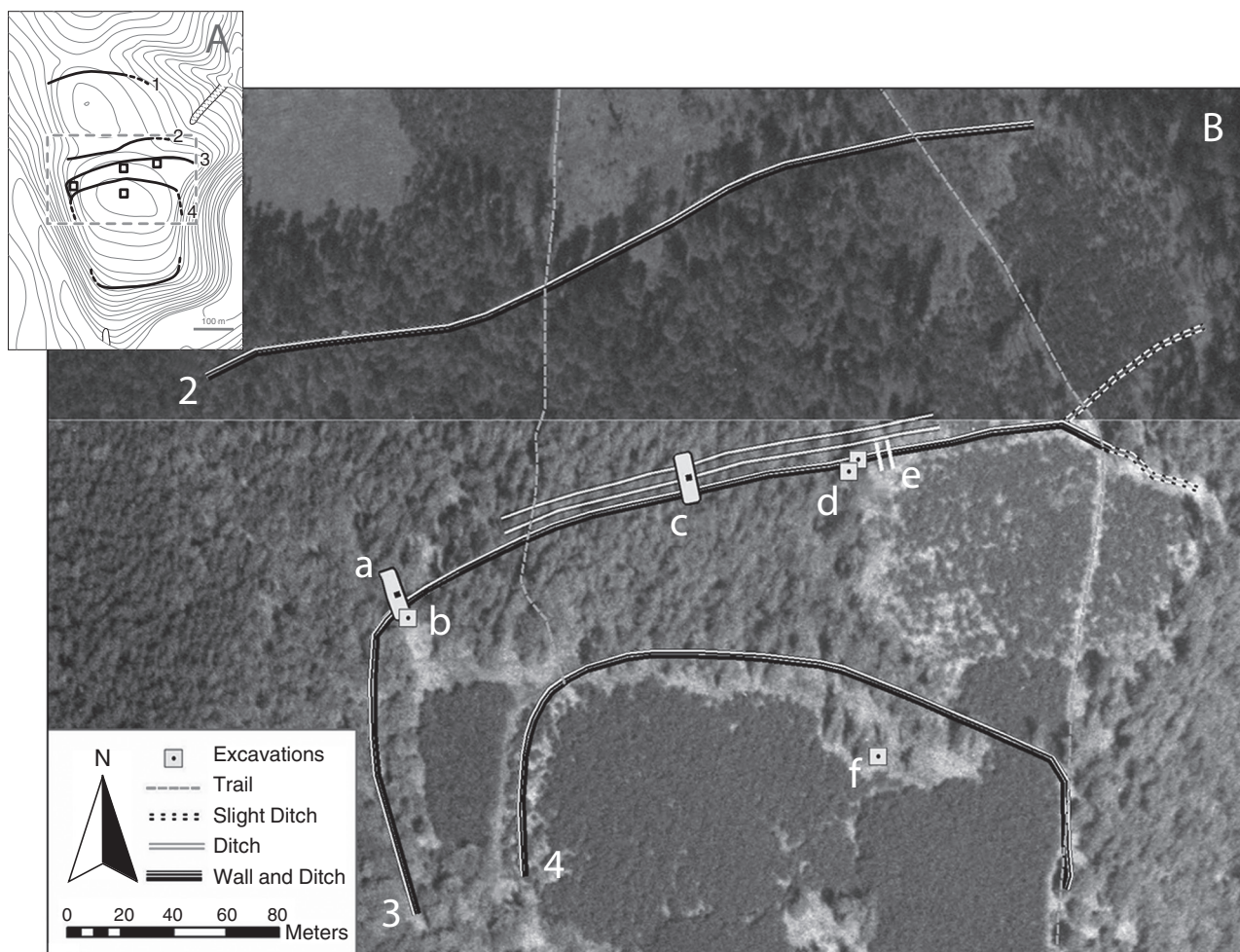


Fig. 4. Rmíz u Laškov earthwork and excavation units. A: Contour map (ŠMÍD 1993b with modifications). B: Orthographic map (Boulanger and M. Baldia), 1–4: Ramparts (palisades, stone and earth walls, ditches, a: S1/90 ŠMÍD’s trench, b: Area 1, c: 1/89 ŠMÍD’s trench, d: Area 3, e: Area 2, f: Area 4.

### The Case Study: Excavation results from Central Moravia

Excavation results from several Moravian monuments are used as a case study to focus upon the overlap between the TRB and the cultures of the Danubian spheres (Lengyel and Baden) and problems with the traditional classification system. The immediate research area includes part of Olomouc and Prostějov Counties. Site locations are shown in Fig. 3. The sites consist of hilltop enclosures (earthworks), burial mounds (mostly in form of burial-mound clusters) and “settlement” sites. We focus upon the earthworks of Rmíz u Laškov and Hrad u Bílovice, and the burial mounds of Luděrov-U žlibku. Our excavation of Náměšť na Hané-Džbán Mound 1 is covered elsewhere in this volume.

#### Rmíz u Laškov: Earthwork with Stone Walls

Rmíz u Laškov is about 40 km west-northwest of the well known TRB II/Boleráz hilltop settlement

of Hlinsko near Lipník nad Bečvou (FURHOLT in print). It is thought to be the oldest and largest enclosed hilltop settlement of the TRB in Moravia (ŠMÍD 1981; 1993; 1994). Named after Rmíz Hill, the site is located high above the Šumice creek’s valley (Fig. 4).

Rmíz has four main enclosures. The outermost is a shallow trapezoidal ditch with a palisade enclosing 17.5 ha (ŠMÍD 1993a; 1994). This structure is thought to date to TRB I/Baalberge, but no diagnostic artifacts are directly associated with this structure itself. Farther up hill is Rampart 2, an earthen wall and ditch, constructed during TRB II/Boleráz. In places the height differential between the top of the wall and the bottom of the ditch is 2.7 m (ibid). The massive stone-faced Rampart 3 encloses 9.4 ha (ibid). The 1.4 m thick stone-built rampart, apparently consisting of an outer and an inner wall, is made of local bedrock quartzite and sandstone

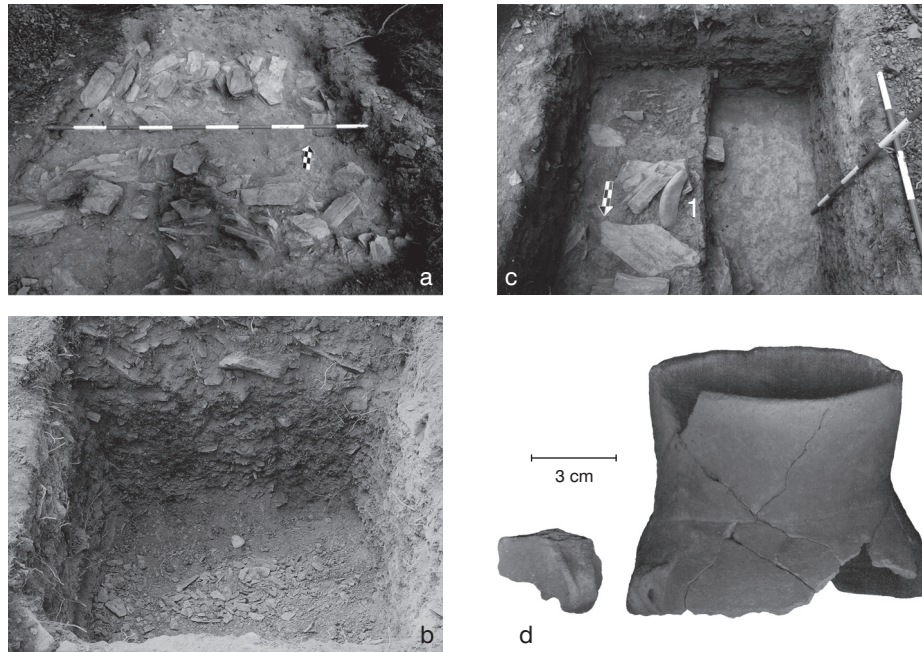


Fig. 5. Rmíz u Laškov Rampart 3 (photos M. Baldia). a: Area 2 top of Rampart 3, b: Area 2 wooden posts c. 1 m from the inside stone wall, c: Area 3 with banana-shaped quern (grinding or millstone - indicated with No. 1) inside the rampart next to the presumed interior knee wall, d: TRB I Baalberge amphora and lug found below the quern in Area 3.

slabs (Fig. 5 a). Inside the rampart our excavation of Area 2 reveals the remains of wooden posts, about a meter from the inner wall. This could be a separate structure or an attachment to the stone wall (Fig. 5 b). Similarly, a stone structure may have been attached to the interior of the inner wall of Rampart 3 in Area 3 (Fig. 5 c). Area 3 contains a Baalberge amphora (Fig. 5 d) and other artifacts discussed below. On the outside of Rampart 3 is a 1.2 m platform that separates the (outer) wall from the main ditch, which is hewn into the bedrock (*ibid*). To the outside of this ditch are at least two additional ditches (Fig. 4). The entire complex may have been crossed via a causeway. Thus, an actual track-way similar to the one described for Hlinsko (PODBORSKÝ 1993, 185-186) may be envisioned, leading to the “central” gateway. Crowning Rmíz Hill, Rampart 4 encloses the vulnerable part of the “inner sanctum”, to which there appears to be no obvious entrance. It is thought to have been constructed during Hallstatt times (ŠMÍD 1993 a; 1994).

The Baalberge occupation at Rmíz is indicated by an amphora (Fig. 5 d) found in situ below a crumbled stone wall in Area 3. As noted above, the wall remnants in this area may be part of a wall that juts out (probably at a right angle) from the interior wall of Rampart 3. The amphora was ingeniously designed to be suspended by a fine rope, and wear

patterns indicate that it was decanted in only one direction. Although the excavated area is too small to be certain, it suggests a confined activity area as noted above. It may have been similar to stalls or shops attached to the inside of a mediaeval town wall. The amphora was stratigraphically lower than a banana-shaped quartzite quern (grinding or millstone) (Fig. 5 c, 1) similar to those identified at the TRB II Hrad u Bílovice earthwork.

Similarly, Area 1 contains several stratified trampled (house?) floors, including evidence of a burned structure in the same area where M. ŠMÍD (1995, Fig. 5) locates a house. Another stratigraphically higher house or living surface is associated with Baalberge pottery (Fig. 6 a). The refurbishing of Rampart 3 is observed in Area 2 (M. BALDIA 2004). Spindle whorls (Fig. 6 b) may connect this period with the “lake dwellings” around the Bodensee (Lake Constance), where similar whorls (KOLB 1998, Fig. 4) and Boleráz pottery are associated with tree-ring dates ranging from 3384 BC to 3306 BC (KOLB 1998, 132). Pottery recovered from Area 1 (Fig. 6 c–d) is classified as TRB II/Boleráz (ŠMÍD, personal communication 2000) and should date to the later period (TRB IIB).

Our excavation immediately inside Rampart 4, close to the highest point of the terrain (Fig. 4), also suggests a trampled (house) floor associated with TRB II–Boleráz pottery. Significantly, the first evidence of copper use (in the form of a copper wire) was unearthed

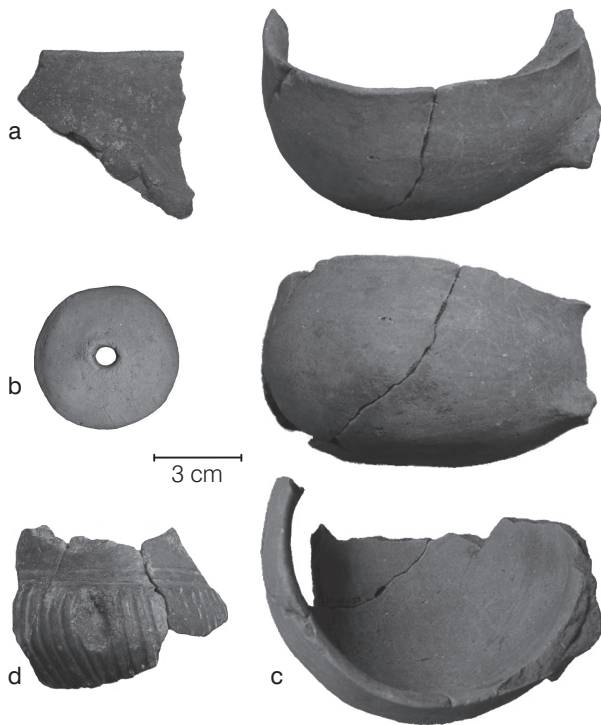


Fig. 6. Rmíz u Laškov Area 1 TRB IB and TRB II/Boleráz pottery. a: TRB IB/Baalberge sherd from (house?) floor, b: TRB II spindle whorl, c–d: TRB IIB (or “Post-Boleráz”/Classical Baden) cross-mended pots. (Photographs a, c, d: Boulanger, b: M. Baldia).

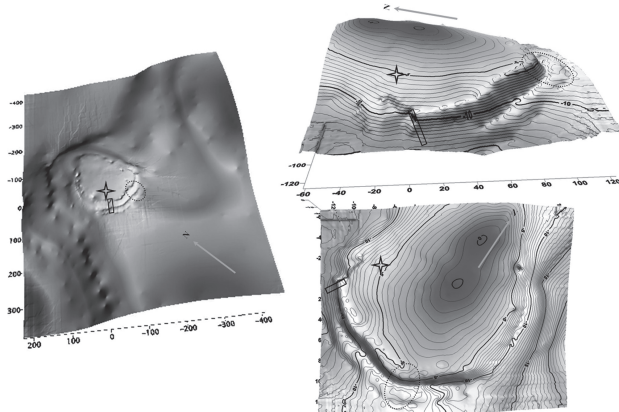


Fig. 7. Hrad u Bílovice TRB II/Boleráz stone-walled earthwork (maps Boulanger). a: Location of the earthwork and its main features, b: View from the southwest illustrating the height of the stone walled Rampart in relation to the outer wall and ditches, c: Top view. Dotted oval: Location of possible entrance construction. Rectangle: Excavation of Rampart (see Fig. 8a–b). Star: Approximate location of (Lengyel?) quarry.

within Rmíz itself. Copper smelting was carried out at Laškov, a large lowland TRB IIA village located at the foot of Rmíz Hill (ŠMÍD 1997). Copper ornaments from this period are also found at other earthworks, such as Hlinsko, and in many burial mounds of this period (e.g., BALDIA ET AL. this volume).

#### Hrad u Bílovice: Earthwork with Stone Walls

About 8 km south-southeast of Rmíz, high above the inside bend of Romže Creek, is the c. 1.5 ha TRB II hilltop earthwork of Hrad u Bílovice (Fig. 7). There are two rows of walls and ditches. The inner or main wall (rampart) takes advantage of the natural elevation and encircles about half of the hilltop. It gradually fades into the naturally steep topography on the NE and SW. Consisting of three stone-wall elements, the rampart exhibits a complex depositional stratigraphy, implying that it was built and enlarged over a period of time (Fig. 8a–b). The primary structure seems to consist of a one-course thick core wall. There is evidence of wooden structures reminiscent of the posts in Area 2 at Rmíz Rampart 3. The accompanying ditch on the outside of the rampart continues well after the rampart itself is no longer traceable, but the ditch becomes quite shallow and narrow.

Similarly to Rampart 4 at Rmíz, the Bílovice rampart appears to have no obvious entrance (Fig. 7–8), although one was stipulated to be in the vicinity of the excavation located near the southwestern end of the wall (Fig. 7a–c rectangle and Fig. 8a–b). Nonetheless, such an entrance location seems an unlikely choice due to the steep topography and non-centralized placement. On the other hand, the outer wall or berm provides a clue for the real entrance location for the following reasons. The berm is significantly lower and less prominent than the rampart, but it has a noticeable topographic “saddle” (Fig. 7a–c dotted oval) leading up to it in the approximate center on the south side of the site. Here the berm widens and the ditch gradually becomes shallower, ending abruptly at the inner ditch in the area from which the picture (Fig. 8c) was taken. This construction leads us to speculate that some form of entrance must have existed here, but it would have required a wooden bridge and gate way<sup>2</sup>. Only careful excavation of this area can provide clarification.

In addition to the pottery, identified as TRB II by

<sup>2</sup> Evidence of a post for a wooden bridge is reported from the ditch of the early Lengyel geometric dual earthwork

at Sormás-Török-földek, southern Transdanubia, Hungary (BARNA and PÁSZTOR 2006).

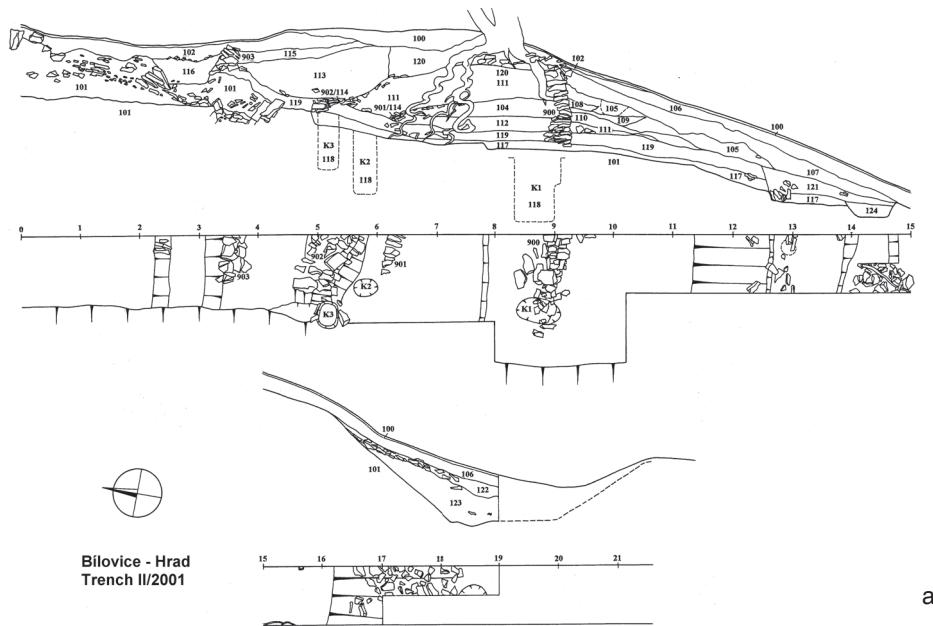


Fig. 8. Hrad u Bílovice TRB II/Boleráz earthwork. a Drawing of rampart and ditch, b Photo of excavated rampart, c Photo taken from the suspected "central" gateway area showing wall and ditch system on south side with rampart on the right (a Šmíd; b, c Boulanger).

ŠMÍD (Fig. 9), there is evidence that querns made of the local quartzite bedrock were produced. There is also evidence of quarrying activity, and a part of a stone quarry (surface mine) was observed in one of the excavation units within the enclosure.

This part of the quarry predates the TRB II. Our surveys indicate that the Slatinky and Otaslavice earthworks are also associated with nearby stone quarries, but the period of quarry use needs further investigation.

### Long-mounds and Burial Customs

Together with the earthworks, the burial mounds are found mostly in the highlands and always in wooded areas. All of the known mounds are technically earthen long-barrows, occurring in clusters (Fig. 10). The majority of unexcavated mounds appear as oblong elevations of various heights, but excavations indicate that they are rectilinear in design. Fig. 11 portrays the three Moravian tomb types developed by ŠMÍD (e.g. 1990; 1999b; 2001b; 2003; 2004a). Accordingly, the oldest type consists of a "clay" mound covered

with a stone mantel. Tiny cists (rectangular box-like structures made from stone slabs) are dug into the old soil surface below the mound. Each contains a flexed inhumation (German: Hocker) resting on the right side. This phase is followed by long-mounds with a rectilinear stone layer at the edge of the mound and graves with cremations housed in pots. In the final phase virtually no stone is employed, but the cremation graves continue in often more elaborately decorated ceramics.



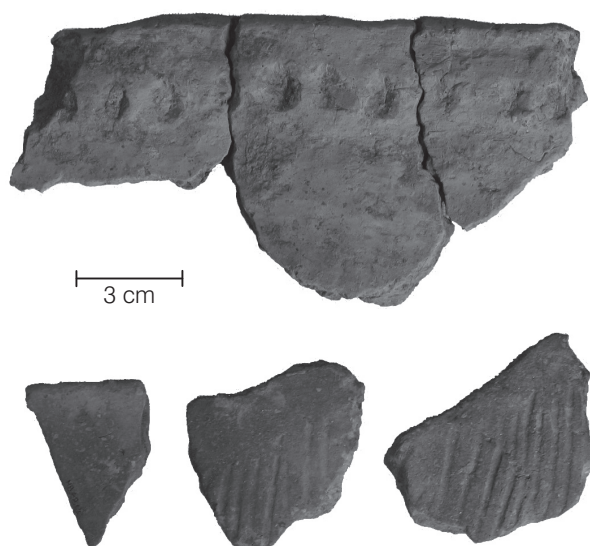


Fig. 9. Hrad u Bílovice TRB II/Boleráz (or “Post-Boleráz”/ Classical Baden) pottery (photos Boulanger).

Mound type 1 is identified as belonging to the Baalberge or Rmíz Phase, i.e. TRB IB2 (ŠMÍD 2004a). This type (Fig. 11 a) makes use of a considerable amount of stone in the mound’s mantle. It is known from only two excavated tombs at Slatinky-Boří I. The site is over 6 km southeast of Rmíz. The distance and terrain suggest that the mounds are not directly related to the central site of Rmíz during the Baalberge Phase.

Mound type 2 belongs to the Drahanovice Phase (TRB IIA/Boleráz Ia–b) (ŠMÍD 2004a). The Křemela I mound cluster (Fig. 10) is some 600 m from the outer palisade (Rampart 1) of Rmíz. It is attributed to TRB IIA (ŠMÍD 1990) and deserves special attention, because flotation of the soil matrix of a cremation burial (Grave 1, Mound 2) resulted in the discovery of two tiny charred textile fragment (Fig. 12, 1 a–b). The larger one was originally illustrated by ŠMÍD (1990 Fig. 2, 6). It was initially thought to be made from wool. However, microscopic analysis of the smaller fragment (Fig. 12.1b.2a–d) shows it to be woven of finely spun linen threads (C. BALDIA 2004; M. BALDIA 1998b; 1999). New Náměšť na Hané–“Džbán” Mound 1, located c. 2 km north-east of Rmíz, demonstrates that the burial ritual includes textiles on a regular basis (BALDIA ET AL. this volume; ŠMÍD 2004c).

The burial cluster of Luděřov-Užlibku (Fig. 10) is less than 2 km southeast of Rmíz, across the Šumice Creek. Mound 1 (Fig. 13) contains four

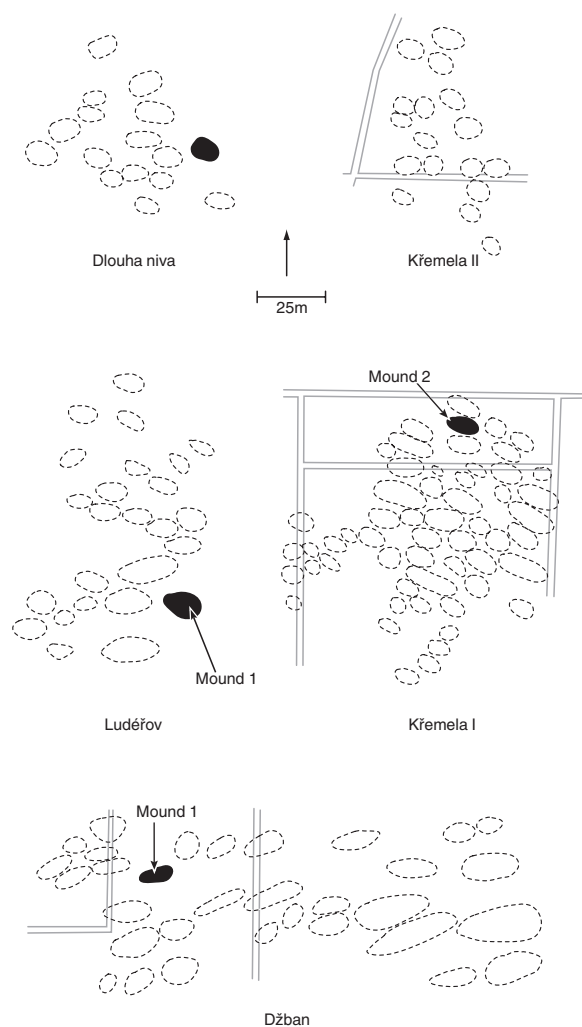


Fig. 10. TRB II burial mound clusters near the Rmíz u Laškov earthwork (Boulanger after ŠMÍD). Black areas: Excavated mound. Czech-American Research Program excavations: Luděřov Mound 1, Náměšť na Hané–Džbán Mound 1.

separate pottery deposits that are interpreted as graves (BALDIA ET AL. 2001). The “urn” of Grave 1 is a small pot. It contained c. 2 lb of soil matrix, from which R. HILL (2001) isolated c. 40g of bone mass (c. 90% was completely incinerated). The second pottery deposit is deemed to be the central or primary grave, but the excavation only recovered a small shattered bowl with c. 0.5 kg of matrix containing no bone material<sup>3</sup>. Grave 3 is the richest burial, consisting of a very large pot, covered by an upside-down bowl associated with a broken ground stone shaft-hole ax-head. The “urn” contained c. 6.5 kg of matrix. The matrix yielded c.

<sup>3</sup> Based upon these inconclusive results BALDIA (2004) reports only three graves. However, reconstruction of the pot from the sherds of Grave 2 indicates an undecorated

funnel beaker with upside-down U-shaped grips similar to those on the “urn” from the central grave in Náměšť na Hané–Džbán Mound 1 (BALDIA ET AL. this volume).

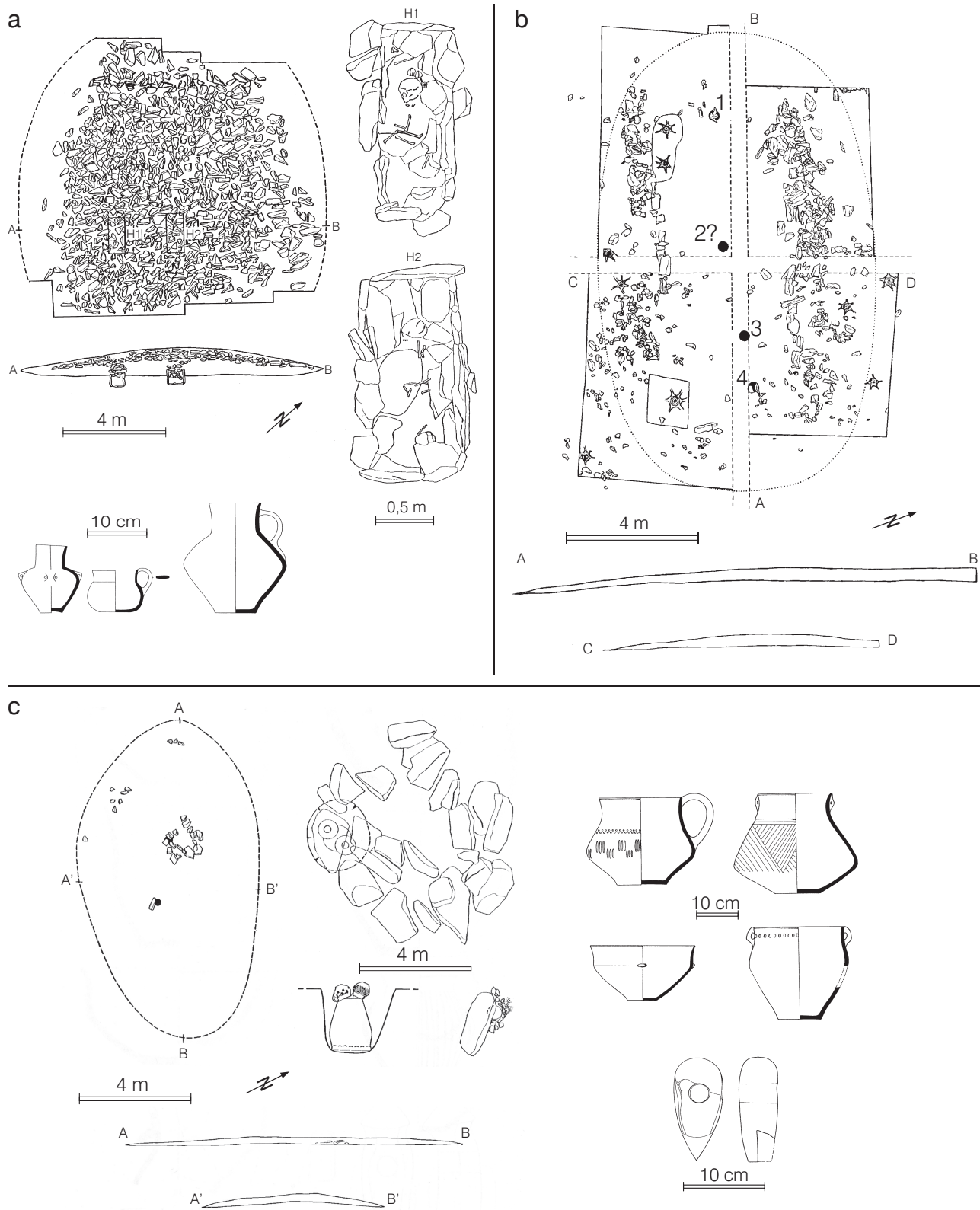


Fig. 11. Moravian mound typology based upon ŠMÍD (1990; 2004).  
 a Baalberge/Rmíz Phase, b Drahanovice Phase, b1–b4: urn graves, c Ohrozim Phase (drawings Šmíd).

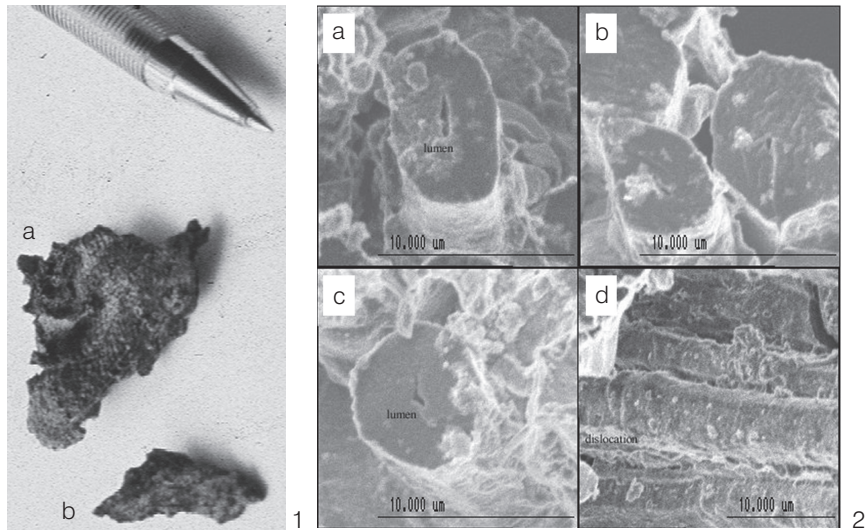


Fig. 12. Křemela II, Náměšť na Hané, Mound 2, Grave 1 TRB II scorched flax textile fragments.  
 1 Close-up photograph of textile fragments (M. Baldia), 2 Scanning electron microscope images of the textile fragment (K. Jakes),  
 2a–c cross-section of flax fibers, d longitudinal strands of flax fibers. Fiber diameter: c. 6–9 microns.

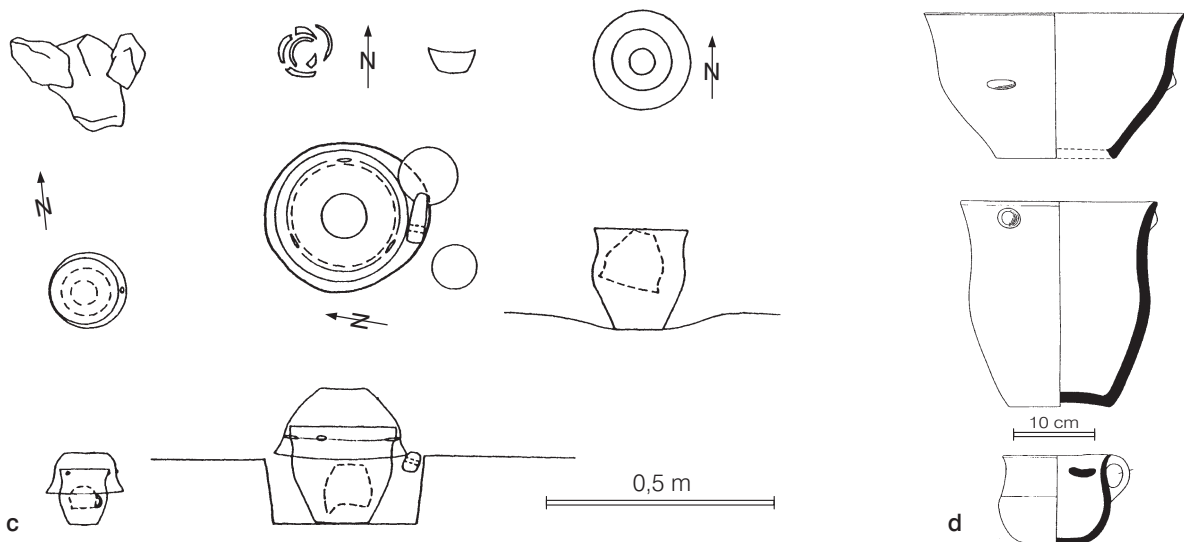


Fig. 13. Luděřov-Užlibku, Náměšť na Hané, Mound 1. a excavated long-mound; b Photograph of the TRB IIA pottery of Grave 1 after initial restoration; c, d Reconstruction of Graves 1–4; e Drawing of the TRB IIA pottery from Grave 1 (Drawings Šmíd, photographs M. Baldia).

400 g of bone mass, of which c. 77% was completely incinerated. The incomplete remains are identifiable as a single adult individual. The condition of the bone fragments suggests that cremation took place soon after death. The matrix also contains a faunal long bone probably cremated in dry condition, i.e., a considerable time after death. On the whole, the contents of Grave 3 suggest that human and animal bone may have been mixed together. The urn of Grave 4 is a large pot that contained c. 5 kg of matrix. The total bone mass is c. 91 g, of which c. 90% is completely incinerated. It is concluded that at least one adult was cremated shortly after death and that only parts of the remains were placed into the urn.

Based upon the data from the Luděřov-Užlibku urn matrix, HILL (2001) concludes that the bodies were cremated at temperatures above 700°–800° C shortly after death. While in the fire, the remains may have been stirred to ensure thorough incineration. Judging from the small size of the fragments, the remains were likely also crushed

before interment. Only a small portion of the individual's remains was placed into the urn. This begs the question as to where the rest of the remains wound up. One possible answer comes from Area 1 at Rmíz, where we excavated human skeletal remains, including a scorched mandible, worked animal bone and a pair of red-stained and worked tusks from at least one wild boar (MILLER 1999). The material seems suggestive of refuse, leading us to speculate that one of the activities carried out during the long existence of Rmíz could be associated with cremation rituals.

The final stage of monumental burial construction is the TRB IIB, Ohrozim Mound Phase. This phase is characterized by Baden Ic and IIa pottery. The closest example to Rmíz is the Křemela II mound cluster (Fig. 10) (ŠMÍD 1992), located barely 200 m north of Rampart 1 at Rmíz. Here stone construction nearly disappears from the mound architecture, although cremation in “urns” continues. At the same time pottery ornamentation increases as demonstrated at Slatinky (Fig. 11 c) (ŠMÍD 1983).

### Incongruent Typologies

Excavations and data analysis point to incongruencies in our legacy. TRB IA pottery (ŠMÍD 2001a; 2004b) is difficult to reconcile with the Michelsberg Culture and Baalberge phase in Germany, but there are numerous similarities between TRB IIB–IIA and Baalberge/Salzmünde (cf. PREUSS 1966). This is also the case with the traditional stratigraphy/chronology worked out a century ago by J. PALLIARDI at the site of Jevišovice-Stary Zamek in southern Moravia (MEDUNOVÁ-BENEŠOVÁ 1972, 1981). The Jevišovice C2, C1 and B-layer sequence is crucial to the legacy of the Moravian classification system. Similar layers are reported from other sites, including Rmíz (ŠMÍD 1981; 1994; 1995). Yet our excavations found a far more complex soil stratigraphy. Even for Jevišovice-Stary Zamek it is becoming obvious that the layer/pottery-style sequence does not fully conform to traditional expectations. Layer C2 contains some Baalberge as well as TRB II/Boleráz pottery (Fig. 2 top). One should perhaps also expect a similar overlap between TRB II and the Jevišovice “Culture’s” pottery in parts of Layer C1 and B. Indeed, from the typological perspective the transition from TRB IB to IIA and from IIA to IIB cannot be sharply defined, and some pottery types straddle the phases (ŠMÍD 2000; 2004a, Fig. 13). Absolute dating accentuates the problem.

FURHOLT (in print, Tab. 2, also FURHOLT 2008) reports three new <sup>14</sup>C-dates, one from each of the layers of Jevišovice-Stary Zamek. The calibrated ranges for the <sup>14</sup>C-date from Layer C2 (Erl-6432) reach back to the Baalberge period as defined in Central Germany (see below). This contrasts with the ranges for the <sup>14</sup>C-dates from Layer C1 (Erl-6431) and Layer B (Erl-6432), which are essentially the same, implying some mixing between the two layers (FURHOLT in print).

There are also incongruencies relating to the architecture of the earthworks. The topographic location of Rmíz is peculiarly reminiscent of the unusual rectilinear late Lengyel earthwork at Kromlín (PODBORSKÝ 1993, Fig. 77), perhaps suggesting some sort of as yet undocumented continuing evolution. Although Rmíz is deemed the oldest TRB earthwork in Moravia, it is possible that the huge TRB II earthwork of Otaslavice, c. 30 km to the south, is at least as old, larger and more complex than Rmíz. Also, in both cases some of the massive walls are attributed to Hallstatt Period construction. Yet, we found no diagnostic Hallstatt pottery in our excavations at Rmíz<sup>4</sup>. Finally, not all enclosed sites are the same. For instance, just as at Rmíz and Bílovice, there is evidence of a stone wall at the TRB II site of Hlinsko, but the

<sup>4</sup> Pottery from a poacher's shallow excavation pit on top of Rampart IV (roughly in line with excavation Area 1) was sub-

mitted to M. Šmíd, who identified it as Eneolithic pottery.

wall may have functioned as a retaining wall rather than a rampart.

The typology of the burial mound architecture also exhibits incongruencies. The typology incorporates mound size. Several large mound clusters have long earthen ridges adjacent to the smaller oblong mounds. However, during our excavation of Mound 1 at Luděřov, a brief test excavation of the longest earthen ridge (ŠMÍD 2004a, Fig. 14A top left) immediately adjacent to our excavation was directed by ŠMÍD. It yielded no evidence of being a man-made structure, and we omitted it from our present plan (Fig. 10). He also has assured us that the very large mound-like ridges at the Džbán tomb cluster were not man-made (ŠMÍD 2002, personal communication). This presumption needs testing of these ridges through thorough but strategic excavation, similar to the plan devised for the excavation of Náměšť na Hané-Džbán (BALDIA ET AL., this volume). Despite the change from inhumation to cremation, construction of the mound's stone mantel is evident during the Drahanovice mound phase. This is also the case at Mound 6 at Slatinky-Boří II (ŠMÍD 1990; 2001 b), located near the TRB II earthwork of Slatinky. Excavation of Mound 58

at the TRB IIA mound cluster of Křemela I recovered transitional pottery classified as TRB IIA/IIB (ŠMÍD 2000). Other surprising "anachronisms" persist as late as the Ohrozim Phase (Baden Ic/Iia), when pottery with Lengyel characteristics occurs in yet another stone-mantled mound (Mound 2 at Aljov-Frolinková) (ŠMÍD 1990, Fig. 10, 2001 b). Likewise, pottery from the TRB II era earthworks (Fig. 6 c–d, Fig. 9) appears to have "Post-Boleráz"/Classical Baden attributes (FURHOLT, pers. com. 2007). This may explain the late Oxidizable Carbon Ratio (OCR)<sup>5</sup> dates from Rmíz and Hrad u Bílovice described below. The inconsistencies are reflected in the traditional typology, in which Boleráz is directly followed by the Jevišovice "Culture", located mostly southwest of our research area, and the transitional Bošáca "Group", found mainly east of the Morava River (PODBORSKÝ 1993, Map 15). As a result, some Classical Baden phases do not seem to be applicable to Moravia (FURHOLT in print). The problem is exacerbated by the lack of coherent dating for Bošáca and its supposed coexistence with the Jevišovice "Culture", not to mention the coexistence of the Globular Amphora Culture (ŠMÍD 1999 a) in Central Moravia.

#### Incongruent Dating

The typological incongruencies are amplified through absolute dating. Resolving such incongruencies or even just corroborating the indirect chronology by absolute dating methods is highly problematic. Traditional classification schemes generally do not make use of available <sup>14</sup>C-dates (e.g., ŠMÍD 2004a, Tab. 13). We attempt a provisional correlation (Fig. 2) and provide a chronological analysis based upon our collection of <sup>14</sup>C-dates as well as OCR-dates from our excavations<sup>6</sup>.

It is now suggested that Lengyel IV subgroups, in particular Jordanów, found on both sides of the Polish/Czech border, lead to the TRB (ČÍZMÁŘ ET AL. 2004). This differs with the notion that the TRB is of Nordic origin. However, either argument is difficult to substantiate based upon typological as well as chronological arguments, because the Lengyel/TRB transition is still ill understood,

poorly dated and falls within the period of a major climatic oscillation period (BALDIA in print). Lengyel IV dates are too few for precise dating (Fig. 14), and most of the earliest TRB dates up to 5000 uncalibrated BP (Fig. 15) are questionable for a variety of reasons that cannot be addressed here. Our analysis of these data suggest that Lengyel IV starts around 4200/4180 BC (conservatively 4250/4150 BC) and probably ends around 3950/3850 BC, if not earlier<sup>7</sup>. The TRB starts some time after 4100 BC, but no later than 3900 BC. Unfortunately, the TRB IA pottery is difficult to ascribe to Baalberge as defined in Germany, where new <sup>14</sup>C-dates for Baalberge have altered our perceptions.

The dating of Baalberge has recently received new scrutiny in Germany, where it is seen as coeval with the adjacent Bohemian and South German Altheim Culture. In southern Germany, Altheim tree-ring

<sup>5</sup> The OCR procedure measures the degree of soil organic carbon degradation and provides an age estimate based upon the point-specific environmental and pedological context of the sample. When possible, samples are taken every 5 cm.

<sup>6</sup> This roughly agrees with the Lengyel IV collagen date from Pitten, Austria, calibrated by STADLER ET AL. (2006, Tab. 5) to 4180/4130–4050/3920 BC). Erl-6430: 4821±50 bp =

3655 (22.1%) 3626 BC, 3595 (46.1%) 3526 BC at 1 STD.

<sup>7</sup> The <sup>14</sup>C-dates come from numerous sources, including BAKKER et al. 1999, BREUNING 1987, FORENBAHER 1993, FURHOLT et al. 2002, FURHOLT in print, KRENN-LEEB 2003, KRUK et al. 1996, KULCZYCKA-LECIEJEWICZOWA 1997, WILD et al. 2001, SHENNAN et al. 2000, STADLER et al. 2000, 2001, 2006, UZAROWICZ-CHIMIELEWSKA 1991 and ZASTAWNY 1999.

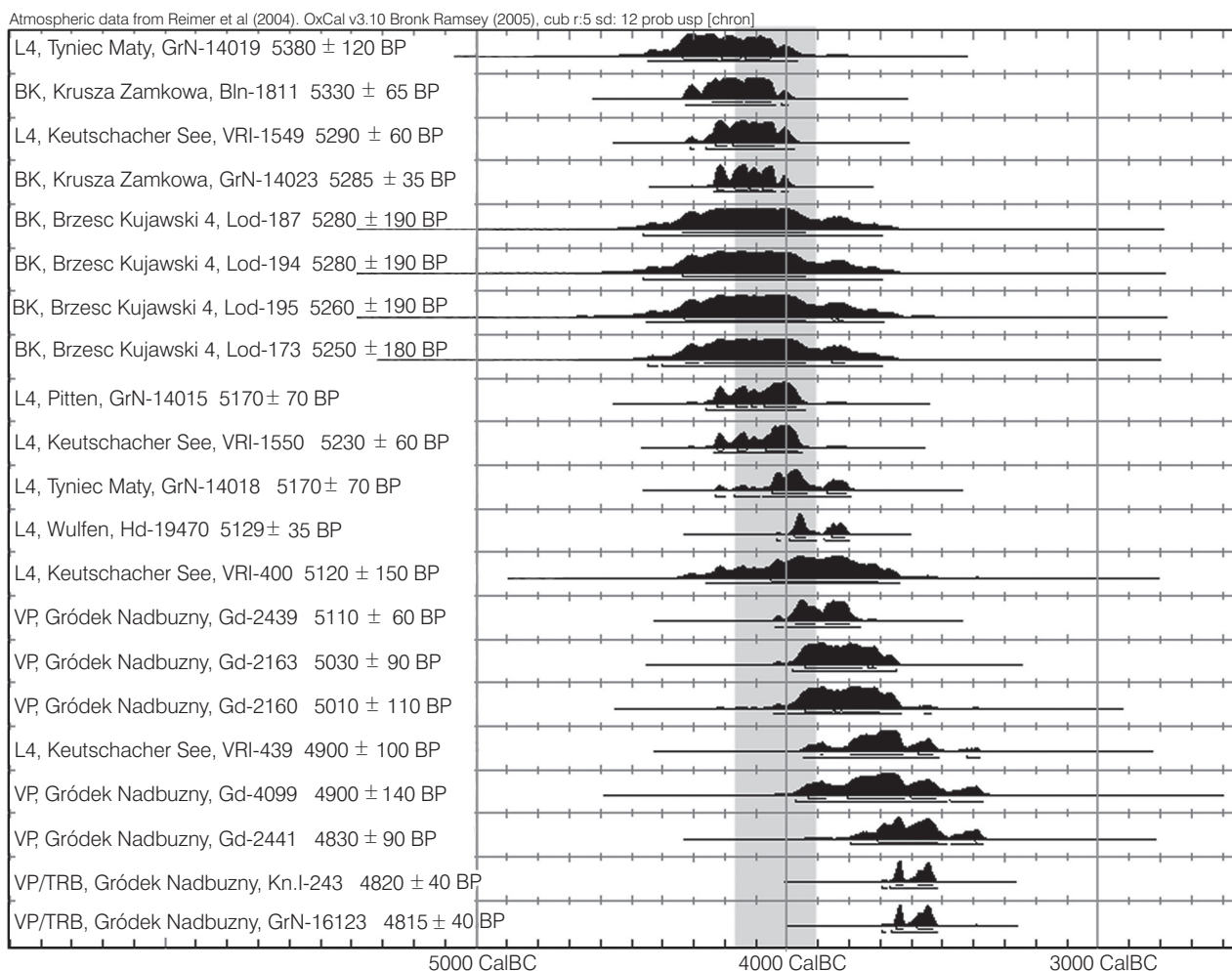


Fig. 14. Lengyel IV  $^{14}\text{C}$ -Dates ( $n=21$ ). Highlight bar: Estimated duration 4200/4180 to 3950/3900 BC. BK: Brześć-Kujawski. L4: Lengyel IV (Jordanów/Jordansmühl), VP: Lublin-Volhynian Painted Ware, TRB: Funnel Beaker Southeast Group.

dates range from 3728 BC to c. 3445 BC (RAETZEL-FABIAN/FURHOLT 2006). In the Middle Elbe/Saale River region (Central Germany)  $^{14}\text{C}$ -dates also suggest Baalberge emerges around 3800/3700 BC (MÜLLER 2001, 122–133, 128). This makes Baalberge uncomfortably late for legacy explanations. Still, at the risk of being overly conservative, we interpret our collection of Baalberge  $^{14}\text{C}$ -dates (Fig. 16) as beginning around 4000 BC or shortly thereafter, even though we dismiss disputed early dates from our assessment.

The transition from Baalberge to Boleráz, and the latter's duration, is equally vexing. In the traditional classification system Boleráz is chronologically, and to some extent typologically, equated with the Salzmünde Group (Fig. 2 top) of Central Germany (BEHRENS 1973). J. MÜLLER (2001, 122–123, 128) starts Salzmünde around 3500 BC, coinciding with the end for Baalberge. However, he also argues for a continuation of certain Baalberge

artifacts in graves of Central Germany until c. 3250 BC. This implies that Baalberge, Salzmünde and Boleráz overlap for several centuries in the oldest layer (C2) at Jevišovice. This layer may date as early as 3655 BC (RAETZEL FABIAN/FURHOLT 2006, 9). P. STADLER (2000, Tab. 16) and E.M. WILD ET AL. (2001, Tab. 1) also start Boleráz around this time. In addition, ŠMÍD (1993) illustrates Layer C2 as overlapping the boundary between Baalberge and Boleráz (Fig. 2 top), noting Baalberge-type pottery in the Boleráz assemblage (ŠMÍD 2004a, Fig. 13). This may lend credence to a long coexistence. Conversely, the distribution of the earliest Boleráz 1  $^{14}\text{C}$ -dates (Tab. 1) indicate that the three earliest dates from Vámosgyöre, Hungary, are statistical outliers, and the whole series of dates from this site are spread throughout the graph from beginning to end, making it questionable. The often cited older  $^{14}\text{C}$ -date from Schwechat, Austria, (VERA-858) is also on the verge of being an outlier. In addition,

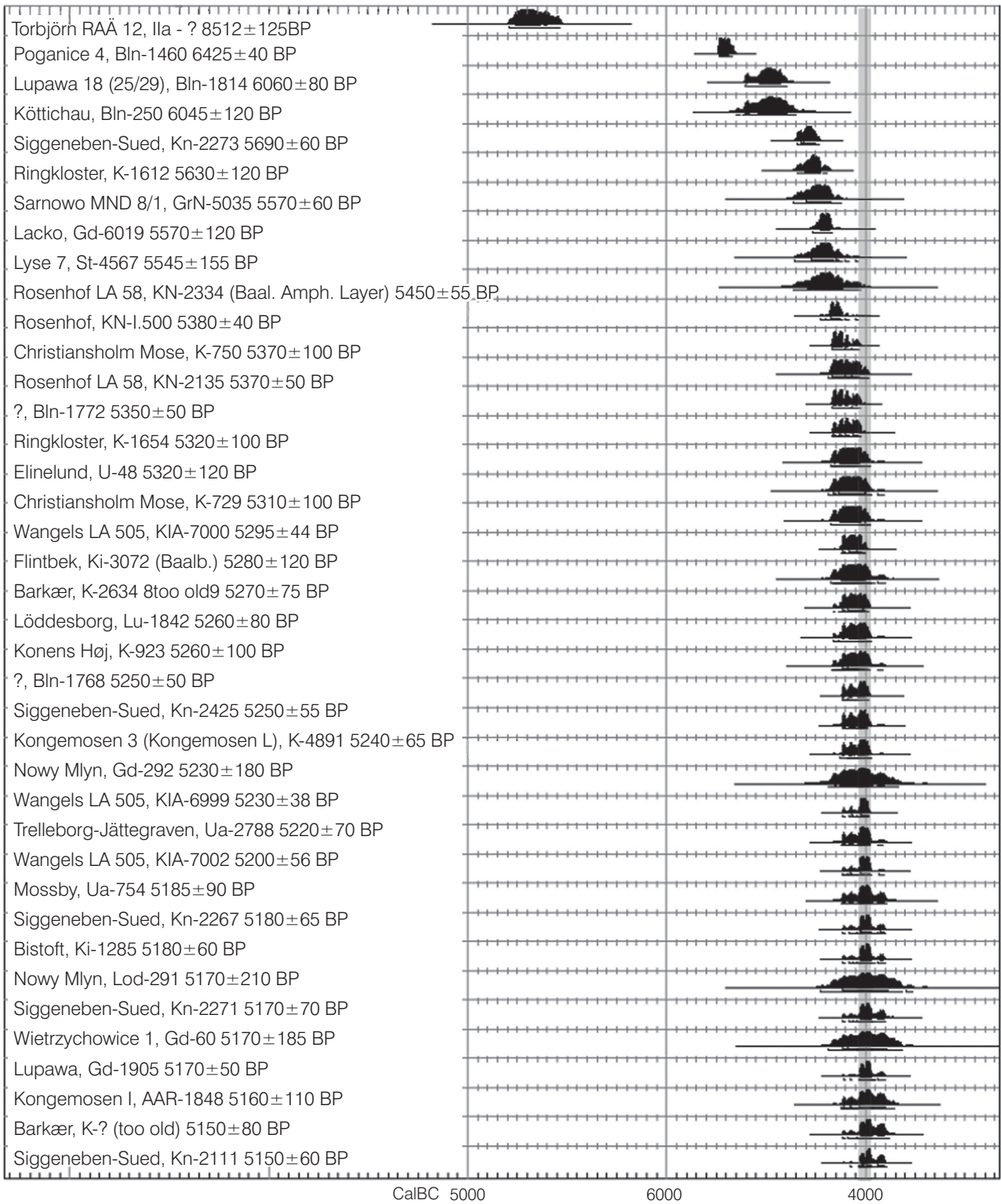


Fig. 15. Beginning of the Funnel Beaker Culture based upon the earliest <sup>14</sup>C-dates up to 5000 uncalibrated bp (n=40). Many of these dates are disputed for various reasons. Highlight bar: Estimated TRB start date 4050/3950 BC.

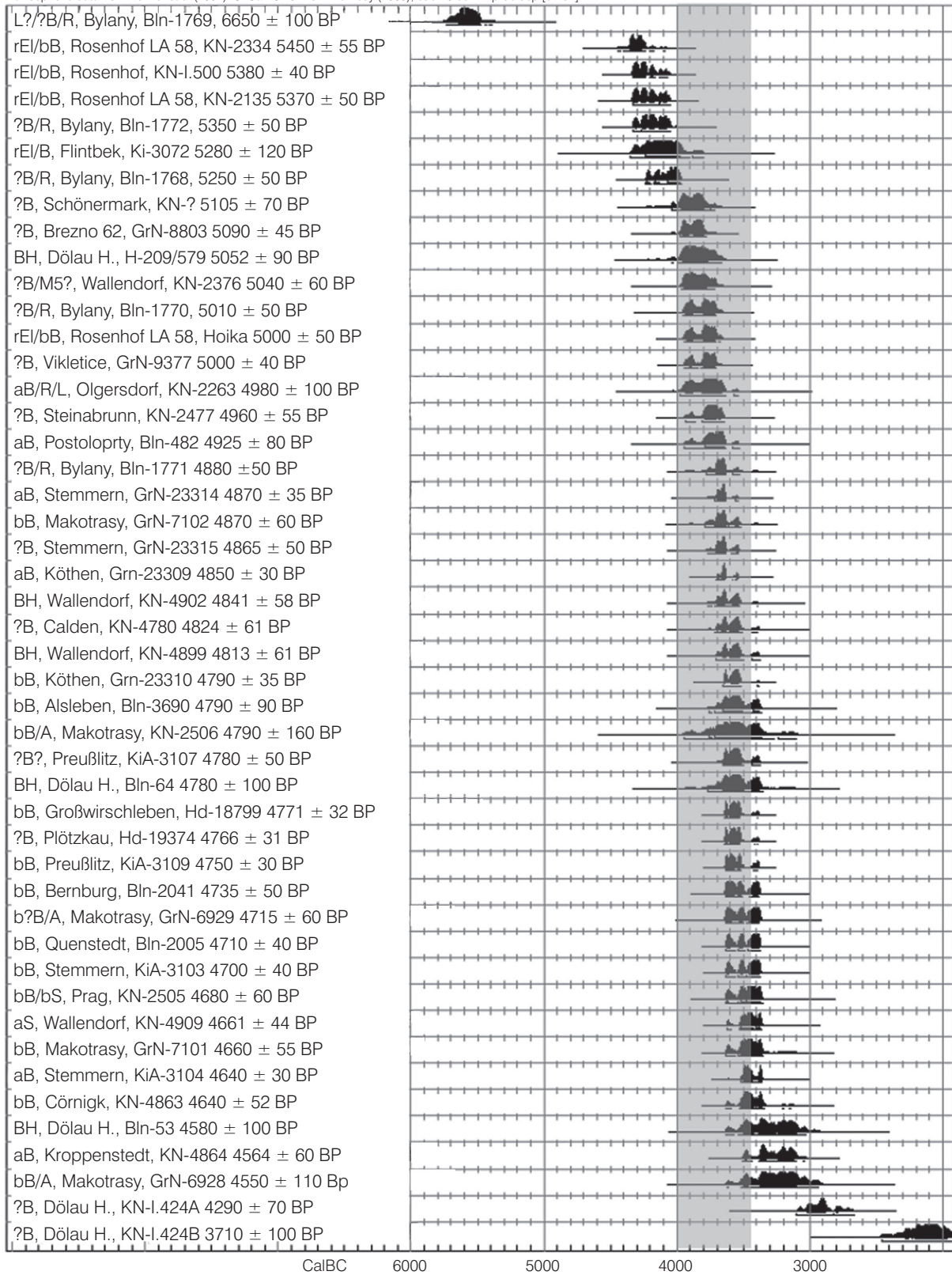


Fig. 16. Baalberge <sup>14</sup>C-dates (n = 47) and sub-phases. Highlight bar: Estimated Baalberge duration 4000/3900–3600/3400 BC. L: LBK, B: Baalberge, BH: Baalberge-Hutberg Phase, E1: Nordic Early Neolithic I, R: Bajč-Retz, aB: Baalberge A, bB: Baalberge B, ?B: unassigned Baalberge phase, M5?: Michelsberg V?, r: Rosenhof Group.



Tab. 1. Baden <sup>14</sup>C-dates (n = 119) and sub-phases, including Bošáca (n = 2). Estimated Baden duration 3600/3400-2850 BC (calibration graph on [www.comp-archaeology.org/BadenT1graph.htm](http://www.comp-archaeology.org/BadenT1graph.htm)), 1a–2a Boletáz Phases, 2b–4 Classical Baden Phases, 1a/Š Proto-Boletáz/Šturovo Phase, 2b Červený-Hradok Phase, 4b Bošáca Phase, TRB: Funnel Beaker Culture.

1	1 Vámosgyörk 5	VERA-902	5245 ± 45 bp	31	1 Zillingtal	VERA-861	4700 ± 45 bp	61	3 Girm 01	VERA-869	4530 ± 50 bp	91	1 Vác-Vár-2	VERA-864	4385 ± 30 bp
2	1 Vámosgyörk 4	VERA-859	5230 ± 35 bp	32	1 Strachów	Bln-1794	4695 ± 60 bp	62	4 Lichtenwörth	Bln-2071	4530 ± 70 bp	92	3 Saisnske Michalany	VERA-769	4385 ± 35 bp
3	1 Vámosgyörk 3	VERA-858	5210 ± 40 bp	33	1 Atbon-Bleiche	B-6363	4690 ± 30 bp	63	2b Ossam-Stichelberger	GrN-6940	4520 ± 40 bp	93	2a?/3? Iwanowice	UIC-13266	4380 ± 50 bp
4	1 Schwechat 2	VERA-849	4935 ± 45 bp	34	1a Gyöngyöshalász	Bln-2588	4690 ± 60 bp	64	B? Stuneg-Mogyorósdomb	A-246	4520 ± 60 bp	94	B Gomolowa	GrN-13168	4380 ± 70 bp
5	1 Szhalom-6	VERA-855	4850 ± 60 bp	35	1a/Š Hlinsko	Bln-3233	4680 ± 60 bp	65	3 Strass WB-2	VERA-893	4515 ± 45 bp	95	2a?/3? Iwanowice	UIC-13264	4365 ± 43 bp
6	1 Szhalom-5	VERA-854	4830 ± 40 bp	36	1a/Š Hlinsko	Bln-1396	4675 ± 60 bp	66	B? Oscentián	Bln-476	4515 ± 80 bp	96	2a?/3? Iwanowice	UIC-13268	4362 ± 43 bp
7	1a Jevišovice C2	Erl-6430	4821 ± 50 bp	37	1a/Š Hlinsko	GrN-6941	4670 ± 40 bp	67	3 Franzhausen 038	VERA-868	4510 ± 40 bp	97	1? Wojnowice 3	UIC-13259	4356 ± 49 bp
8	1a/Š Červený Hradok	GrN-11992	4820 ± 70 bp	38	1a/Š Hlinsko	GrN-6942	4670 ± 40 bp	68	3 Hadersdorf	VERA-880	4510 ± 45 bp	98	B Szécsésep	Bln-1637	4350 ± 45 bp
9	1 Strachów	Gd-6274	4800 ± 90 bp	39	1a Jevišovice C1	Erl-6431	4670 ± 50 bp	69	3 Vucedol	Z-1617	4500 ± 100 bp	99	1c/2a Bronocice IV	DIC-1797	4340 ± 70 bp
10	1a Gyöngyöshalász	Bln-2589	4790 ± 50 bp	40	1a/Š Hlinsko	Bln-1165	4670 ± 80 bp	70	3 Hadersdorf	VERA-881	4485 ± 40 bp	100	1c/2a Bronocice IV	DIC-1739	4340 ± 75 bp
11	1 Grub KL 05	VERA-878	4790 ± 55 bp	41	1a/Š Hlinsko	Bln-1166	4670 ± 80 bp	71	1 Strachów	Bln-3850	4480 ± 50 bp	101	1c/2a Bronocice IV	DIC-1736	4330 ± 60 bp
12	1 Szhalom-7	VERA-856	4785 ± 35 bp	42	1a/Š Hlinsko	GrN-16728	4650 ± 40 bp	72	3 Vámosgyörk 6	VERA-903	4475 ± 45 bp	102	1c/2 Bronocice IV	DIC-977	4320 ± 55 bp
13	1 Szhalom-3	VERA-852	4785 ± 40 bp	43	2b Baierdorf 1	VERA-838	4645 ± 35 bp	73	3 Svodin	Bln-2173	4460 ± 60 bp	103	1c/2a Bronocice IV	DIC-543	4320 ± 130 bp
14	1 Brno-Lisen 2	Erl-6434	4780 ± 51 bp	44	2b Stillfried 9	VERA-851	4645 ± 35 bp	74	2b/3 Nagykanisza	VERA-840	4455 ± 50 bp	104	3 Vucedol	Z-1618	4310 ± 100 bp
15	1a/Š Hlinsko	Bln-3232	4780 ± 70 bp	45	1 Atbon-Bleiche	B-6362	4640 ± 30 bp	75	4b-Bošáca Podolie	BLN-556	4455 ± 80 bp	105	2a?/3? Iwanowice	UIC-13267	4300 ± 44 bp
16	1a/Š Hlinsko	Bln-1396A	4775 ± 60 bp	46	3 Vucedol	Z-1864	4626 ± 100 bp	76	3? Pleszów	?	4445 ± 60 bp	106	4 Kamenín	Bln-2169	4270 ± 50 bp
17	1 Grub KL 03	VERA-876	4770 ± 55 bp	47	1 Zillingtal	VERA-860	4625 ± 35 bp	77	1c/2a Bronocice IV	DIC-717	4440 ± 80 bp	107	1c/2a Bronocice IV	DIC-1794	4260 ± 70 bp
18	1a? Tusimice	Bln-239	4768 ± 100 bp	48	1 Atbon-Bleiche	B-6364	4620 ± 40 bp	78	3? Pleszów	?	4430 ± 40 bp	108	3/4 Bronocice IV	DIC-978	4250 ± 115 bp
19	1 Grub KL 04	VERA-877	4760 ± 50 bp	49	1 Atbon-Bleiche	B-6365	4620 ± 40 bp	79	3 Nagykanisza	VERA-844	4425 ± 35 bp	109	2a/2b/3 Bronocice IV/V	DIC-361	4240 ± 115 bp
20	1 Szhalom-8	VERA-857	4755 ± 60 bp	50	1a/Š Hlinsko	UIC-13773	4620 ± 60 bp	80	3 Nagykanisza	VERA-841	4425 ± 40 bp	110	4b-Bošáca Podolie	Bln-2170	4215 ± 65 bp
21	1a Hlinsko	GrN-13149	4750 ± 60 bp	51	1a/1b Bronocice III	DIC-716	4610 ± 120 bp	81	2a?/3? Zeslawice St. 21	UIC-1321	4420 ± 43 bp	111	B Hatzenbach 4	VERA-730	4210 ± 50 bp
22	1 Szhalom-2	VERA-863	4745 ± 35 bp	52	2b Stillfried 8	VERA-850	4605 ± 35 bp	82	3 Beladice	Bln-2171	4420 ± 60 bp	112	1c/2a Bronocice V	DIC-979	4200 ± 60 bp
23	1 Jevišovice B	Erl-6432	4745 ± 49 bp	53	1a/Š Hlinsko	GrN-16729	4605 ± 40 bp	83	4 Lichtenwörth	Bln-2070	4410 ± 60 bp	113	3 Iwanowice	Bln-352	4200 ± 100 bp
24	1 Szhalom-4	VERA-853	4740 ± 40 bp	54	1a/1b Bronocice III	DIC-360	4600 ± 75 bp	84	3 Nagykanisza	VERA-843	4400 ± 40 bp	114	3/4 Bronocice V	DIC-1795	4090 ± 140 bp
25	1 Szhalom-1	VERA-862	4735 ± 35 bp	55	3 Girm 02	VERA-875	4565 ± 45 bp	85	3 Vámosgyörk 7	VERA-904	4400 ± 45 bp	115	3 Nagykanisza	VERA-846	4080 ± 40 bp
26	1 Atbon-Bleiche	B-6360	4710 ± 30 bp	56	3 Potenbrunn	GrN-14016	4560 ± 45 bp	86	1c/2a Bronocice IV	DIC-541	4400 ± 80 bp	116	3/4 Bronocice V	DIC-1740	4080 ± 65 bp
27	1 Brno-Lisen 3	Erl-6433	4710 ± 49 bp	57	3?/4? Wycize 5	UIC-13263	4542 ± 43 bp	87	3 Vucedol	Z-1619	4400 ± 100 bp	117	1 Schwechat 1	VERA-848	3880 ± 45 bp
28	B? Niederhollabrunn	ETH-15241	4710 ± 95 bp	58	4 Lichtenwörth	Bln-2069	4540 ± 45 bp	88	4 Svodin	Bln-2174	4390 ± 60 bp	118	1 Vámosgyörk 1	VERA-865	2450 ± 35 bp
29	1a Červený Hradok	GrN-11993	4710 ± 100 bp	59	3 Vucedol	Z-1446	4540 ± 86 bp	89	2b/3 Červený Hradok	GrN-11994	4390 ± 70 bp	119	1 Vámosgyörk 2	VERA-866	2450 ± 35 bp
30	1 Atbon-Bleiche	B-6361	4700 ± 30 bp	60	2b Bajc-Vlkavovo	VERA-736	4530 ± 45 bp	90	2a?/3? Zeslawice St. 21	UIC-13265	4387 ± 45 bp				

the second date (VERA-848) is far too young for Baden, suggesting that one should use the older date with some caution. Finally, the complex atmospheric CO<sub>2</sub>-oscillations of c. 3600–3400 BC result in several calibration curves wiggles during the Baalberge/Boleráz transition. This leads to wide probability ranges and considerable chronological overlap (Tab. 1). Therefore, we choose to be conservative and date the transition to c. 3600–3400 BC.

The end of Boleráz is no less difficult to assess. STADLER (2000, Tab. 16) and WILD et al. (2001, Tab. 1) end Boleráz around 3370 BC, based upon <sup>14</sup>C-dates from various regions, including wiggle-matching and tree-ring dating (3384–3370 BC) from the site of Arbon Bleiche 3 (DE CAPITANI ET AL. 2002). Ending Boleráz at 3370 BC is further buttressed by interpreting the Arbon Bleiche 3 Boleráz pottery as the final style from this phase. This is a reversal of a previous assessment (STADLER ET AL. 2001, and references therein), raising questions about the traditional classification system. One should also not ignore the tree ring dated 3317–3306 BC from Layer 11 at Sipplingen-“Osthafen”, Bodensee, characterized by Horgen and Boleráz pottery (KOLB 1998, 132). Thus, we need to take a closer look at the Arbon Bleiche research.

Comparative material analysis of the Boleráz pottery from Arbon Bleiche 3 and from Central Moravia suggests that the pottery production techniques are related (DE CAPITANI ET AL. 2002). Nonetheless, this does not necessarily mean that Boleráz ends in Moravia at the same time. cursory comparison of the pottery does not suggest strong stylistic similarities. Therefore, without rigorous stylistic comparison of Bodensee and Central Moravian pottery, not to mention the lack of Moravian tree-ring dates, one must rely upon a comparison of <sup>14</sup>C-dates. However, six Arbon Bleiche <sup>14</sup>C-dates at 1 Standard Deviation (STD or sigma) cover all or part of the tree-ring date range (3384–3370 BC) to varying degrees and usually at low probability. Therefore, it is self-evident that even at Arbon Bleiche 3 the precise period of Boleráz pottery production would not be definable with any great degree of confidence without the tree-ring dates. This obviously also holds true for Moravia and adjacent regions. Further, inclusion of Boleráz 2a <sup>14</sup>C-dates from the Polish sites implies an end after 3300 BC, perhaps even as late as 3100

BC (Fig. 17). This late dating agrees with the TRB II pottery sequence (Fig. 2) that suggests a transition between TRB II and the Jevišovice “Culture” of Layer B around 3200/3100 BC. Presently the Jevišovice “Culture” cannot be dated much earlier than 3100 BC (Fig. 18). Finally, comparing the <sup>14</sup>C-dates (Fig. 17 and 18) reveals that Baden ends around 2850 BC. Aside from the fact that this coincides with the end of the TRB in Northern Europe, it agrees with a similar assessment by FURHOLT (in print) and FURHOLT and MACHNIK (2006). These authors raise important questions about the strict correlation between TRB II and the Boleráz sub-phases as presented in Fig. 2.

Although funding for radiocarbon dating of the organic materials from our excavations is still outstanding, we present <sup>OCR</sup>-dates<sup>8</sup> for the soil formation and stratigraphy at the earthworks (Rmíz, Hrad u Bílovice)<sup>9</sup> and the mound cluster of Džbán. The composite of our four test-unit soil profiles and associated OCR-analysis (FRINK 1992; 1994; 1995; 2003 a; 2003 b; FRINK/DORN 2002) indicates that possible initial clearing of Rmíz Hill occurs c. <sup>OCR</sup>4526–4127 BC. Although this implies Lengyel activity, diagnostic pottery is needed to determine the Lengyel phases more precisely. The Lengyel activity is followed by an apparent living surface (c. <sup>OCR</sup>4057–3874 BC) that may be associated with TRB I, but diagnostic artifacts for the typologically earliest pottery are not known from Rmíz. The first stone construction at Rampart 3 is estimated to date to <sup>OCR</sup>3870 BC and can be associated with TRB IB pottery. This is at least 70 years too early given the chronological assessment in Germany noted above. One of the TRB IB living surfaces in Area 1 at Rmíz is dated around <sup>OCR</sup>3611 BC. This coincides neatly with the <sup>14</sup>C-dates (Fig. 16) and archaeological consensus.

Wall construction at the TRB II earthwork of Hrad u Bílovice is evident at c. <sup>OCR</sup>3536 BC, which matches all current notions for dating Boleráz pottery. Refurbishment of Rmíz Rampart 3 occurs around <sup>OCR</sup>3355 BC, which is only 15 years later than the proposed end of Boleráz at Arbon Bleiche 3. The TRB IIA construction and use of Džbán Mound 1 occur after c. <sup>OCR</sup>3421 BC, but before <sup>OCR</sup>3173 BC (FRINK 2003). Additional dates from the long-mound fall around <sup>OCR</sup>3300 BC or shortly thereafter. Although this is later than the tree-ring dates from Arbon Bleiche 3, it still

<sup>8</sup> The OCR samples for Hrad u Bílovice were taken during the last days of the excavation, but due to a nearly five week delay in shipping acceleration of organic carbon diagenesis could have occurred. Nonetheless, examination of the

data does not show appreciable evidence of diagenesis.

<sup>9</sup> Information on the location of local clay sources for our research area is not yet available.

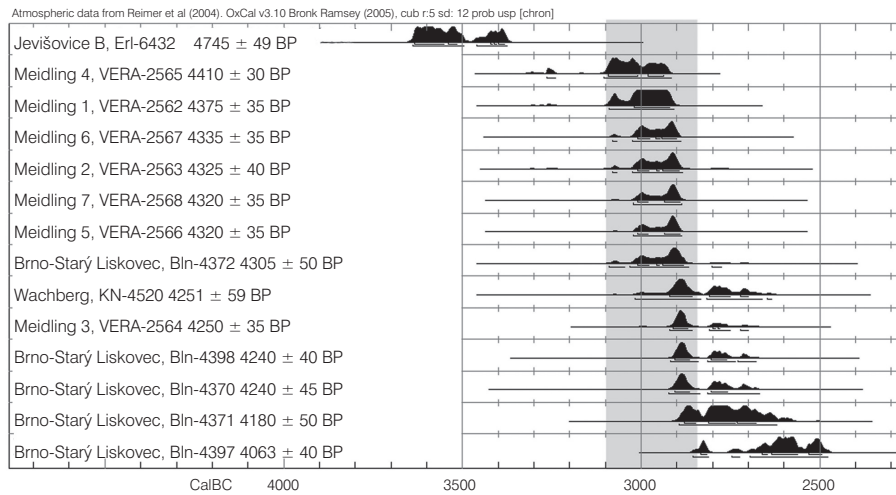


Fig. 18. Jevišovice  $^{14}\text{C}$ -dates ( $n = 14$ ). Highlight bar: Estimated range 3100/3000–2850 BC.

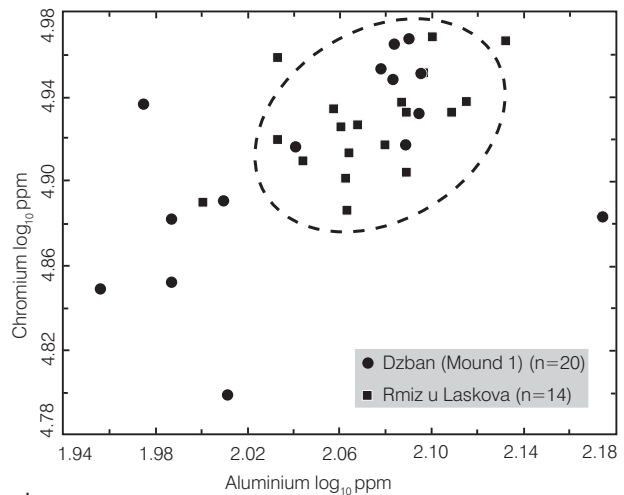
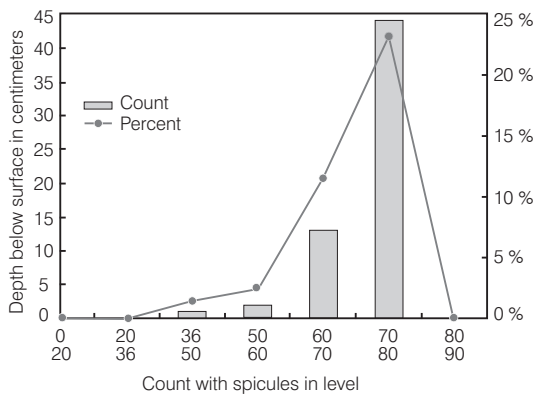
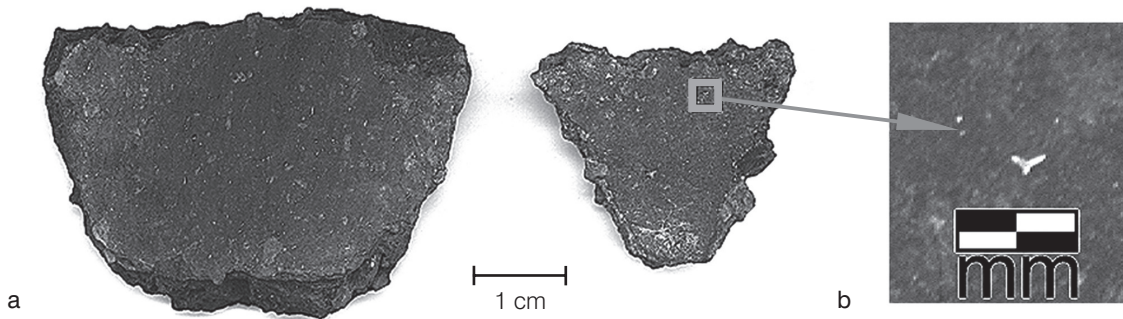


Fig. 19. Material analysis of TRB pottery (a–c Frink, d Boulanger): a–b Macroscopic and microscopic view of Rmíz spicula temper, c: Count of Rmíz pottery with spicula by depth, d: Neutron activation analysis of Rmíz u Laškov and Náměšť na Hané-Džbán pottery, dotted oval: Cluster of pottery samples that appear to be made of similar clays and tempers.

falls into the range for Baalberge burial pottery. The latest TRB II dates stem from the midden at Rmíz Area 2 (c. <sup>OCR</sup>3250–3213 BC) and from the highest point of Rmíz (Area 4), where a living surface is dated to c. <sup>OCR</sup>3127 BC. The rampart at Hrad u Bílovice is refurbished around <sup>OCR</sup>3150 BC. These dates would be too late, if the Arbon Bleiche 3 dates mark the end of Boleráz. However, they do match FURHOLT's (in print) expectations of a kind of Moravian "Post-Boleráz" pottery and Polish <sup>14</sup>C-dates. It also correctly suggests that the Moravian TRB II ends between 3200–3100 BC, i.e.

when Jevišovice Layer B-type pottery comes into use as determined by <sup>14</sup>C-dates for the Jevišovice "Culture" (Fig. 18).

The above discussion leads to the conclusion that we cannot clearly discriminate between the diverse cultural phases using the traditional typological approach or absolute dating. This makes it difficult, if not impossible, to substantiate the notion that culture change is driven purely through invasion/replacement by ethnic groups (read pottery typology), whose homeland is not succinctly identified in time and space.

### Analytical Methods

Without addressing a long-running debate concerning whether (archaeological) culture change is best explained by cultural continuity with change being a function of cultural drift, or whether change occurred as a result of invasion, replacement or diffusion, we argue that neither the traditional method of classification nor absolute dating alone can provide solid evidence for reasons of culture change. Furthermore, even in tree-ring dated sites one cannot be sure that "foreign" pottery styles are the result of imports, invasions or local manufacture, unless one applies new material analysis methods. For example, the material analysis of Arbon Bleiche 3 teaches us that stylistically foreign Boleráz pottery within the Pfyn/Horgan material culture around the Bodensee is actually made of locally available materials, even though the pottery style would suggest invasion or imports from somewhere in the region characterized by Boleráz pottery.

Our own preliminary material analysis of the pottery from Rmíz (Fig. 19a–c) indicates that a

particular temper with spicula inclusions was preferred and that the tendency to use it diminishes only gradually through time. A petrographic and neutron activation analysis has been initiated for a broad sample of the pottery (BOULANGER in print b). The results of the first sample of fifty randomly selected sherds from Rmíz and 50 similarly selected from the Džbán mound cluster (Fig. 19d) indicate substantial similarities in paste and temper. This implies that almost all the pottery is made from the same, presumably local materials. Yet, the analysis also indicates that a few sherds are made of different, possibly non-local materials. The results so far indicate that there is little to no radical shift in pottery making traditions through time and space in our research area. This implies cultural continuity and drift, although a very small fraction of the pottery does not conform to this norm. The latter could mean that a minority of autochthonous pottery makers preferred a different local clay source, a change in fashion over time or imported pottery.

### Going Beyond the Legacy

We conclude that there is a strong degree of continuity and a possibly seamless overlap between the "Nordic" and the "Danubian" sphere through time both on a regional and an interregional level (Fig. 1). If so, we may have to rethink our perception of human interaction based upon this and the use of wheeled vehicles in Boleráz and TRB context (e.g. M. BALDIA 1995; BAKKER ET AL. 1999; VOSTEEN 1999), not to mention the possibility of track-ways associated with earthworks (M. BALDIA 1998a; RAETZEL-FABIAN 2002) and monumental tombs (M. BALDIA 1995; 1998a; BAKKER 1979; 1991).

We admit that stylistic similarity does indeed diminish with distance to the north, when viewed from the traditional Danubian vantage point,

but it also diminishes to the south when viewed from the Nordic perspective due to distance and time. Thus, if we look at the various styles from a more central position, let us say Kujavia, we may conclude that the TRB emerges in Poland (e.g., KOŠKO 1981; CZERNIAK ET AL. 1991). If so, it would follow that monumental tomb architecture spread from there in various directions, perhaps as far as the British Isles (MIDGLEY 1985). The same goes for the perhaps not entirely unreasonable traditional diffusionist argument that certain inventions and stylistic similarities, including the origin of the wheel, spread into Central and Northern Europe via Greece or Anatolia (BAKKER ET AL. 1999; SHERRATT 2003). Clearly, it all depends on

our vantage point, and this is the crux of the problem—the conundrum.

To resolve the conundrum we may need to start with the notion that there is no obvious point of origin and no specific boundary. This is not to deny ethnic and linguistic differences in Central and Northern Europe. It just means that this continuity of interaction is obscured by our legacy, which views stylistic change as culture change induced by population movements, invasions, diffusion etc. However, the reality of such notions is based in our traditional preconceptions of Nordic, Danubian, or (in the extreme case) Anatolian cultural origin, rather than in the rigorous acquisition and analysis of archaeological data. Therefore, it is prudent to test alternate hypotheses. Such hypotheses require intensive efforts to systematize and standardize excavation practices, nomenclature, etc., so that new analytical methods can be applied systematically and with scientific rigor throughout Central and Northern Europe, and beyond.

To reframe the archaeological debate as described, we would have to jettison much of our archaeological legacy. Our vague theoretical notion of “cultural influence” as “proven” by the “import” of “foreign objects”, based upon unscientific, non-quantitative visual inspection and colored by a particular school of thought, would have to be abandoned along with our a priori assumptions about cultural origins. Unfortunately, overcoming our legacy through such a

paradigm shift would leave us with the ultimate conundrum. The shift would have the same effect on our traditional cultural classification schemes as cladistics has on Linnaean taxonomy. It would leave archaeology in an even greater disarray than is presently the case. Therefore, we will undoubtedly avoid the painful paradigm shift and continue religiously to hold on to the legacy, even though it hampers our understanding of culture change and human interaction.

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## Abstract

Our archaeological legacy has produced cultural classification systems and chronologies that hamper understanding culture change and human interaction. Thus, archaeologists argue about traditional concepts, such as cultural boundaries, population movements, human agency and other notions, instead of focusing on solid data acquisition and appropriate methods of analysis. Such notions are often glorified as (archaeological) “theory”, leading to disparate paradigms. This is exacerbated

in Central Europe, where there is a traditional division between the Funnel Beaker Culture (TRB) on one side and the Lengyel and Baden Cultures on the other. Excavation results from several Moravian monuments are used to focus on the overlap between the “Nordic” TRB and the cultures of the Danubian spheres to stimulate a reexamination of our archaeological legacy and further our understanding of culture change and human interaction.

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## Baden Cultural Identities? Late Copper Age Funerals Reviewed

By *Claudia Sachße*

### Introduction

For decades the cross-cultural relevance of the Baden Culture has triggered the interest of the European prehistoric research. Following the fundamental monograph of JÁNOS BANNER about the Baden Culture (1956), burials attributed to this culture eventually came under the focus of archaeological research. Since then a few studies have been undertaken on grave finds found in selected regions (CHAPMAN 2000; KALICZ 1963; KOVÁCS 1987; MAYER 1991; NEVIZÁNSKY 1985; ŠMÍD 1990ff.), while knowledge about the internal development and inter-regional significance of the Baden Culture has constantly increased. Given the time that has elapsed since the work of BANNER in 1956 and the extensive distribution of the finds of the Baden Culture, a thorough analysis of the inventory of Baden burials in the entire area was considered necessary and full of potential. A review of burial and skeletal finds of the Baden Culture in the Carpathian Basin, based upon data that are accessible in publications, was undertaken in the course of a doctoral thesis at the University of Heidelberg (SACHSSE 2005)<sup>1</sup>. The funerary evidence was analyzed with consideration of the preceding period and also with regard to associated following periods. Developmental trends, characteristics of the individual

phases, regional phenomena and distinct external influences were examined. The essential results of this study will be presented in this contribution.

Nearly 200 sites yielded more than 1500 finds associated with mortuary practices (Fig. 1; 5). Clear concentrations are visible in northern Transdanubia from the Csepel Island up to the river valleys of Nitra, Žitava and Hron north of the Danube River, around Lake Balaton and towards the southeast, in Lower Austria as well as in the Morava Valley. Situated somewhat closer are also find spots in the northern surroundings of the Tisza River and the low mountain range of Bükk, Zemplén and the Slovakian Ore Mountains. Some scattered finds are located in the Great Hungarian Plain (Alföld) and along the Drava and Sava Rivers. Burial evidence for the phases of pre- and early Baden is relatively scarce. The percentage of late Middle Copper Age finds account for c. 15 % of all investigated find spots, while those of Boleráz, the early Baden phase, amount to only c. 10 %. Best represented are the Classical and late Baden phases with the absolute majority of c. 70 %. Merely c. 5 % of the find spots belong to the Post-Baden groups of Kostolac, Bošáca and Jevišovice, which are discussed at the end of this study.

### Pre-Baden Period: the Late Middle Copper Age

Research of the last decades has increasingly suggested the continuous development of the Baden Culture out of the local substratum of Middle Copper Age cultural complexes in the Carpathian Basin (cp. KALICZ 1991; 2001). These are the spheres of Furchenstichkeramik groups (abbreviated FSK) in the western part and the groups of Hunyadi-halom and Lažňany in the eastern

part. These groups' appearance there was still approximately within the former cultural borders of the early and older Middle Copper Age with spatial overlappings. The following Proto-Boleráz horizon (abbreviated PBH) bases upon the local substratum of these two spheres. For the first time a cultural phenomenon spreads over the entire Carpathian Basin, a fundamental peculiarity, which is

<sup>1</sup> The publication of this study is in preparation. In addition to the published evidence, in some cases unpublished facts

could also be included, for which the author expresses her thanks to those who provided this information.

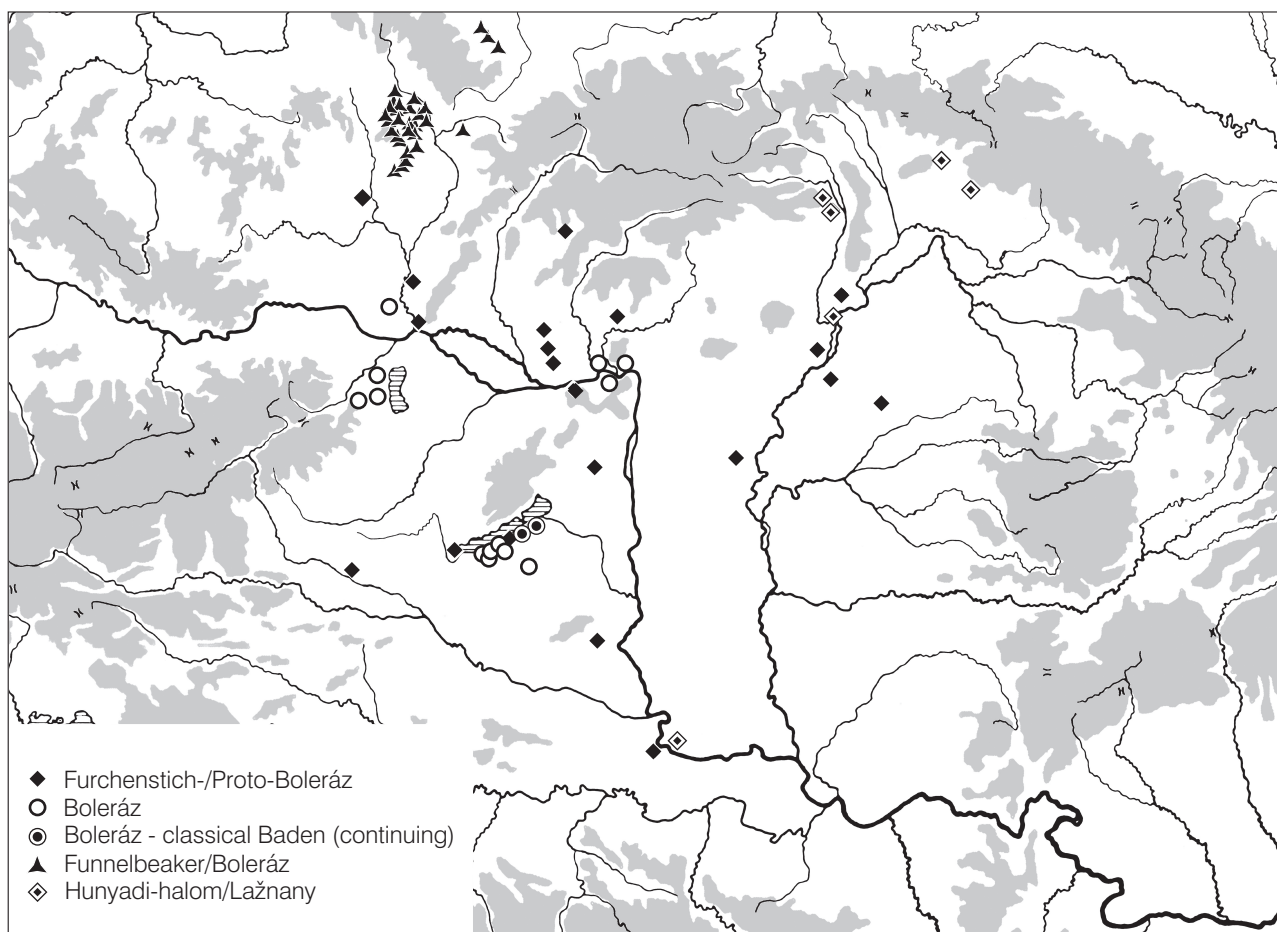


Fig. 1. Distribution of burial places of the pre-Baden, Proto-Boleráz and Boleráz periods.

also noticeable in the following Baden Culture distribution. Consequently, the examination of the grave evidence here should start at the time of the transition to the Baden Culture.

For roughly the 2<sup>nd</sup> quarter of the 4<sup>th</sup> millennium BC, 20 find spots are known from the entire Carpathian Basin (Fig. 1). The majority of these find spots belong to the FSK cultural sphere. By contrast, only a minor number of burial finds attributable to the eastern neighbours of Hunyadihalom and Lažňany and the following PBH are known. Their greatest concentration lies in the area of the northern Danube River, namely from northern Transdanubia to western Slovakia. Furthermore, burials have thus far been noted southwards over the Balaton region and up to the estuaries of Drava and Danube Rivers. In the east some find spots are located in the area of the Hunyadihalom group along the Tisza River, up to the foreland of the Zemplén mountains.

Considering the FSK grave finds outside of settlements (extramural), the strong dominance of cremation custom is conspicuous. Most of the find

spots comprise either scattered cemeteries or, especially in the west, single urn graves, for example, those in Balatonboglár-Berekre dűlő, Bratislava-Devinská Nová Ves, Gajary and Szerencs (BONDÁR 1996, 3; BONDÁR et al. 2000, 94f.; KALICZ 2001, 400; ŠUTEKOVÁ 2005, 328). A large cemetery with 176 burials in Pod Kotom-jug in the Slovenian Mur Valley can be added as well (ŠAVEL 2003). It consists of urn burials covered with tumuli. Larger ceramic forms like jugs, amphorae and pots served as urns (Fig. 2). Regularly prior to the deposition of the human remains, a hole was made in the base of the urn. The other isolated, single urn graves rarely contained any further inventory. Regarding the cemetery mentioned, small vessels were offered as grave goods or they were intentionally broken within the scope of mortuary rituals following interment. Furthermore, few stone tools, copper objects and also animal bones feature within the grave goods. The inventory of this necropolis abides with specific rules pertaining to gender and age. According to the few published data the cemetery belongs to the FSK (ŠAVEL 2003); however, as PBH features



Fig. 2. Pod Kotom-jug (no scale) (ŠAVEL 2003, 38–40).

can be noted in the ceramic material, the cemetery probably overlaps in the two horizons. Nevertheless, the context for some cremations is unknown (e.g. Gajary, Neszmély-Szőlőheg: RUTTKAY 1997, 175; 178). In addition, evidence of confirmed cremations in settlements is lacking. Only in Balatonboglár-Berekre dűlő settlement can the proximity to a contemporary settlement be conjectured. As far as the PBH is concerned, the evidence of cremations still remains very patchy<sup>2</sup>.

The number of skeletal finds, known both from the FSK and PBH phases, is even smaller. Merely one burial in contracted position with pottery offerings is known from an extramural context (Egyek: BOGNÁR-KUTZIÁN 1973, 34f.). The majority of these finds lie within contemporary settlements. Contracted inhumations are rather common, for example in Abony<sup>3</sup> and Bajč-Vlkanovo (Točík 1964, 8ff.). Their inventory consists mostly of pottery, namely small cups and bowls, but also jugs, which in cases of cremations were used as urns. Furthermore, finds of mass graves (Bajč-Vlkanovo, Rajhrad: LICHARDUS 1976, 166), isolated skulls in a ritual context (Keszthely-Fenekpuszta: MRT 1, 1966, 79) or single human bones, possibly the displaced remains of disturbed regular inhumations (Nitriansky Hrádok: Točík 1964,

11, 158), can also be mentioned.

With regard to the contemporary Hunyadi-halom/Lažňany complex, a few find spots can be added (LICHTER 2001, 354ff.; PATAY 2004; ŠIŠKÁ 1972). The Hunyadi-halom group, located in the Alföld, has yielded only inhumations until now: The extramural group of graves in Vajska clearly shows traditions of the former Bodrogkeresztúr Culture. The way in which inhumations in the settlement at Tiszalúc also display these traditions is still unknown, due to the lack of settlement material from the time of Bodrogkeresztúr (LICHTER 2001, 312). With reference to the Lažňany group in the north-eastern part of the Carpathian Basin, biritual cemeteries (Šebastovce, Barca) and cremation cemeteries (Lažňany, Velikije Lazý) in micro-regional differentiation can be added. Intramural burials are unknown so far. Therefore, the quite uncertain chronological relationship of Lažňany to the PBH and also the lack of later grave finds, which could close the gap between Lažňany and Classical Baden in this micro region, remain problematic.

Finally, in spite of the relatively small number of find spots from the pre-Baden period, it can be stated that in significant areas of the Carpathian Basin an essential amount of the mortuary evidence consists of cremations, especially as far as

<sup>2</sup> L. A. HORVÁTH (2001, 460) briefly mentions the existence of a few cremations of the PBH in the Great Hungarian Plain.

<sup>3</sup> Some inhumations with rich grave goods are recorded in a PBH settlement in Abony-Turjánys dűlő, located in the

middle Tisza region. Until now this is the easternmost as well as the richest evidence of PBH burials. Unpublished information kindly provided to me by Szilvia Fábíán (Budapest).

extramural burials are concerned. At the same time, the confirmed grave finds in settlements

have yielded exclusively regular inhumations or human skeletal parts.

### Boleráz: the Early Baden Period

During the following time of the early Baden Culture in the Carpathian Basin, that is, the Boleráz Group (Baden Ib–IIa), there are three concentrations of graves in the areas of the Lake Balaton, the bend of the Danube River and the Neusiedl Lake (Fig. 1). Each area has supplied few numbers of more or less variable burial finds.

The area of northern Transdanubia has yielded cremations in which the cremated remains are either inurned or placed separately in the grave pit together with accessories; both forms are usually enclosed or covered with stones. This kind of burial is thus far best preserved in the graves of Pilismarót-Basaharc (TORMA 1973). The incinerated remains were mostly covered with everted bowls or deposited in bowls that functioned as urns (Fig. 3). The choice of material shows a connection between the kind of deposition of incinerated remains and the ceramic forms, namely jugs, bowls and amphorae. Animal figurines and potsherds in the stone packings and their surroundings suggest offering activities during the burial rites, namely after the setting of the stone packing.

Additionally, there are small groups of similar features in Ipolydamásd and Malá nad Hronom (KŐVÁRI 1994; NEVIZÁNSKY ET AL. 1995/96) (Fig. 4). Despite the absolute dominance of cremation in this micro-region, one case in which skeletal parts were deposited should be mentioned. One grave in Malá nad Hronom merits attention, as it contained two urns with incinerated remains, but also a third vessel with uncremated human bones (NEVIZÁNSKY ET AL. 1995/96). Perhaps these are the remains of a former regular, dislocated inhumation, now in the context of a secondary burial.

These finds are located very close to the bend of the Danube. In spite of the high concentration of Boleráz find spots, there is still lack of further evidence of graves north of the Danube River (NEVIZÁNSKY 2005, 254, 264), just as well as in the south. Graves from Boleráz settlements in northern Transdanubia are unknown so far.

Finds from Lake Balaton – until now located only on its southern side – belong mostly to the developed and latest part of Boleráz period. On the one hand, there is the long known cremation cemetery of Fonyód-Bézsénypuszta (BANNER 1956, 28ff.), which has yielded, like the previous period, urn graves. On the other hand, there are two inhumation complexes to be mentioned: the first is a consecutive burial in a large pit (Balatonboglár-Kokashegy: HONTI 1981); the other evidence comes from a cemetery in Balatonlelle-Felső Gamász with single inhumations in contracted position. The continuous use of this cemetery can be followed into the classical Baden period, corresponding with the nearby settlement of Balatonlelle-Országúti dűlő (SÓFALVI 2004). The other burial



Fig. 3. Pilismarót-Basaharc, grave 358 (TORMA 1973, 485 Fig. 1,2).

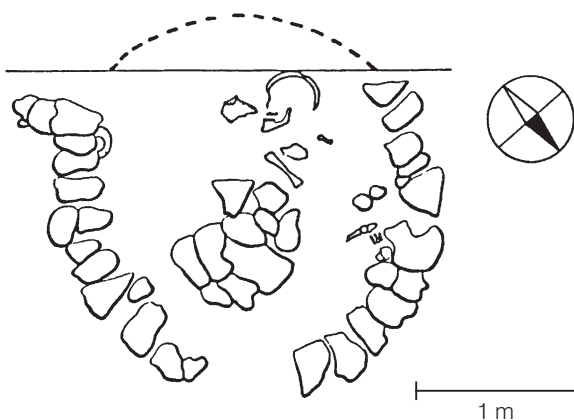


Fig. 4. Malá nad Hronom, grave 16/59B (NEVIZÁNSKY ET AL. 1995/96, 256 Fig. 3).

sites were situated close to a contemporary settlement as well. Especially the inhumations yielded a rich inventory of grave goods.

In a recently discovered settlement in Balatonószöd we find remarkable features: The abundance of skeletal finds can be connected partly to the Boleráz phase<sup>4</sup>, continuing in the settlement phase of classical Baden (see below; HORVÁTH 2002; 2004). The individuals were laid in settlement pits, mostly in irregular position, rarely contracted. Apart from this site, there is very scanty evidence for settlement burials in this region. Judging from the available data so far, these are skeletal finds, that is, inhumations in contracted position and with ceramic grave goods and also isolated skulls (Ordacsehi-Bugaszeg: POLGÁR/SZEŐKE 2004).

The few early Baden finds in Lower Austria around Lake Neusiedl show various forms. There are single finds of incineration, in the form of an isolated un-urned cremation as well as an urn grave within a settlement (Au am Leithagebirge, Grub an der March: HAHNEL 1992, 79ff.). Moreover, one isolated find and one skeleton from a settlement pit prove that in this region inhumations outside as well as inside settlements are likewise known in the early Baden period (St. Margarethen, Zillingtal: HAHNEL 1992, 83f.).

Summing up all known grave finds of the Boleráz group in the Carpathian Basin, it must be stated that these observations are based upon a very limited amount of data, which was obtained in the western part of the Carpathian Basin only. It should be noted that cremation still remains the most important, yet not the sole mortuary practice in this period. Inhumations are longer known in the late Boleráz phase, for instance in Balatonboglár-Kokashegy. But especially in the Balaton region recent discoveries have now proven that during the time of Boleráz cremation custom never was the exclusive practice. Along with the present evidence from the pre-Baden period, we can suggest that a probable continuous practice prevails, with cremation graves dominating outside the settlements and inhumation burials inside. Only on the western periphery of Lower Austria does evidence indicate less consequence.

Therefore, in the southwestern and western area of the Baden Culture we find regular inhumations as well as other peculiar forms of total or partial body deposition already in the early phase, which play a significant role in the classical and later Baden periods, especially in the region of Trans-

danubia (SACHSSE 2005). Until now only cremations in an extramural context are known from northern Transdanubia. However, the few finds at the bend of the Danube River can hardly be considered as representative for the entire area. The great number of Boleráz sites with settlements and scattered finds (see NEVIZÁNSKY 2005, 264) suggest that settlement burials in this area are either absent or they appear only as an exception. Our evidence for the Boleráz period in the eastern part of the Alföld and the Tisza region is still quite poor. Particularly in the Alföld, where inhumation is the exclusive practice in both the pre-Baden and the younger Baden phase, the lack of Boleráz grave finds is puzzling. Perhaps in this area, the custom of cremation never played a significant role, if any, throughout the entire Copper Age – in pre-Baden as well as in the Baden phases – in contrast to the western and northeastern Carpathian Basin.

A particular situation can be observed at the western fringe of the Carpathian Basin, where local elements of the Funnel Beaker Culture (TRB) and the Epi-Lengyel tradition fuse with Proto-Boleráz-Horizon and Boleráz elements. In the Morava Valley a specific variation of burial customs develops, which is closely connected to a certain kind of settlements<sup>5</sup>. The basis of the formation of this settlement chamber lies already in pre-Baden times. It must be associated with a direct expansion of TRB people from the west (LICHARDUS 1976, 164; ŠMÍD 1990, 72). Accordingly, from the very beginning burial customs relate to the respective traditions of the area of origin. The ceramic material displays contacts with the southeast in the FSK horizon (e. g. ŠMÍD 1990, 79 Fig. 6; 1992, 150), but it is only during the following PBH that these influences also affect burial rites. Thus, the TRB people adopted only a few new aspects, which were consequently adjusted to the traditional framework. As the Boleráz impact gradually intensified, local elements in burial rituals faded out. Nevertheless, the echo of the TRB legacy in the ceramic material as well as in burial rites does continue until the end of the TRB- and Boleráz phases (SACHSSE 2005; ŠMÍD 2001).

At least one, perhaps even a few differently dated cemeteries of the region can be connected to the partly well fortified settlements with corresponding developmental phases (BALDIA ET AL. 2001, 44 Fig. 1; ŠMÍD 2001; ŠMÍD 2004). The cemeteries show reminders of the former phase as well as assonance of the following.

<sup>4</sup> Information kindly provided by Tünde Horváth (Budapest).

<sup>5</sup> For their kind information and helpful discussions I wish

to thank to Martin Furholt (Kiel) and Maximilian O. Balidia (Pennsylvania).

Very little evidence is present for the first developmental phase, the Baalberge phase (TRB IB2) (ŠMÍD 1990, 71ff.)<sup>6</sup>. At the site of Slatinky-Boří I inhumations in contracted position as well as symbolical graves are situated in rectangular stone cists, in the typical TRB manner of the central German region (ŠMÍD 1990, 77ff. Fig. 4–6; cp. PREUSS 1966, 40, 136, 159ff.; LICHARDUS 1976, 106ff., 122; MÜLLER 2001, 311ff.). The oval mounds, situated mostly in northwest–southeast direction, were covered with stones.

The cemeteries of the following Drahanovice phase are better preserved (ŠMÍD 2001, 605ff.). They attest an intensive impact of the contemporary PBH (TRB IIA / Baden Ia). Apart from new, locally developed elements in grave construction, the radical and rapid switch from inhumation to cremation custom is fundamental. The oval form and east-west orientation of the mounds are maintained, but the stone covering vanishes. Rectangular and oval wall constructions now enclose the grave zone on the surface and are ultimately covered with a barrow (Drahanovice, Náměšť na Hané-Křemela I: DOHNAL 1974; ŠMÍD 1990, 69 f. Fig. 2–3). One or more, mostly consecutive un-urned cremations, often covered with bowls, as well as urn burials are situated within or under these stone constructions, preferably in the eastern part. A striking phenomenon is the perforation of the base of the cinerary urns and the cover vessels. These cemeteries appear as the peak of this development in regard to the complexity of construction, the dimensions of the mounds (c. 10–29 m in length) as well as the number of mounds in each necropolis (up to 58).

An equally high number of mound fields represent the later and final Boleráz phase (Ohrozim) and, thus, the end of TRB in Moravia (TRB IIB / Baden Ib–IIa) (ŠMÍD 2001, 608ff.). However, the Ohrozim phase appears to be more regressive than further progressing. This is particularly noticeable in the decline of monumental grave construction and in the careless manner of building them. The burials are situated under simple earthen barrows (Alojzov-Spalény kopec, Ohrozim, Slatinky: MEDUNOVÁ-BENEŠOVÁ 1967; ŠMÍD 1990, 82f. Fig. 9–10). The immediate surroundings of each grave are covered or encircled by a few stones. The mounds are smaller in size (c. 5–21 m long) and less well preserved. Because of the reduced stone covering and careless construction, the mounds are exposed to intensive

erosion. Furthermore, the number of mounds in each cemetery declines (maximum 27). Yet cremation of the deceased with the remains deposited in urns or simply in the pit together with grave goods are still the norm.

The number of burials with grave goods is relatively high. Besides pottery as the main component, tools with a shafthole are an important element: different axe forms, hammers and round mace heads. Most are made of stone, but there are also ceramic miniatures. A considerable number is fragmented, and some stone pieces show traces of fire. It is noteworthy that undisturbed grave units with shafthole tools contained nothing else but pottery. Further components of the grave inventory, such as silices, copper, ceramic objects and ornaments, are represented only on a small scale and limited to graves without stone tools (SACHSSE 2005).

As far as the relatively few settlement burials in the Moravian region are concerned, inhumations are common throughout the older and up to the final TRB (Dědice, Držovice, Moravičany, Hlinsko: PAVELČÍK 1990; ŠMÍD 2002). Hence, the consequent change in custom from inhumation to incineration took place only in extramural cemeteries and not within the settlements. The burials were found mostly in settlement pits, although in one case it appears likely that a separate grave pit was dug. The dead were buried in a contracted position, whereby the orientation was varied. In addition, isolated skull fragments feature amongst these finds (Hlinsko, Krnov: POĐBORSKÝ 1993, 188).

Consequently, the same constellation as seen in the Carpathian Basin during the pre-Baden and Boleráz periods exists in Moravia as well, at least in the second phase of the burial mounds, cremation graves outside the settlements, inhumations within the settlements. Yet, the latter are rarely found in the micro-regional settlement chamber with burial mounds in the Morava Valley. Most of the settlement burials are recorded in the wider surroundings of the Morava Valley, especially north of the Hrubý Mountains. There, on the other hand, extramural burials are hardly known. So the situation in broader parts of Moravia still remains quite unclear.

With the end of the mixed TRB/Boleráz horizon this micro-regional phenomenon of burial mound fields comes to an end, although some elements still echo in the early classical Baden period. Evi-

<sup>6</sup> The terminology follows M. ŠMÍD (2004): Baalberge, Drahanovice and Ohrozim phase. The term 'Jevišovice phase', used earlier for the second phase (cp. ŠMÍD 2001, 605ff.),

has been replaced by that author in the new publication. This seems reasonable, in view of the danger of confusion with the 'Jevišovice Culture' of the Post-Baden horizon.

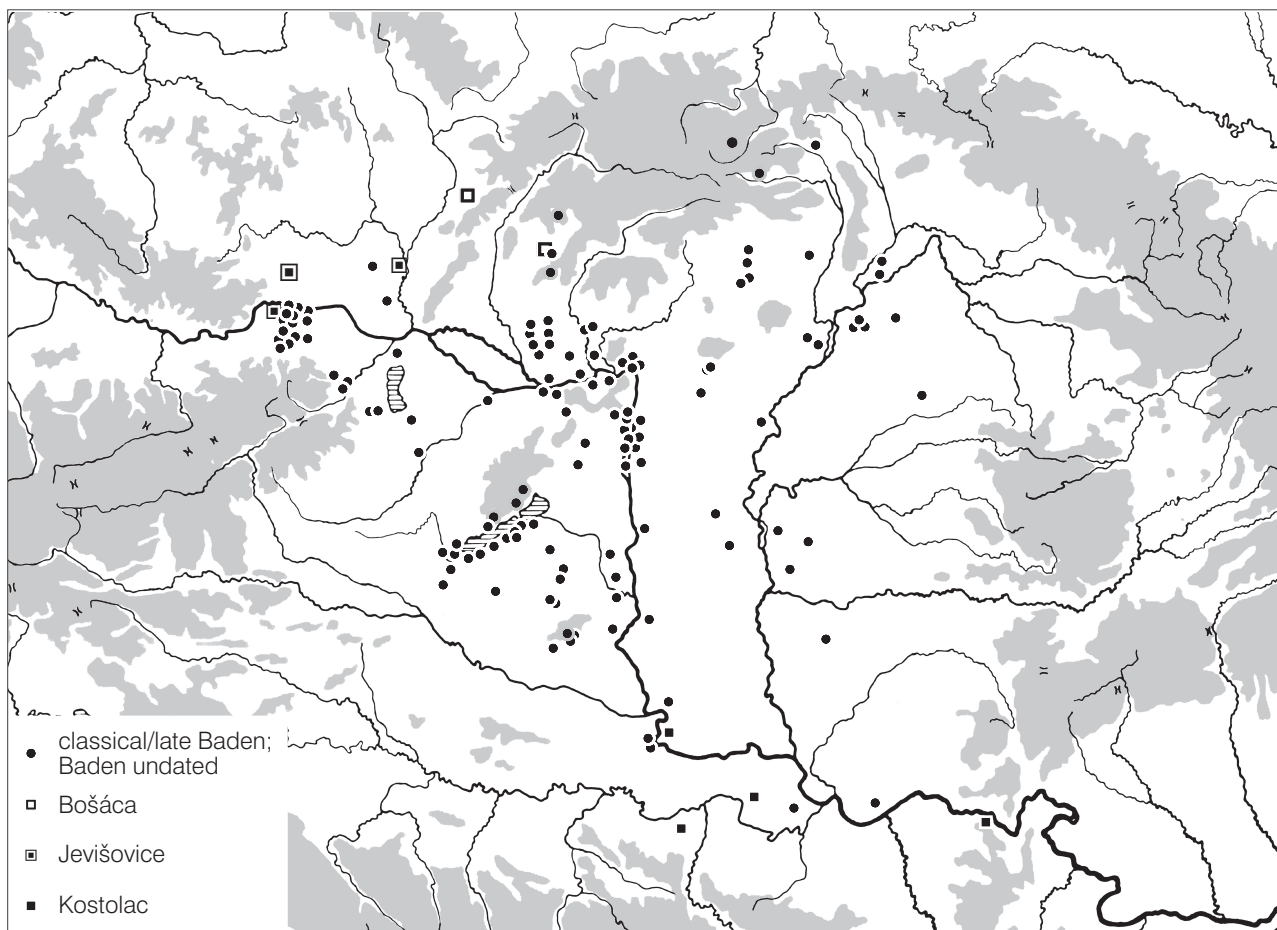


Fig. 5. Distribution of burial places of the classical/late Baden and post-Baden periods.

dence of burials from the following Classical and late Baden horizons as well as from the post-Baden

phase (types of Greslové Mýto, Jevišovice Culture) in Moravia is entirely lacking.

#### Classical and Late Baden Periods

The situation changes radically during the following phases of classical and late Baden Culture (Baden IIb–IV). Numerous finds are distributed throughout almost the entire Carpathian Basin (Fig. 5). They suggest a fundamental evolution in mortuary practices. The strongest impact of this phenomenon focuses upon the northern and western part of the Carpathian Basin. In general we can observe a striking increase of extramural inhumations. An absolute dominance of this practice can be noted only in certain regions, but certainly not throughout the entire Baden Culture territory. The funerary evidence clearly shows a regionalisation in burial rites, particularly in river valleys and isolated areas close to the mountains. The burial inventory includes more tools, albeit in poor quality, often ornaments as well as the deposition of en-

tire animal skeletons beside the deceased. During the same time the number of burials and skeletal finds in settlements also increases. On the one hand, these comprise regular burials in separate grave pits (most with grave goods) or settlement pits (with few grave goods or none at all). On the other hand, there are many and different peculiar forms of body deposition.

#### Northern Transdanubia

The area north and south of the bend of the Danube River, a core region of the Baden Culture, stands out clearly due to its spatial and chronological range of mortuary rites (SACHSSE 2005).

Almost all of the off-settlement burial sites are situated either nearby or south of the bend of the



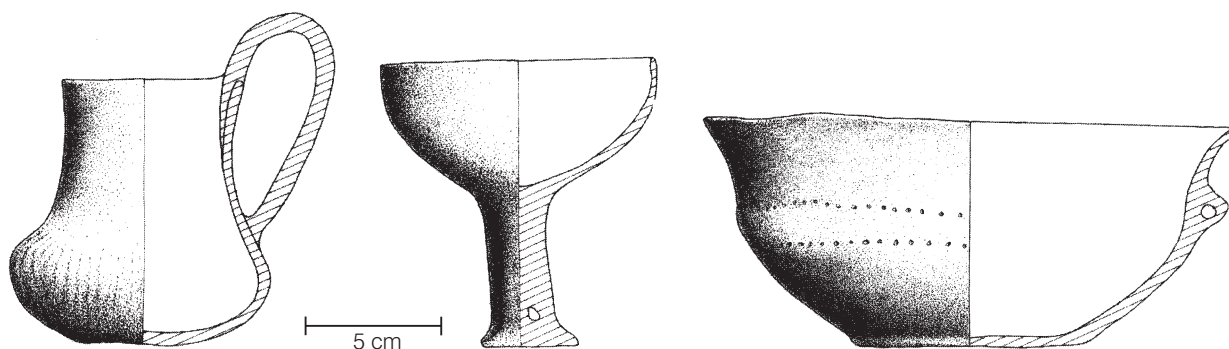


Fig. 6. Budapest-Békásmegyer, inventory of grave 2 (ENDRŐDI 2002a, 45 Fig. 2).

Danube. The most important sites, which display some remarkable characteristics in the arrangement and equipment of graves, are the famous cemeteries at Alsónémedi and Budakalász (BANNER 1956; KOREK 1951).

Among the burials from the early phase of Budakalász, un-urned cremations and urn graves are common<sup>7</sup>, just as in the previous early Baden period. The later and larger part of the cemetery consists only of inhumations in contracted position. There are a few examples of depositing skeletal parts, especially individual skulls, to mention. The typical Boleráz custom of a stone packing persists until the later phase of the cemetery. Four main grave areas, which can be distinguished by spatial arrangement<sup>8</sup>, reflect gender- or age-specific features (SACHSSE 2005). In some cases grave clusters show a circular or semi-circular arrangement around a specific grave or an unknown feature beyond the excavated area. The buried often lie with the head or feet directed towards the centre of the cluster. A differentiation in the grave inventory is evident, for example, in the ceramic or the ornament forms. Their occurrence or their absence, respectively, is consistent and distinctive for each grave group. The most typical features include the presence of foot beakers, dippers and jugs, the range and the arrangement of shell and copper ornaments, as well as the tool assemblage. In the northern group, for example, copper objects appear exclusively as ornaments. In the western group, copper beads are scarce, but there is the highest concentration of copper tools, which are otherwise rarely present

in the cemetery. Apart from location of the graves within a group, the positioning of the dead and the kind of grave inventory express the affiliation with a certain community as well. On the basis of the inventory there is no clear cut evidence for an internal or external group stratification or social hierarchy. Only grave 3 in the southeastern group, which aside from the dead contained two cattle skeletons, can be considered as a kind of 'central grave' in view of its position as well as the inventory.

Unlike Budakalász, the Boleráz heritage of stones as a part of the grave installation is totally missing in the necropolis of Alsónémedi. This applies also to the positioning of skeletal parts or skulls. The grave goods are fewer and distributed in a different manner. There are no foot beakers and shell ornaments – elements that played an important role in Budakalász –, and there are also differences in the occurrence and positioning of tools within the grave. Whereas in Budakalász female deceased were more often equipped stone tools than males, in Alsónémedi graves of females lack stone tools completely. Instead, female burials were furnished exclusively with copper tools and animal bones. In both cemeteries, however, we see a common tendency in the grave inventory: The more ornamental objects one grave contained, the less other sorts of grave goods were offered or none at all. Regardless of any similarities, the necropolis of Alsónémedi appears to be not only further advanced compared to Budakalász, but also it seems to represent another sphere of varying burial customs.

<sup>7</sup> Information kindly provided by Kitti Köhler (Budapest).

<sup>8</sup> Based upon the published part of the cemetery (cp. BANNER 1956, 112 Fig. 28); the resultant knowledge can be supplemented by several short contributions about the unpub-

lished part of the cemetery, especially in MRT 7 (45–47) as well as by S. Soproni in the papers in *Archaeologiai Értesítő* and *Régészeti Füzetek* of the years from 1954 to 1962.

Apart from these cemeteries, there are only a few sporadic off-settlement burials in the area. In most cases we find isolated skeletal finds in contracted position. They are located mostly to the south of or near the bend of the Danube River; only exceptions are more remote from there (Budapest-Csepel<sup>9</sup>, Marcelová, Nitra, Szob-Öregfalú; Vámosgyörk: FARKAS 2001; MRT 9, 316–319 Nr. 26/11; NEVIZÁNSKY 1985, 265; PAVÚK 1972, 5ff.). The variety of grave goods in these cases is by far more limited in comparison to the large cemeteries.

The northern Transdanubian region has yielded the absolute majority of intramural burials of the Baden Culture. The data from these settlements reflect a spatial pattern similar to extramural burial sites. An evident tendency concerning the treatment of the dead can be observed from north to south (SACHSSE 2005). The region around the bend of the Danube River forms a transitional area with relatively numerous find spots.

In the south regular burials in separate grave pits predominate. Of significance are, for example, the finds from Budapest-Békásmegyer (Fig. 6: ENDRÓDI 2002, 35f.) and Szigetszentmárton (KALICZ 1976)<sup>10</sup>. Compared with the inventory from cemetery burials, the grave goods are of similar value and quality. The ceramic forms, mostly jugs, foot beakers, bowls, cups etc. correspond to the pottery typology from cemeteries as well. A few settlements in the southern part contain single cremations, some with a stone packing<sup>11</sup>. As in Budakalász this custom disappears in later phases. These finds suggest an important difference as compared to the early Baden period in this region: With the exception of Budakalász, the few remaining cremations of the classical Baden period are all situated within settlements. For the later and final phases of the Baden Culture, burials in the region around Budapest are nearly unknown.

North of the Danube, along Nitra, Žitava and Hron rivers, there are primarily burials in storage or waste pits. In some cases fragments of storage vessels were observed, for example in Jelšovce (Fig. 7), whereas most burials contained few, if any grave goods (Šarovce III: NOVOTNÝ 1976, 75 Fig. 22,5). Furthermore, there is a predominance of very peculiar graves and skeletal finds within settlements. These comprise burials in ovens, multiple or mass graves, incomplete or partly dislocated skeletons or skeletal parts as well as disarranged bodies, which

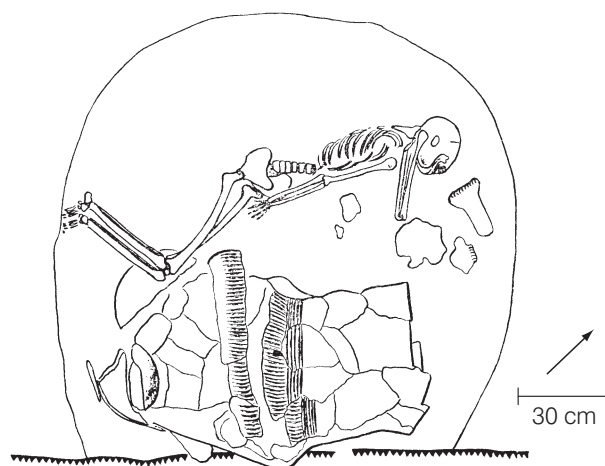


Fig. 7. Jelšovce (NĚMEJCOVÁ-PAVÚKOVÁ 1963, 674 Fig. 221).

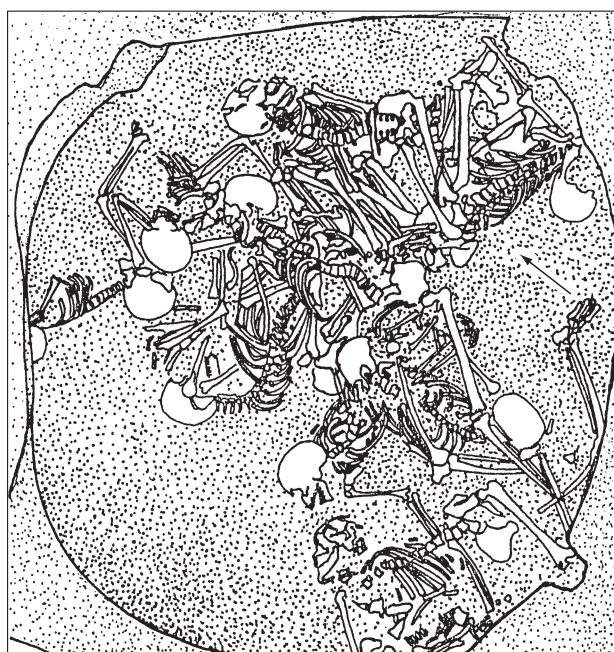


Fig. 8. Jelšovce, object 532/87 (no scale) (KLIČOVÁ 2001, 228 Fig. 5).

were clearly thrown into the pit, sometimes intermingled with animals (Jelšovce: Fig. 8; Svodín: Fig. 9)<sup>12</sup>. Probably these corpses were not honored with any funeral rites for various reasons, or perhaps they were even immolated as offerings in the course of ritual sacrifice. Only few regular burials

<sup>9</sup> Unpublished information kindly provided by Anna Endródi (Budapest).

<sup>10</sup> Further examples are Budapest-Lágymányos and Šarovce III, objects 3 5/1954: ENDRÓDI 1997, 134 Fig. 6; NOVOTNÝ 1976, 23 Fig. 6–7.

<sup>11</sup> Budapest-Békásmegyer, Budapest-Nagytetény, Szob-

Verberök: NEVIZÁNSKY 1985, 267f.

<sup>12</sup> Further examples are Bajč-Vlkanovo, Kamenin, Nitriansky Hrádok and Pilismarót-Basaharc Szobi rév: NĚMEJCOVÁ-PAVÚKOVÁ 1963, 676ff.; TOČÍK 1981, 23ff.; KEMENCZEI/STANCIK 1979; NEVIZÁNSKY 1985, 265; NEVIZÁNSKY 1999, 67ff.

have been found in this area. This phenomenon intensifies even more into the later Baden phase.

The independent deposition of complete animal bodies, thus not directly connected with human individuals, pertains mostly to cattle and pig. These species feature also in the grave inventories of extramural burials (cp. Alsónémedi, Budakalász, Nitra). In addition, sheep or goat are also present, observed in Budapest-Káposztásmegyer and Svodín. By contrast, the few animal skeletons as well as parts thereof, which were explicitly offered to human burials within settlements, belong mainly to dogs and in one case to a roe deer<sup>13</sup>.

It must be stressed that in northern Transdanubia no regular burials from the later Baden outside or within settlements are known, apart from very few, poorly confirmed exceptions. Viera Němejcová-Pavúková noted in 1963 that, despite the numerous Baden find spots in the Slovakian area, only very few graves are known (NĚMEJCOVÁ-PAVÚKOVÁ 1963, 678; cp. NEVIZÁNSKY 1985, 249). This statement still holds today. Nearly all finds feature single, multiple or mass graves with individuals thrown into or exceptionally deposited in the pit (SACHSSE 2005). So, in general it should be kept in mind that the 'actual' burial rites of the late Baden Culture in this area are virtually unknown. Nonetheless, it seems likely that here another radical change in mortuary practices took place during the course of the classical Baden Culture, yet it is possible that this picture derives from the state of research. Apart from two large cemeteries, evidence for extramural burials in the region under discussion is very scarce. This state of research definitely does not reflect a reliable picture of late Baden mortuary practices.

It is difficult to deduce the development of these kinds of settlement burials, that is interments, from older material. The lack of settlement burial evidence in the early Baden Culture and the small number of find spots from the pre-Baden period constrain such an endeavour. Nevertheless, it is worthwhile to look back at this particular region during the Middle Copper Age. No less than some FSK, PBH and Boleráz settlement burials with regular contracted inhumations as well as multiple burials and separated skeletal parts can be registered over a larger geographical area, namely along the Lake Balaton and the Tisza and Morava rivers. The question as to whether the lack of settlement interments during the time of the Boleráz phase in this micro-region does indeed reflect the actual

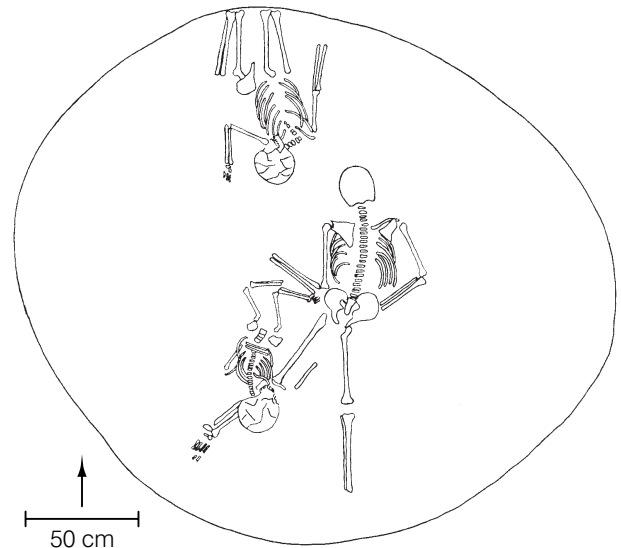


Fig. 9. Svodín, object 1159/81 (NĚMEJCOVÁ-PAVÚKOVÁ 1986, 160 Fig. 12).

situation, or whether existing burials have not been discovered yet, is for the future research to answer (cp. NEVIZÁNSKY 2005, 254; 264). Further, as we have seen, the number of later extramural burial sites is also quite small. In the preceding period of the Ludanice group a situation similar to that of the later Baden phase can be observed: There were numerous graves, 'offerings' in deep pits and skeletal parts within the settlements, whereas concrete evidence for extramural burials is lacking so far (LICHTER 2001, 361ff.). Indications of cremation burials in the Ludanice group can be added to the comparison with the following horizon of pre- and early Baden periods. The feature of bodies simply thrown into the pit, typical in Transdanubia, however, constitutes an absolute novelty for the late Copper Age.

#### Southern Transdanubia

In the southern area around the Lake Balaton and southeastwards to the Danube River, less specific, yet similar developments are discernible so far. However, the nature of the context for many of the older finds, that is, whether intra- or extramural, is unknown. Some find spots, which were already mentioned in association with the early Baden phase, continue into the classical and later Baden phases. This applies in general to many settlements

<sup>13</sup> Budapest-Káposztásmegyer, Nitriansky Hrádok, Svodín, Šarovec I: TOČÍK 1981, 23ff.; ENDRÓDI 1984; NEVIZÁNSKY

1985, 266; NĚMEJCOVÁ-PAVÚKOVÁ 1986.

in the entire Baden area. However, until present there was no concrete evidence of an uninterrupted succession within one burial place, such as now presented in Balatonlelle and Balatonőszöd.

Isolated burial places with a few graves or single finds in secure extramural context of the classical Baden period are known (Balatonmagyaród-Hídvégpuszta, Vörs: BANNER 1956, 33f.; BONDÁR 1987). The Boleráz cemetery in Balatonlelle-Felső Gamász continued to exist during the succeeding horizon, which yielded the majority of its burials. These individuals in contracted or extended supine position are mainly orientated towards the north or the south. Grave inventories are still rich and comprise pottery, ornaments, stone tools and animal bones. Within the related settlement in Balatonlelle-Órszágúti dűlő, located in close proximity and separated only by a small stream, burials appear by this time as well. In contrast, they are deposited in settlement pits, most without any grave goods, with the exception of a little dog alongside the skeleton of a child (SÓFALVI 2004).

Compared to northern Transdanubia, there was even less evidence for intramural graves for a long time, especially regarding the early classical Baden period. In the course of intensive investigations in the past years, particularly along the southern Balaton area, evidence of settlement burials has increased radically. They include single or multiple skeletal finds in settlement pits as well as in separate grave pits. The individuals recorded within one settlement surpass the number known in northern Transdanubia by far, at least in one case: The outstanding settlement of Balatonőszöd comprises almost 50 bodies, most thrown into a pit, and single skulls, found in waste pits or features pertaining to offerings. This picture is further complemented by inhumations in contracted position as well as by examples of peculiar burials in disordered position in Balatonkeresztúr<sup>14</sup>, and also by regular graves and burials in settlement pits in Balatonszemes (BONDÁR ET AL. 2000, 97; HONTI/NÉMETH 2002a). Palotabozsok should be mentioned as an example for the few late Baden inhumation burials within a settlement. The irregularly shaped pits contained mostly bodies in contracted position and peculiar forms of covering with sherds or stones (BANNER 1956, 128ff.).

To this assemblage of finds some cremations ought to be added, whose intra- or extramural context cannot be further specified due to the lack of adequate evidence. They belong to the old-

er classical Baden phase and also to the later phase (Fonyód-Római Sánc, Iregszemcse, Kajdács, Szakály-Öreghegy, Szekszárd-Alsóvárosi Temető: BANNER 1956, 33, 45ff.). Like those in northern Transdanubia, these older finds reveal the endurance of the cremation custom from the early to classical Baden phases, or even into the later phase.

Furthermore, some cremations in- and outside of settlements of the late Baden phase demonstrate a strong influence of mortuary practices from the south. For example, a group of urn graves of Balatonboglár-berekre dűlő is located near a contemporary late Baden settlement (BONDÁR 1996; HONTI/NÉMETH 2002b), and one urn grave inside a late Baden settlement in Keszthely-Fenekpuszta can also be mentioned (MRT 1, Pl. 6,9.12). Pot-shaped urns covered with bowls, but without any further grave goods, are comparable to sites of the Kostolac culture, south of the Danube River (see below). Therefore, the presence of Kostolac culture is not only expressed in the ceramic material, but also in the burial customs and spiritual beliefs, suggesting an intensive cultural impact upon the late Baden community. Nevertheless, we should also consider the possibility that in fact Kostolac immigrants might have been buried there according to their own specific funerary rites. A sign for this could be the presence of 'authentic' Kostolac pottery, in association with its local imitations (BONDÁR 1996, 7).

A comparison with the pre-Baden periods of the Balaton region reveals even more difficulties. There is very little burial evidence from the Balaton-Lasinja Culture of the Middle Copper Age. Pits in settlements as well as in a cave have yielded some inhumations in different positions, sometimes with dislocated skeletal parts (LICHTER 2001, 371ff.). Until now extramural burials have remained almost unknown. Yet from the time of FSK onwards, we can follow the well attested presence of burial features with a continuous long-term development. Definite external influences can only be distinguished in the finds of the younger classical and late Baden Culture.

#### Lower Austria

In the western part of the Baden cultural area we find the regionally developed type of Ossarn. Several closely connected graves in the valley of the Traisen River represent the westernmost find spots of the area under investigation. In addition,

<sup>14</sup> Here as well the settlement begins in the early Baden Culture, however the skeletal finds belong exclusively to the

classical phase. Information kindly provided by Szilvia Fábrián and Gábor Serlegi, Budapest; cp. FÁBRIÁN 2004.

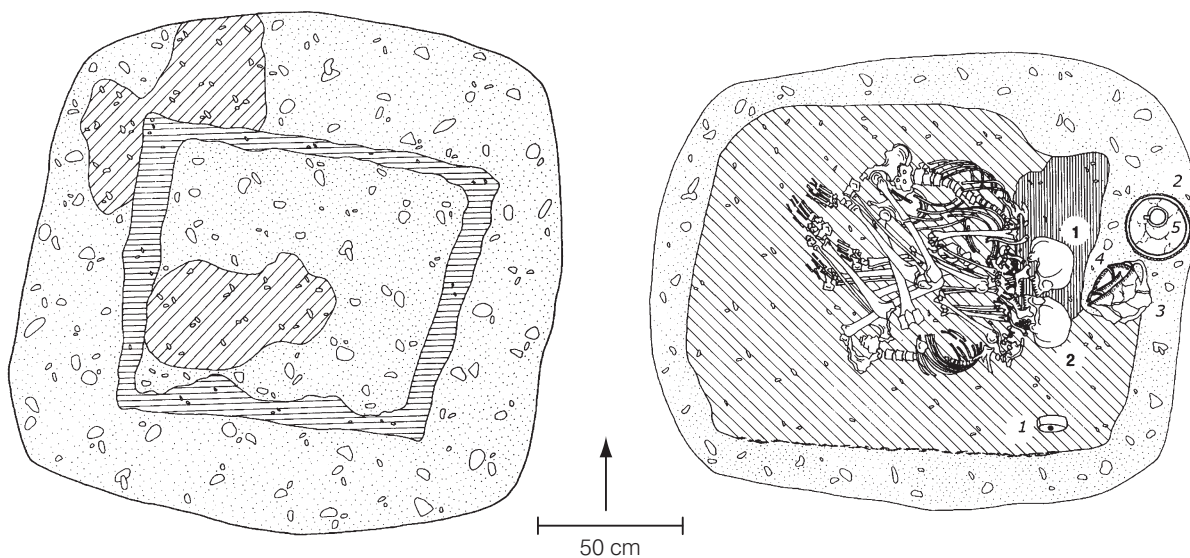


Fig. 10. Franzhausen I, object 206 (NEUGEBAUER/NEUGEBAUER 1997, II, Pl. 94).

some graves are located farther eastwards, near the Leitha River and around Lake Neusiedl. The predominant location of burial features south of the Danube River is remarkable. As far as burials are concerned, the Lower Austrian area northwards of the Danube is virtually unknown, apart from very few exceptions.

The Traisen River valley is characterized by a number of well known finds in micro-regional concentration, owing to the high degree gravel exploitation works and construction with consequential archaeological activity in this region and, furthermore, featuring special characteristics. Typical examples are represented by the finds from Ahrenberg/Sitzenberg, Franzhausen, Reichersdorf and Wagram an der Traisen (MAYER 1991; NEUGEBAUER 1997, 451ff.; NEUGEBAUER/NEUGEBAUER 1997). These are single, isolated finds, on the one hand, while on the other, up to 12 features are located over a larger spatial distance. On the basis of local evidence we can assume that the graves were covered by mounds. The majority of finds belong to the early classical phase (Ossarn I), whereas only a minor part can be dated to the later phase (Ossarn II). Essential elements of these almost monumental graves are large pits, sometimes more than 2.5 m in length and with a complex fill. The grave pits often contained installations of massive wooden chambers (Fig. 10). The dead were buried mostly in twos, rarely as single

inhumations, in a contracted position and in almost all cases orientated to the west or to the east. Further, secondary and fractional burials, different kinds of cremation and cenotaphs are also present. A special feature and singular element in the Baden Culture is the burning of the graves. The corpse of some of the deceased in Ahrenberg as well as those of Sitzenberg were placed as inhumations in the grave pit, before they were burned together with the surrounding wooden chamber (Fig. 11).

The grave offerings also reflect distinctive regional features. They comprise mostly pottery of high quality and in various forms as well as a relatively large number of high-quality tools made of silex, stone, bone and antler, and of the bones of cattle and pig. However in this micro-region the offering of complete animal bodies with human burials is absent<sup>15</sup>. Whereas tools often were located near the dead, the pottery was not. On the contrary, the vessels were usually placed a slight distance away from the deceased's head in a corner of the grave pit or even in the upper part of the fill or upon the wooden covering. In graves in which burning followed the interment, the inventory was added after the burning. The regional particularity, which could already be distinguished in the grave construction and the burial rite, is also visible in practices in the placement of grave goods.

In the area west of Lake Neusiedl, almost all finds of scattered cremations and inhumations

<sup>15</sup> Several recent finds have also yielded examples of ornaments, which until now were unknown in this kind of

grave. Information kindly provided by Christian Mayer and Johannes Krumpel (Wien).

suggest another divergent situation. The burials feature a massive stone packing (i. e. Großhöflein-Föllik: OHRENBERGER 1949, 88ff.; Pl. 21,1.4). Concerning the grave inventory, in addition to pottery and stone tools the graves also contained copper objects (i. e. Leobersdorf, Lichtenwörth-Äußerer Huthügel: MAYER 1991, 54ff. Pl. 7–9). Nevertheless, the find context of most of these burials is unknown. One exception is a biritual burial that can be connected with a contemporary settlement (Wolfersdorf: HAHNEL 1992, 86).

Another particularity concerns settlement pits that contain numerous fragmented skeletal materials. These finds might suggest deliberate human intervention by crushing the bones (Ossarn, Lichtenwörth-Oberes Kreuzfeld: HAHNEL 1992, MAYER 1996, TESCHLER-NICOLA/SCHULTZ 1984).

The origins of the striking burial features in the Traisen valley should be sought in similar phenomena from earlier times or even in contemporary groups outside the Baden cultural area. The search for local forerunners of this phenomenon leads back to the time of TRB or the local group of FSK. At this time Lower Austria was closely connected to the Moravian area (RUTTKAY 1999). The peculiar burial custom of this local phenomenon was described above. Unfortunately, in the area of the Traisen valley there is a total lack of funerary evidence from that time until the early Baden phase. A comparison with contemporary finds in Moravia is equally unsuccessful due to the lack of grave finds from the post-Boleráz period there. However, as in the case of the Moravian burials earlier on, it is worthwhile looking at the contemporary Late Neolithic Funnel Beaker groups in the central German region. In relation to the close contacts of the early TRB horizon, during the following classical Baden period a constant connection is attested between the western Baden Culture and the later TRB type in the Bohemian and central German region, i. e. the Salzmünde/Bernburg groups (PLESLOVÁ-ŠTIKOVÁ 1972, 132; PLESLOVÁ-ŠTIKOVÁ 1973; BEHRENS 1973).

In some grave finds of the Middle Elbe-Saale region we can observe remarkable parallels (SACHSSE 2005). For example, the burials at Apsenstedt-Großer Berg, Derenburg-Löwenberg and also Schortewitz-Heidenberg should be mentioned (LÜTH 1989; MÜLLER 2001, 327ff., 132 Fig. 189, 346ff. Fig. 202). There are also grave constructions that were supplemented with wooden installations. As in Lower Austria, an essential element is the burning of the grave chamber following the interment of the corpse. Furthermore, the orientation of the deceased towards the west or the east predominates as well, and there is concurrent occurrence of cremation and inhu-

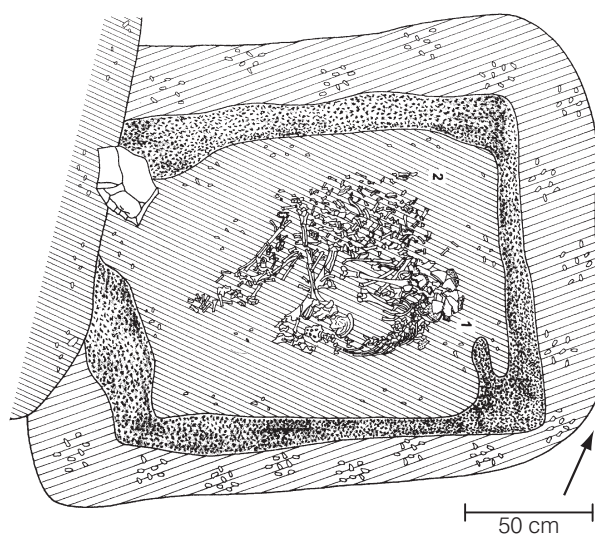


Fig. 11. Ahrenberg, grave 5 (NEUGEBAUER 1997, 469 Fig. 5).

mation. Equally comparable are the arrangement and function of pottery during the ritual: Grave offerings were often placed in a corner of the pit or outside the wooden covering. However, if we compare the known Salzmünde burials of the Middle Elbe-Saale region to those in the Traisen valley as a whole, there are also several striking differences. Many of the burials there display huge funeral mounds with a large number of consecutive burials. The complex grave constructions demonstrate a factual hierarchy (MÜLLER 2001 320ff., 385). Such social differentiation is not visible in Lower Austria. But due to the conspicuous similarities in certain aspects, we can assume an explicit relationship between the mortuary practices of the western Baden Culture and the groups of Salzmünde and Bernburg.

Finally, as far as burials with a massive stone packing are concerned, the situation seems similar to the Boleráz phase in the western Carpathian Basin. However, the known graves in Lower Austria dated to the Boleráz period do not display any similarities with later finds, aside from the custom of cremation as the only exception. In the Austrian research these graves were connected with the burial mounds with a stone packing of the TRB/Boleráz type in Moravia (RUTTKAY 1992, 288ff.). Yet, the Moravian mounds clearly precede those of classical Baden phase in Austria. There is a considerable temporal and spatial gap. Another problem that was already noted above appears here again: the lack of grave finds from classical Baden phase in Moravia. The few burials of the succeeding Jevišovice Culture known so far imply that this kind of burial continued into the post-Baden period (see below).

## Northern Alföld and Northeastern Carpathian Foreland

In some of the burial finds in the northeastern Carpathian Basin two concentrations of specific burial customs are visible, as far as extramural cemeteries are concerned. They entail, firstly, a concentration in the valley of the Sajó River and, secondly, in the surroundings of the confluence of the Tizsa and Bodrog rivers.

Some cremation fields in the Sajó Valley represent a micro-regional tradition, which can be connected to the younger classical and late Baden Ózd group. The finds from Center have long revealed that in this regional group of Baden a completely individual development of burial rites took place (KALICZ 1963). More recent finds of such burials confirm this regionalisation: in Szentsimon-Kenderföldék, not far from Center, as well as in Gemer and Včelince northwards along the course of the Sajó River (NEVIZÁNSKY 2002; NOVOTNÁ 2004; KOVÁCS 1987; KOÓS 1994)<sup>16</sup>. The graves comprised mostly urn burials, in some cases also unurned cremations or symbolic burials. They were originally placed upon the original surface or set in shallow pits. Many graves feature a surrounding circle of stones with a maximum diameter of c. 4 m, a stone covering and also stone steles. Due to the local situation we can assume that the graves were covered with mounds. Remains of such were found in Gemer and Včelince. As the most significant element, all cemeteries yielded graves with typical anthropomorphic vessels. Almost all represented urns (KOÓS 1994, 209 Fig. 2; NOVOTNÁ 2004, 76ff. Fig. 1–3). This type appears only in exceptional cases as a grave good. Although many of these burials contained grave goods, the inventory is nonetheless limited. Some of the burials contained only pottery, whereas others yielded tools, either singly or together with ornament elements. These cemeteries can be connected to a group of hill-fort settlements, inside of which no burials are known so far (PATAY 1999).

Another concentration in the area of Tizsa and Bodrog rivers consists of biritual cemeteries with both cremation and inhumation burials: Mezőcsát-Hörcsögös, Tiszavasvári-Gyepárospart and Tiszavasvári-Muszkadomb (BÓNA 1986; KALICZ 1989; 1998; 1999). The ceramic material is outstanding

because of the presence of miniature vessels and the comparatively high amount of foot beakers in the grave goods. The inventory of Tiszavasvári-Gyepárospart consists only of pottery; other offerings such as ornaments or tools are absent. Besides these two concentrations, only one find of an extramural burial can be added (Hadušovce: BUDINSKÝ-KRIČKA 1947, 63).

This form of regional concentration cannot be discerned in burials in settlements. The few finds are scattered over the entire northeastern area, mainly near the rivers of Tizsa, Bodrog and Hornád. They yielded mostly cremations, so far designated as urn graves<sup>17</sup>. Skeletal depositions are rather scarce. A find in Streda nad Bodrogom should be mentioned, where an incomplete body, only the upper part and the skull, was found in the pit (POLLA 1956).

A review of the pre-Baden period shows that a similar constellation of regionally separate biritual burials and cremation fields are already noticeable in this area during the time of the Lažňany group, even though these few finds do not occur in exactly the same micro-regions. Furthermore, there are a few cremation burials in the northern area of the Tiszapolgár and Bodrogkeresztúr cultures (LICHTER 2001, 360; PATAY 2004, 174). Hence, when considering the aforementioned FSK burials near the Tizsa River, we obtain at first scarce, yet later more abundant evidence of the custom of cremation. The problem thereby is the total lack of intermediate burial finds of the PBH and Boleráz period. Any attempt to connect the inhumation burial rites to the Middle Copper Age Bodrogkeresztúr Culture fails. The rules of body-position and grave equipment are not perceptible in the few Baden finds (cp. LICHTER 2001, 311ff.).

## Southern Alföld

With regard to burial finds, the southern part of the Great Hungarian Plain has the best analogies in the Transdanubian material. The features are mostly dated to the late classical and late Baden phases. The few find spots and graves in the surroundings of the Tizsa and Körös rivers contain contracted inhumations and isolated skulls (Szentés-Nagyhe-

<sup>16</sup> Probably burials of this kind are located in Gemerské Dechtáre (OŽDÁNI/NEVIZÁNSKY 2002). A cemetery with mounds preserved to a relatively significant height was recorded there, but it is not dated so far. In spite of the appearance and close proximity to Gemer, this site can possibly be added to the Baden Culture. The burials, however,

have been seriously damaged and destroyed from illicit excavations.

<sup>17</sup> Šarišské Michaľany, Tiszavasvári-Keresztfal, Valea lu Mihai, Veľký Slavkov: CSALLÁNY ET AL. 1963; ŠIŠKA 1982; ŠIŠKA 1995; SOJÁK 2001, 167; ROSKA 1932,.

gy: BANNER 1956, 89f.) as well as one example of an inhumation with a cattle offering to the dead (Orosháza-Bónum: OLASZ 1961). Inhumations in contracted position have also been observed in settlements (Hódmezővásárhely-Bodzáspart: BANNER 1956, 76ff.).

The almost total absence of the cremation custom constitutes the most important difference from the majority of burials in the Baden area. The lack of burials from pre- and early Baden times becomes even more crucial for this area, where no evidence for cremation until the Neolithic period has been observed yet<sup>18</sup>. Only new finds from the time of Hunyadi-halom, PBH and Boleráz will help to bridge this fundamental gap in research. Indeed, towards the south near the confluence of Tisza and Danube Rivers, no more than one cremation burial covered with a mound can be mentioned at least for the late Classical period (Mokrin-Aradjanska Humka: GIRIĆ 1987).

### Southern Carpathian Basin

Along the southwestern periphery of the distribution area of the Baden Culture, in the area of

the Drava and Sava rivers' confluence to the Danube, regular skeletal finds are known, mainly within settlements. A concentration of three find spots is located south of the Drava estuary. The graves in Bogojevo and Vučedol-Vinograd Streim consist of only single or double inhumations in settlement pits (CZIRÁKY 1900; TEŽAK-GREGL 1985a). The hilltop site of Vučedol-Gradac stands out with a group of five children, deposited in contracted position in a huge cavernous pit, filled with masses of pottery. In addition, there are two regular contracted inhumations with a meagre inventory (GARAŠANIN 1967; SCHMIDT 1945). A fourth settlement, which yielded two inhumations, is situated near the Sava estuary (Dobanovci: TASIĆ 1995, 120).

Only one example of isolated extramural burials can be added here: In Skorenovac several inhumations were covered by a tumulus. The finds appear to comprise merely pottery with late Baden characteristics (GARAŠANIN 1958, 39ff.; Pl. 7).

To sum up, it should be noted that all together the few burial finds consist of regular inhumations, most in contracted position. Peculiar forms or even skeletal finds with doubtful burial character have not been observed. Furthermore, there is no evidence of the custom of cremation.

### Post-Baden Groups

#### Kostolac

Only few burial finds are known from the southern area of the Danube River, the core region of Kostolac Culture. They are located south of the Drava and Sava estuaries and near the Iron Gate. The few extramural burials in Dvorovi and Padina display only incinerations (JOVANOVIĆ 1971; 1976; KOSORIĆ 1965). The cremated remains were deposited in urns or covered with everted vessels. In both cases bowls were the only ceramic form used. Except for one case that contained small copper artefacts, all of the burials lacked grave goods. Inhumation burials are found exclusively inside the settlements (Gomolava, Vučedol-Vinograd Streim: PETROVIĆ/JOVANOVIĆ 2002; TEŽAK-GREGL 1985b). Their inventory is similar and equally limited as in the case of cremations: There is a small amount of pottery, namely bowls,

sometimes turned upside down (Fig. 12) as well as some copper objects.

In the discussion about late Baden burials in the Balaton region, some burial finds were already mentioned that show evidence of either direct connections to the Kostolac Culture group or at least signs of its influence (Balatonboglár-Berekre dűlő; Keszthely-Fenekpuszta). From northern Transdanubia two inhumations in the settlement of Iža should be added. Basing upon stratigraphy they were attributed to the post-Baden establishment of the Kostolac Culture at this site (NĚMEJCOVÁ-PAVÚKOVÁ 1968, 380, 398). The plentiful occurrence of 'authentic' as well as imitated Kostolac wares and decorative styles in the area of the Baden Culture as far as the bend of the Danube and the placement of these graves within Baden settlements underline this close connection.

<sup>18</sup> However, some unpublished possible finds of cremations from the pre-Baden period should be considered; cp. note 2.



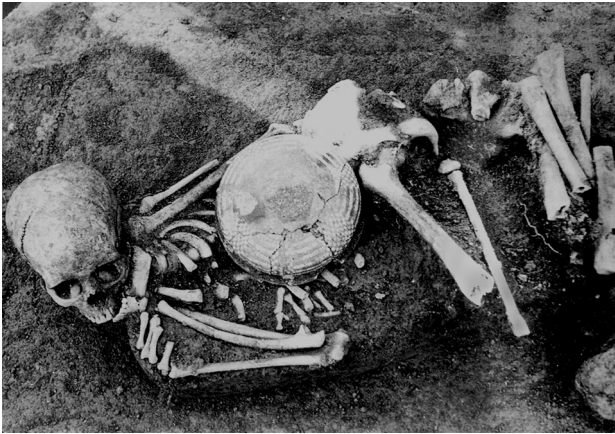


Fig. 12. Gomolava, grave 2 (PETROVIĆ/JOVANOVIĆ 2002, 248).

### Bošáca

The burial customs of the Bošáca group, located in western Slovakia and eastern Moravia as the further development subsequent to the Baden period, are virtually unknown. Merely two sites with intra-

mural skeletal finds can be noted here. The hilltop site of Bánov yielded at least one contracted inhumation (ONDROŠ 1996, 30; PAVELČÍK 1981, 158). A second, albeit uncertain, feature is known from Jelšovce (NĚMEJCOVÁ-PAVÚKOVÁ/KLČO 1986, 169; PODBORSKÝ 1993, 204).

### Jevišovice/Mödling-Zöbing

Evidence of the Jevišovice/Mödling-Zöbing Culture, which succeeds Baden in southwestern Moravia and Lower Austria, amounts to only slightly more in number. Gars am Kamp yielded two cremations with a massive stone covering and ceramic offerings, located within a settlement (RUTTKAY 1992). The stone coverings are comparable to some classical Baden burials south of the Danube, as mentioned above. Apart from one exception, these comprise inhumations<sup>19</sup>. A further find spot that contained one single, probably isolated inhumation in contracted position was observed in Hohenau an der March (RUTTKAY 1995, 187ff.).

### Conclusions

As an essential result we can ascertain that the appearance of the custom of cremation, typical of the Boleráz phase, was not due to a sudden change in mortuary practices at the very beginning of the Baden Culture. It emerges significantly earlier during the preliminary phase of the Middle Copper Age FSK horizon. From the pre- to early Baden period there is a relatively homogeneous picture with extramural cremation burials and intramural inhumation burials. The latter are also observed in an extramural context from the developed Boleráz phase onwards.

With the beginning of classical Baden, the abundance of burial evidence allows us to follow the formation of clearly regional spheres of mortuary rites. This secluding drift intensifies further into the later phases of the Baden Culture. Even stronger than intramural burials, the extramural burials demonstrate a very specific local development. In northern Transdanubia the cremation rite subsequently disappears during the following phases. With that a tradition ends, which at least in the western Carpathian Basin can be observed from the later Middle Copper Age onwards for almost five centuries. Cremations continue to be practised though, with regionally different density, until the

late Baden period: in the Balaton region, in Lower Austria, as well as the surrounding of the northern Tisza River. Furthermore, there is a massive occurrence of burials and various peculiar finds in settlements, especially in the middle region of the Danube River. These imply amongst others the existence of secondary burial customs, human sacrifices, deferred or relocated burials. Nevertheless, scattered examples of such features can be found during the pre- and early Baden phases. However, it must be noted that regular burial customs especially for the late Baden Culture in the northern Danube region elude our knowledge.

Comparable models for and relationships with these developmental patterns can be found either in contemporary neighbouring cultures as well as local predecessors during the Middle Copper Age. In the western area of Moravia and Lower Austria we see influences of the TRB environment from the beginning onwards. In the south the influence of the Kostolac Culture appears throughout the later Baden phase. At least to some degree we can assume a further continuation of burial rites typical of Baden into the post-Baden horizon.

At this point certain questions arise regarding the social structure of the Baden Culture, for

<sup>19</sup> Großhöflein-Föllik, Leobersdorf, Lichtenwörth-Äußerer

Huthügel, Wolfersdorf; see above; SACHSSE 2005.

which this study attempts to offer a basis for further research: What is the role of the pre-Baden horizon in the formation of the Baden Culture, with regard to the continuous development of burial customs from the Middle to the Late Copper Age? How intensive was the impact of the Boleráz phenomenon upon the local groups as a standardising factor or even cultural generator, considering the subsequent conspicuous devolution? And, regarding the later phases of Baden, how extensive is the differentiation in social structure and cultural consciousness between the local populations of i. e. Transdanubia, Lower Austria or the Alföld, given the apparently very different manifestation of social identity in mortuary rituals?

The funerary evidence proves that the consciousness of communal identity, which was widespread ever since the Boleráz period or even earlier, clearly fades out in the classical Baden areas. With respect to evidence of mortuary practices, the Baden Culture seems to be a widespread phe-

nomenon with a supra-regional social and also religious force. Even so, it eventually failed to replace the communal spirit and the consciousness of affiliation to a regional or social unit. The formation of regional Baden groups arises almost within the original cultural borders of the former Middle Copper Age horizon. Apparently an awareness of the original affiliation had remained vivid in some way. With the end of this influence the former borders arose once again, the local groups thus developing independently or experiencing a massive external influence.

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#### Abstract

During the period from the late Middle Copper Age to the horizon succeeding the Baden Culture – the first half of 4th mill. BC to the early 3rd mill. BC – a rich and versatile inventory of burial finds can be observed in the Carpathian Basin. There are extended cemeteries, small groups or single graves within or outside of settlements, the parallel occurrence of cremations and inhumations as well as many instances of a varied and peculiar treatment of the dead. This apparent ‘chaotic’ juxtaposition of numerous elements, especially during the phase of the developed Baden Culture, proves to be a complex system of spheres of burial rituals on a partly micro-regional level. It becomes evident that the continuing regionalisation of the developed Baden Culture is strongly manifested in

the cultic-religious life of each community. The origins of characteristic elements for the early Baden phase can be traced back as far as the Middle Copper Age. As proven by mortuary evidence, a continuous development took place throughout the course of the preceding and early phases until the later phase of the Baden Culture. In addition, characteristic burial rituals formed in peripheral zones, which were partly connected to neighbouring cultures and are unique to the Baden Culture because of their distinctive elements. The central theme of this paper is focussed upon the ‘internal’ appearance of funerary practices of the Baden Culture as well as upon the possibilities for describing interactions between the Baden Culture in its regional variations and the surrounding cultural areas.

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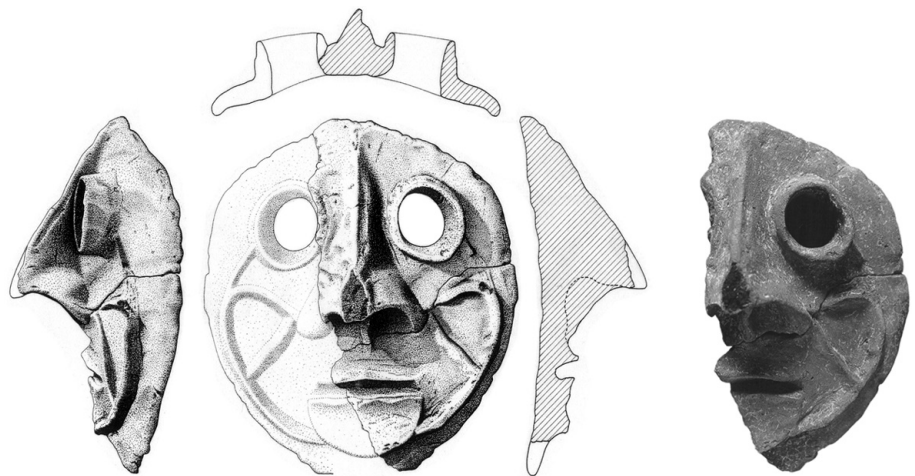
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## The Baden Complex: Regional Views





## Balatonőszöd – an Unusual Baden Settlement?

*By Tünde Horváth*

### Introduction

Since 2000 archaeological rescue excavations have been carried out continuously on the planned route of the M7 motorway, which reaches the southern shore of Lake Balaton. During 2001–2002 research was focused on this track as well as the junction near the modern village of Balatonőszöd (Komitat Somogy).

Due to the strategic and economic advantages of the nearby lake, the southern shore of Lake Balaton

has been extremely attractive for inhabitants from prehistoric times until the Late Medieval period and has yielded a dense network of settlements. At the Balatonőszöd site in addition to finds from other periods, a large part of a settlement of the Late Copper Age Baden Culture was excavated, yielding a significant amount of archaeological material<sup>1</sup>.

### Paleogeographic and Climatic Features

The eastern and western parts of the settlement extend in a line along a former river, and today they are separated by a marshy environment. During the Late Copper Age this river determined the territory, and the southern shore of Lake Balaton was possibly closer to the prehistoric settlement (SÜMEGI ET AL. 2004). The Baden Age village was probably located on the shore of the lake, at the mouth of the former river.

The early Boleráz core of the settlement is situated at a lower point than the Classical phase of the

settlement. Climatic studies have shown that during the Early and Classical phases of the Baden period a serious climatic change took place in Central Europe, which brought colder and wetter weather (MAGNY 2004; MAGNY/HAAAS 2004). Four houses from the Classical phase that were excavated may reflect this course; they stand on the highest possible point of the territory, on the top of a hill. All houses were post structures built above the level of the ground; their floors were even higher than this level and resembled pile dwellings.

### The Archaeological Site

The Late Copper Age site lies at 2–2.5 km distance from Lake Balaton, along the banks of a former river that once flowed into the lake. The area researched covers the proposed motorway junction and extends 100,000 m<sup>2</sup> along the western bank of the river. The eastern part of the settlement was documented in field surveys, and some features were excavated in test sondages<sup>2</sup>. Fieldwork revealed that this part of the settlement pre-

sumably stretches a notable length and can be interpreted as a reflection of the area not yet uncovered (Fig. 1).

The northern and western borders of the Baden settlement could be determined through excavation, whereas the southern border was not found. In this direction the village extends some distance outside of the research area. From the east the village is naturally framed by the water course and

<sup>1</sup> All in all 2800 objects, 320 ovens and fireplaces and nearly 10 000 m<sup>2</sup> of culture layer were excavated, resulting in an abundance of find material. Around 60–70% of the features can be connected to the Baden Culture.

<sup>2</sup> See the report by Krisztián Oross and Szőlád-Szólóhegy,

field surveys in 11–12 March 2001 and a rescue excavation in 10–17 April 2001. Kaposvár, Archives of the Rippl-Rónai Museum. During the rescue excavation 3 pits from the Classical phase of the Baden Culture were excavated.





Fig. 1. Surroundings of the site, showing the excavated area as well as the area of fieldwork (by Zs. Viemann).

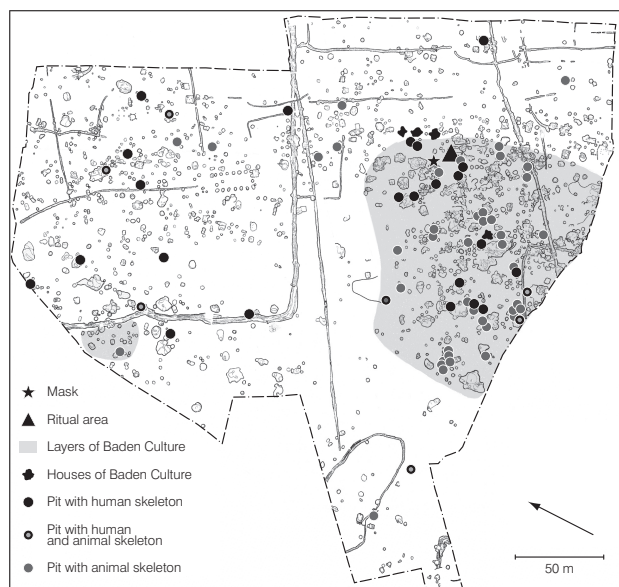


Fig. 2. The ground plan of the excavated area Balatonőszöd-Temetői dűlő (by Zs. Viemann).

continues along the eastern bank. The settlement is located along the north-south line of hills. It extends to the slopes, where its width, following the bank of the water is more than 300 meters (Fig. 2).

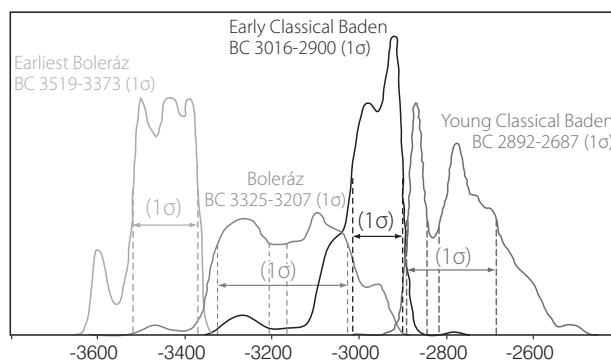


Fig. 3. Weighted probability-distribution based on radiocarbon samples, 1  $\sigma$  probability, for the overall territory of the Balatonőszöd site (prepared by É. SVINGOR/M. MOLNÁR).

The core of the Boleráz phase of settlement (IB–C phases, according to NĚMEJCOVÁ-PAVÚKOVÁ) was located in the northern part of the area under study, while phase IIa and the area occupied during the Classical phases IIB–III lay in the southern part of the excavation area. The settlement extended far beyond the excavation in a southerly direction; thus, it is possible that this part of the settlement even existed during phase IV.

In the southern part of the research area a coherent, thick cultural layer covered the dense structure of features, which yielded abundant archaeological material. Due to the continuous agricultural activity and the exploitation of the subsoil this stratum is no longer present in its original depth. In the southern part of the excavated area it was around 50 cm in thickness, but originally it might have approached nearly 200 cm. The layer covers an area of nearly 120–130 m diameter; then it gradually thickens and disappears towards the north. In addition to the coherent southern area, the same feature was documented in the northern section of the excavation too (the core territory of Boleráz), but there it appeared in smaller, thinner, separate patches (Boleráz phase).

On the basis of the typological investigation of finds from pits, phases Ic and IIc were interpreted together as the Boleráz phase, phase IIa as a Transitional phase, and phases IIB and III together as the Early Classical phase (see NĚMEJCOVÁ-PAVÚKOVÁ 1981).

According to 20 radiocarbon dates of samples of objects from the excavation area, the flourish of the site can be dated between 3330–2860 BC, whereby the total duration can be estimated at around 570 years. The radiocarbon data allow a finer dating of the pits identified by means of pottery typology, suggesting that the Boleráz phase can be dated to 3330–3110 BC, the Transitional phase 3120–3100 BC and the Early Classical phase between 3110 BC

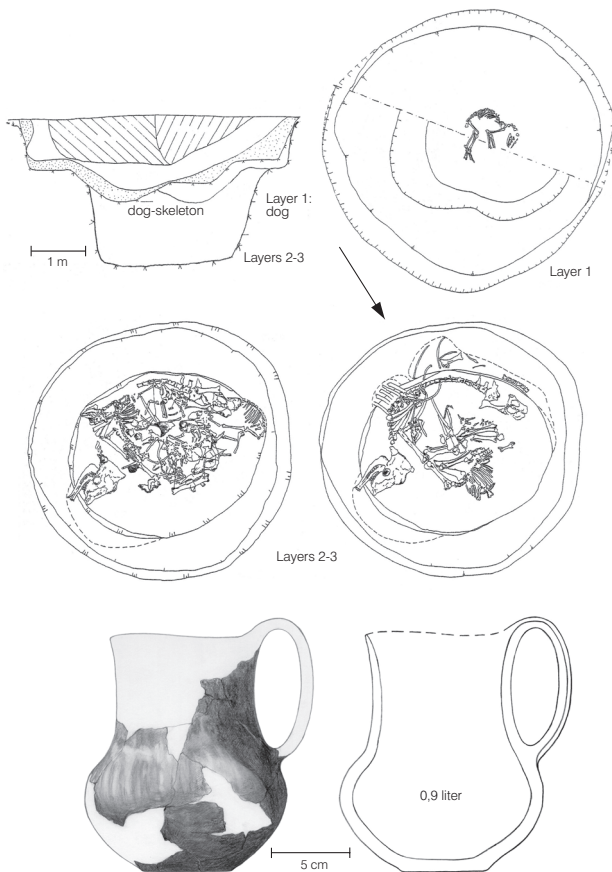


Fig. 4. Ground plan and selected finds from ritual pit No. 203.

and 2860 BC. (HORVÁTH et al. 2007 a) (Fig. 3).

With regard to the priority of the settlement, a strikingly large number of unusual features were documented. On the top of the hill, three buildings of very similar structure were excavated side by side, and farther off to the west a fourth building was uncovered. These objects appeared in the form of amorphous, shallow pits; their floors (if at all present) had unfortunately been destroyed during the pre-excitation leveling. At the bottom of the greyish homogenous fill of the pits, traces of round postholes were noted, which delineated the ground plan and at the same time revealed the interior division. In the northern corner, or in some cases in both the northern and southern corners, hearths or ovens were documented.

In a large pit complex at a distance from the three adjacent buildings, plaster fragments were discovered with several layers of color coating and weighing more than 100 kg. The structure of the houses can be reconstructed with the help of some miniature fragments of uncertain function, which were found inside the settlement and have been interpreted as models of an altar or sacrificial building. These pieces of model buildings

with a plane section are shown as standing on posts. On the basis of the four excavated buildings and the model fragments, the house(s) can be pictured as having a post-structure and situated above the surface level (like pile dwellings). The walls – which might have been made of organic material – were plastered with clay. All the buildings had a form of heating (Plate 1). Similarly structured wooden houses with postholes have been documented for several prehistoric periods in the marshy area at Ljubljana (GREIF 1996; GRAMMENOS 2003) and at Arbon Bleiche III (LEUZINGER 2000; CAPITANI ET AL. 2002).

The interpretation of the four excavated buildings leads to serious deliberation. The presence and nature of dwellings of the Baden Culture are problematic not only in Hungary, but in the surrounding countries as well. A review of the excavated features that have been classified as houses thus far in Hungary shows that the majority of these objects likely originate from other periods. Although buildings with a ground plan similar to the type in Balatonőszöd were found previously, they were not interpreted as houses, because only part of the object had been uncovered and it was not clear whether it was a complex of pits or a building.

Were these buildings really dwellings? At Balatonőszöd in a surface area of one hundred thousand m<sup>2</sup>, all in all four buildings nearly 10 x 10 meters in size were uncovered from the Classical phases. Since the three neighboring objects stood atop the hill, it cannot be proposed that originally more buildings stood there, since the buildings positioned at the highest spot and most exposed to erosion or other types of destruction nevertheless survived. The location of the excavated buildings and building models suggests that these objects were sanctuaries; the actual dwellings, by contrast, were constructed in such a technique that left no observable traces (HORVÁTH et al. 2007 b).

Among the sacrificial objects, multi-layered pits yielded the most abundant and stimulating material. These pits contained human remains mixed with animal bones, in addition to other valuable finds, mainly pottery. At the bottom of pit No. 203 the remains of an approximately one and a half year-old child was unearthed (skeleton 66), accompanied by a three and a half-four years old cattle, a ram, skeletal parts of nine additional sheep, and a one to two month old pig. Above these, at a depth of 50 cm lay the skeleton of a dog. This find was dated to the Transitional phase IIA on the basis of an accompanying small jug found together with other featureless pottery sherds (Fig. 4).

At the bottom of the apparent ritual pit No. 426 was the burial of a male in contracted position and 33–35 years of age (skeleton 67); upon his back was

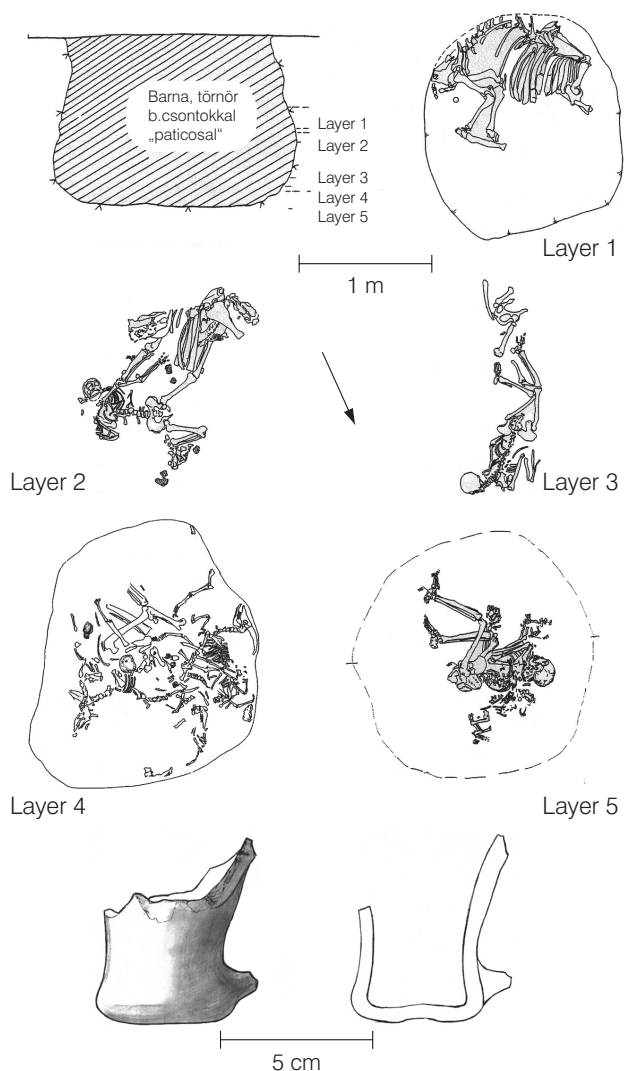


Fig. 5. Ground plan and selected finds from ritual pit No. 426.

the skeleton of a three to four years-old child (skeleton 89). Above them were an 18–20 month-old he-goat and a 2–2.5-year-old cattle accompanied by the skeletons of three older and three young sheep. In the third stratum came an additional human skeleton (skeleton 23), in the fourth layer the skeleton of a 52–58 year-old woman (skeleton 19), while in the uppermost layer the skeleton of a 6–8 month-old calf was recovered. The material, including a spoon, can be dated to period IIB–III of the Baden Culture (Fig. 5).

At the base of pit Nr 1612 the skeletal remains of a 6–8 month-old calf, a cattle, the skull of an elk (*Cervus elaphus*), the extremities of an aurochs (*Bos primigenius*) and the skeletal remains of 34 sheep were found. On top of these was the skeleton of a 6 to 7 year-old child which had been flung into the pit and covered by four layers of skeletal remains of eight dogs.

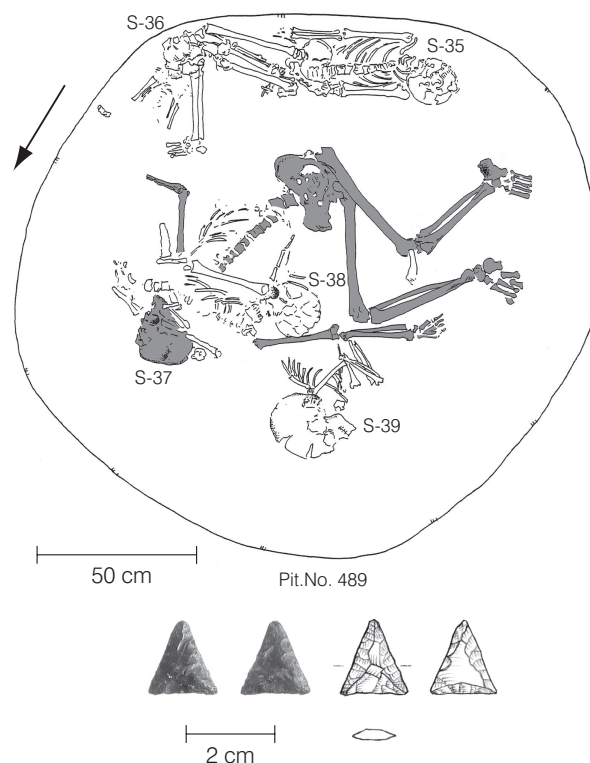


Fig. 6. Ground plan of ritual pit No. 1489 and the arrowhead from skeleton 37.

The finds from this pit represent the typical material of period III of the Baden Culture: chalice, hanging jug with a tunnel-shaped handle, amphora and biconical bowl with everted rim. Traces of wear were observed on the nape of the older cattle laid at the base of the pit, which is the only evidence of the presence of the neck yoke as well as traction at the site (Plate 2).

Inside the settlement numerous human as well as animal sacrifices were uncovered. Altogether 69 human skeletons could be associated with the Baden Culture, all unearthed in pits and a well (HORVÁTH/ZOFFMANN 2004). Human bones were found with or without animal remains, sometimes one-to-one, but usually in groups. In several cases the human skeletons had been thrown into the pits, while some of them – mainly females and children – had been deliberately positioned. Some of the skeletons displayed pathological symptoms. Among the five (or perhaps six?) human skeletons discovered in pit No. 1489, one (skeleton 37) had a radiolarite arrowhead lodged between the vertebrae, possible proof of a violent death (Fig. 6).

Additional unexpected findings came to light in an amorphous pit, later defined as a well (No. 1099), which was identified after unearthing the Baden Culture layer (No. 925). The uppermost layer contained animal skulls as well as skeletal re-

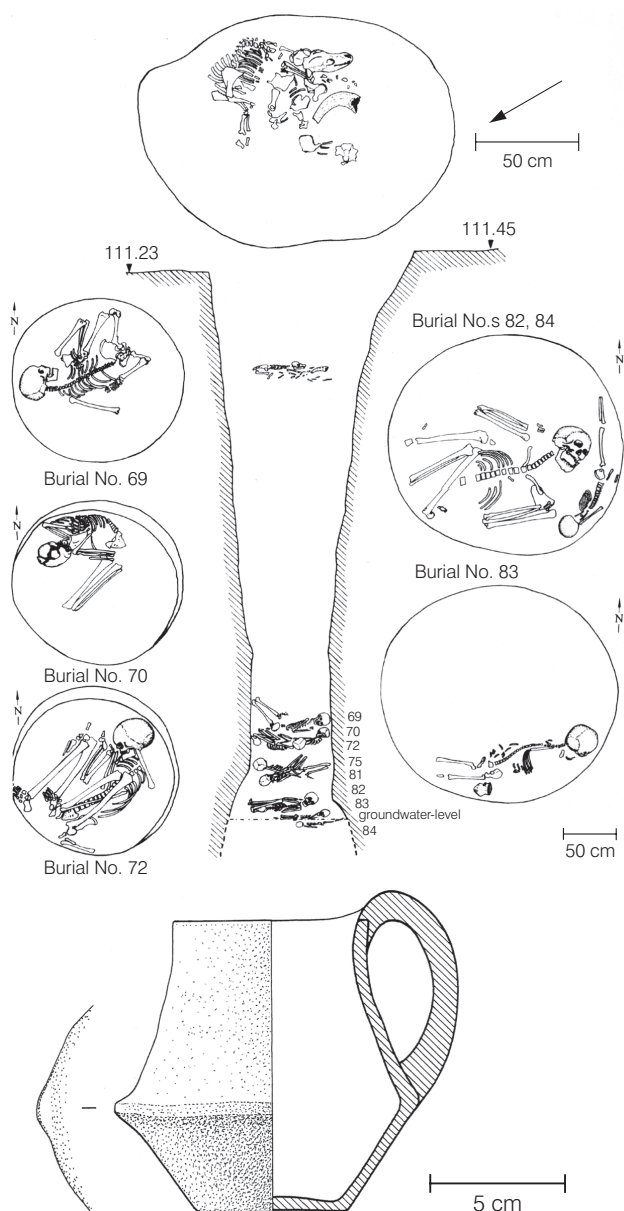


Fig. 7. Reconstruction drawing of object 1099 (well No. 1) with the ten excavated human skeletons (by L. Gucsi).

mains. Below them the pit grew narrower and deepened sharply. At a depth of 4 m human skeletons appeared, in an intermingled state (skeletons 69, 70, 71, 75, 81, 82, 83, 84, 86, 87). The human remains were separated in three distinct layers: skeletons 69, 70 and 72 were found in the uppermost layer, skeletons 75 and 81 were in the middle layer and at the bottom of the well, below groundwater were skeletons 82, 83, 84, 86 and 87. Next to skeleton 83 a complete jug of the Balaton-Lasinja Culture was discovered. As a result, it can be assumed that the well was created and used in the period of the Balaton-Lasinja Culture. Later (according to

a radiocarbon date from skeleton 70) in the Boleráz period, the well was used for depositing human bodies (HORVÁTH et al. 2003) (Fig. 7).

Among the animal bones, cattle of various ages, ruminants and dogs were noted most frequently. In the large ritual pits discussed above diverse species were found together, but in most other cases they had been placed individually, occasionally positioned (with contracted legs or wrung neck). Approximately fifty complete or partial animal skeletons were excavated in ritual pits within the area under study (HORVÁTH 2007).

The case of the ritual pit No. 1036 is especially interesting. There, two layers of sheep placed individually and with their necks wrung were found. Moreover, the western wall of the section revealed that shallow, burnt hearths and ash pits had been made at the same time. In this case these fortunate circumstances allowed the documentation of a ceremonial area around the ritual pit, in which sheep were sacrificed and ceremonies were carried out. The recovered features allow the interpretation that a burnt sacrifice was offered; however, the intact skeletons suggest that only their blood or inner organs were used for this purpose, and that the complete carcass was placed in the ritual pits (Horváth 2002a) (Fig. 8). Some meters away from this area, a shallow, square, grave-like pit was detected, cut into from above by another amorphous hollow object. Here approximately half of a clay mask depicting a human face was discovered, placed with the face upwards (HORVÁTH 2002c; HORVÁTH 2002b) (Plate 3).

Numerous complete pots (more than 200 pieces) were recovered inside the settlement.

The pottery was sometimes found in pits and displayed the size and the form of large bowls, amphorae, etc. which suggests that these objects had a sacrificial function as well. Unfortunately the character of the sacrifice could not be discerned. In one large amphora a fragmentary pig's jaw was retrieved, but in other cases no traceable remains were detected (such as cereals or remains of food, pit No. 1461) (Fig. 9). Apart from this fact, it is highly probable that some kind of organic material, perhaps an offering of food, was placed in the large bowls and storage pots.

Regarding ceramics, I would like to point out some items, particularly those for ritual purposes. Five gynecomorphic vessels were found in four pits and in the daub of an oven, all dated to the IIA-Transitional period (Plate 4).

One of the most significant pottery finds is an anthropomorphic vessel (with hands), the fragments of which were discovered in two pits at a distance of 100 m from each other (pit No. 743 in section 51/12 and pit No. 826 in section 48/1; Fig. 10).

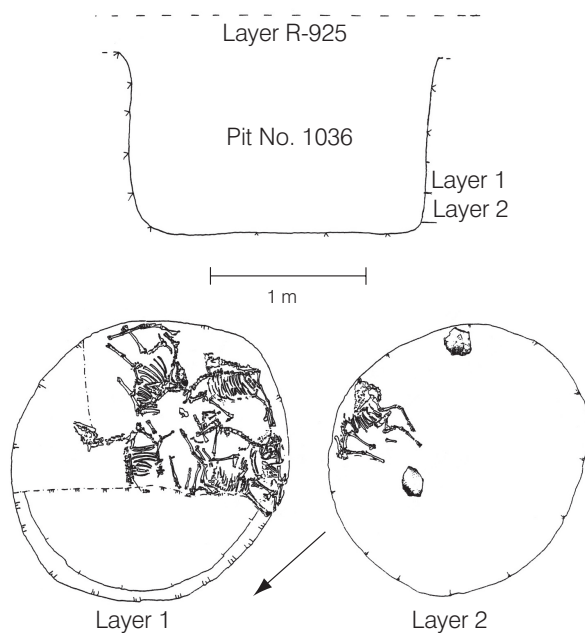


Fig. 8. Ritual pit No. 1036 and its surroundings, the so called “ritual place”.

Comparable pieces – with the omission of anthropomorphic urns representing a similar theoretical background found in the territories of the Ózd-Piliny Group – are known from Ráckeve (BONDÁR 2002). Regarding the form, the Balatonőszöd piece does not portray the breasts. It is a mixture of vessels with hands and hanging vessels, such as the unique piece discovered at Zalasántó-Tátika (BANNER 1956, Taf. IV/17, 18, 19, 22) or Köveskál (BANNER 1956, Taf. VII/4–5.), while the shape resembles the gourd found at Segesd (DRAVECZKY 1964). In addition, a fish bark-shaped vessel (Fischbüttengefäß) recovered from pit No. 1124 should be noted in view of its unique form. This vessel is the combination of a jug and a fish/bark-shaped pot (Plate 5, 1).

Among the simple household ceramics, a fish-

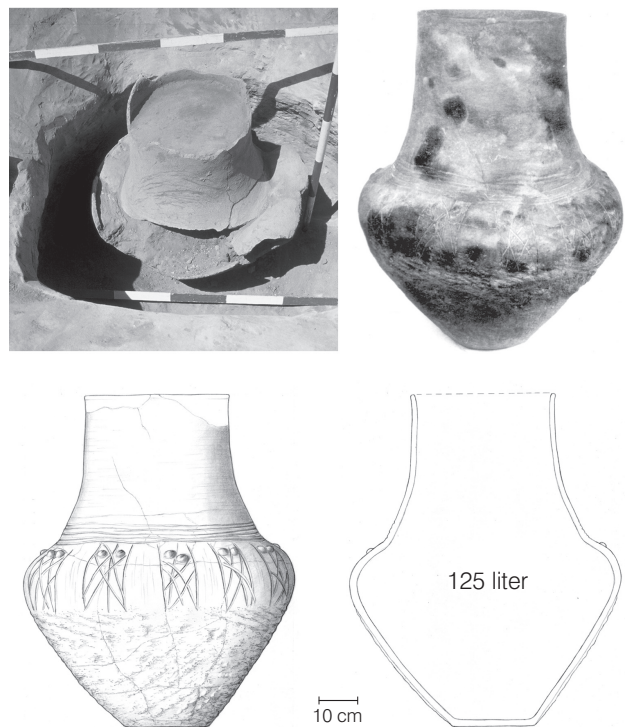


Fig. 9. Urn uncovered in pit No. 1461, in situ and after restoration (drawing by M. Füredi).

bowl-like vessel in complete state from the Boleráz period pit No. 2348 should be highlighted in view of its specific function. The only parallel for this bowl was published from Nitriánsky Hrádok (see TOČÍK 1987, typological tables). This type of bowl was used for evaporating salt from the highly saline water in the environs of Halle (Early Bronze Age, Aunjetitz Culture; MATTHIAS 1976). Additional utensils for salt production are known as “Ovalsäule” or “pillar” in literature. These utensils were usually made from clay, rarely from stone. Finer pieces were used to support bowls, while coarse pieces together with stone plates were used to break the salt. A similar utensil was uncovered in Boleráz Culture layer No. 1390 (Plate 5, 2–6).

With regard to materials used in surface treatment, the substance tar should be mentioned, which was observed on several vessels and pottery sherds (for instance the bowl from pit No. 588, the handled jug from pit No. 1903, a small amount from the bottom of pit No. 1460). The use of tar was most probably aimed at increasing the water resistance of vessels. From the Boleráz period pit No. 2327 a pebble tool was also found (“Lötkolben” or “soldering iron”), which was suited for spreading hot tar (Fig. 11).

Relatively few Boleráz period finds were found that can be linked to metal working. From pit No. 2660 one copper awl with a square section was

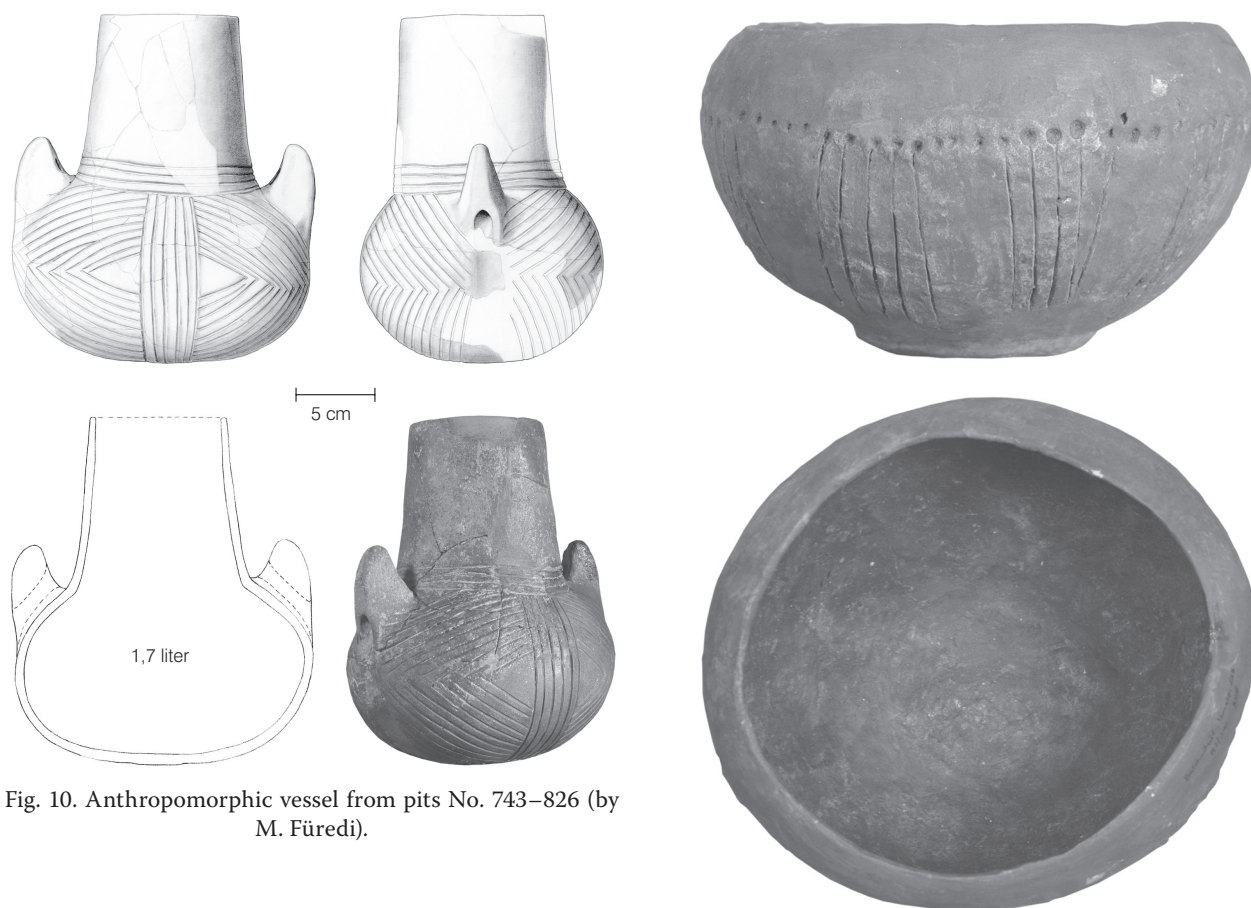


Fig. 10. Anthropomorphic vessel from pits No. 743–826 (by M. Füredi).

found, from pit No. 2391 the fragment of a casting-pot, similar to those found at Leánycsók (ECSEDY 1977), and in pit No. 2449 a clay blowpipe or tuyère. The greenish traces of a copper wire were detected on a featureless potsherd, unearthed in the culture layer No. 925 (Classical phase) (Fig. 12).

All in all ten fragments of idols have been identified from the excavation area until now, including eight pieces are from the Classical phase and two additional fragments dating to the Boleráz phase (Plate 6).

Consequently, the Balatonőszöd settlement can be presented as the largest and longest existing Baden site ever investigated in Hungary. The significant features and finds accompanied by the intense cultural layer resembling a tell settlement are evidence that the site was a significant (tribal?) center. Yet, examples from other territories of the Baden Culture show that parallel settlements were inhabited only seasonally. Similar Baden villages with the house-type of pile-dwellings in marshy environments, such as the Boleráz site at Győr-Szabadrétdomb (see FIGLER et al. 1997), examples in Ljubljana (see GRAMMENOS 2003, 177–193.) or the settlement in Arbon Bleiche with its 14 years of use (LEUTZINGER 2000, CAPITANI et al. 2002) have yielded similar features. Seasonal use is diffi-



Fig. 11. Tar production: bowl from pit No. 588, on the inner surface with birch-bark tar and soldering iron from pit No. 2327.

cult to verify. However, this is demonstrated by the structure of the village (stretching along the banks of the water and curving to the south), the types of houses (easily repairable or renewable), the presence and amount of shells and fish bones as well as

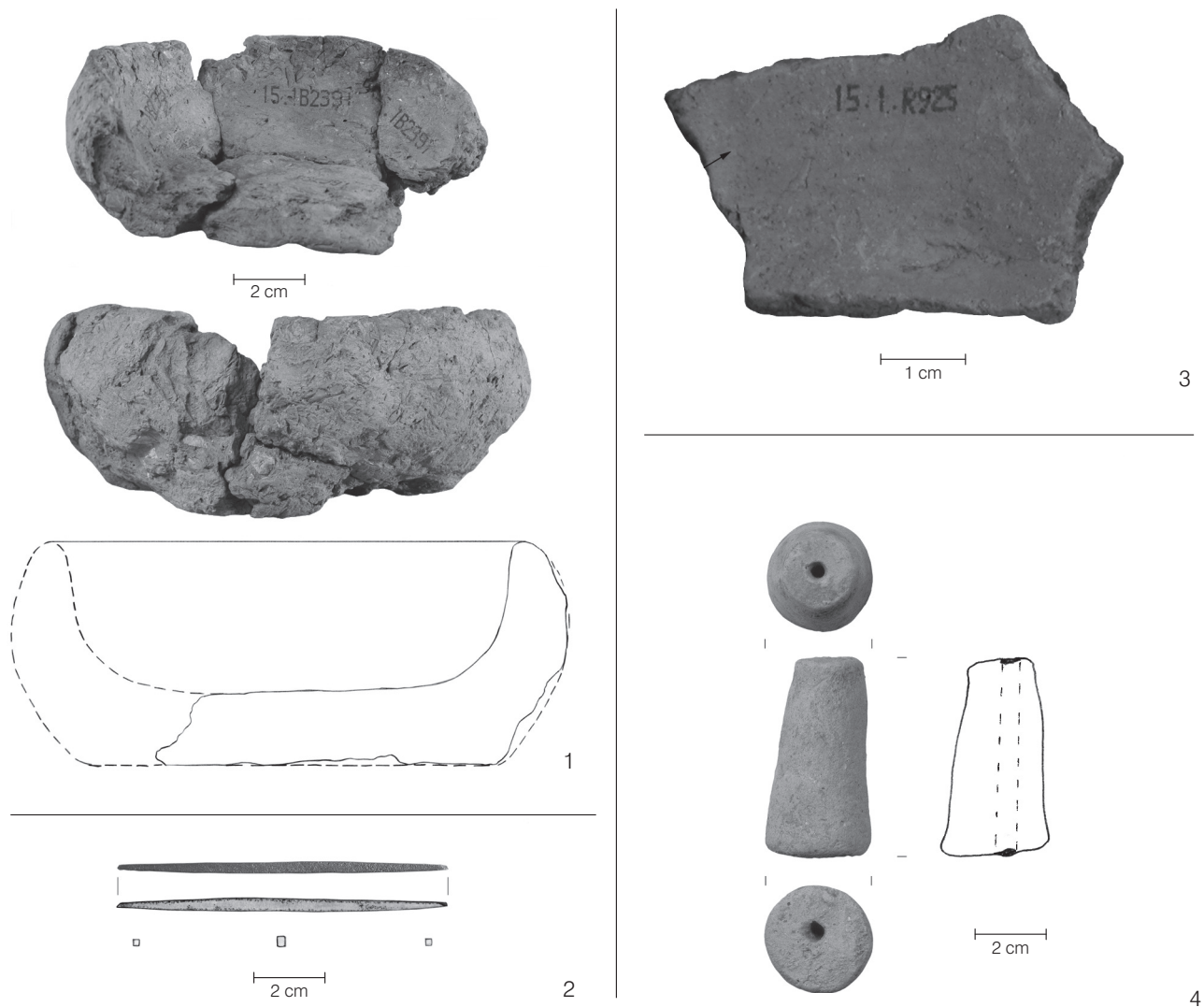


Fig. 12. Finds connected to metalwork: 1 Fragment of a casting pot from pit No. 2391, 2 Copper awl from pit No. 2660, 3 Greenish traces of a copper wire on a sherd from culture layer No. 925, 4 Clay tuyère from pit No. 2449.

the selection of individual animal sacrifices reflect seasonal possibilities and choices.

Apart from the question as to whether the settlement was seasonal or not, the remarkability of the site of Balatonőszöd still needs explanation. It rarely occurs that the 100,000 m<sup>2</sup> area of a rescue excavation can fully encompass the expanse of a prehistoric settlement or cemetery, as is the case at the Balatonőszöd site. Planned excavations usually have only a modest chance of conducting research on such a large scale. Consequently prior to the exposure of the Balatonőszöd site, it was simply not presumed that such large settlements existed during that period. (If the area should reach 200,000 m<sup>2</sup> or more, then its scale may be even compared to Çatal Höyük).

In my opinion the great disputes surrounding the Baden Culture can be elucidated by further re-

search on settlements. This neglected field of study must be intensified to answer questions such as the typology proposed by V. NĚMEJCOVÁ-PAVÚKOVÁ or problems concerning the duration of settlements. Moreover, the significant amount of burials uncovered inside Baden settlements shows that when estimating the overall population in sites – that is, the total number of prehistoric inhabitants, then in addition to graves in cemeteries, burials within the settlement should not be disregarded. It is also clear that the information about Baden settlements available until now is limited and, consequently, not comparable to the recent results of Balatonőszöd research. Basic data is lacking about settlement structure and house-types. In addition, there is a great amount of excavation material that is still unpublished, or only finds of good quality and taken from their context have been published.



Fig. 13. The spread of Baden Culture (after maps in the Baden Symposium 1973/ CHROPOVSKÝ 1973 and the Cernavodă III - Boleráz Symposium/ ROMAN-DIAMANDI 2001, by Tünde Horváth – László Schilling).

I assume that most of the Baden sites in Hungary were expansive and existed for quite a long period of time. This is demonstrated by the settlements uncovered in recent large-scale rescue excavations such as Pilismarót-Szobi rév, Győr-Szabadrét domb or Ecsér site No. 6 (see PATAY 2007, in this volume).

As a result the theory of J. KÖNINGER, M. KOLB and H. SCHLICHTHERLE seems more acceptable, according to which the Baden Culture should not be regarded as an advanced culture, exported from the Near East, but instead as the result of a local, presumably multi-focal development based upon technical improvements (KÖNINGER ET AL. 2001). Among the finds discovered at Balatonőszöd, besides the articles listed by KÖNINGER ET AL. (yoke, spindle whorl, pintadera), additional innovative tools were identified such as those for spreading tar on ceramic surfaces, the production as well as use of salt and the pile-dwelling type of structures built in the wet/marshy environment (lakeside and wetland settlements). These elements connect the Central European region from Lake Constance with Lake Balaton (or the Ljubljana marshes, the Danube River delta, etc.), where similar settlements emerged during the same time.

Radiocarbon data suggest that this technological revolution (in archaeological terms: the appearance of the Baden Culture) took place in Central Europe

and spread from there. It is not possible to decide whether the place of origin was at Lake Constance or the Carpathian Basin, as radiocarbon dates have not provided sufficient proof yet. The earliest samples from Balatonőszöd are nearly contemporaneous with Arbon Bleiche III (the oldest  $^{14}\text{C}$ -data came from the pit No. 2581: 3470–3370 BC with  $1\sigma$  calibration; HORVÁTH et al. 2007 a).

Surely the widespread standardization of material culture reflects a rapid transfer of innovations by trade, which broadened and accelerated incredibly owing to the usage of traction. Trade routes followed major water courses (mainly using the line of the Danube River for orientation), which meant an east-west and sometimes a north-south direction. Thus, it is senseless to debate from which direction the Baden Culture emerged, because it is not a cultural, but rather a geographical factor: the line of the Danube River, along which the Baden Culture can be “aligned” (Fig. 13).

How much of this can be determined as having been an economical/cultural or human factor? Today the results of archaeological excavations refute the theory that was accepted in the second half of the 20th century, namely that fugitives from Troy II–V formed the Baden Culture. Physical anthropology has pointed out morphological analogies for the Baden population among contemporaneous populations of the Balkan or Anatolia (after



the Penrose analysis; see HORVÁTH/ZOFFMANN 2004 and KÖHLER in this volume).

Nevertheless, this theory might be refuted too, since until now there are no known Baden individuals from the proposed origin around Lake Constance, whose anthropological features might be compared to the whole culture. It is possible that the inhabitants there belonged to the same morphological group, but in this case anthropological analysis cannot be applied. Or the population might have been dissimilar, which again leads us to the theory of a polycentric derivation of the Baden Culture, namely that a seemingly uniform material culture appeared in the territories of several distinctive cultures (such as the Ludanice or the Funnel Beaker cultures, Horgen, Tripolje and Balaton-Lasinja cultures), differing remarkably in details (for example, notable variations in burial rites). Hence, why should we expect that such a diverse archaeological background would match with homogeneous anthropological material?

Finally, from an archaeological perspective, the results suggest that the Baden Culture should not be understood as a uniform population (or tribe or society). Far more, this was a unique period of the transformation of economic systems, when all revolutionary technical developments – both intellectual and finished products – were offered for trade and exchange.

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#### Abstract

Among the Baden Age sites in Hungary, Balatonőszöd-Temetői dűlő is the first in which the approximate extent of the settlement could be established by fieldwork and almost half of the village was excavated, yielding abundant information concerning settlement structure, chronology as well as everyday life. The expanse and the frequent appearance of high quality finds and objects rela-

ted to religious aspects of life suggest that this site was an extremely important settlement of the Baden Culture. Nevertheless, regarding the preliminary state of settlement research, it is highly possible that the Balatonőszöd site is not unique or without analogies; numerous similar sites could have existed during this period.

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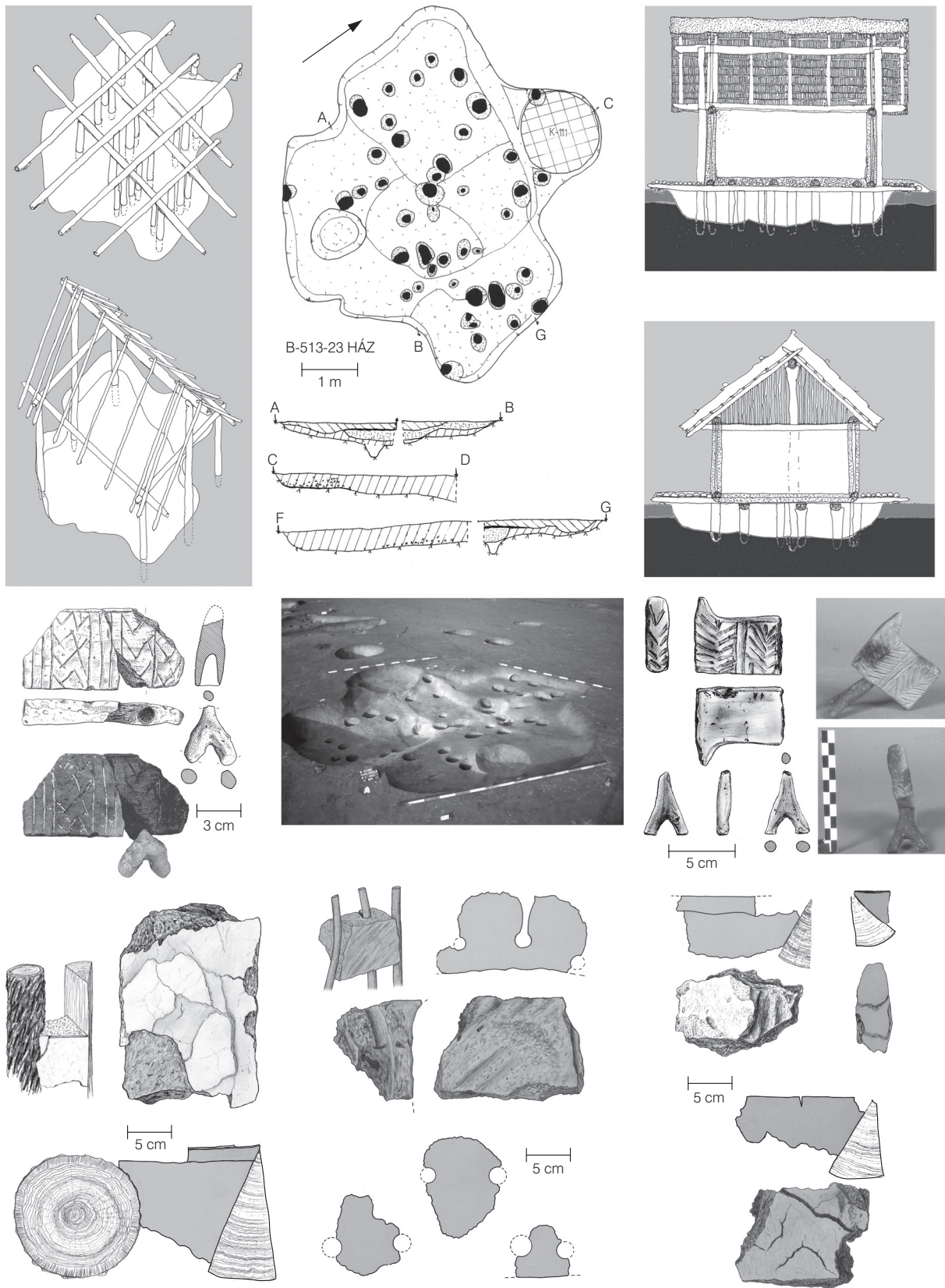


Plate 1. Ground plan and reconstruction of house No. 23. Fragment of a house model from pit No. 2060. Plastered and painted wattle and daub from the vicinity of the house No. 38.

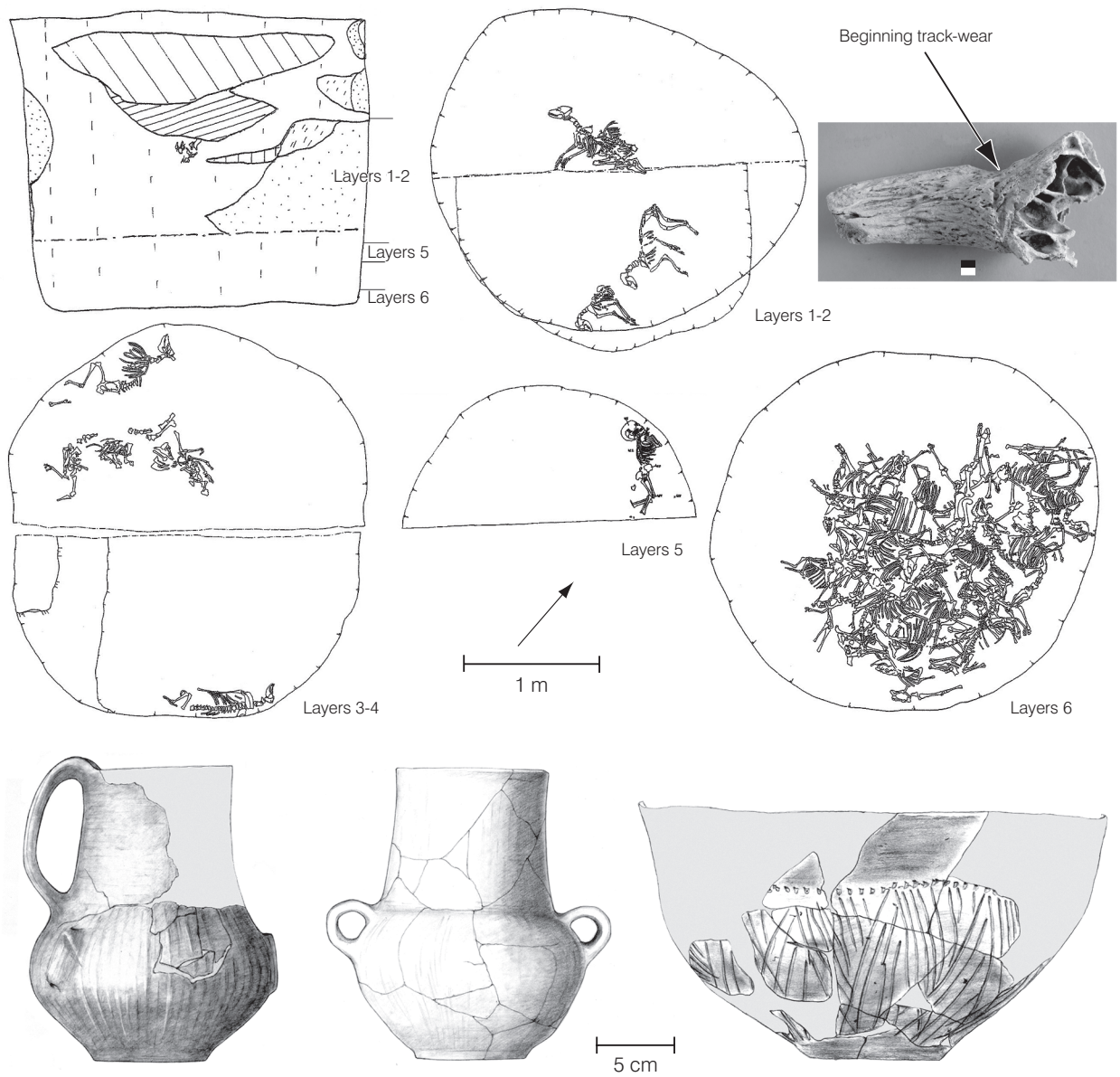


Plate 2. Ground plan and selected finds from ritual pit No. 1612.

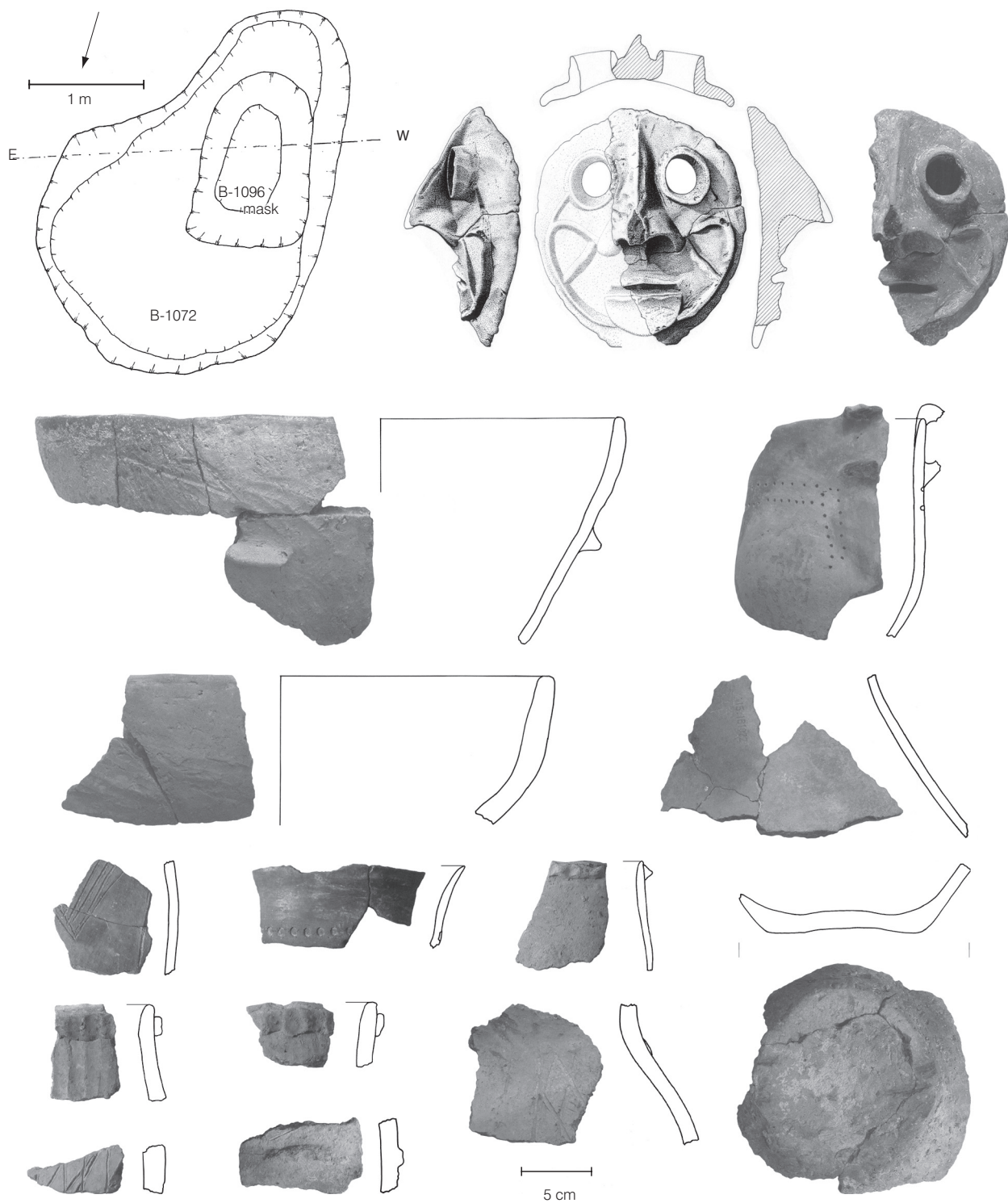


Plate 3. Selected finds from pits No. 1072–1096 (by S. Ósi).

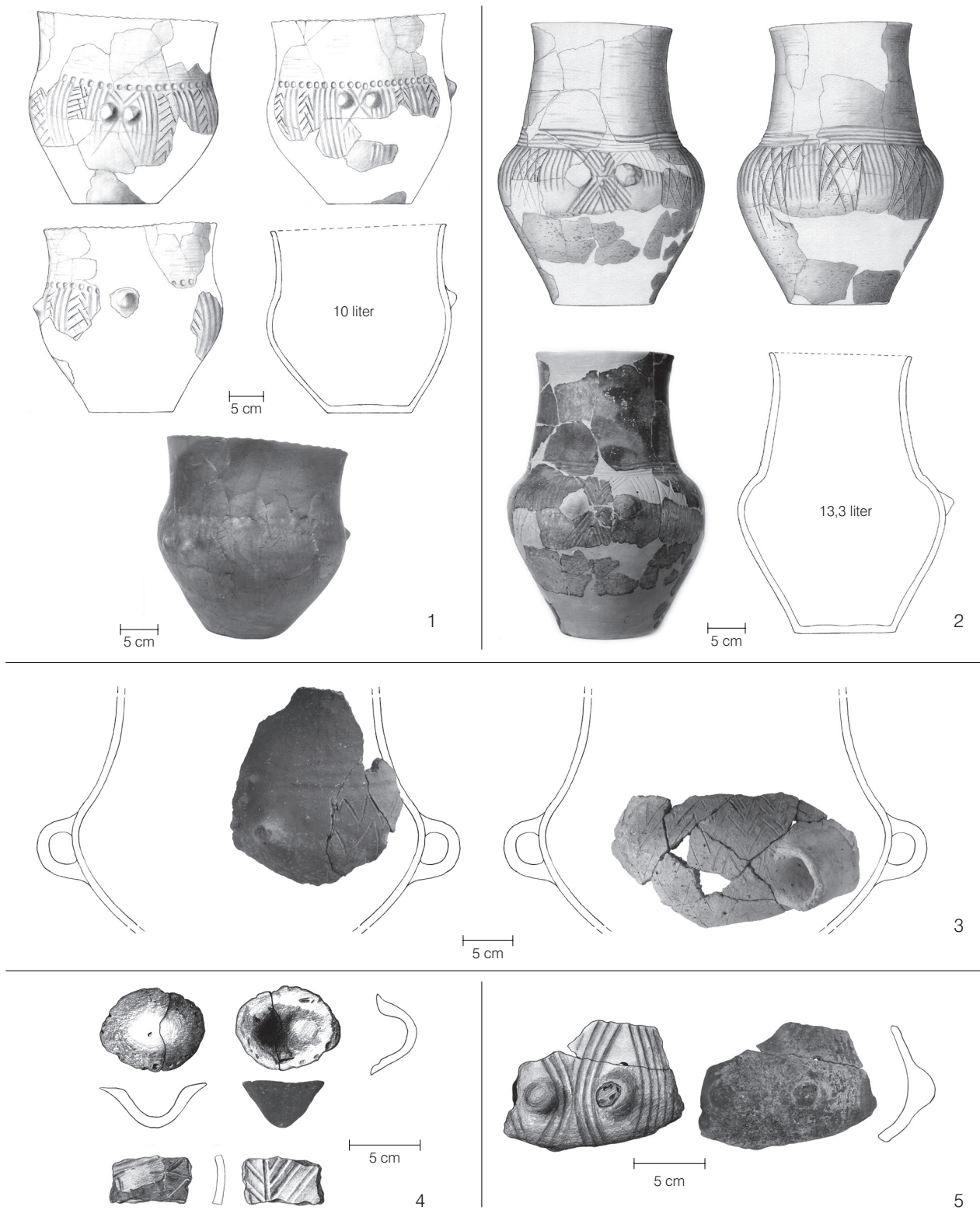


Plate 4. Gynecomorphic ceramics from the Balatonőszöd settlement:  
 1 Pit No. 2406 ; 2 Oven No. 247, 3 Pits No. 588–589, 4 Pit No. 1315, 5 Pit No. 2689 (drawing by M. Füredi).

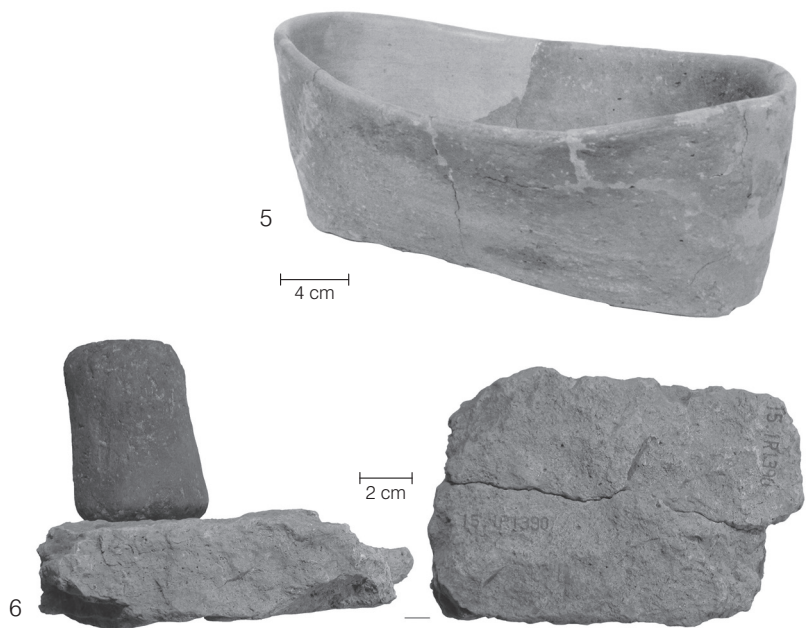
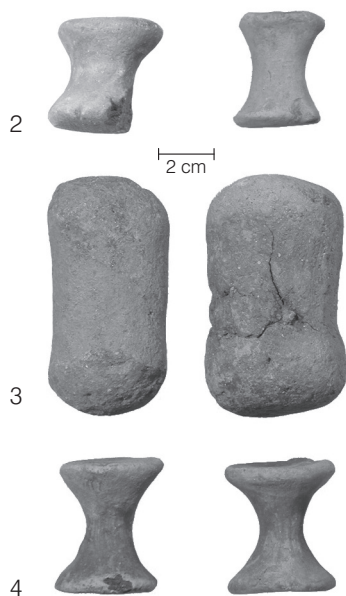
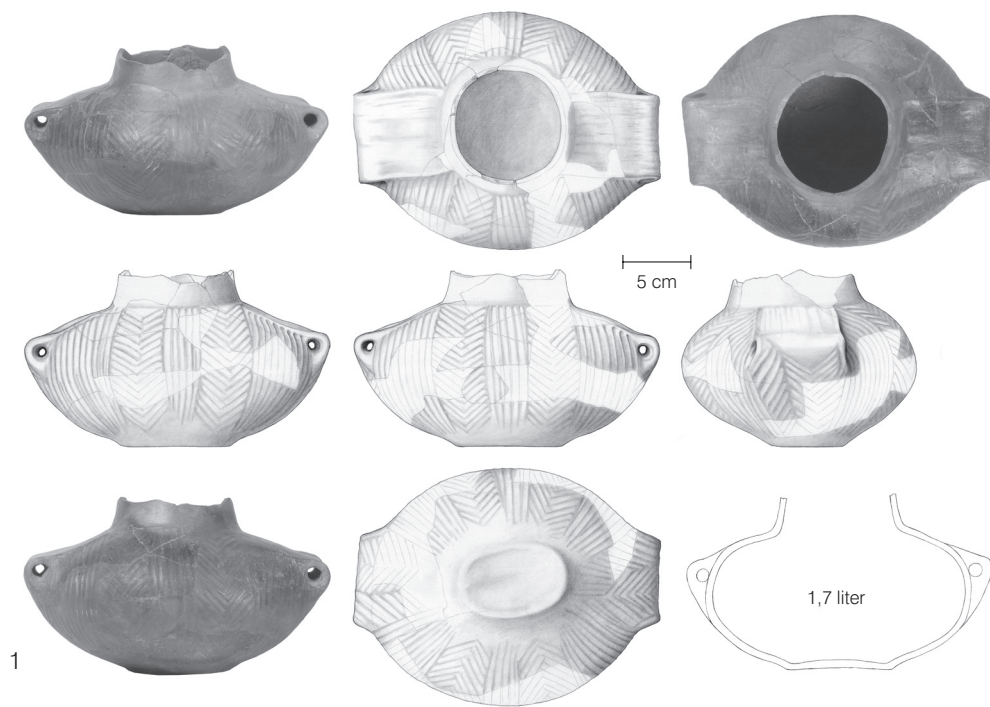


Plate 5. 1 Fish bark-shaped vessel (Fischbüttengefäß) from pit No. 1124 (by M. Füredi)  
 2–6: Salt-production equipment: bowl from pit No. 2348, pestle and polishing stone with the imprint of a pestle from the Boleráz culture layer No. 1390.

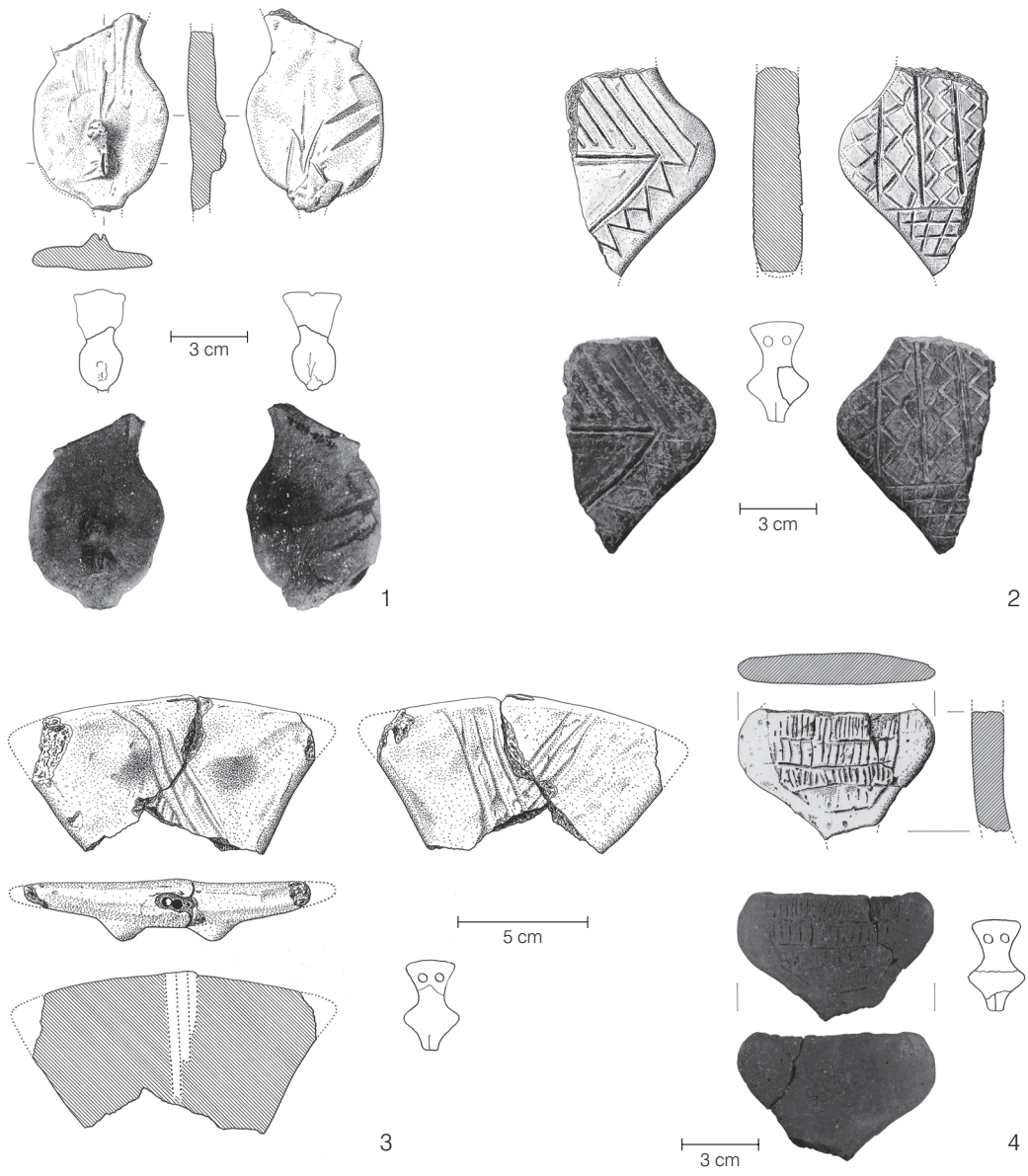


Plate 6. Idols: 1 Idol fragment from pit No. 458 (male figure?), 2 Fragments of painted and incised female idols from pit No. 1088, 3 pit No. 2596, and 4 culture layer No. 925 (by S. Ósi).





## Late Copper Age Settlement of Ecser (County Pest, Hungary): Archaeological and Environmental Archaeological Investigations

By *Róbert Patay, Katalin Herbich and Pál Sümeği*

### Results of Archaeological Investigations

Archaeological investigations were conducted on the outskirts of Budapest between 2001 and 2006, preceding the construction of the southeastern section of the motorway bypassing the city. 46 sites were identified along a 30 km-long section. Forty sites were excavated: c. 40,000 archaeological features were uncovered over a 972,000 m<sup>2</sup> large area.

We worked for ten months at Site 6 on the outskirts of Ecser. The investigations were concluded in June 2006, and, therefore, only the first preliminary results will be presented here, which will no doubt be modified after the full evaluation of the site and its finds.

We investigated a 65,000 m<sup>2</sup> large area and uncovered 3300 settlement features, including houses, ovens, ditches and pits dating to the Middle (Ludanice Culture) and Late Copper Age (Baden Culture), the Scythian, the Celtic, the Sarmatian, the Avar and the Árpád Age as well as two burials of the Hun period (RKM 2005, 230–231) (Fig. 1). Two sites, Maglód 1 and Ecser 2, in which Baden features were also uncovered, lay about 150 m northeast of the Ecser 6 site. It seems likely that these three sites were part of the same Late Copper Age settlement, which was divided by the Budapest-Szolnok railway line. In the following, the three sites will be discussed together (Fig. 2).

The Ecser area lies on the southwestern edge of an Early Pleistocene alluvial fan. The morphology of the alluvial fan and of the site's immediate surroundings was shaped by the Rákosszentimre stream and various smaller watercourses. The abundance of water provided favourable conditions for human settlement. The site lies on a northeast to southwest-oriented sand ridge that slopes towards the south and east (MAROSI/SOMOGYI 1990, 33–38; PÉCSI 1958, 293–294). A pasture and a channel dug in the 19th century lie in the eastern part. This section of the site could not be investigated owing to the high groundwater level and, therefore, the boundary of the site in this area could not be determined. In the west the unexplored part of the site is about twice as large as the excavated area. The extent of the site towards the north and



Fig. 1. Ecser, site 6, County Pest: The area under study.

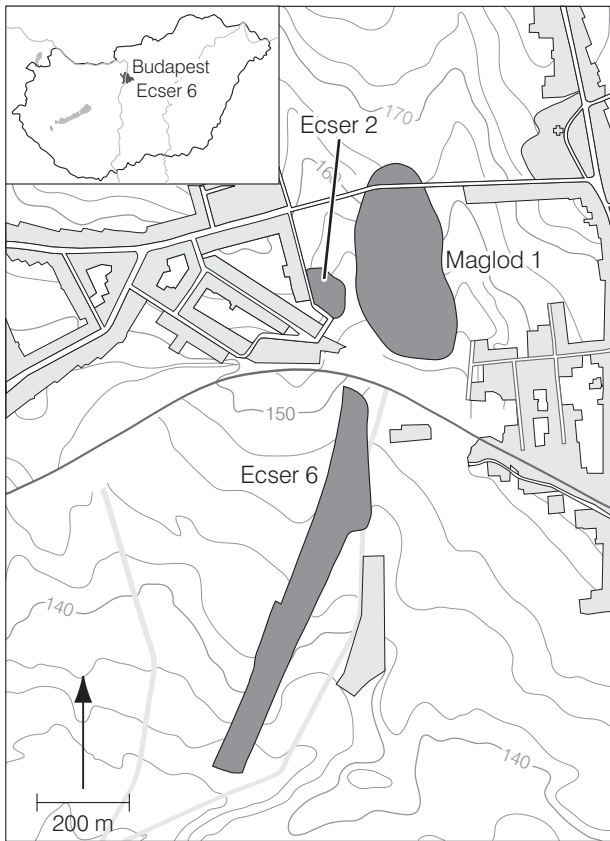


Fig. 2. General layout of the area with neighbouring sites.

the south could be precisely determined. The site extends for c. 800 m in this direction. The field survey indicated that the site covered a c. 345,000 m<sup>2</sup> large area. We uncovered and documented 795 features from the Copper Age. Two of these belong to the Middle-, the others to the Late Copper Age.

Most of the settlement features uncovered in the Baden settlement were pits, whose contours were outlined after the mechanical removal and scraping of the topsoil (Fig. 3). Several Baden features were noted in the sides or floors of settlement features from later periods, and many Baden pits could only be identified after the removal of a 30 to 40 cm thick fill, which also contained pottery sherds.

The pottery finds suggest that the Ecser settlement can be assigned to the Classical and Late Baden phase. The wares assigned by VERA NĚMEJCOVÁ-PAVÚKOVÁ to Phase III and IV A in her typological system occur in the ceramic inventory (NĚMEJCOVÁ-PAVÚKOVÁ phase III and IV; NĚMEJCOVÁ-PAVÚKOVÁ 1991; NEUSTUPNÝ phase C–D; NEUSTUPNÝ 1973, 322–324) (Fig. 4, 1–5).

In addition to pottery, finds from the settlement included polished stone axes, bone awls, polishers and antler axes.

Similar to other sites of the Classical Baden period, ritual animal burials were also found at the Ecser site. Complete or almost complete cattle buri-



Fig. 3. The excavation.

als were uncovered in 46 pits (Fig. 5 a). Some of the pits contained two cattle burials, while in some cases the pottery sherds deposited upon the animal bodies enabled the restoration of large storage jars (Fig. 5 b). The high number of animal burials suggests a sizeable herd of cattle. In addition to cattle burials, some of the pits also contained the burials of small ruminants.

The Baden complex can be regarded as one of the archaeological cultures with the highest number of known sites in the Carpathian Basin. Even though most of these sites are settlements (BONDÁR 2002, 11–12), very few settlement features that can be interpreted as the remains of sunken houses or some other kind of buildings have been found. The available radiocarbon dates indicate that the Baden Culture had a rather long lifespan of c. 500–800 years between 3500 and 2800 BC (BONDÁR 2002, 15, Pl. 4.; WILD ET AL. 2001). The Baden population settled in areas with greatly differing environments (plains, highlands and caves), and different types of the culture's settlements have been identified as well, including fortified hilltop and stratified settlements. Therefore, the lack of houses cannot be attributed to the lack of research. It has been suggested that the absence of houses can perhaps be explained by the Baden population's nomadic or semi-nomadic lifestyle based on intensive stockbreeding and by the fact that this mobile population established settlements that were only briefly occupied (KALICZ 1970, 66). This assumption is contradicted by the known extensive settlements with thick occupation layers reflecting intensive and long settlement. Another possible explanation for the apparent lack of habitations is that the Baden population lived in structures built above ground, whose remains have been destroyed by erosion and ploughing. The latter is supported by the high number of plaster and daub fragments recovered during excavations (BONDÁR 2002, 12; Balatonőszöd-Temetői-dűlő: HORVÁTH ET AL. 2007; Hahót-Szartori I.: BÁNFFY 1995, 101, Pl. 35.; Kaposújlak-Várdomb dűlő: SOMOGYI 2004, 166; Nagykanizsa-Billa: BARNA 2003, 113; etc.).

The finds from Ecsér definitely support the latter possibility. Virtually every Baden pit yielded daub fragments, and some pits contained a rather large amount of such finds. Many of the daub fragments bore twig impressions. Outstanding among the daub fragments are the ones bearing incised and red and white painted patterns, most of which were found in Pit 283, whose fill was made up of daub fragments and pottery sherds (Fig. 6.1). The latter included the fragments of several secondarily burnt, thick-walled storage jars, two boat-shaped pans and the fragments of various smaller vessels. The find circumstances suggest that the broader area of the pit was levelled and the re-



Fig. 4. Ecsér, site 6, county Pest. Pottery finds from the site.



Fig. 5. a Ritual cattle burial; b Large storage jar with the cattle bones

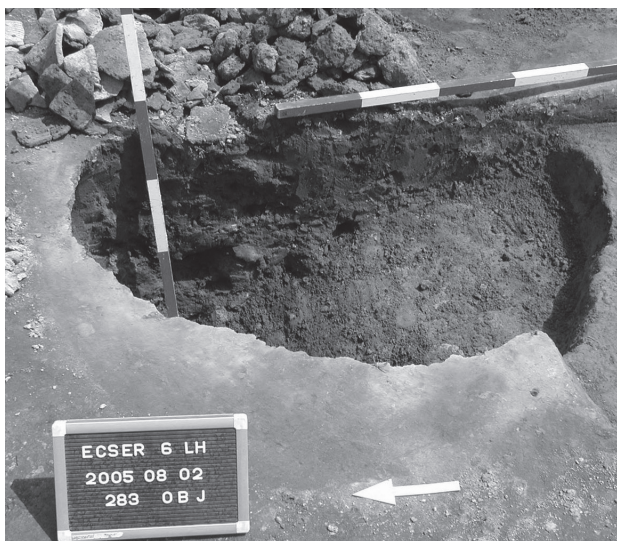


Fig. 6. 1 Pit 283; 2–4 Daub fragments from pit 283.

mains of a decayed or burnt house were thrown in part into the pit. The incised fragments survived in a rather good state of preservation: they were fired at a high, constant temperature and did not show traces of secondary burning (Fig. 6.2–4). The daub fragments came from the wall of a building. The undecorated reverse side often bore the imprints of twigs or a more massive timber, suggesting that they had adorned the exterior or interior wall of a timber-framed house, although it is equally possible that they came from the interior furnishing of a building. A daub fragment bearing an incised pattern is known from Kaposújlak-Várdomb-dűlő

(SOMOGYI 2004, 166, Pl. 6.), and one with a painted decoration has been found at Balatonőszöd-Temetői-dűlő (HORVÁTH ET AL. 2007). Comparable wall decorations have been recovered in settlements of the Late Neolithic Tisza Culture, for example, at Hódmezővásárhely-Kökénydomb (BANNER 1934, Taf. 4), and on Middle Bronze Age tells, for example, at Tiszaug-Kéménytető (CSÁNYI/STANCZIK 1992, 76). A daub fragment with an incised pattern came to light in the Proto-Tisza-polgár layer of the Újvár tell settlement (SCHIER/DRAŠOVEAN 2004, 179, Abb. 21, 1–2).

#### Results of Archaeobotanical Investigations

In pursuit of the archaeobotanical investigations at this site, we collected samples, fragments of daub, snails and shells from different features as well as noticeable organic materials. The samples were prepared by the water-sieving technique.

We collected the daub from the Baden pits too, which are well-suited for examining for archaeobotanical aims. Namely, vegetal matter was mixed into the adobe in order that it dessicate uniformly. If the house burned down, the adobe burned out, and the vegetal material was preserved differentially, depending on the temperature and burning conditions (oxidative or reductive). If the temperature was high and oxidative, the organic matter burned away, but it left its imprints, from which we can make silicon rubber moulds. Under reductive conditions the organic material is left in a charred state.

Remains of charred organic matter, for example, spikelet bases of einkorn (*Triticum monococ-*

*cum* L.) and emmer (*Triticum dicoccum* Schrank) (Fig. 7.1), glume and awn fragments were identified. Fragile, white-cream coloured epidermis fragments were also observable (Fig. 7.4), even with the tissue structure clearly visible as well. These are capable of surviving due to their calcium and silica content. We made silicon rubber moulds from the imprints of the daub fragments; they were mainly of einkorn grains (Fig. 7, 5–6).

We found few charred weed seeds in daub. Rye brome (*Bromus secalinus* L.) (Fig. 7.2) was a widespread weed in prehistoric times, which grew together with winter wheat. If rye brome falls into the wheat flour, it depreciates the flour's quality and flavour. The common meadow fescue (*Festuca pratensis* Huds.) (Fig. 7.3) grows in steppe-like communities (UJVÁROSI 1973).

The remaining light fraction of the glume after spreading and winnowing was added to the adobe.

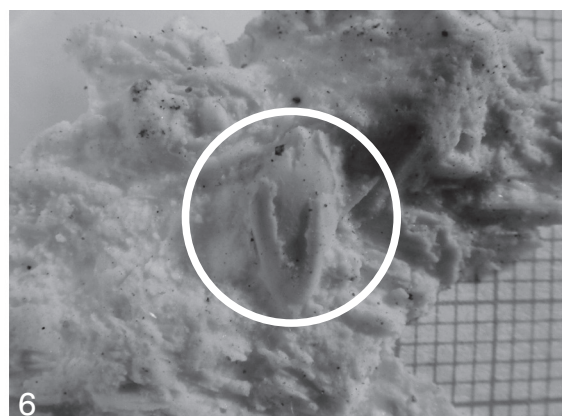
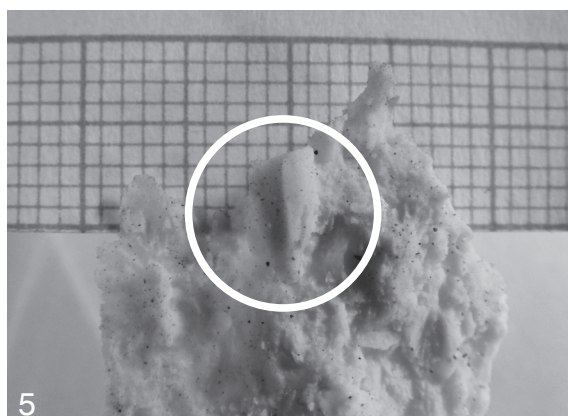
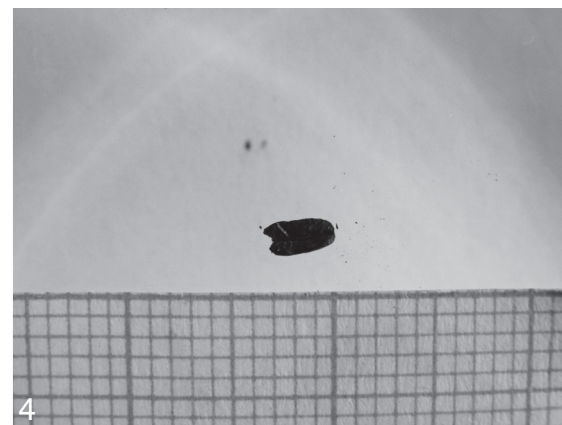
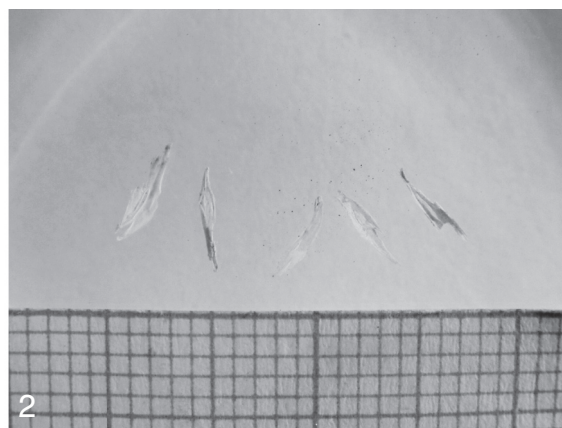


Fig. 7. Ecsér, site 6, county Pest. Archaeobotanical investigations at the site. 1 spikelet bases of einkorn (*Triticum monococcum* L.) and emmer (*Triticum dicoccum* Schrank); 2 seeds of brome (*Bromus secalinus* L.); 3 seed of fescue (*Festuca pratensis* Huds.); 4 epidermis of einkorn (*Triticum monococcum* L.) and emmer (*Triticum dicoccum* Schrank); 5–6 einkorn (*Triticum monococcum* L.) grains.

Thus, the charred organic material and imprints in daub showed us, that einkorn and emmer were the most important cereals during the Late Copper Age in the area under study. The results were the same at other Late Copper Age sites in Hungary (Buda-

pest, Bécsi út; Csepel-Vízmű; see GYULAI 2001, 88). Hence, the people of the Baden Culture were sedentary; they were not nomads or semi-nomadic.

Soil samples taken from the Late Copper Age pits were subjected to pollen analysis. These figures show

the preliminary results. Mainly arboreal pollens predominate, and on the grounds of these pollens it can be stated that there was an oak forest mixed with lime trees in the study area. On the higher part of the hills hornbeam and beech together with oak could have been present. In lower-lying areas parts where the ground water is high, there must have been a forest of elm, ash and oak. Stands of alder and willow trees must have fringed the banks of streams. Crop cultivation is also attested by pollens of wheat and barley.

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### Abstract

Between 2004 and 2006 we conducted excavations at Ecser (County Pest, Hungary), where we uncovered and documented a settlement of the Baden Culture. The find material recovered from the settlement can be affiliated with the late Classical Baden phase (Baden III–IV A after V. NĚMEJCOVÁ-PAVÚKOVÁ). We found incised ornamented, red and white painted fragments of daub, which are proof of the existence of surface dwellings. 46 cattle burials were found in the features. A further aim of

our work was to add new results to the archaeobotanical investigations of Late Copper Age archaeological sites. Until present only few sites in Hungary have been studied from this aspect, for example Kompolt, Óbuda or Csepel Island. Mainly seeds from gathered plants were found at these sites. In pursuit of our aims we collected samples from different features, pieces of daub with imprints and noticeable organic materials. During our work we examined daub and seeds from the site of Ecser.

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## The Physical Anthropological Characterization of the Population Connected to Baden Culture in Hungary

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### Introduction

The Baden Culture is one of the cultures of the Carpathian Basin with the most known sites: according to a gazetteer prepared around the turn of the millennium approx. 1600 sites have been registered so far. The ratio of sites with burials in Hungary, however, is rather small, amounting to only about 5 % (BONDÁR 2002). The number of graves from these sites is rather varied. We know of small burial grounds with one or two graves or the probable graves of a nuclear family, but there are also large cemeteries with hundreds of graves, obviously used for longer periods in time. The Baden Culture or the Late Copper Age is also characterized by a variety on burial rites: Both cremation and inhumation occur even within one site, multiple burials are also frequent, and cattle, skull and symbolic burials have been attested as well. Furthermore, a number of sites yielded mass graves, containing either properly buried bodies or bodies that were simply thrown into pits.

In this study I shall attempt to give an overview of the physical anthropological characterization of the population connected to Baden Culture, based upon the analyzed skeletal remains excavated in the Carpathian Basin. The reason for such an endeavour is that until recent times the physical anthropological characterization of people from contexts of this Late Copper Age culture was based upon the analysis of a single cemetery, which was excavated about fifty years ago at Alsónémedi (KÖREK 1951; NEMESKÉRI 1951a; 1951b). The physical anthropo-

logical analysis of the cemetery of Budakalász, also excavated some fifty years ago, unfortunately remained unfinished. For decades, aside from the material from Alsónémedi, the skeletal remains from only a few cemeteries with few graves and a few skull burials (for example, Palotabozsok, Szentes-Nagyhegy, Budapest-Andor utca, Budapest-Káposztásmegyer) were analyzed (NEMESKÉRI 1956; ZOFFMANN 1987–1988; 1998).

In the last decades, due to large-scale rescue excavations preceding construction works and the construction of motorways, new graves of the Baden Culture have been found at numerous sites (for example, Balatonőszöd-Temetői dűlő, Balatonlelle-Országúti dűlő, Balatonlelle-Felsőgamász, Balatonkeresztúr-Réti dűlő, Ordacsehi-Bugaszeg, Balatonlelle-Rádpusztá) (ZOFFMANN 2004a; 2004b). Furthermore, in recent years a team of various specialists, led by archaeologists M. Bondár and P. Raczky, started the complex analysis of the cemetery of Budakalász as well. The full physical anthropological study of the cemetery was carried out within the framework of this project. The continuous growth of skeletal remains and knowledge also requires a review of the available information and the inclusion of the newest results. At present, the population from the (Boleráz) Baden Culture context is represented in physical anthropological literature by the skeletal remains of 669 individuals from 36 sites in the Carpathian Basin (Tab. 1, Fig. 1).

### Budakalász-Luppa csárda

The cemetery of the Baden Culture – still the largest known – was excavated by Sándor Soproni between 1952 and 1960 at the site of Budakalász-Luppa csárda (Pest County). During the almost ten-year-long rescue excavation 439 graves were unearthed, of which 436 can be dated to the Late Copper Age. According to the burial rites we can distin-

guish between inhumations (355) and cremations (70), whereby skull burials (6) and symbolic graves (8) were found as well. Among the 355 inhumations were numerous multiple graves: In thirty-three cases the grave contained two bodies, and in four cases it contained three individuals. In one of the multiple burials (Grave 3) the deceased had been placed



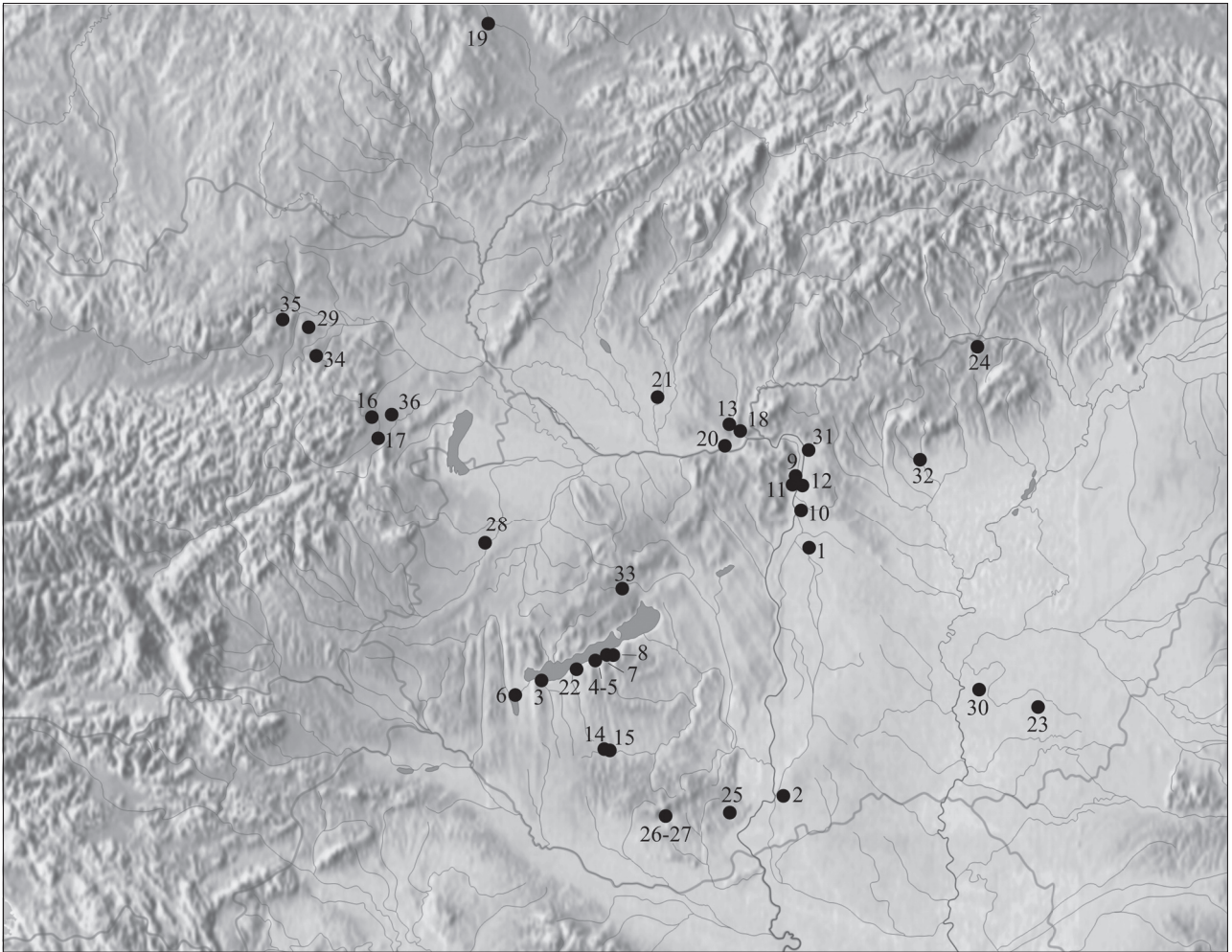


Fig. 1. Sites with analyzed anthropological finds of the Baden Culture in the Carpathian Basin.

in the grave with two cattle, which led a few scholars to the conclusion that an ox-drawn wooden cart had been buried there as well (BANNER 1956). In the case of cremations the ashes were placed in an urn or scattered in the grave pit. The latter, however, is much more frequent. Based upon the analyses carried out so far, inhumations and cremations seem to be contemporary. This is confirmed by the fact that they do not form spatial units within the cemetery, but occur scattered throughout its whole area<sup>1</sup>.

The physical anthropological analysis of the skeletal remains from the cemetery was started by M. Malán already during the excavation, and then it was continued by J. NEMESKÉRI, who, however, could not finish it due to his other obligations in the study of modern populations (NEMESKÉRI 1956). A complete serological analysis of the cemetery was carried out by I. LENGYEL. Based upon samples from 401 graves

from Budakalász, he sketched the distribution of the population according to sex, age and blood types and tried to distinguish smaller or larger units – so-called family grave groups – within the cemetery. His results were, however, published only in short preliminary reports (LENGYEL 1975; 1983).

After excavation the skeletal material from the cemetery was delivered to the Department of Physical Anthropology of the Hungarian Natural History Museum. From the skeletal remains of the 396 individuals found in 355 – single or multiple – inhumation graves, those of 356 individuals could be analyzed. From the 70 cremations we had 56 remains at our disposal. The state of preservation of the skeletal material is unfortunately rather poor. Consequently, not only the determination of demographic data was problematic, but also rather little metric and morphological data – indispensable for typological or bi-

<sup>1</sup> Personal communication from M. Bondár.

Tab. 1. Sites with analyzed skeletal remains connected to the Baden Culture in the Carpathian Basin.

Sites	Children	Males	Females	?	Total	References
1. Alsónémedi	14	16	8	6	44	NEMESKÉRI 1951 a, 1951 b
2. Baja, Dózsa Gy. u. 233.	.	1	.	.	1	FARKAS 1975
3. Balatonkeresztúr, Réti dűlő	.	7	6	3	16	KÖHLER, unpublished
4. Balatonlelle-Felsőgamász, M7/S-17	4	11	6	.	21	ZOFFMANN, 2006
5. Balatonlelle-Országúti dűlő, M7/S-16	2	.	2	.	4	ZOFFMANN, unpublished
6. Balatonmagyaród-Hídvépuszta-Déli rév	1	1	3	.	5	PAP, cit. BONDÁR 1987
7. Balatonszemes-Szemesi berek, M7/S-13	1	1	.	.	2	ZOFFMANN, unpublished
8. Balatonőszöd-Temetői dűlő, M7/S-10	21	8	14	2	45	ZOFFMANN 2004a
9. Budakalász-Luppa csárda	142	89	127	50	408	KÖHLER, manuscript
10. Budapest-Andor utca	.	1	.	.	1	NEMESKÉRI 1956
11. Budapest-Békásmegyer	2	.	.	.	2	KÖREK 1951
12. Budapest-Káposztásmegyer	.	1	1	.	2	ZOFFMANN 1987-1988
13. Kamenin-Kiskukoricás	1	.	1	.	2	JAKAB 1980
14. Kaposújlak-Várdomb, Route 61, Site 29	9	6	5	1	21	ZOFFMANN, unpublished
15. Kaposvár, Bypass Route 61, Site 1	.	.	1	.	1	ZOFFMANN, unpublished
16. Leobersdorf	3	1	1	.	5	TESCHLER-NICOLA et al. 1984
17. Lichtenwörth	3	6	2	2	13	TESCHLER-NICOLA et al. 1984
18. Malá nad Hronom	2	.	1	1	4	NEVIZÁNSKY et al. 1997
19. Moravičany	.	.	1	.	1	STLOUKAL 1982
20. Mužla-Cenkov-Vilmakert	.	.	1	.	1	VONDRÁKOVÁ 1985
21. Nitriansky Hrádok	2	5	5	.	12	VLČEK 1953
22. Ordacsehi-Bugaszeg, M7/S-2 9	1	.	1	.	2	ZOFFMANN, unpublished
23. Orosháza-Vöröscsillag TSZ	1	.	.	.	1	FARKAS 1975
24. Ózd-Center	4	1	1	.	6	NEMESKÉRI, cit. KALICZ 1963
25. Palotabozsok	.	.	1	.	1	NEMESKÉRI 1956
26. Pécs-Hőerőmű	2	4	3	.	9	ZOFFMANN 1999
27. Pécs-Vasas-Homokbánya	.	.	1	.	1	ZOFFMANN, unpublished
28. Sárvár, Bypass, Site 5	.	1	.	.	1	TÓTH, unpublished
29. Sitzenberg	.	1	1	.	2	NEUGEBAUER-MARESCHE et al. 1986
30. Szentcsanakhegy	.	3	1	.	4	NEMESKÉRI 1956
31. Vác-Liliom u. 17.	.	.	.	1	1	ZOFFMANN, unpublished
32. Vámosgyörök-Motorhajtóanyag-tároló (MHAT)	7	4	9	.	20	MARCSIK, cit. Farkas 2004
33. Veszprém, Jutasi út	2	.	1	1	4	KÖHLER, unpublished
34. Wolfersdorf	.	2	.	1	3	RUTTKAY et al. 1984
35. Wagram an der Traisen	1	1	.	.	2	RUTTKAY et al. 1984
36. Zillingtal	.	1	.	.	1	KRITSCHER 1985
Total	225	172	204	68	669	

ostatistical analysis – could be recorded. Yet, due to the large number of graves, the material still provided enough data to carry out the physical anthropological analysis of the population in the cemetery.

The sex and age distributions of those buried at Budakalász-Luppa csárda are shown in Table 2. The remains of 142 children, 89 men and 127 women could be identified. Thereby the gender of

Tab. 2. Sex and age distribution of individuals buried at Budakalász-Luppa csárda.

Age group	indet.	Male	Female	Total
0-1 year	20	.	.	20 (4,90%)
Infans I. (1-6 years)	71	.	.	71 (17,40%)
Infans II. (7-14 years)	51	.	.	51 (12,50%)
Juvenis (15-22 years)	15	2	11	28 (6,90%)
Adultus (23-39 years)	7	37	62	105 (25,70%)
Maturus (40-59 years)	6	37	42	85 (20,80%)
Senilis (60-x years)	7	13	13	33 (8,10%)
indet.	15	.	.	15 (3,70%)
Total	192 (47,1 %)	89 (21,8 %)	127 (31,1 %)	408 (100,00%)

Tab. 3. Age distribution at the larger sites of the Baden Culture and in the whole reach of the Baden Culture.

Age Group	Budakalász	Alsónémedi	Balatonőszöd	Balatonlelle	Baden
Infans I. (0-6 years)	91	13	11	2	121
Infans II. (7-14 years)	51	1	8	2	63
Juvenis (15-22 years)	28	2	6	0	38
Adultus (23-39 years)	105	16	10,5	6,5	143,5
Maturus (40-59 years)	85	5	9	9,5	106
Senilis (60-x years)	33	1	0,5	0	36,5
indet.	15	5	0	1	36
Total	408	43	45	21	544

50 adults could not be determined. Regarding age distributions, we may state that the ratio of children in the Infans I-II age groups is close to what would be expected. Their high proportion is probably an indication of the generally bad state of health among the population. Within this group, however, the ratio of those with an age-at-death of 0-1 year is rather low, despite that fact that in all periods child mortality is the highest at the time around birth. Mortality among adults is highest in the Adultus age group, as expected, and decreases as we proceed towards older age (KÖHLER, manuscript). At other sites of the Baden Culture with a larger number of graves, similar age distributions can be observed (Tab. 3). Only at Alsónémedi was the ratio of the age group Infans II remarkably low (NEMESKÉRI 1951 a; 1951 b; ZOFFMANN 2004 a; 2006).

With regard to the gender distribution of the interred, we could establish that at Budakalász burials of females were in a majority among both inhumations and cremations (KÖHLER, manuscript). At Alsónémedi and Balatonlelle the number of men was higher, while at Balatonőszöd women were again represented in larger numbers (NEMESKÉRI 1951 a; 1951 b; ZOFFMANN 2004 a; 2006). According to the combined data of the physical anthropological remains analyzed from 36 Late Copper Age (Boleráz) Baden sites in the Carpathian Basin, the remains of females outnumber those of males in the adult population of the whole context of this culture (Tab. 1). Their higher ratio, which can be observed at numerous other prehistoric sites as well, can be explained by the differentiated treatment of the corpses of men and women during burial, by differences in lifestyles or by the death of men far away from their home, etc.

### The Metric and Morphological Analysis of the Population Connected to the Baden Culture

The metric and morphological characteristics of the skeletal material form the most basic source of information in physical anthropological research. With the knowledge of metric data we can identi-

fy sets of traits, calculate parameters or carry out significance and biometric investigations, while the inclusion of morphological traits enables the description of the typological composition of a giv-

Tab. 4. Parameters of the main cranial measurements and indices. Budakalász-Luppa csárda.

Martin No.	Male				Female			
	N	Range	M	s	N	Range	M	s
1.	35	168–194	183,5	4,99	39	163–192	177,4	6,31
8.	33	127–156	142,4	6,8	38	126–150	136,6	4,79
9.	31	91–108	96,7	4,17	35	87–102	94,0	4,10
17.	4	132–145	139,5	5,67	5	122–139	130,6	6,28
20.	10	114–125	119,8	3,18	7	109–125	113,1	5,46
45.	5	124–133	127,4	3,55	5	115–130	124,0	5,62
47.	6	104–126	114,7	7,29	4	106–118	110,8	4,54
48.	7	63–80	69,7	5,39	7	57–70	63,7	4,95
51.	7	39–40	39,6	0,49	5	38–43	39,8	1,72
52.	7	28–34	31,0	2,00	5	29–35	32,4	2,06
54.	6	22–26	24,2	1,34	7	22–26	24,0	1,31
55.	7	45–55	50,0	2,98	7	45–53	48,7	2,96
8 : 1	33	67,9–87,6	77,7	4,16	38	69,8–85,3	77,1	3,69
17 : 1	4	71,4–78,8	75,0	2,81	5	69,3–80,8	74,6	4,49
20 : 1	10	62,9–68,0	65,1	1,53	7	58,9–68,0	63,7	3,10
17 : 8	4	91,7–110	98,3	6,90	5	91,2–102,0	97,0	3,99
20 : 8	10	81,5–85,9	83,7	1,45	7	79,6–87,3	82,7	2,69
9 : 8	30	59,6–76,1	68,0	3,56	34	61,5–74,6	68,9	3,18
47 : 45	4	81,2–94,4	86,6	4,96	3	82,8–92,9	86,3	4,7
48 : 45	4	49,6–54,0	51,5	1,59	5	45,3–57,5	51,9	4,43
52 : 51	7	70,0–87,2	78,4	5,41	5	74,4–89,5	81,5	4,84
54 : 55	6	43,1–57,8	48,6	5,36	7	45,3–56,5	49,4	3,37

en population. The most important morphometric traits of the skeletal material from the Baden Culture sites with the largest number of individuals will be reviewed below.

In the series from Alsónémedi NEMESKÉRI mentioned the occurrence of skulls with mid-long–mid-wide–low absolute values and meso–hypsicocephalic index values. Foreheads were narrow according to absolute values, and metriometopic according to index values. Faces were characterized by narrow–low–mid-high absolute values and leptoprosopic index values. The upper face usually falls in the mid-wide, that is, mesen, category. Beyond these, the series was characterized by mesoconch orbits and leptorrhin nasal cavity according to the index values. Among the morphological traits, skulls with ellipsoid and sphenoid outline in norma verticalis predominate, the first of which was connected by the author to dolicho-mesocrany, the latter with meso-brachycrany. The nape profile in norma lateralis is mostly curvoccipital. NEMESKÉRI, however, also described a few brachycephalic skulls with a planoccipital nape profile. The nape profile is a very important trait, and its shape – curvoccipital or planoccipital – is of great significance when categorizing brachycephalic individuals into taxons. According

to NEMESKÉRI, the population buried in Alsónémedi had a medium average body height and was gracile. He calculated the mean height value of men and women – without publishing the length of individual long bones, but on the basis of the height data of ten men and two women – as 162.4 cm and 152.5 cm, respectively (NEMESKÉRI 1951 a; 1951 b).

Zs.K. ZOFFMANN demonstrated the dominance of long–narrow–high and dolicho-hyperdolichocephalic skulls in the fragmentary series from Balatonőszöd. Brachycephalic skulls were not attested in this series at all. Foreheads are wide according to absolute values, and eury/hypereurymetopic according to index values. Faces are without exception mid-wide–narrow–low according to absolute values, euryprosopic according to index values; upper faces were euryen. Orbits and nasal cavities show great heterogeneity. The outline of the skull in norma verticalis is most frequently ovoid or ovo-pentagonoid, in norma lateralis curvoccipital without exception. The calculated body height values vary considerably: both taller and shorter individuals were attested among both men and women (ZOFFMANN 2004 a).

The data from the series from Budakalász, analyzed by the author of this article are similar to

Tab. 5. Martin-type distribution of the body height values of the population of Budakalász-Luppa csárda.

Body height categories		M a l e		F e m a l e		
Classes	Male	Female	N	%	N	%
Small	150,0 -- 159,9	140,0 -- 148,9	5	26,4	1	7,7
Small medium	160,0 -- 163,9	149,0 -- 152,9	4	21,0	1	7,7
Medium	164,0 -- 166,9	153,0 -- 155,9	3	15,8	5	38,5
Tall medium	167,0 -- 169,9	156,0 -- 158,9	3	15,8	1	7,7
Tall	170,0 -- 179,9	159,0 -- 167,9	4	21,0	5	38,5
Total			19	100,0	13	100,0

those from Alsónémedi. The parameters calculated on the basis of skull sizes and indexes are given in Tab. 4. According to absolute values the most frequent are mid-long/long–mid-wide–mid-high/high skulls. These are meso–ortho/hypsi–metrio/acrocephalic ones according to index values. Foreheads are mostly mid-wide according to absolute values, and metriometopic according index values. Faces are narrow/mid-wide–low/mid-high according to absolute values, but rather varied according to index values. The skull outline in norma verticalis shows the dominance of ovoid and pentagonoid forms connected to long-headed components, besides which the sphenoid and rhomboid skull outline characteristic for brachycephalic components can be found as

well, although in much smaller numbers. The nape profile is curvoccipital in all cases; individuals with planoccipital nape profile do not occur even among short-headed (brachycephalic) individuals. Despite the large number of individuals, the calculation of body height on the basis of the size of the long bones – with the use of Sjøvold's formula – was possible only in the case of 19 men and 13 women and gave rather varied results. Based upon the distribution according to body-height categories and their mean value, the population of the cemetery can be categorized as mid-tall (Tab. 5). The mean value of the body-height of men is 164.2 cm, that of women is 154.4 cm (KÖHLER, manuscript).

#### The Taxonomic Analysis of the Population Connected to the Baden Culture

In the earlier phases of historical physical anthropological research, until the end of the 1960s, the categorization of human skeletal remains into races and taxons when determining the origin and connections of human populations was general practice. It was quickly realized during analyses, however, that the identification of each skeleton with a so-called pure taxon was very difficult due to the smaller or larger extent of typological mixing, caused by migration, infiltration, etc. since the earliest phases of prehistory. The difficulties of the typological analysis of the finds are further exacerbated by the fact that the method was based upon morphological traits with a significant inherent source of error. In the function of the various viewpoints of specialists working with a given material, a strong element of subjectivity enters the description of these traits. The situation is further complicated by the great variety of taxonomic nomenclatures developed and used by various physical anthropological schools and scholars.

The first and most influential taxonomic analysis of the population of the Baden Culture was carried out by NEMESKÉRI. During the analysis of the cemetery of Alsónémedi he differentiated between

three main components within the population of the cemetery: 1. a Mediterranean and Proto-European (Cro-Magnoid) group arriving from the northwest, from the areas of the Corded Ware and Linear Pottery cultures; 2. a group of Mediterranean variants with brachymorphic components arriving from the southwest; 3. brachycephalic elements suggesting eastern and western ethnic influences (NEMESKÉRI 1951 a; 1951 b).

After the analysis of the material from a few sites with few graves (Budapest-Andor utca, Palotabozsok, Szentes-Nagyhegy) and of 110 graves from the cemetery of Budakalász, NEMESKÉRI again attempted a characterization of the population of the Baden Culture. In the cemetery at Budakalász, besides the above-mentioned three components, he demonstrated the presence of a fourth, so-called Atlanto-Mediterranean component as well, which he considered to be of local origin (NEMESKÉRI 1956). With regard to the whole culture, he established that gracile and classical Mediterranean types predominate in the population, which he traced back partly to local (Late Neolithic) origins and partly connected them to the appearance of a new population coming from the

southeast. With regard to the brachycephalic elements, he derived the so-called East Alpine type with planoccipital nape profile as attested at Alsónémedi from the east, while the so-called West Alpine type with curvoccipital nape profile attested at Budakalász from the west (NEMESKÉRI 1956; 1961).

From the Balatonőszöd series the typological analysis of only a few individuals could be carried out due to the fragmentary state of the material. Based upon these, however, it could be established that both metric and morphological traits show a wide range of variation. Due to the mosaic-like mixture of various traits, the categorization of the individuals buried there into specific variants or types was impossible. Regarding this taxonomically mixed population, it is impossible to decide whether this great heterogeneity was caused by the mixing of the autochthonous and an immigrant population, or whether the population of the Baden Culture had already such a mixed typological composition (ZOFFMANN 2004a).

Due to the fragmentation of the skeletal material from Budakalász, typological analysis could be carried out only in a few cases. On the basis of these, however, we could establish that the population of the cemetery is characterized by the dominance of a so-called gracile Mediterranean type with leptodolichocephalic skull, short-medium stature, and small absolute sizes (Fig. 2). Furthermore, the presence of the likewise leptodolichocephalic Atlanto-Mediterranean type with medium-tall stature and moderate skull relief, and of the brachycephalic Alpine type with curvoccipital nape profile and mid-short stature could be demonstrated as well (Fig. 3-4). The eurydolichocephalic (Cro-Magnoid) component present in the cemetery at Alsónémedi was not attested among the population of Budakalász (KÖHLER, manuscript).

With regard to the whole culture we may establish that the Baden Culture had a physical anthropologically heterogeneous population dominated

by the dolichocephalic Mediterranean type, which was a dominant component throughout prehistory, and especially by the so-called gracile Mediterranean type. Among the physical anthropological components of the period, the ratio of the previously dominant Nordic and Cro-Magnoid elements seems to diminish significantly. Furthermore, we may observe the significant increase of the ratio of the brachycephalic Alpine type with curvoccipital nape profile, the ratio of which did not even reach 5 % in the population of the Middle Copper Age Bodrogkeresztúr culture, but was close to 20 % in the Late Copper Age (ZOFFMANN 1992; KÖHLER, manuscript). Furthermore, we may establish that the various physical anthropological components are present in the population connected to the Baden Culture in an approximately equal proportion. The only exception is the brachycephalic Alpine type, which at present is attested mainly among the finds from around Budapest (25 % at Alsónémedi, 17 % at Budakalász), but appears only sporadically at the sites around Lake Balaton (for example, it was not attested at all at Balatonőszöd). It is important to emphasize that NEMESKÉRI's brachycephalic type with planoccipital nape profile from Alsónémedi has been questioned (GERHARDT 1978), and its presence could not be demonstrated either in the Balatonőszöd or the Budakalász series (ZOFFMANN 2004a, KÖHLER manuscript). Furthermore, the appearance of this (so-called Taurid or "Glockenbecher") physical anthropological component in the Carpathian Basin is usually dated later and connected to the appearance of the population associated with the Bell Beaker Culture in the Early Bronze Age (GERHARDT 1978; ZOFFMANN 1998-1999; 2001). To sum up, the ratio of the physical anthropological components of the population of the previous phase changed during the Late Copper Age, which might suggest the arrival of new human groups in the area.

#### The Penrose Biostatistical Analysis of the Population Connected to the Baden Culture

Biometric methods based upon the basic metric data of classical physical anthropological investigations were introduced in order to eliminate the uncertainties inherent in taxonomic analyses. With their help the connections (similarities and dissimilarities) between the series representing the various cultures can be studied much more exactly. One of these methods is the PENROSE distance analysis, which consists of the statistical comparison of the standardized mean metric values of cranial series. During such an analysis the generalized distance in the size and shape of the various series can be expressed with one number (the so-called  $C_R^2$  value).

The smaller this value is, the greater is the similarity between the given series. In the case of results with 0.1 to 0.5 % significance, we may assume the similarity or relatedness of the series. The analysis can be carried out between contemporary, but geographically distant, physical anthropological series or between the subsequent series in the same geographic region (PENROSE 1954; ZOFFMANN 1983).

The cranial series of the cemetery of Alsónémedi representing the Baden Culture was already used in a Penrose distance analysis carried out by I. SCHWIDETZKY and colleagues. During the evaluation of the data, however, due to the high



Fig. 2. Budakalász-Luppa csárda. Skull of a male buried in Grave 94. Gracile Mediterranean type.



Fig. 3. Budakalász-Luppa csárda. Skull of a female buried in Grave 104. Atlanto-Mediterranean and Alpine type.





Fig. 4. Budakalász-Luppa csárda. Skull of a male buried in Grave 412. Alpine type.

significance level (5 %) the cranial series representing the culture showed such wide-ranging connections that were impossible to interpret historically (SCHWIDETZKY 1967).

Later on, in many steps, Zs. K. ZOFFMANN carried out a comparative Penrose analysis of the population of the culture, still largely based upon the physical anthropological data of the population of Alsónémedi and complemented with the skeletal material from a few other sites (Baja-Dózsa Gy. u. 233., Budapest-Andor utca, Budapest-Káposztásmegyer-Farkaserdő, Szentcsanak-hegy). Due to a stricter significance level drawn at 0.1 % and 0.5 %, the connections were less wide-ranging and historically more interpretable. The results showed that the population of the Baden Culture is undoubtedly connected to the so-called “southeastern block”, which contains among others series from Anatolia (Troy I-V), Greece (Neolithic and Early Helladic) and, furthermore, the cemetery of the Gumelnița culture at Ruse. At the same time it showed no Penrose connection whatsoever with the series of Neolithic and Copper Age cultures of the Carpathian Basin. Based upon this observation ZOFFMANN sought the origin of the population of the Baden Culture south and southeast of the Carpathian Basin. Her physical anthropological results confirmed the earlier theory of the southeastern origin of the culture and the migration of its population into the Carpathian Basin from the southeast suggested on archaeological grounds (ZOFFMANN 1987–1988; 1992).

In the last years, due to the increase of the skeletal material representing the culture thanks to the large-scale rescue excavations preceding motorway constructions, it became possible to “control” the Penrose-results that were based largely on the series from Alsónémedi through the inclusion of new cranial series connected to the Baden Culture. This “control” analysis was carried out by Zs. K. ZOFFMANN. Here we must note that the new series includes material from the graves of the early, formative phase of the Baden Culture, the so-called Boleráz phase as well, since in the case of certain graves it is not possible to determine the phase to which they belong on archaeological grounds. During the analysis three series of the Baden Culture could be formed. The first, so-called series from the vicinity of Budapest was based largely upon the material from the cemetery of Alsónémedi and complemented by finds from two smaller sites (Budapest-Andor utca, Budapest-Káposztásmegyer-Farkaserdő). The second, so-called series from around Lake Balaton contained the skeletal material from the recent motorway rescue excavations along Lake Balaton (Balatonlelle-Felsőgamász, Balatonlelle-Országúti dűlő, Balatonőszöd-Temetői dűlő, Balatonszemes-Szemesi berek, Kaposújlak-Várdomb). The third

Tab. 6. Neolithic and Copper Age series included in the Penrose distance analysis.

Series	References
<b>Carpathian Basin</b>	
Baden series from the vicinity of Budapest	ZOFFMANN 2004 b
Baden series from around Lake Balaton	ZOFFMANN 2004 b
Baden series of other isolated finds	ZOFFMANN 2004 b
Lepenski Vir Culture	ZOFFMANN 2004 b
Starčevo Culture	ZOFFMANN 2004 b
Körös+Criș Culture	ZOFFMANN 2004 b
Alföld Linear Pottery Culture	ZOFFMANN 2004 b
Lengyel Culture from South-Transdanubia	ZOFFMANN 1984
Lengyel Culture from Aszód	ZOFFMANN 2004 b
Lengyel Culture from Mórágó B.1.	ZOFFMANN 2004c
Tisza Culture	ZOFFMANN 2004 b
Hrtkovci-Gomolava, Vinča Culture	ZOFFMANN 1986–1987
Tiszapolgár Culture	ZOFFMANN 1984
Bodrogkeresztúr Culture	ZOFFMANN 2004 b
<b>Central Europe</b>	
Central European Linear Pottery Culture	JELINEK 1973
Linear Pottery in Bohemia	ZOFFMANN 1984
Corded Ware Culture in Bohemia	CHOCHOL 1964
Bruchstedt, Linear Pottery Culture	BACH 1978
Sondershausen, Linear Pottery Culture	BACH 1978
Schönstedt, Walternienburg-Bernburg Culture	BACH ET AL. 1972
Corded Ware Culture in Germany	BACH 1966
Corded Ware Culture in Poland	WIERCINSKI 1973
Złota Culture in Poland	WIERCINSKI 1973
Brzesć Kujawski, Jordanov Culture	ŽEJMO-ŽEJMIS 1938
<b>Northeastern, Eastern-Europe</b>	
Dereivka, Dneper-Donets Culture	ZINEVIČ 1967
Vovnigi, Dneper-Donets Culture	ZINEVIČ 1967
Volnoje, Dneper-Donets Culture	SURNINA 1961
Bilcze Złote, Tripolye Culture	WIERCINSKI 1973
Globular Amphora Culture in Poland	WIERCINSKI 1973
Funnel Beaker Culture in Poland	WIERCINSKI 1973
Fatyanovo Culture	DEBEC 1973
Ochre Grave Culture in Rumania	SCHWIDETZKY 1978
<b>Southeastern-Europe and Anatolia</b>	
Cernavodă, Hamangia Cultures	NECRASOV ET AL. 1982
Cernica, Boian Culture	NECRASOV 1973
Ruse, Gumelnița Culture	BOEV 1972
Neolithic and Early Helladic periods in Greece	ANGEL 1944
Central and East Anatolian Chalcolithic	ANGEL 1951
Nea Nikomedeia, Neolithic	ANGEL 1973
Tepe Hissar II., Chalcolithic	KURTH 1973
Al'Ubad, Neolithic	KEITH 1927

Tab. 7. Penrose distances of the combined Budakalász series from other Neolithic and Copper Age series.

Series	$C_R^2$	DP2	P%
Baden series of other isolated finds	0,054	0,705	P > 99,9
Baden series from around Lake Balaton	0,073	0,947	P > 99,9
Baden series from the vicinity of Budapest	0,074	0,956	P > 99,9
Bilcze Złote, Tripolye Culture	0,126	1,636	99,9 > P > 99,5
Złota Culture, Poland	0,137	1,777	99,9 > P > 99,5
Ruse, Gumelnița Culture	0,14	1,817	99,9 > P > 99,5
Körös+Criș Culture	0,176	2,284	99,5 > P > 99,0
Central and East Anatolian Chalcolithic	0,178	2,315	99,5 > P > 99,0
Neolithic and Early Helladic periods in Greece	0,194	2,517	99,5 > P > 99,0
Cernica, Boian Culture	0,203	2,638	99,0 > P > 97,5
Funnel Beaker Culture in Poland	0,216	2,807	99,0 > P > 97,5
Sondershausen, Linear Pottery Culture	0,219	2,843	99,0 > P > 97,5
Al'Ubaid, Neolithic	0,222	2,881	99,0 > P > 97,5
Bruchstedt, Linear Pottery Culture	0,226	2,931	99,0 > P > 97,5
Schönstedt, Walternienburg-Bernburg Culture	0,232	3,015	99,0 > P > 97,5
Bodrogkeresztúr Culture	0,241	3,123	99,0 > P > 97,5
Nea Nikomedeia, Neolithic	0,267	3,462	97,5 > P > 95,0
Cernavodă, Hamangia Cultures	0,279	3,63	97,5 > P > 95,0
Lengyeli Culture in South Transdanubia	0,284	3,693	97,5 > P > 95,0
Starčevo Culture	0,292	3,789	97,5 > P > 95,0
Corded Ware Culture in Poland	0,299	3,879	97,5 > P > 95,0
Linear Pottery in Bohemia	0,348	4,521	95,0> P > 90,0
Hrtkovci-Gomolava, Vinča Culture	0,358	4,653	95,0> P > 90,0
Tisza Culture	0,363	4,716	95,0> P > 90,0
Lengyel Culture from Mórágý B.1.	0,364	4,728	95,0> P > 90,0
Brzesć Kujawski, Jordanov Culture	0,365	4,745	95,0> P > 90,0
Tiszapolgár Culture	0,38	4,94	90,0> P > 70,0
Alföld Linear Pottery Culture	0,381	4,95	90,0> P > 70,0
Central European Linear Pottery Culture	0,408	5,298	90,0> P > 70,0
Corded Ware Culture in Germany	0,432	5,616	90,0> P > 70,0
Tepe Hissar II., Chalcolithic	0,435	5,647	90,0> P > 70,0
Lengyel Culture from Aszód	0,437	5,677	90,0> P > 70,0
Globular Amphora Culture in Poland	0,496	6,447	90,0> P > 70,0
Ochre Grave Culture in Rumania	0,513	6,656	90,0> P > 70,0
Corded Ware Culture in Bohemia	0,526	6,827	90,0> P > 70,0
Fatyanovo Culture	0,545	7,081	90,0> P > 70,0
Lepenski Vir Culture	0,684	8,884	70,0> P > 50,0
Dereivka, Dneper-Donets Culture	0,897	11,651	50,0> P > 30,0
Vovnigi, Dneper-Donets Culture	1,116	14,49	30,0> P > 10,0
Volnoje, Dneper-Donets Culture	1,446	18,776	10,0> P > 5,0

group contained finds from other smaller sites or chance finds from the territory of Hungary, Austria and Slovakia (Baja-Dózsa Gy. u. 233., Leobersdorf, Lichtenwörth, Kamenin-Kiskukoricás, Moravičany,

Mužla-Cenkov-Vilmakert, Pécs-Hőerőmű, Pécs-Vasas, Szentes-Nagyhegy, Zillingtal). This new analysis basically confirmed the earlier results and the south-southeastern connections of the population of the

culture in a biological sense (ZOFFMANN 2004b).

Despite the fragmentary state of preservation of the skulls from Budakalász, the number of cases, in which the necessary mean values could be calculated reached the quantity required for a Penrose analysis. It was also possible to combine the mean values of male and female skull sizes standardized according to the Alekseyev-Debec method (ALEKSEYEV/DEBEC 1964) and, thus, to compare them with other series. The basis of the metric comparisons was provided by the following Martin-type skull-size categories: M 1, 8, 9, 17, 45, 48, 51, 52, 54, 55. The resulting  $C_R^2$  values were evaluated with a significance level of 0.1 % and 0.5 %.

The comparison included the series representing 40 Neolithic and Copper Age cultures, already used in ZOFFMANN's analyses, from the Carpathian Basin, Central, Eastern, Northeast and Southeast Europe as well as the Near East. The criterion of inclusion in the comparative study was the size of the series. For the sake of reliability only those series were included, in which the number of cases for each size was at least seven (SCHWIDETZKY 1967). The series given in Tab. 6 fulfilled the quantitative requirements for the analysis. The sample is incomplete both in space and time, since series with a sufficient number of samples are still unavailable from large areas and significant periods. From the area of the Carpathian Basin, for example, series from the Balaton-Lasinja, Ludanice and Ochre Grave Cultures are still lacking, and at present no series with a sufficient number of cases is known from the Central and Western Balkans.

With the help of the Penrose analysis we were looking for an answer to the question as to whether there was a connection between the series from Budakalász and other Neolithic and Copper Age populations in the Carpathian Basin, and if yes, how strong was it. A significant Penrose connection would suggest an autochthonous origin, while its absence would imply a foreign origin. We also examined which Neolithic and Copper Age populations outside the Carpathian Basin shows a connection (and to what extent) with the Baden Culture series of Budakalász. In this case a significant identity would suggest that the population of the Baden Culture immigrated from somewhere else into the Carpathian Basin and may possibly point out its place of origin.

According to Table 7, containing the  $C_R^2$  values showing the generalized distance of size and shape, the population of Budakalász shows a significant (0.1 %) identity only with the other three Baden Culture series among the Neolithic and Copper Age cultures of the Carpathian Basin. Even with a higher significance level drawn at 1 %, it shows a connection only with the population connected to the Körös-Criş Culture. It was observed earlier that in

the Carpathian Basin the population of the Baden and Körös-Criş Cultures belong to the so-called "southeastern block", which is composed mainly of series from Anatolia, Greece and the Southeast Balkans (ZOFFMANN 1987-1988; 1992; 2004b). This suggests that the origin of the population of both the Körös and the Baden Cultures should be sought in the south or southeast. The connection between the two populations associated with the two cultures, however, is indirect and only signals their common origin from the same area, from an identical anthropological environment (ZOFFMANN 2000; 2004b). Thus, similar to earlier studies, the autochthonous origin of the population of the Baden Culture in the Carpathian Basin cannot be demonstrated, at least not with the Penrose method. The table shows that among all the Southeast European series included in the study, the combined series from Budakalász displays a closer relationship (0.5 %) solely with the series from the cemetery of the Gumelniţa Culture at Ruse. The relationship is looser (1 %) with the series from the Neolithic and Early Helladic periods in Greece and the Chalcolithic series from Central and Eastern Anatolia. Among Central and East European populations a closer Penrose relationship (0.5 %) could be observed only with the Złota Culture in Poland and the population of the cemetery of the Tripolye Culture at Bilcze Złote.

Although recently the archaeological theory about the southern origin of the Baden Culture has been questioned and a theory of the formation of the culture in Central Europe has been put forward (MARAN 1998; WILD ET AL. 2001; BONDÁR 2002), the results of the Penrose analysis presented here still suggest the presence of a physical anthropological component with south-southeastern connections – in a biological sense – within the population of the Baden Culture. Obviously, the above results must be refined in many aspects. Penrose connections bridging large geographic distances or chronological gaps require further examination, since they may suggest geographic or chronological continuity. The evidence for this, however, is insufficient, since we do not have enough series from the Balkans and Central Europe from a number of important archaeological periods. Thus, even with the help of the continuously growing material at our disposal, at present we are only able to draw a rudimentary sketch of the connections, composition and origin of the population of the Baden Culture.

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## Abstract

This study is an attempt at the physical anthropological characterization of the population of the Baden Culture based upon the skeletal material from recent large-scale rescue excavations prior to larger construction works in Hungary and in the light of the results of the analysis of the cemetery of Budakalász by the author. Basing upon the morphometric and typological analysis of the skeletal remains associated with the culture, a heterogeneity in the population and a change in the ratio of the typological components as compared to the population connected to the preceding Bodrog-

keresztúr Culture can be observed, which may suggest the appearance of a new population group in the Carpathian Basin during the Late Copper Age. Despite the fact that recently a new theory was put forward about the formation of the Baden Culture in Central Europe, the biostatistic investigation of the population of the cemetery in Budakalász with the help of the Penrose distance analysis suggests – similar to previous analyses – that the population buried with Baden Culture grave-goods has a south-southeastern component, at least in a biological sense.

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## About the Development of the Baden Culture in the Region of the Northern Tisza River in Slovakia

By *Eva Horváthová*

### Initial Stage of Research

Thus far, a total of 169 localities of the Baden Culture with settlements concentrated near the major rivers has been recorded in the regions of Spiš, Šariš, Gemer, the Košice basin and the East Slovak Lowlands in Slovakia (Fig. 1). Most of these sites were identified on the basis of surface prospection. Systematic research was carried out only in the upland settlements of Veľká Lomnica (NOVOTNÝ 1972 a, 10–17; 1972 b, 6–9; 1988, 101; 1990, 128; 1991, 74; NOVOTNÝ/NOVOTNÁ/KOVALČÍK 1985; 1991, 19–29), Vysoké Tatry-Pod lesom (NOVOTNÝ 1972 a, 15, 16; NOVOTNÝ/NOVOTNÁ/KOVALČÍK 1985, 18; 1991, 26), Smižany/Spišské Tomášovce (JAVORSKÝ 1977, 153–166; 1997, 101–103; SOJÁK 2001, 175–176) and Stránska (NEVIZÁNSKY/KOVÁCS 1985, 246–249; 1986, 65–67, 274; 1987, 76; NEVIZÁNSKY 1990, 123–124; 1999, 67–89), in the hillfort settlement in Šarišské Michaľany (ŠIŠKA 1982, 272–275; 1983, 239–241; 1984, 210–212; 1985, 226–228; 1986 a, 219–221; 1986 b, 439–454; 1988, 132–133; 1995, 47–55) and in the lowland settlement in Zemplínske Kopčany (ŠIŠKA 1966, 49–76; 1974, 3–15; 1975, 102–105; 1976 a, 231–237). The remains of destroyed settlement features were recognized during smaller exploratory and rescue excavations in Hrabušice (VLADÁR 1971, 12; JAVORSKÝ 1971, 13–16), Jamník (JAVORSKÝ 1990, 75), Levoča (JAVORSKÝ 1980, 128), Smižany/Spišská Nová Ves (JAVORSKÝ 1989, 3; SOJÁK 2001, 176), Smižany/Spišské Tomášovce (JAVORSKÝ 1977, 153–154; 1997, 102; SOJÁK 2001, 175–176) and Spišské Podhradie/Žehra in the Spiš region (NEUSTUPNÝ 1932, 3; 1933–1934, 171; NOVOTNÝ/KOVALČÍK 1969; FURMÁNEK 1981, 64–67), in Prešov (BUDINSKÝ-KRIČKA 1980, 54), Ľubotice (ŠIŠKA 1976 b, 97) and Veľký Šariš in the Šariš region (BLAHUTA 1963, 169–171), further, in Barca (BÁNESZ 1970, 326–330), Kechnec (HORVÁTHOVÁ 2004 a, 70–71), Valaliky-Košfany in the Košice basin (PÁSTOR 1962, 625–626), in Bánovce nad Ondavou (GAČKOVÁ 2004, 263), Brehov (HORVÁTHOVÁ 2003, 54–55), Hrčel (KAMINSKÁ 1983, 127–128),

Lúčky (SZTÁRAY 1881, 272–275; ŠIŠKA 1966, 54), Malé Raškovce (VIZDAL 1988, 140–141; 1992, 112–122), Michaľany (ŠIŠKA/KLČO 1990, 158), Nižný Žipov (BÉREŠ 1996, 33), Zalužice in the East Slovak Lowlands (GAČKOVÁ/HREHA 2004, 58) and in Včelince in the Gemer region (KOVÁCS 1984, 47). Thereby, only 107–109 settlement features could be investigated. Most information about types of settlement features and their role in settlement areas derives from the systematic research of S. ŠIŠKA in Zemplínske Kopčany and Šarišské Michaľany (HORVÁTHOVÁ 2004 b, 50–52, 2007, 16–46). General results from systematic research in the Stránska upland settlement are also partly published (NEVIZÁNSKY 1999, 67–89). There is much less information about the cemeteries of the Baden Culture. In the area of the northern Tisza River in Slovakia we know of only two necropolises, comprising cremation burials exclusively, in the villages of Gemer and Včelince (KOVÁCS 1984, 47, 1987, 99–105; 2002). Unfortunately, their poor state of preservation at the time of investigation greatly minimized possibilities for more detailed study. One cremation burial was explored in Veľký Slavkov (NOVOTNÝ/NOVOTNÁ/KOVALČÍK 1991, 27), but no further information about this find has been published. References to other “urns” in their function in cremation or symbolic burials in Spišské Tomášovce-Hadušovce (PASTERNAK 1928, 157; EISNER 1933, 30–31; NOVOTNÁ/ŠTEFANOVIČOVÁ 1958, 275, 279), Seňa (LAMIOVÁ-SCHMIEDLOVÁ/BÁNESZ 1962, 222–223) and Spišská Nová Ves (JAVORSKÝ 1993, 16) cannot be verified due to the lack of documentation of finds. The appearance of anthropomorphic finds from earlier as well as later investigations and smaller rescue excavations in Letanovce-Čertova dieľa (HAJTS 1925, 63–66; BÁRTA 1958 a, 471; SOJÁK 2001, 172, 184) and Dreveník-Puklinová jaskyňa (BÁRTA 1958 b, 468–469; SOJÁK 2001, 180, 184) is attested; however, in view of the vague find circumstances, these finds are culturally ambiguous.



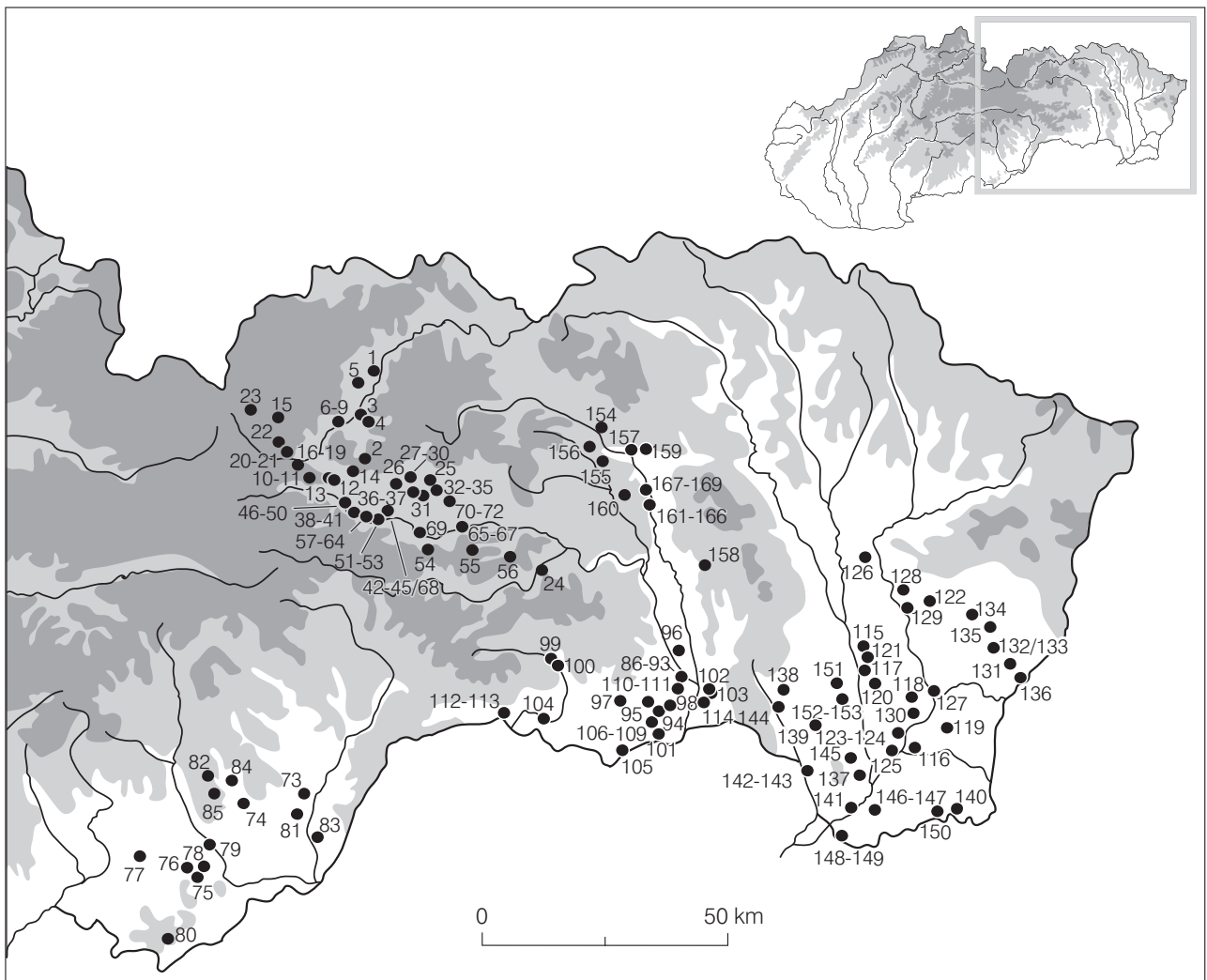


Fig. 1. Concentration of the Baden Culture settlements in the northern Tisza region in Slovakia. Localities denoted on the map correspond with their number in the list of sites.

us. Corrections in the information regarding cremation were also necessary: Anthropological and archaeozoological analyses of the preserved calcinated bones from a jar or “urn” found in Bračovce proved that the bones were the osteological remains of exclusively bigger and smaller ruminants (NEVIZÁNSKY 2003, 3). The incomplete inhumation of an adult individual was found solely in the settlement of Streda nad Bodrogom (POLLA 1956, 640). In the area under study we do not know of any occurrence of collective deposits of human bodies in settlement pits. Further, typical animal deposits are absent. Part of an animal skeleton without a precise archaeozoological identification was found at the bottom of a well-shaped pit in Zemplínske Kopčany (ŠIŠKA 1975, 104). It is disputable whether this find can be considered evidence of the intentional deposition of an animal in the pit. Finds of human bones from neu-

rocrania in Spišské Podhradie/Žehra-Dreveník and Zemplínske Kopčany belong to unusual ritual features in settlements (NÁLEZ. správa AÚ SAV 14 586/2001, 29; HORVÁTHOVÁ 2007, Table 33: 3). S. ŠIŠKA ascribed a symbolic meaning to Objects 3 and 17 in the settlement in Šarišské Michalany and designated them as symbolic burials (NÁLEZ. správa AÚ SAV 9783/81). He proposed that the distinct trace of a pole in Object 3 together with other find circumstances (ashy soil layer, sherds of a vessel upon the surface of the object) could be connected with a stele that marked the cremation burial. In the case of Object 17, it was only possible to recognize the bottom of a regular rectangular pit containing a vertically placed stone resembling a stele and sherds of some larger vessels found mostly at its periphery (HORVÁTHOVÁ 2007, Table 18). No traces of cremation were found in either object.

There are no exact data from the northern Tisza region in Slovakia (with the exception of non-calibrated radiocarbon data from Object 241 in Šarišské Michalany), which would serve as a reliable basis for comparing developments of the Baden Culture. Lack of such data from the whole Tisza region is disturbing. In many cases the study of the material of the Baden Culture in eastern Slovakia with the focus upon ceramics has required the search for analogies in areas near and afar. In this reference, I have already undertaken an extensive study: "Review of the Baden Culture vessel types in the Tisza region" (in print). It includes the primary presentation of vessels from eastern Slovakia and the southeastern part of central Slovakia.

The chronological assignment of the eastern Slovakian finds proceeds specifically from the northeastern Carpathian basin. There the earlier Eneolithic period is connected with the Tiszapolgár, Bodrogresztúr and Lažňany groups, which created a homogenous, multilaterally crystallized ethnical, cultural and historical complex with three distinctive cultural-chronological periods (PAVÚK 2004, 51). Generally, we can say that in eastern Slovakia, such find circumstances have not been discovered so far, which would help to explain the chronological position of the Lažňany and Boleráz groups reliably. There are no signs of settlements of the Lažňany group, nor are there representatives of the earliest horizon of the Baden Culture in the upper and lower part of the Spiš region. The situation in the regions of the Košice basin, the East Slovak Lowlands and Šarišské podolie is also rather unclear. In some localities, ceramics of the Lažňany group are contemporary with Boleráz-like pottery. Their evaluation is limited due to unclear find contexts. It is noteworthy that some elements that are similar to or even identical with the elements of the Boleráz group appear on the pottery in some younger burials of the Lažňany group. These elements include small jars with short handles that sometimes rise above the rim, pots with two handles and a notched or wavy rim and decoration in form of an applied horizontal cordon in zigzags or waves (ŠIŠKA 1972 a, Fig. 29: 5, 30: 3, 5, Table III: 6, IV: 1, other literature cited there). Two fragments of a smaller vessel with incised decoration were found in one settlement pit of the Lažňany group in Lubotice (ŠIŠKA 1976b, 95, Table XIII: 21, 22). We can follow the same phenomenon in pottery of the contemporary Hunyadi-halom Culture, in which horizontal slits appears along with incised decoration and plastic zigzag cordons (BOGNÁR-KUTZIÁN 1969, Fig. 2:1, 3b, 5; 3, 6, 11: 6, 7; PATAY 1987, Fig. 11, 16, 21: 1,

22). The coeval occurrence of both groups is also known in the area of Carpathian Ruthenia (POTUSHNIAK 1999, 17) and in the epi-Polgár-Baden settlement of the Wyciąże group in Lesser Poland (GODŁOWSKA 1986; BOBER 1998, 17; ZASTAWNY 1999, 10–11).

Stable contacts of the Polgár Culture complex with the Tripolye-Cucuteni Culture are of equal importance (KADROW ET AL. 1995, 202). M. Y. VIDEIKO (2000, 13) has distinguished two stages of relations with central European cultures in the material of the Tripolye Culture. The first stage is designated a period of "Polgárisation" of the Tripolye-Cucuteni Culture (4200–3800 BC), and the second stage is a period of "Badenisation" (3500–2750 BC). Relations between the Tripolye-Cucuteni Culture and the Polgár cultural complex were multilateral in a cultural, economical as well as ethnic sense (MOVSHA 2000, 134; KRUTS/RYZHOV 1997, 29–30). S. ŠIŠKA (1966, 63) also followed this direction, proposing that in the period of Polgár groups the connection between eastern Slovakia and Transylvania did not proceed via the Tisza region. Instead, they advanced along the East Carpathians, which resulted in the penetration of a stronger influence from western Ukraine and in a number of finds of the Lažňany type in the Carpathian Ukraine. One important observation is that during the final phase of "Polgárisation" of the Tripolye-Cucuteni Culture, the influence of the early phase of the Baden Culture is evident. VIDEIKO (2000, 67, Fig. 33) finds the reason for this phenomenon in the direct migration from east Carpathian areas. It seems that within the Eneolithic development in eastern Slovakia other influences played an important role, in particular from the area of the Funnel Beaker Culture. This influence can be observed for the first time in changes in the forms of some pot-shaped vessels of the Lažňany group (ŠIŠKA 1972b, 8; BUDINSKÝ-KRIČKA 1967, 56).

If we wish to answer questions concerning the arrival of the Boleráz group and the intensity of its impact in the northern Tisza region in Slovakia, we must take broader context into consideration. In reference to the older data of I. TORMA (1973, 483–512), the number of localities of the Boleráz group doubled in Transdanubia and in the Hungarian Lowlands, and their distribution seems to be equal (BODNÁR 2002, 24). New studies in the areas between the Berettyó and Crasna rivers have also confirmed the existence of the Boleráz group in the northeastern Tisza basin as well (NÉMETI 2001, 299–329). We can also compare some isola-

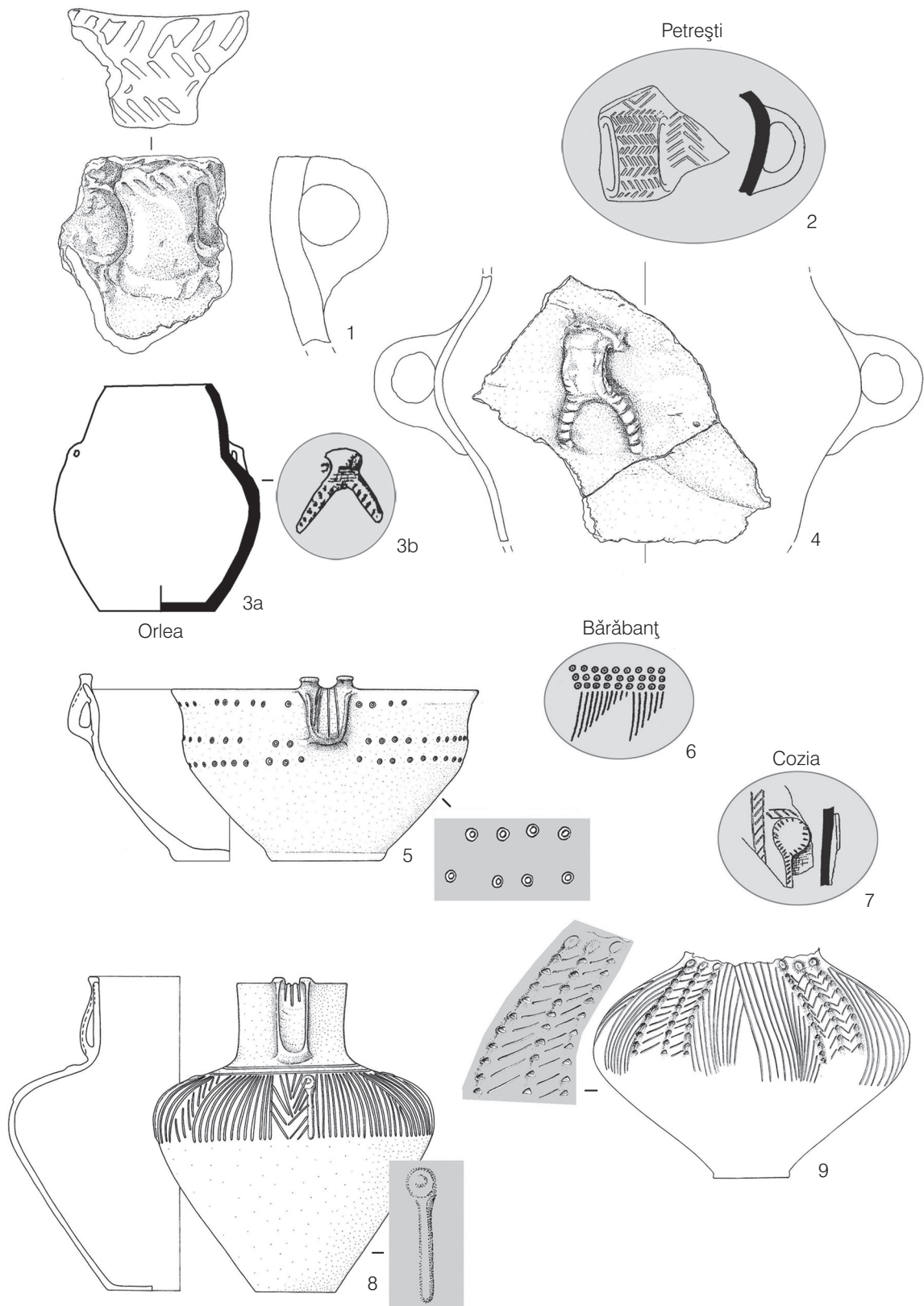


Fig. 2. Influence of the Coțofeni Culture on ceramics from Zemplínske Kopčany and Šarišské Michaľany. 1, 4 Zemplínske Kopčany; 5, 8, 9 Šarišské Michaľany. Drawings after: 2, 3, 6, 7 ROMAN 1976. No scale.

ted, mostly unstratified fragments of pots, bowls and probably vases from the area of eastern Slovakia (ŠIŠKA 1997, 125–133). The most representative material comes from the immediate surroundings of Košice (HÁJEK 1961, 65; ŠIŠKA 1976b, 92–98, 1997, 125–126; BÁNESZ 1970, 326, 327; BUDINSKÝ-KRIČKA 1976, 54). A few ceramic finds appeared in Belža, Dvorníky, Ľubotice-Šarišské Lúky (ŠIŠKA 1997, 123–133, other literature cited there) and in the earlier phase of settlement in Zemplínske Kopčany (HORVÁTHOVÁ 2007, 68–69, Table 35: 2, 6). A bowl from Košice-Barca (HÁJEK 1961, Fig. 4) as well as a gynecomorphic vessel from Seňa (NEVIZÁNSKY 2002, 93) can be dated to the final phase of the Boleráz group. In the current state of research, it is not possible to judge the time and intensity of the Boleráz group's impact upon the northern Tisza region in Slovakia. Existing finds indicate that the impact was likely sporadic, at least at the end of the first stage (NĚMEJCOVÁ-PAVÚKOVÁ 1979, 38; ŠIŠKA 1997, 129).

The absolute majority of finds belongs to the classical phase of the Baden Culture. In comparison to the previous phase, we can observe an extreme growth of new settlements within a short period of time. The oldest relics of the classical phase can be found in the East Slovak Lowlands. The network of settlements extends along the Bodrog, Latorica, Ondava and Laborec rivers to the foot of the Vihorlat mountains. Settlement in the Košice basin was concentrated in the Hornád River basin. This river played an important role in the penetration of the population northwards to the Spiš and Šariš regions. The northwest boundary of the Baden Culture in the northern Tisza region in Slovakia is formed by the Poprad River; the northeast boundary is posed by the Čergov hills with greater concentration of settlements near Prešov. There we can observe a progressively regional development since the classical phase of the Baden Culture. Living conditions in eastern Slovakia were determined by the overall situation in the Tisza region, mostly in its northeast part. Several localities in the East Slovak Lowlands were under the direct influence of the Viss group (Bracovce, Brehov, Hrčel, Lúčky, Michalany and others). Finds of the Ózd group are an exception there (Streda nad Bodrogom). Sometimes elements of both groups are found together in one settlement (Zemplínske Kopčany, the younger settlement phase). Settlements in the areas of Spiš and Gemer have many elements in common with the Ózd group. The situation in the Košice basin area is less clear, as in Šarišské podolie. An example is the pottery from Šarišské Michalany, where only handles with button-shaped protrusions were present; however, only pointed handles of the Viss type appear

in Ľubotice-Šarišské Lúky (ŠIŠKA 1976b, 97, Table XV: 18, 19, 22). This means that differences in the pottery are evident not only in individual regions, but also among settlements within the same region. The oldest horizon of the classical phase of the Baden Culture in the area under study cannot be defined so far, because it is difficult to determine whether some finds belong to the Boleráz or to the post-Boleráz development. Dating the bowl fragment from Kačanov is problematic from the typological point of view: The bowl displays elements of the Boleráz group as well as the classical phase of the Baden Culture (ŠIŠKA 1997, 127; HORVÁTHOVÁ 2007, 136, Table 73: 3). The time between phases II and III and the first half of phase III is represented by the archaeological material found in the settlement in Brehov (HORVÁTHOVÁ 2003, 31–45). The jar from Bracovce with a handle of the Viss type and subcutaneous handles on the maximum diameter can be assigned to the classical phase as well. Both decorative elements are also present on the ceramics from Ľubotice-Šarišské Lúky (ŠIŠKA 1976b, 97). The end of phase III with a possible transition to the beginning of phase IV is represented by the settlement material from Šarišské Michalany, the site of Fedelemka. This dating accords with the results of radiocarbon data of carbon from Object 241; in non-calibrated value they correspond with the age of 4385 BP, the Baden-Ossarn I phase identified with figures of the classical phase of the Baden Culture 3350–3010 BC (STADLER ET AL. 2001, Table 8, 7, 11; WILD ET AL. 2001, 1061, Table 1). The first built fortifications and signs of urban structures in a settlement are found in Šarišské Michalany. Uniform ceramic material attests the careful observance of local Baden traditions with an orientation towards the Ózd group (HORVÁTHOVÁ 2007, 72–78). The shapes and decoration of ceramics from Fedelemka can be compared with pottery from the Baden settlements in Oradea and Satu Mare, which had direct contact with the Coțofeni Culture (Fig. 2: 5, 8, 9; see ROMAN/NĚMETI 1978). Relations with this culture influenced the Baden Culture development in eastern Slovakia more significantly than previously thought, and the intensity grew towards the later period (Fig. 3).

We come across elements of the Coțofeni Culture in the area of the Baden Culture in the East Slovak Lowlands (Zalužice, Zemplínske Kopčany, Zemplínske Hradište), Spiš (Hrabušice-Prielom Hornádu, Spišské Podhradie/Žehra-Dreveník) and Šariš (Prešov-Šváby, Šarišské Michalany). The most noticeable evidence of Coțofeni influence upon Baden material in eastern Slovakia was supplied by Object 7b/1994 in Zemplínske Hradište, the site of Vyšné Hosáky (HORVÁTHOVÁ/CHOVANEC 2006,



Fig. 3. Influence of the Coțofeni Culture in the Baden Culture's environment in eastern Slovakia. 1 Zemplínske Hradište; 2 Petrești; 3 Prešov-Šváby; 4 Agrișteu; 5 Zalužice-part Malé Zalužice; 6 Lokusteni. Drawings after: 2, 4, 6 ROMAN 1976; 3 BLAHUTA 1960; 5 VIZDAL 1992. Scale: a – 1, b – 5; 2, 3, 4, 6 – No scale.

129–140). The Object consisted of two heterogeneous complexes that differ in the surface finish of the pottery, the execution of the decoration and the shape of the preserved vessel fragments. The larger ceramic group belongs to the Baden Culture (HORVÁTHOVÁ/CHOVANEC 2006, Table 75: 1–4, 76: 1a, b, 77: 4, 7–11, 13, 14). It is made of fine sediments with the addition of sand. In most

cases it has precisely smoothed or even polished; the surface has a symmetrical decoration. The second group of finds from the same object contains ceramics made of rough sandy material, whose surface is not carefully finished (HORVÁTHOVÁ/CHOVANEC 2006, Table 76: 2–4, 77: 1–3; 5–6). The technical execution and composition of decorative elements applied to the ceramics of the second

group of finds from Zemplínske Hradište are comparable with the Coțofeni Culture ceramics from northwest Romania (see ROMAN 1976, Table 42: 7, 8, 16, 53: 15, 54: 1–3, 55: 4, 14, 103: 6, 108: 9). The remarkable “Coțofenisation” of the area north of Satu Mare is confirmed by finds from Carpathian Ruthenia (POTUSHNIAK 1999, 17, Table VII: 5, VI–II–XII, HORVÁTHOVÁ/CHOVANEC 2006, 134).

Ceramic material from the later phase of settlement in Zemplínske Kopčany indicates another, so far unknown developmental stage of the Baden Culture in eastern Slovakia. Its importance lies in the fact that it documents a very young settlement of the Baden Culture in the East Slovak Lowlands (HORVÁTHOVÁ 2007, 64–70). This is also supported by finds from Zemplínske Hradište as well as by the building of an upland settlement in the village of Svätuš (EISNER 1933, 32; ŠÍŠKA 1966, 54; ČAPLOVIČ/GAŠAJ/OLEXA 1978, 65; HORVÁTHOVÁ, in print). Presuming that significant social-economic changes resulted in the penetration of the population into higher, naturally protected areas, I propose that settlement in the East Slovak Lowlands’ plain could not have been of a stable or long-lived character. It is more probable that settlement lasted only until the beginning of the revolutionary changes, to which it finally succumbed. We can see several contrasts directly related to this hypothesis in the pottery from Zemplínske Kopčany. The presence of highly developed Viss type handles should assign this settlement as well as other localities in the East Slovak Lowlands to the Viss group’s sphere of influence. However, some of the ceramic details are very similar to or even identical with the material of the Ózd group, and from a chronological point of view they can safely be compared with finds from late-Baden upland settlements. In specific we refer to the presence of pottery with corded decoration and the fragment of a clay miniature hammer-axe. It is also possible to connect the developed small jar, the jar and amphora shapes from Object 3, which are almost identical with vessels from burials 6 and 7 in Center, with the Ózd group. Other analogies can be seen in some cup types (HORVÁTHOVÁ 2007, 69–70, Table 20: 8, 11, 26: 3, 5, 7, 27: 2). As for their surface finish and decoration, fragments of thick-walled sherds are comparable with the pottery from late-Baden upland settlements. Elements of later date include embossed ornaments on handles in shape of two slits leading to the rim; they usually derive from the strong influence of the Funnel Beaker Culture in the area of Spiš and Lesser Poland. Closed coffer designs can also be considered a very young decorative feature. Similar to finds from Zemplínske Hradište and Šarišské Michaľany, some decorative elements

that are close to the Coțofeni Culture were found on the ceramics from Zemplínske Kopčany (Fig. 2: 1, 4). Distinctive industries that are typical of the Baden Culture are also present in Zemplínske Kopčany; they are represented by finished tools and the total absence of flakes (SOJÁK, in print). Besides local raw materials (obsidian, limnosilicite and basalt), imported Polish flint of the specific and high-quality flint type G from the Krztynia River basin appear in the central part of Wyżyna Krakowsko-Częstochowska (Fig. 4: 8–10). G-type flint is found in Slovakia only rarely, mostly in the Spiš where it is associated with the later phase of the Baden Culture (SOJÁK 1997/1998; 1999/2000; 2001, 180, 183).

The culmination in the evolution of the Baden Culture in the area under study is represented by settlement in the Spiš with sites concentrated in the Hornád and Poprad river basins. These rivers enabled the flow of various cultural influences from the south and north. Upland settlements in the Spiš represent up to 41% of the total number of known localities (Fig. 5). Many of them were fortified, for example: Veľká Lomnica-Burchbrich, Vysoké Tatry Pod Lesom-Hradisko, Vysoké Tatry Tatranská Polianka-Žltá stena, Hrabušice-Prielom Hornádu, Jamník-Nad skalami, Kurimany-Za lesíkom, Letanovce-Ihrík/Brehulec, Spišské Podhradie/Žehra-Dreveník, Žehra-Ostrá hura and others (SOJÁK 2001, 167–168, 171–172, 176, 180). Three types of fortification were distinguished: wall, bank and ditch, which occurred individually or in various combinations.

Upland settlements were built rather sporadically in Liptov (Bešeňová-Záskalie, Liptovská Sielnica-Havránok, Lúčky-Nad vodopádom); no remains of fortifications were found in any of them. The absence of fortified settlements of the hillfort type in this region is quite surprising (STRUHÁR 2001, 75). Two upland settlements are known in Šariš so far: in Veľký Šariš on the Šariš castle hill (SLIVKA/OLEXA 1977, 258) and in Brestov, Kolejová street (not published). In view of the occurrence of upland settlements, the situation in the area of Gemer is rather confusing. G. BALŠA (1965, 4–5; 1973, 11) presented an unclear list of localities in this area, based solely upon information about older surface collections. Only the research in Stránska could definitely confirm the existence of upland fortified settlements in this area. The shift to higher locations influenced the economic basis too, where advantageous and more profitable stockbreeding and pasturage slowly started to predominate over agricultural production. Furthermore, settlement of the Baden Cul-

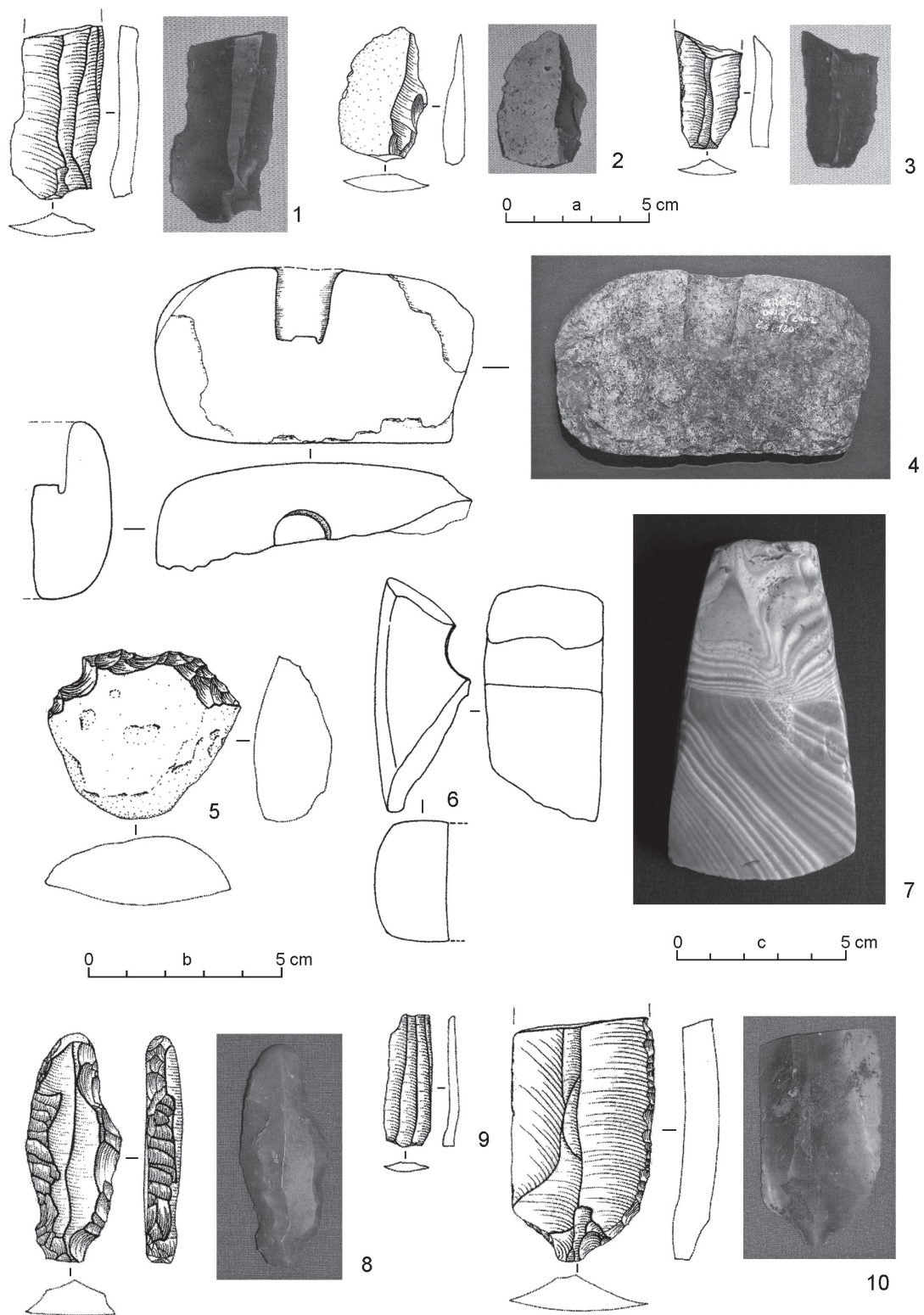


Fig. 4. Selected stone industry in eastern Slovakia. 1–4 Brehov; 7 Letanovce-Čertova diera; 5, 6, 8–10 Zemplínske Kopčany. Drawings and photographs after Soják, in print. Scale: a 1–4; b 5, 6, 8–10; c 7.

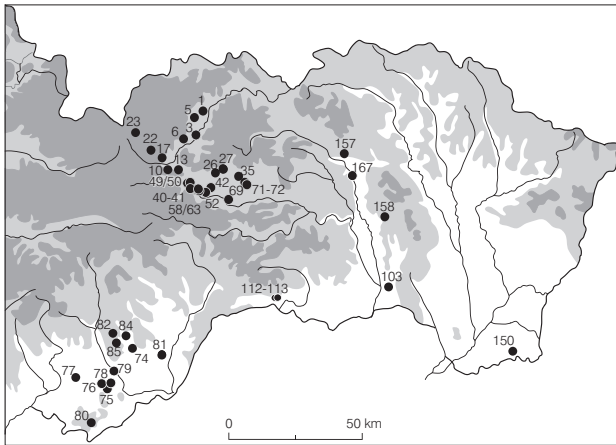


Fig. 5. Concentration of the Baden Culture upland settlements in the northern Tisza region in Slovakia. Localities denoted on the map correspond with their number in the list of sites.

ture in the Spiš region is typified by the use of caves, which provided suitable shelters in turbulent times (Fig. 6). Changes are likewise reflected in the material. New vessel shapes included bowls on stems, dippers with pointed bottoms and handles extending above the rim, strongly profiled cups and vessels for suspension densely covered with slits (Fig. 7). Pointed dippers are rare in Spiš. On the other hand, they are often present in Gemer (NEVIZÁNSKY 1999, 82, Fig. 15: 6, 7) and Liptovská kotlina (STRUHÁR 2002, 346). Simple shapes of cups and bowls with irregular horizontal incisions under the rims were found in upland settlements in Smižany/Spišské Tomášovce-Hradisko I and Hrabušice-Prielom Hornádu (Fig. 7: 10; 8: 4). As for small objects, clay and stone models of miniature hammer axes (imitations of so-called battle-axes), zoomorphic figurines, rather stylized anthropomorphic sculptures and also decorated spindle whorls and clay wheels are found (Fig. 9). Divided bowls, handles with button-shaped protrusions and ansa lunata-type handles continued. Vessel decoration is applied to the outside of the rim or just below it, on the neck, on the boundary between the neck and the body, on the body, to the stem, the button-shaped protrusions and the ribbon-shaped handles. Rims are often decorated on the inside as well, or the upper part is markedly notched or wavy. Zigzag lines and different variations of triangles pointed downwards, grids and “ladders” combined with impressed dots or incisions are applied less often. By contrast, coffer decoration was more frequent, and later it prevailed over incised or combined patterns. Naturalistic motifs include branches and tree trunks. Raised slits are predominant on the rim and on a large part of the body, where they create an impres-

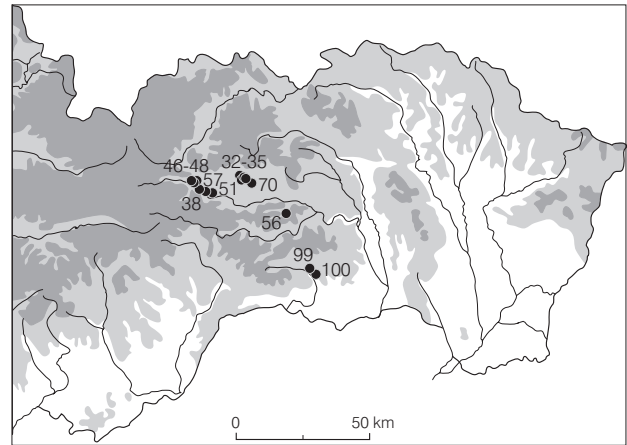


Fig. 6. Map of settlement finds of the Baden Culture from caves in eastern Slovakia. Localities denoted on the map correspond with their number in the list of sites.

sive decorative pattern. Handle decorations include typical pointed and button-shaped protrusions that rise above the rim, dots, punctuations, incisions, channels and combinations of any two of these. Flat or slightly rounded parts of button-shaped protrusions are covered with groups of symmetrical incisions organized in different shapes or a disjointed zigzag motif (HORVÁTHOVÁ/FURMÁNEK 2005, Fig. 25). Identical examples of decorated button-shaped protrusions come from the Ózd-Kőaljatető settlement (BANNER 1956, Table LXX: 2–4). Pot-shaped vessels with plastic and broom-brushed or rusticated surface had a specific surface finish. There is a general tendency towards a simplification of decoration. Fragments of bowls on stems, which were already discussed separately (HORVÁTHOVÁ/FURMÁNEK 2005, 98–99), are an important part of the spectrum of pottery from Spišské Podhradie/Žehra-Dreveník. As in the previous classical phase of the Baden Culture, its end also brought differences in the material from individual settlements within the same region. Contrary to finds from Veľká Lomnica-Burchbrich, in Spišské Podhradie/Žehra-Dreveník there are no zoomorphic figurines, clay imitations of stone tools or copper objects so far (NOVOTNÝ/NOVOTNÁ/KOVALČÍK 1991, Fig. 8–10, 14). With the exception of one bone idol, anthropomorphic figurines are also absent in Dreveník (VLADÁR 1978, Fig. 7). Numerous, often richly decorated spindle whorls and clay wheels were found in both settlements (NOVOTNÝ/NOVOTNÁ/KOVALČÍK 1991, Fig. 11). Some spindle whorls from Veľká Lomnica are incised with X-shaped figures, which resemble ideograms (NOVOTNÝ/NOVOTNÁ/KOVALČÍK 1985, 31, Fig. 9). The same signature is incised in the fragment of a pyramid-shaped weight from



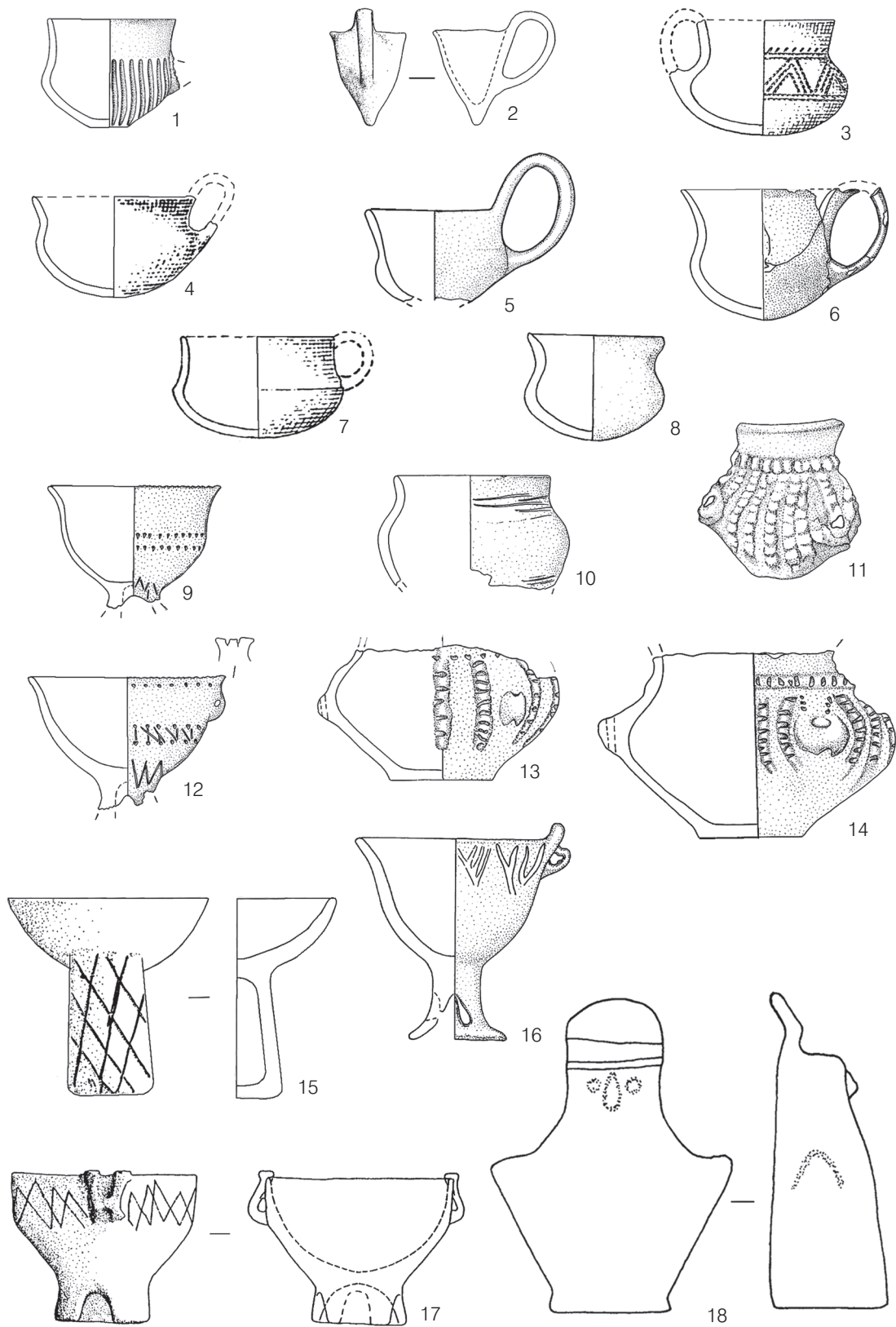


Fig. 7. Vessel shapes of the final horizon of the Baden Culture in the northern Tisza region in Slovakia. Drawings after: 3, 4, 7 BÁTORA 1980, 1983; 11 NOVOTNÁ/ŠTEFANOVIČOVÁ 1958; 15, 17 NEVIZÁNSKY 1999; 18 KOVÁCS 2002. No scale.



Fig. 8. Atypical decoration and shapes of ceramics in the environment of the last horizon of the Baden Culture in the northern Tisza region in Slovakia. Drawings after: 1, 4, 5, 6, 10–12 SOJÁK 2001; 2006; 2, 3 NEVIZÁNSKY 2000; 7 NOVOTNÁ/ŠTEFANOVIČOVÁ 1958; 8 HORVÁTHOVÁ/FURMÁNEK 2005; 9 KOVÁCS 2002. No scale.

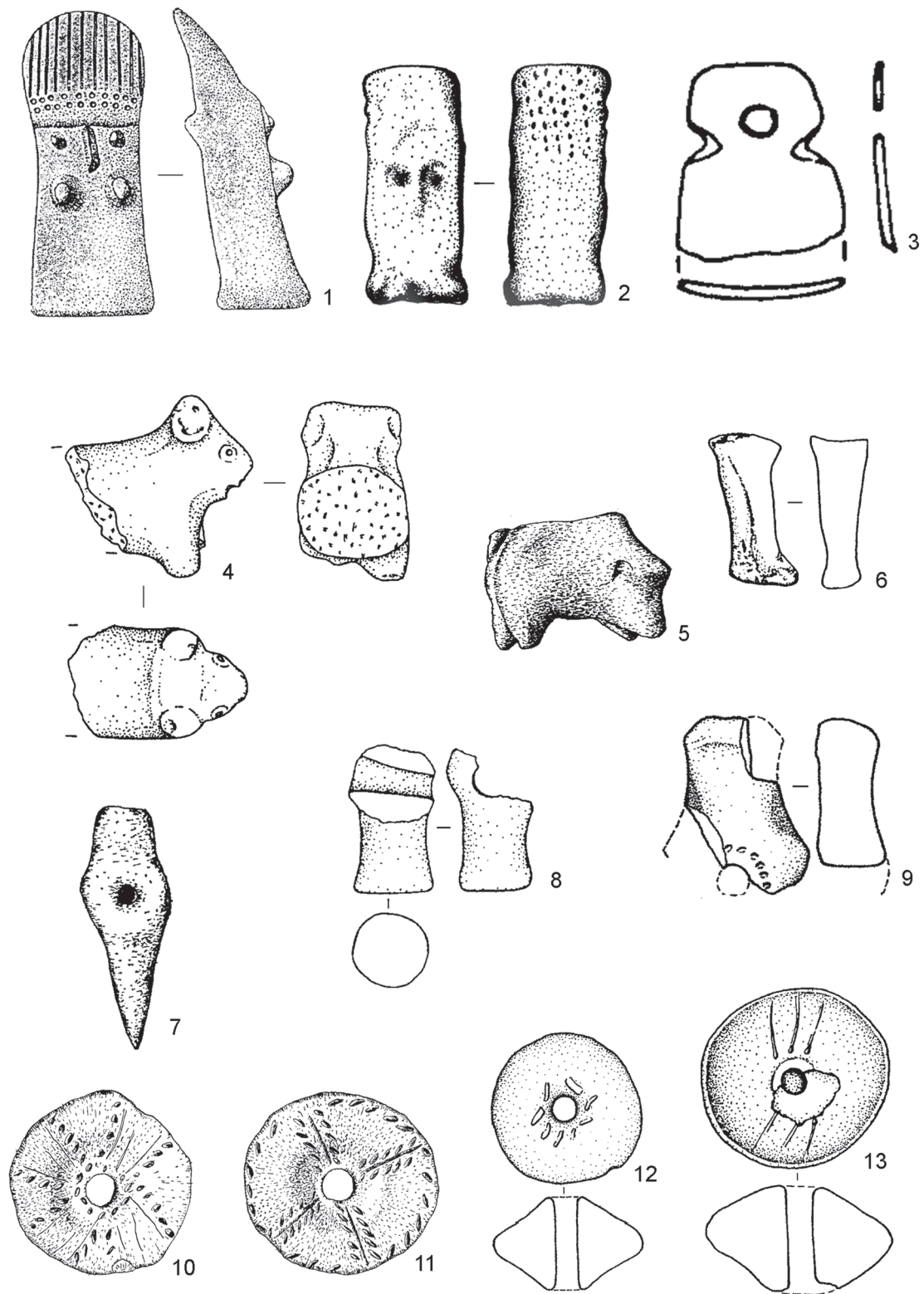


Fig. 9. Small objects of the final horizon of the Baden Culture in the northern Tisza region in Slovakia. Drawings after: 1 Kovács 2002; 2, 5, 7, 10, 11 NOVOTNÝ/NOVOTNÁ/KOVALČÍK 1985; 6 NEVIZÁNSKY 1999; 3, 4, 8, 9, 12, 13 Soják 2001, 2006. No scale.

Object 48 in Šarišské Michaľany (HORVÁTHOVÁ 2007, Table 51: 14). The fragment of a bowl on a stem from Hrabušice-Prielom Hornádu was introduced by M. SOJÁK as an attempt towards “writing” (2001, Fig. 13: 5). Some decorative techniques related to the Coțofeni Culture can be recognised on the ceramics from this settlement, as pointed out by J. BÁTORA (1983, 175, Table I: 1, 3, 7–8). A unique sherd with decoration similar to that of the Coțofeni Culture was also found in Spišské Podhradie/Žehra-Dreveník (HORVÁTHOVÁ/CHOVANEC 2006, Table III: 12). Objects 12 and 14/1996 in Smižany/Spišské Tomášovce-Hradisko I contained fragments with a particular decoration, which now gives the impression of painting depicting several lines of light brown or grey-black circles on a grey or terracotta-brown background (Fig. 8: 1). This decoration differs from the red incrustated decoration from Spišské Podhradie/Žehra-Dreveník and Veľká Lomnica-Burchbrich mentioned by V. BUDINSKÝ-KRIČKA (1947, 62) and J. LIPTÁK (1935, 23).

The study of archaeological material from the systematic research in Hradisko I in Smižany/Spišské Tomášovce contributed significantly to a better clarification of the late Neolithic development in Spiš. Upon the initial inspection of ceramics from Hradisko I, several vessel fragments indicating strong relations with cultures northeast of the Carpathians could be recognised. In connection with cord-patterned ceramics finds in Baden settlements, I should like to draw attention to their heterogeneous character. This decoration appears in several late Neolithic cultures of northeast Europe as a secondary decorative element (SZMYT 1999, 20, Fig. 5; VIDEIKO 1999, 34–71; 2000, 32–68). The occurrence of cord-patterned ceramics in this geographical area is not necessarily connected with expansion of the Yamnaya Culture; in some cases it can indicate contacts with surrounding cultures, such as the Globular Amphora Culture, Funnel Beaker Culture and Tripolye Culture. With regard to this hypothesis I wish to point out two fragments of bowls with incurving rims, which can be compared to illustrations of ceramics from the Gorodsk-Volhynian group of the Tripolye Culture of stage CII (Fig. 8: 5, 6; KRUTS/RYZHOV 2000, Fig. 7: 2, 9, 10). Similarly, fragments of pseudo-kernoi in the material of the local groups of Ózd or Zesławice-Pleszów might be indicative of direct contacts with communities of the late Tripolye Culture (Fig. 8: 2, 3). A stone axe from Spišská Nová Ves, the site of Fluder, originates from areas outside of the Carpathians. It is made of striped flint of Polish provenience, where exploitation by the Funnel Beaker

and Globular Amphora cultures is documented in Krzemionki Opatowskie. The discovery of stone flakes in Spišské Podhradie-Dreveník (research by M. SOJÁK, not published) and an older find of an analogous axe from Letanovce-Čertova diera (Fig. 4: 7; in collections of Podtatranske Museum in Poprad) and Gánovce-Hrádok show that this is another locality where this specific kind of flint was found (SOJÁK 2007, 180). In Poland, similar, totally smoothed examples of flint axes occur mostly in the Funnel Beaker and Baden cultures.

The absence of stratigraphic observations is a serious handicap for studying the final phase of the Baden Culture in Spiš. Without such observations it is not possible to specify or correlate the mutual chronological position of the late phase of the Baden Culture, the Corded Ware Culture and the Nyírség-Zatín Culture, all of which appear in the same locations especially in this region (BÁTORA 1983, 173). In many cultural layers in which Baden material prevails, fragments of ceramics with elements of the Vučedol and Schneckenberg Culture appear as well (Fig. 7: 10–12; NOVOTNÁ/ŠTEFANOVIČOVÁ 1958, 277; BARTA 1958 a, 473–474; Prox 1941, Table IV, XVI).

Significant Bošáca-Kostolac motifs on ceramics of the Baden Culture are typical in almost all areas of its presence in the Carpathian basin and the area of the Carpathians. In eastern Slovakia they can be evaluated as a decorative feature of that time. Eastern Slovakia had its own specific cultural development during the final phase of the Eneolithic period and the beginning of the Bronze Age (BÁTORA 1983, 169–227). Settlement in the southeast of this area was further influenced by the situation in the northern Tisza region, where the Nyírség-Zatín Culture formed. Its representatives penetrated the East Slovak Lowlands and Košice basin and then spread northwards. In Spiš they reached the epicentre of complicated cultural relations, which resulted in the extinction of the last retarded groups of the Baden Culture. The north of eastern Slovakia was strongly influenced by groups from outside of the Carpathians. Those groups included the Eastern Slovakian Barrow group, which settled the uninhabited area of the Lower Beskids and partially penetrated areas of the East Slovak Lowlands and the Košice basin (BUDINSKÝ-KRIČKA 1967, 55–103; 1991, 96–111; MACHNIK/MAČALA 2001, 7–19). Admittedly, in its early phase the Eastern Slovakian Barrow group could have been contemporary with the Baden Culture, which was on the decline (BÁTORA 1983, 178). There is still no direct stratigraphic evidence that the Nyírség-Zatín Culture follows the Baden Culture settlement in the east of Slovakia.

## Final considerations

The Baden Culture's development in phase IV signifies the culmination of serious changes that can already be observed in the second half of the classical phase. In the eastern part of central Europe several economic centres disappeared, and there was a turn in the cultures' position of power and in settlement structure. We do not know the exact reasons for these changes, although some evidence indicates their direct connection with the situation in eastern Europe. Migration or gradual penetration of steppe tribes from the southeast into the area of eastern Hungary is documented by thousands of kurgans of the Yamnaya Culture that are concentrated in the Tisza basin (ECSEDY 1979, 14, Fig. 3; ECSEDY/VIRÁGH 1975, 31–35; KALICZ 1999, 91, 92). The northern boundary of their dissemination did not cross the Matra and Bükk mountains, which was a crucial factor for the further development of the Baden Culture in the north. It is remarkable that in some cases kurgan burials in the Tisza basin were placed directly upon Baden necropolises, for example in Mezőcsát and Tiszavasvári-Gyepáros, at approximately the same time as their extinction (KALICZ 1999, 86). A few absolute <sup>14</sup>C-dates for a small number of kurgans examined so far correspond with the late Baden Culture, Kostolac Culture or Vučedol Culture (ECSEDY 1979, 52; BOJADŽIEV 1992, 405; GÖRS-DORF/BOJADŽIEV 1996, 105–173; KALICZ 1999, 94). A critical situation among the original rural population in the Tisza region was probably the cause of resettlement in naturally protected upland locations, some of which were also artificially fortified. The Ózd group, also called the Ózd-Piliny group, slowly formed north of the Matra and Bükk mountains, including the southern area of central Slovakia (PATAY 1999, 45–46, Fig. 8). There were very strong connections between communities of stockbreeders in the Spiš and farmers of the Pleszów-Zesławice group in Lesser Poland (GODŁOWSKA 1968, Table XV: 20, XVI: 23, XXIII: 6, XXVI: 6, XXVII: 27; KOZŁOWSKI 1968, 13–90; 1989, 203–216; Rook 1971, Fig. 7, Tab. XXXVII: 6, LIII: 4, LXV: 1; ZASTAWNY 1999, 26). There are several indications of possible direct contacts with the area between the Prut and Dnieper rivers, which was inhabited by local groups of the Tripolye Culture of phase CII. M. Y. VIDEIKO considers some vessel fragments from the Tripolye Culture upland settlement in Troyaniv as direct imports of the Baden Culture (2000, 42, Fig. 19: 6; other literature cited there). He finds analogies for them in the material from Slovakia and Bronocice IV–V. The Troyaniv settlement can be compared to other upland settlements, for example, the villages of Gorodsk, Nova Chortorya, Pavoloch, Gordinești and Koshylivtsy (BELANOVSKAYA/SHMAGLIY 1959,

128; VIDEIKO 2000, 60–61). Upland settlements of the Funnel Beaker Culture, for example, Ćmielów, Bronocice and Gródek nad Bugiem, are very similar to the Baden and Tripolye settlements. Their structures included elevated houses of timber and pole constructions as well (KRUK/MILISAUSKAS 1999, 164, Fig. 42, 43). The mutual influence of communities of the late Baden cultural phase and phase CII of the Tripolye Culture was also noted in the evaluation of pottery from the Sofijevka type of cemeteries: Sofijevka, Krasny Khutor, Chernin, Zavalovka and Chapayevka, all in the Dnieper basin (VIDEIKO 1995, 15–134). The most important factor is that several Balkan-Carpathian features corresponding with the Baden-Kostolac-Coțofeni II/III-Cernavoda II horizon was evidenced in the Sofijevka type of ceramics (KADROW/KOŠKO/VIDEIKO 1995, 202). I consider finds of zoomorphic figurines and decorated spindle whorls in the Kostjanets settlement (see PELESHCHYSHYN 1998, 91, Fig. 7) as clear evidence of direct contacts between the Baden Culture upland settlements and the Tripolye Culture phase CII settlements in the western Volhynia area. These finds conspicuously resemble finds from Velká Lomnica. Decorated spindle whorls also appeared in Sofijevka burials (VIDEIKO 1995, 15–134, obr. 63c, 68h, i, j). Other common features of the Baden and Tripolye cultures can be observed in the burial rites. According to M. CABALSKA (1967, 45) two “early centres” of the emergence of cremation and biritual burials originated in the first half of 4th millennium BC: Baden and central Dnieper, which were later identified with burials of the Sofijevka type. The process of “Badenisation” north of the Carpathian ridge is well studied, especially in the area of the Funnel Beaker and Globular Amphora cultures as well as of Złota Culture (KRUK/MILISAUSKAS 1983; 1999, 171–189; SOCHACKI 1980, 171; SZMYT 1996, 257–261; ZASTAWNY 1999, 28). In connection with suggesting the development of the late Eneolithic in the northeast Carpathian area, I propose that bearers of the Baden Culture in eastern Slovakia must have come into contact with the above-mentioned culturally different communities, either directly or vicariously. The northward spread of “Badenisation” probably reflects a process similar to the spread of “Coțofenisation”, out of reach of the Yamnaya Culture's expansion.

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## Abstract

The geographic sphere of the principal prehistoric cultures in the Carpathian Basin during the Neolithic and early Eneolithic periods and later again in the Bronze Age was concentrated in the basins of two dominant rivers: the Danube and the Tisza, the latter being the Danube's largest tributary from the north. Contact with the surrounding areas as well as outside of the Carpathian Basin and central Europe traversed along these waterways. The more or less homogenous cultural and social situation reflecting the development in the Danube basin during this time was characteristic of southwest Slovakia and Hungarian Transdanubia, adjacent Austria and part of Moravia. East Slovakia, northeast Hungary, northwest Romania and Carpathian Ruthenia, on the other hand, were an integral part of the development in the region of

the Tisza River. Only the Baden Culture managed to settle in the western and eastern part of the Carpathian basin and disturb the existing bipolarity of the development. This integrating process, however, had its difficulties. The beginnings of the Baden Culture in individual regions at different times, the different cultural backgrounds, traditions remaining from previous settlements, strong regional developments, unlike abilities to adapt to foreign influences and direct migration from distant areas all contributed to constantly growing divergences between Baden communities in the west and those in the east. The goal of this contribution is to consider Baden Culture settlement in the northern Tisza River region in Slovakia, to emphasize its importance in the Tisza region and thereby point out some new information.

## List of sites

1. Bušovce (Burg);
2. Hradisko (neznáma poloha);
3. Kežmarok (Jeruzalemský vrch);
4. Lubica (Pod vysokým vrchom);
5. Rakúsy/Spišská Belá (Kahlenberg);
- 6–9. Veľká Lomnica (Burchbrich, Na vlčom chrbte, Poľná ulica, Na kopci);
- 10–11. Gánovce (Hrádok, Za stodolami);
12. Hôrka/Kišovce (neznáma poloha);
13. Hôrka/Primovce (Trenčanyho skala);
14. Janovce/Machalovce (Hradisko a Pod hradiskom);
15. Nová Lesná (neznáma poloha);
16. Poprad/Matejovce (Zadné rovne);
17. Poprad/Kvetnica (Zámčisko);
18. Poprad-Veľká (neznáma poloha);
19. Spišská Teplica (neznáma poloha);
- 20.–21. Veľký Slávkov (Burich, neznáma poloha);
22. Vysoké Tatry/Pod lesom (Hradisko);
23. Vysoké Tatry/Tatranská Polianka (Žltá stena);
24. Gelnica (neznáma poloha); 2
25. Granč-Petrovce (neznáma poloha);
26. Kurimany (Za lesíkom);
- 27–30. Levoča (Stará Levoča, Fitrift-Pri podkove, Kačelák, Kutom studniam);
31. Nemešany (Zalužany-Koscilek);
- 32–34. Spišské Podhradie (Hlboká priepať, jaskyňa Strecha, Ladová jaskyňa);
35. Spišské Podhradie/Žehra (Dreveník);
36. Spišský Hrhov (Nad rybníčkom);
37. Spišský Hrhov/Levoča (Močiare);
- 38–41. Hrabušice (Abri Predná diera, Košariská, Prielom Hornádu, Zelená hora);
- 42–45. Jamník (Nad skalami, Kobulia hora, obec);
- 46–50. Letanovce (Biela jaskyňa, Čertova diera; Dufart-Tunel, Ihrík, Kláštorisko);
- 51–52. Markušovce (Abri-pod Miškovou Turňou, Turník);
53. Matejovce, okr. Spišská Nová Ves (Kapustnice);
54. Olcnavá (neznáma poloha);
55. Poráč (neznáma poloha);
56. Slovinky (Holmošová diera);
57. Smižany (Tri skalky);
58. Smižany/Spišské Tomášovce (Hradisko I);
59. Smižany/Spišská Nová Ves (Smižianska roveň);
- 60–61. Spišská Nová Ves (Kapustnice I, Tarča);
- 62–63. Spišské Tomášovce (Tomášovský výhľad, neznáma poloha);
64. Spišské Tomášovce/Hadušovce (neznáma poloha);
- 65–67. Spišské Vlchy (Nad mlynom, Pod lipou, Roveň);
68. Spišský Hrušov (Nad kameňarňu);
69. Vítkovce (Tureň);
- 70–72. Žehra (Dreveník-Puklinová jaskyňa, Ostráhura, Spišský hrad);
73. Gemer (Alsó tabla);
74. Gemerské Michalovce (neznáma poloha);
75. Gortva (neznáma poloha);
76. Hodejov (Hradný kopec);
77. Husinná (neznáma poloha);
78. Jesenské (neznáma poloha);
79. Rimavská Sobota (neznáma poloha);
80. Stará Bašta (neznáma poloha);
81. Stránska (Mogyorós);
82. Teplý vrch (neznáma poloha);
83. Včelince (Feketesár);
84. Vyšné Valice (neznáma poloha);
85. Veľký Blh (neznáma poloha);
- 86–88. Košice časť Barca (Koscelisko, Nad Begányiho mlynom, Svetlá IV);
89. Košice časť Šaca (západne od Buzinky);
- 90–93. Košice časť Šebastovce (severozápadne od polohy Lapiše, Rázcestie smerom na Seňu-Čaňu, obec, Pri dvore JRD);
94. Belža (obec);
95. Bočiar/Sokolany (Nad Sokolianskym potokom);

96. Budimír (Kaťov);  
 97. Buzinka (neznáma poloha);  
 98. Gyňov (Tabuľky);  
 99–100. Jasov (jaskyňa Fajka, Takáčova jaskyňa);  
 101. Kechnec (Davidky);  
 102–103. Nižná Myšľa (Pod Ždianskym lesom, Skalka);  
 104. Peder (Kanderkert);  
 105. Perín (Hlinisko);  
 106–109. Seňa (cintorín, štrkovisko, Istendomb, Pri železničnej stanici);  
 110. Valaliky/Buzice (Železničná trať),  
 111. Valaliky/Košfany (Za cintorínom);  
 112–113. Zádiel (Hradište-Ritkás, Stráža);  
 114. Ždaňa (vyvýšenina nad Olšavou);  
 115. Bánovce nad Ondavou (južne od obce);  
 116. Beša (Moľva I);  
 117. Bracovce (cintorín);  
 118. Budkovce (Galamboška/Kyjov);  
 119. Čičarovce (juhovýchodná časť obce);  
 120. Kačanov (Hospodársky dvor JRD);  
 121. Ložín (Pri rómskej osade);  
 122. Lúčky (Na pláňach)  
 123–124. Malé Raškovce (Hrachovisko, Pod lesom);  
 125. Oborín časť Kucany (pravá terasa starého prítoku Laborca);  
 126. Strážske časť Krivošťany (južne od hospodárskeho dvora);  
 127. Stretavka (Strieborné hôrky);  
 128. Vinné (Šírava);  
 129. Zalužice (Blatá);  
 130. Zemplínske Kopčany (Hospodársky dvor JRD);  
 131. Krčava (Stačok);  
 132–133. Orechová (Kračky, Havraní hrun);  
 134. Tibava (Kriváky);  
 135. Vojnatina (Ščop);  
 136. Vyšné Nemecké (Viničky);  
 137. Brehov (Pod veľkým vrchom);  
 138. Čelovce (Chlmecké);  
 139. Hrčel (Nad baňou);  
 140. Kráľovský Chlmec (Rozsos);  
 141. Ladmovce (Tisztahegy);  
 142–143. Michaľany (Za hospodárskym dvorom JRD, ľavý breh potoka Roňava);  
 144. Nižný Žipov (Breziny-Zámocké);  
 145. Sirník (Veľká Moľva);  
 146–147. Somotor (obec, Teréztanya);  
 148–149. Streda nad Bodrogom (Bakhegy, Zompod);  
 150. Svätušé (vrch Plešivec);  
 151. Trebišov (Kovalka);  
 152–153. Zemplínske Hradište (Vyšné Hosáky, Várdomb);  
 154. Jakubovany (terasa potoka Telek);  
 155. Ostrovany (obec);  
 156. Ražňany (terasa Torysy);  
 157. Šarišské Michaľany (Fedelemka/Pod lesom Giráš);  
 158. Brestov (Kolejová);  
 159. Gregorovce (Tanok);  
 160. Malý Šariš (Na horu);  
 161–166. Prešov (medzi Soľnou baňou a Šalgovíkom, severovýchodné úbočie Táboriska, Pod kamennou baňou, Pod Sosninkami, Súšpotky, Šváby);  
 167–168. Veľký Šariš (Šarišský hrad, terasa nad Dzikovým potokom);  
 169. Veľký Šariš časť Kanaš (Sordok).

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## The Jevišovice Culture in Slovakia

By *Jana Šuteková*

### Introduction

The Post-Baden cultural development in the southwestern part of Slovakia has received increased attention over the past years. In the years 1986 to 1988, Viera Němejcová-Pavúková excavated a settlement site in the vicinity of the village of Kočín in southwestern Slovakia, which turned out to be the first trace of the Jevišovice Culture in Slovakia and, in fact, also the first to be found anywhere

east of Little and White Carpathian mountains in general (NĚMEJCOVÁ-PAVÚKOVÁ 1988). The site of Kočín is located near the town of Piešťany between Little Carpathians and the Váh River (Fig. 1). The pottery recovered from 37 features/pits on the site has beyond doubt the same character as the “true” Jevišovice finds in Moravia (Brno-Starý Lískovec; Medunová-Benešová/Vitula 1994).

### The Post-Baden Situation in Slovakia

During the period under discussion here, the favourable brown soils and hilly parts of western Slovakia and some parts of Central Slovakia were settled by the Post-Baden Bošáca Group, which extended in the other direction to eastern Moravia (NĚMEJCOVÁ-PAVÚKOVÁ 1970; NOVOTNÁ 1961; PAVELČÍK 1964, 1993) and also farther north to eastern Bohemia (VOKOLEK/ZÁPOTOCKÝ 1990), Little Poland and Upper Silesia (GODŁOWSKA 1979, 311; SOCHACKI 1980, 113). The Morava River used to be considered the boundary between the Bošáca Group and the Jevišovice Culture, as until recently the Jevišovice Culture was known only in Moravia (MEDUNOVÁ-BENEŠOVÁ 1977) and Lower Austria (KRENN-LEEB 2006; RUTTKAY 1995). During this period the area to the south along the Danube River was settled by the northernmost members of the Kostolac Culture; their settlements radiated from the homeland in Serbia along the Danube and Tisza rivers. The chronological relationship

between the Baden and Kostolac cultures was most clearly identified at the site of Iža with its valuable stratigraphy (NĚMEJCOVÁ-PAVÚKOVÁ 1968). The remaining parts of Slovakia and its surroundings were settled by other Post-Baden groups, whose mutual relationship and character are not fully clear yet (Fig. 2).

The Danubian Plain (the region of black soil or so-called chernozem) was considered to be deserted during this period as a result of the dry climate at the end of the Baden Culture (NĚMEJCOVÁ-PAVÚKOVÁ 1995, 26). Dry climate is commonly thought to have triggered prehistoric populations to move from regions of black soils to those of brown soils, which are usually at a slightly higher altitude. The black soil area became continuously settled by the bearers of the following Makó (Kosihy)-Čaka Culture after the amelioration of the climate and natural conditions (MEDUNOVÁ-BENEŠOVÁ 1981, 101n; NEVIZÁNSKY 2001, obr. 4; PEŠKA 2001, 139).

### Jevišovice/Bošáca

The recognition that Kočín pottery was the same as the Jevišovice material from Moravia came as a surprise. No one had ever considered that the bearers of the Jevišovice Culture might also have settled in southwestern Slovakia. However, this revelation did not come over night. The field report and labels on paper bags for finds from the first excavation season still make reference to the Bošáca Group. This

seemed logical, since the nearest Bošáca site, Podolie (NĚMEJCOVÁ-PAVÚKOVÁ 1970, 208n), is only 10 km north of Kočín, and the ceramics from Podolie likewise contained some sherds with signs of Jevišovice and Kostolac influence. However, the majority of the material from Podolie is pure Bošáca Group.

Soon afterwards, Jevišovice-style pottery started turning up at other Slovak sites as well, mostly

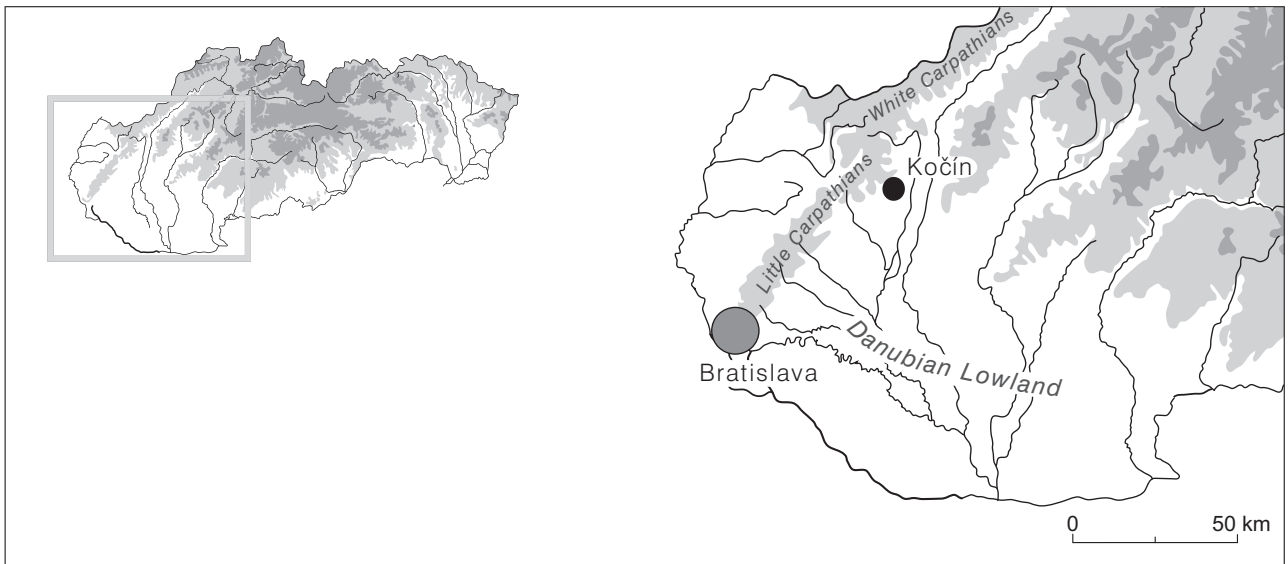


Fig. 1. Southwestern Slovakia, location of the site of Kočín.

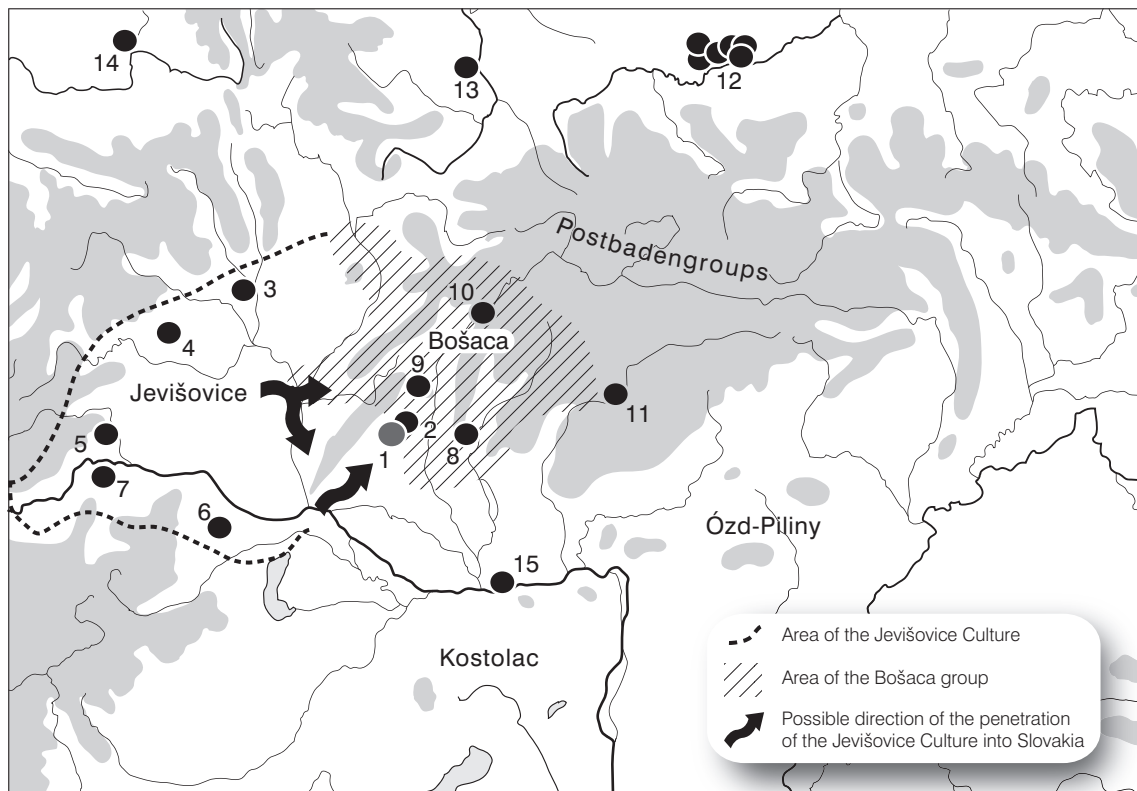


Fig. 2. The Post-Baden situation in Central Europe. The numbers of the sites on the map correspond with the numbers in the list of localities at the end of the text.

from surface collections at sites such as Trebatice (NĚMEJCOVÁ-PAVÚKOVÁ/ M. KLČO 1986) and Vrbové (ROMSAUER 1981), both located within a radius of 30 km from Kočín. Jevišovice-style pottery was later identified among previously excavated mate-

rial from further sites too (NĚMEJCOVÁ-PAVÚKOVÁ 1995, Fig. 5).

The site of Hajná Nová Ves, located in the Nitra river basin, holds a special position within this problem. It was excavated by E. WIEDERMANN in

1986 at the same time as Kočín, but is unpublished so far (WIEDERMANN 1991; 2004). Although the site is located within the Bošáca territory, only one large pit contained ceramics of pure Bošáca type.

#### Kočín (Piešťany, Southwest Slovakia)

The site of Kočín is situated on the southeastern slopes of the Little Carpathians, directed towards the Dudvák River that flows westwards along Váh River. The 19 excavated trenches covered an area of 4000 sq. meters. The northern and northeastern limits of two different settlements were uncovered, which date to the Lengyel Culture and the Jevišovice Culture respectively. Late Eneolithic material came from 37 out of 56 excavated settlement features (pits). No traces of dwellings were identified; they must have been completely above ground in construction. At least some indirect evidence is represented by pieces of daub in secondary position in only one pit. Despite the two (three) phases of occupation, Kočín remained a flat settlement in character, unlike the Jevišovice sites in Moravia, which have the tendency

to produce vertical stratigraphies. The settlement features, consisting of simple small refuse pits and larger pits that served as a source of clay, were evenly distributed over the whole excavated area. A horizontal stratigraphy could be observed only in two cases. The smaller pits, with rounded or oval openings of c. 100–150 cm in diameter, were surprisingly full of pottery finds. Well represented were also animal bones, pieces of antler, the stone industry and bone tools.

The material remained largely unprocessed and unpublished, due to the untimely death of the excavator. This report, therefore, will present the first preliminary publication of the ceramic material from this settlement, with a special attention to ceramic typology and decoration.

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#### The Pottery (Fig. 3)

Twenty-five restorable vessels were available for the analysis as well as c. 600 diagnostic sherds and 1500 body sherds. The following standard late Eneolithic pottery shapes were identified: amphoras, cooking pots, bowls, jugs, cups and pans.

**Amphora:** A vessel of varying size and shape, with two opposite handles set at the belly or on the transition from neck to body. Best recognizable in the sherd material by the larger vertical strap handles or even tunnel-shaped handles placed on the belly. Common is also straw decoration over the entire body, but also the so-called “Endneolithischer Furchenstich” (stab-and-drag) decoration and stamped decoration.

**Pot:** This category encompasses a larger part of the utilitarian thick-walled ceramics. Identified were smaller and larger forms with a rounded body and everted rim or with cylindrical neck, but also pots with S-shaped profile. Most of them are decorated by a string of stamps at the transition from the neck to the body, interrupted by short horizontal lugs with slashed decoration. Unlike the amphoras with only two handles, the pots usually have several more. Tunnel-shaped handles are found on the rim, neck or upper body. Whereas the surface of body is usually roughened by a straw-

combed decoration, the neck remains smooth. There are, however, also examples with no decoration at all.

The almost total absence of vertical relief ribs and raised horizontal bands, which is in stark contrast with the ceramic evidence in Moravia, seems to be of importance. So far, only three sherds with this kind of decoration have been recognized in Kočín: two sherds with simple band and one with a double or triple band. This proved to be crucial for the chronological assignment of the Kočín material.

**Bowl:** A number of bowl-types were identified, but none has a proper foot. Some bowls have a raised base, rounded body and incurving rim; the somewhat wider hemispheric bowls probably had a flat base; deeper bowls have a rounded belly and everted rim; finally, the wide-mouthed bowls with flaring rim look almost like deep plates. These fine bowls are usually undecorated, with straw decoration and the so-called Furchenstich or stab-and-drag decoration occurring only rarely.

**Jug:** This typical late Eneolithic shape is quite well represented within the analysed material. The jugs are usually decorated with the so-called “Endneolithischer Furchenstich”, a combination of which seems to be specific for the Jevišovice finds in this

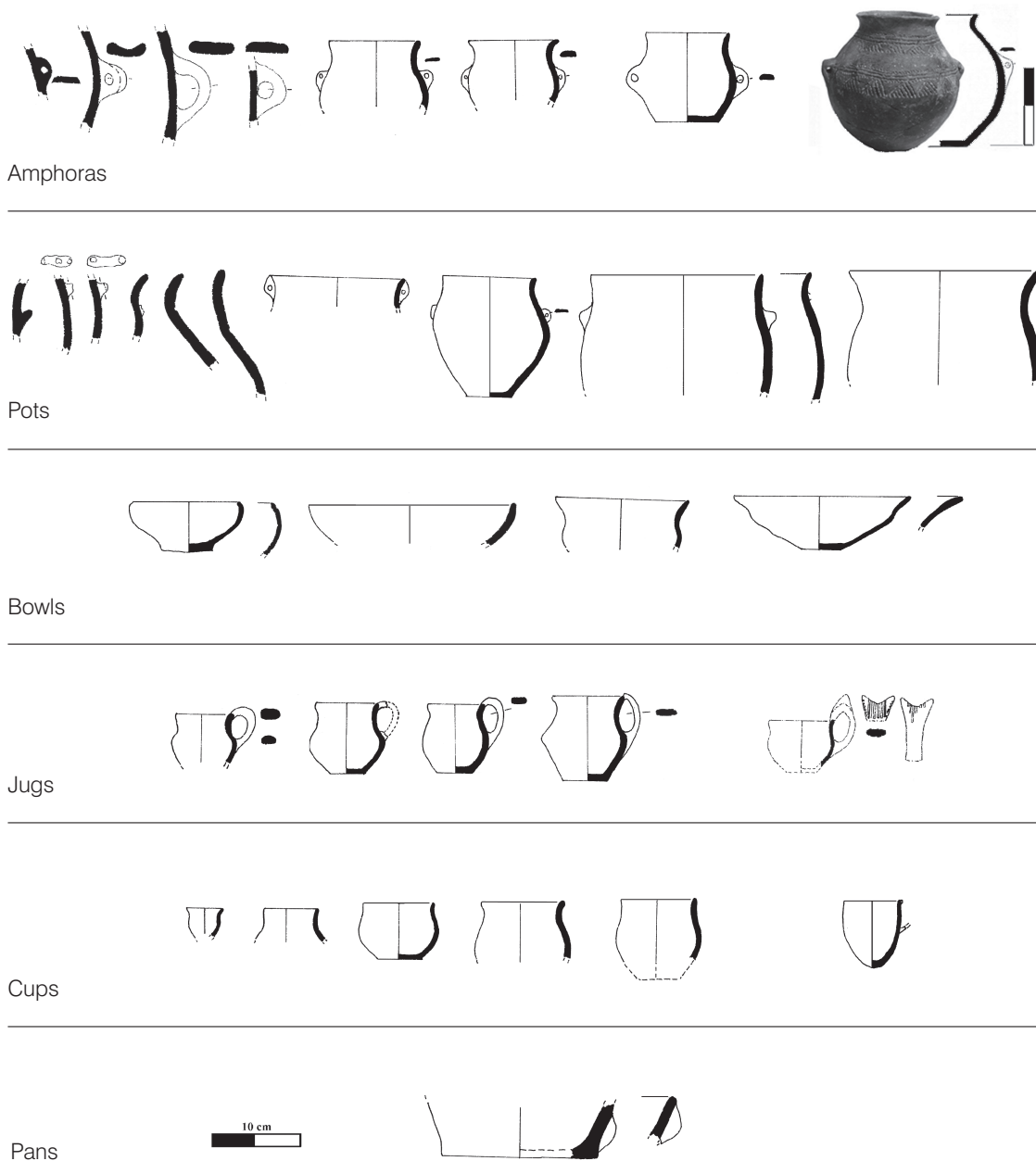


Fig. 3. Kočín, pottery shapes.

area. The jugs always have one high swung, vertical strap handle, a height of c. 10 cm and a body forms that can range from rounded to biconical. Only one jug has a handle of the ansa lunata type and is decorated with fine vertical grooves, both on the handles and the body.

**Cup:** Small handleless and undecorated vessels with S-profile, rounded body, everted rim, or even a cylindrical neck, are thought to represent a category of small drinking vessels and, thus, designated as

cups in this study. Included here is also a dipper, which occurs only once in Kočín. It has a large vertical strap handle that extends from the rim to the belly, an undecorated body and a rounded base. This vessel shape is typical of the Bošáca Group and can be considered an import in Kočín.

**Pan:** Five pieces of body-sherds with stubs of vertical lugs/knobs appear to have belonged to massive pans. If this is true, they manifest an interesting relationship with the Řivnáč Culture in Bohemia.

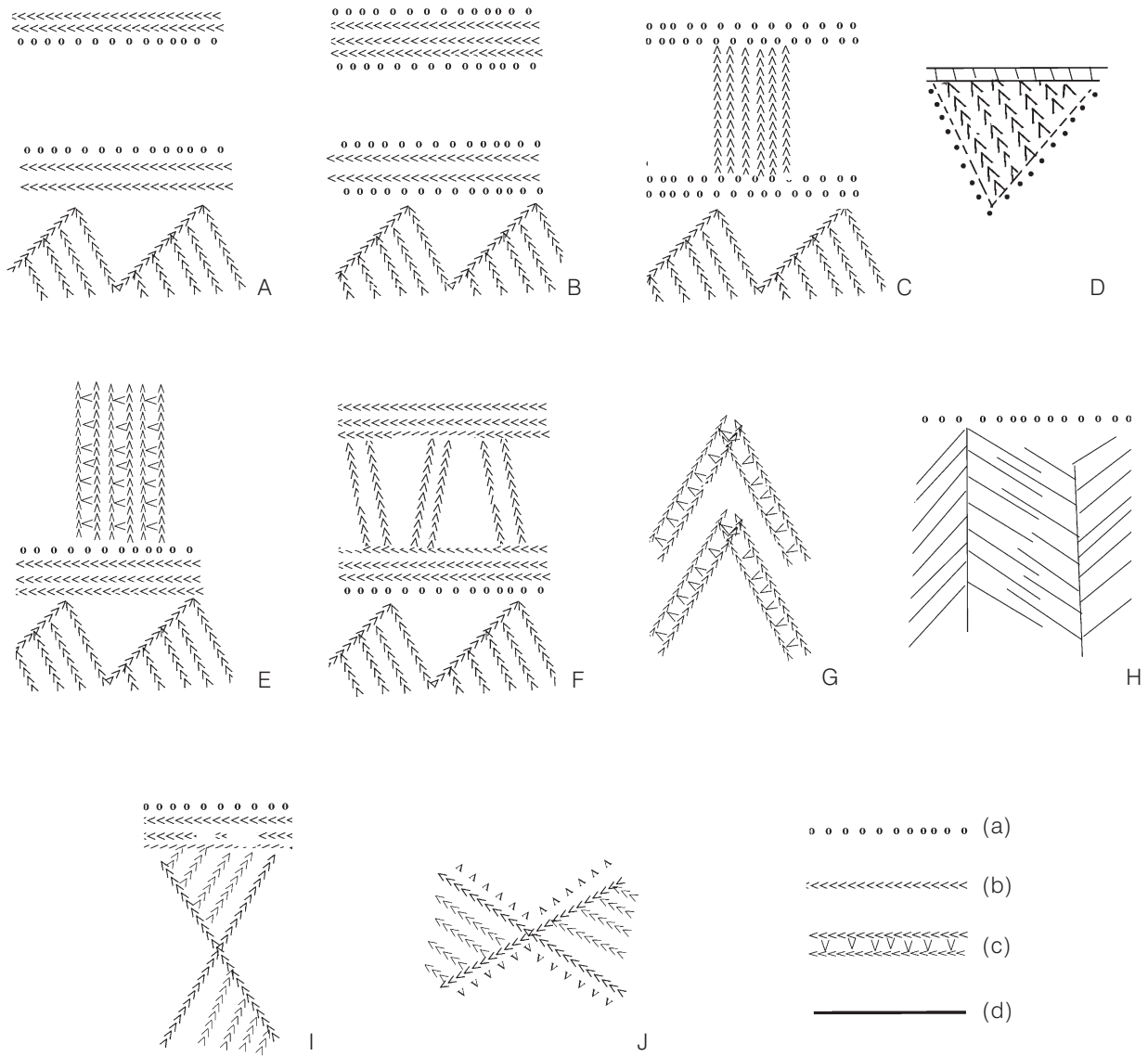


Fig. 4. Schematic table of decoration (samples): discrete stamps (a); stab-and-drag (Furchenstich) (b); ladder motif (c); incision (d).

#### Decoration (Fig. 4)

The surface of the pots and amphoras is usually roughened by a straw- or combed decoration, both of which are typical of the late Eneolithic period. The transition from the plain polished necks to the body (roughened or plain) is marked by a stamped decoration. This decoration consists of a row of identical impressions made by a single-spiked tool. The exact form of the stamp varies from vessel to vessel, but the motifs can be roughly summarized as circles, triangles, crescents etc. Incised or grooved decoration is less frequent. A proper cord decoration was recognised in Kočín only on three body sherds.

A very important type of decoration is the so-called “Endneolithischer Furchenstich” (Final Neolithic Furchenstich). This somewhat complicated term is employed here to stress the technological difference between the earlier Bajč-Retz “Furchenstich” and the late Eneolithic “Furchenstich”. Whereas the Bajč-Retz decoration is produced by grooved incisions, the Jevišovice pottery shows a dense stamped decoration created by a wedge-shaped pointed tool. Filled in with white encrustation, the latter type of decoration has a same optical effect like that of grooved incisions. It is,



therefore, very important to differentiate between the two techniques. Furthermore, it is advisable to introduce a new terminus for this kind of decoration, especially since there could be a chronological difference between the two. For the time being, we have retained the term *Endneolithischer Furchenstich*, as a chronological attribute, reflecting the traditional terminology.

This technique is most frequently represented on the jugs. The decoration is situated on the body, and the common motifs consist of standing or hanging triangles in combination with single *Furchenstich* lines and/or rows of discrete stamps (Fig. 4. A–F). There are some noticeable preferences though. The

motifs of a double axe (Fig. 4. J) and a double triangle (Fig. 4. I) are usually placed on the vertical strap handles of the jugs. On the contrary, the motif of a ladder (combining the *Furchenstich* with discrete impressions (Fig. 4. E,G) and the motif of an engraved tree (Fig. 4. H) are applied only on vessel's body.

Since the Bošáca Group does not employ these kinds of decoration technique, they can be used as major criteria for differentiating the two types of pottery, with the *Furchenstich* triangle being the most prominent element. The Bošáca ceramics (Podolie etc.) is decorated with other types of discrete stamps, grooves and incisions.

## Conclusions

The lowland settlement of Kočín with its 37 pits from the late Eneolithic period is the first site of the Jevišovice Culture to be identified in Slovakia and the largest one east of Moravia in general.

In light of the facts stated above, it still seems that the primary centre of the Jevišovice Culture was situated in Moravia (Medunová-Benešová 1977) and/or in Lower Austria (Mödling-Zöbing Culture; Krenn-Leeb 2006; Ruttikay 1975). The material from Kočín is well comparable with the ceramics from the lowland settlement of Brno-Starý Lískovec, which is synchronized with Jevišovice B (Medunová-Benešová/Vitula 1994). The same vessel-shapes and decorative motifs were also recognized at the newly discovered site of Furth near Krems, in Lower Austria (Schmitzberger 2006). Whereas the pottery from Kočín, Brno-Starý Lískovec and Furth is the same in character, it does differ in terms of decoration (no applied ribs and horizontal bands) and vessel-shapes from ceramics at other sites in Austria and Moravia, which are known to be older (Vysočany, Meidling, Spielberg etc.) A detailed internal chronological development of the Jevišovice Culture has not been established, so far but it seems that the three sites of Kočín (Slovakia), Brno-Starý Lískovec (Moravia) and Furth (Austria) represent a later phase of Jevišovice/ Mödling-Zöbing Culture, that is, Jevišovice IIb (SCHMITZBERGER 2006, 151).

In terms of cultural developments, the finds from Slovakia look more like a secondary expansion of the Jevišovice Culture. If at some point the bearers of the Jevišovice Culture started penetrating farther eastwards, they would have had to pass through the Bošáca territory in Moravia, which could have been an obstacle. Therefore, it is likely that they might have moved indirectly, through Lower Austria, the Bratislava gate and then farther to the north.

As stated above, the settlements were concen-

trated on the favourable brown soils in the uplands and foothills of mountains, not in the lowlands. The area of the Danube Lowland was not settled continuously during this period, due to the dry climate and worse natural conditions in general.

The question of the relationship between Jevišovice and Bošáca in Slovakia still remains unanswered. It is to be hoped that the publication of the material from Kočín (Jevišovice Culture), Podolie (Bošáca Group) and Hajná Nová Ves (Jevišovice Culture/Bošáca Group) will contribute to the clarification of the Late Eneolithic situation in southwestern Slovakia. The material from Kočín and Podolie (both excavated by V. NĚMEJCOVÁ-PAVÚKOVÁ) is currently being processed and studied by the author of this paper.

Since the presence of the bearers of the Jevišovice Culture in the territory south of the Bošáca Group as well as their contemporaneity are now convincingly confirmed by other finds south and east of Kočín too, it is necessary to re-evaluate finds from other sites in southwestern Slovakia as well.

## Terminological Remarks

The term 'Late Eneolithic' for the Post-Baden period in Central Europe is used in this study as an equivalent for the "jüngere Kupferzeit – Endneolithikum" in German terminology and "jüngeres Aeneolithikum" in Slovak terminology.

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## Abstract

The development of the Post-Baden Culture in the territory of Slovakia has gained increased attention over the past years. In 1986–1988 the late V. NĚMEJCOVÁ-PAVÚKOVÁ excavated a settlement site at Kočín (Piešťany) in southwestern Slovakia, which turned out to be the first trace of the Jevišovice Culture in Slovakia as well as east of Little and White Carpathian mountains in general. Beyond any doubt the pottery found in 37 features/pits in Kočín has the same character as the “true” Jevišovice finds in Moravia. At first, no one expected the bearers of the Jevišovice Culture to have ever settled down in this area. The Danubian Lowland was considered

deserted as a result of the dry climate at the end of the Baden Culture. Nevertheless, the presence of the Jevišovice people in the territory south of the Bošáca Group as well as their contemporaneity are also now confirmed by other finds (mostly surface collections) south and east of Kočín. The material from Kočín remained largely unpublished, due to the untimely death of the excavator. Together with one other feature/pit in Hajná Nová Ves (Topolčany), Kočín represents the first evidence of the Jevišovice Culture in Slovakia. This report, therefore, will be the first publication of the major part of ceramic material from this settlement.

### List of Sites (Fig. 2)

1. Kočín (NĚMEJCOVÁ-PAVÚKOVÁ 1990);
2. Vrbové (ROMSAUER 1981);
3. Brno-Starý Lískovec (MEDUNOVÁ-BENEŠOVÁ/ VITULA 1994);
4. Jevišovice-Starý Zámek (MEDUNOVÁ-BENEŠOVÁ 1972);
5. Zöbing “Kogelberg” ( HRODEGH 1922);
6. Mödling “Hirschkogel” (MICHNA 1929);
7. Furth (SCHMITSBERGER 2006);
8. Hajná Nová Ves (WIEDERMANN 1991);
9. Podolie (NĚMEJCOVÁ-PAVÚKOVÁ 1970);
10. Trenčín-Pollákova tehelňa (NOVOTNÁ 1961);
11. Zvolen-Lieskovec-Hrádok (Bošáca?) (MALČEK 2002);
12. Modlnica, Witkowice, Kobylany-Zdaminova etc. (Little Poland) (GODŁOWSKA 1979);
13. Boleslaw (SOCHACKI 1980);
14. Obědovice (KALFERST/PROSTŘEDNÍK 1998); Platište nad Labem (VOKOLEK/ZÁPOTOCKÝ 1990) near Hradec Králové;
15. Iža (Kostolac) (NĚMEJCOVÁ-PAVÚKOVÁ 1968).

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## An Isolated Grave of the Baden Culture in the Beskidy Mountains

By Paweł Valde-Nowak

### Introduction

In the recent years a large hydrological installation, the water reservoir at Świnna Poręba, was realized; it is located at the boundary between the Middle and Small Beskidy Mountains in the northern part of the West Carpathians in Poland (Fig. 1). A dam will be built on the Skawa River, below the gorge of the river between mountain groups. The

execution of this project will place a number of archaeological sites under the threat of destruction. One of these sites is at Świnna Poręba, district of Wadowice, registered in the Office for the Preservation of Antiquities, No. 9, in the village, and area 107-52 of the Archaeological Survey of Poland (AZP 1986).

### Archaeological Site at Świnna Poręba

The site is located on the right bank (diminished by erosion) of the Skawa River in the environs of the hamlet Wodniakówka. This lies at the foot of the slope of the Wierzchowina Mountain (504 m),

which constitutes the southern part of the Jaroszwicka massif (544 m). There the bank of the Skawa has been formed into an exposed promontory (Fig. 2). Not long ago the top of the promontory was occupied by the contemporary hamlet of Wodniakówka. Hence, from an archaeological point of view, this area can be regarded as destroyed. The site of Świnna Poręba lies beyond this area and adjoins it in the north.

The site was discovered during surface investigations by E. E. FOLTYN in 1986 and verified in 1990. Fragments of modern pottery, which date to the 16th–18th centuries, stems from these investigations.



Fig. 1. Upper Vistula river basin with the position of site 9 at Świnna Poręba, dist. Wadowice.



Fig. 2. Three-dimensional map of the Skawa River-Gorge in the Beskidy Mountains and location of site 9 at Świnna Poręba, dist. Wadowice (arrow).

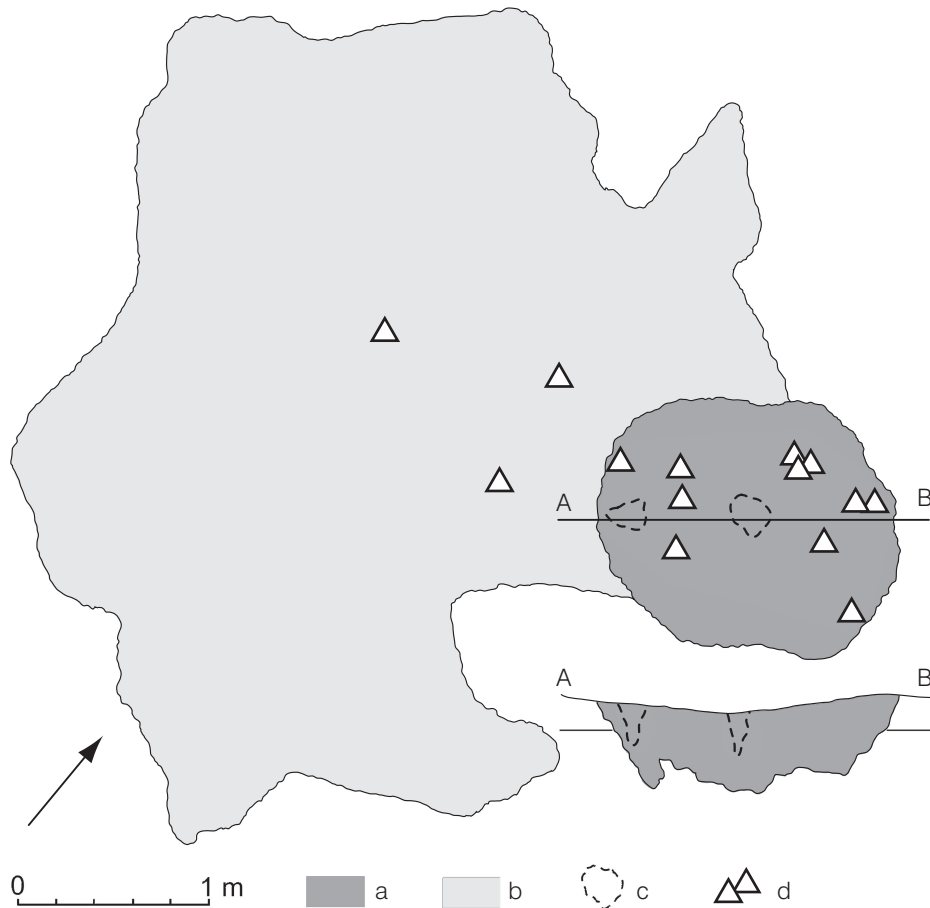


Fig. 3. Świnna Poręba, dist. Wadowice, site 9. Planigraphy and cross-section of pit 1/05. a the pit, b thin layer as effect of pit-destruction during post-depositional processes, c postholes or traces of tree roots, d pottery fragments.

In September 2005 a team led by A. TARASIŃSKI undertook investigations in the form of soundings at site 9 (VALDE-NOWAK/TARASIŃSKI, 2006). They entailed removing a layer of arable soil for the sounding (trench I), which was 21 x 3 m in size and oriented vertically to the axis of the Skawa River valley, and levelling the surface. This stage of investigations did not yield any positive results. After considering the topography of the territory that would be favourable for settlement, an area 100 m northwest of the centre of the site 9 was investigated. The sounding laid out there (trench II) was 90 x 3 m in size and oriented parallel to the axis of the Skawa valley. A

perpendicular section, 30 m long and 3 m wide, was made, that extended to the end of this section and sloped down to the river bed of the Skawa. There, in the area W 02/05, an object with Neolithic pottery was discovered, which is presented in this paper. Regarding the considerable distance of the place of the find from the centre of site 9, the inclusion of a series of Neolithic pottery fragments in its inventory is of a special character. It should be noted that the area between the proper site 9 and the place where the Neolithic pottery was found has practically not been recognized archaeologically. Efforts are now being made to investigate this vast area.

#### Description of the Object

A light-brown to orange feature of irregular oval outline and measuring 1.8 x 1.3 m was visible on the bedrock and designated object Nr. 1/05. In its centre traces of a posthole were recognized, in which the remains of the post itself could be discerned. Similar traces of a posthole were found

in the southwestern part of the object, right at its periphery. In the profile of the object outlines were visible that evidenced the sharp end of the post (Fig. 3). It cannot be excluded that these two postholes are actually traces of tree roots. The majority of the material that was excavated in this

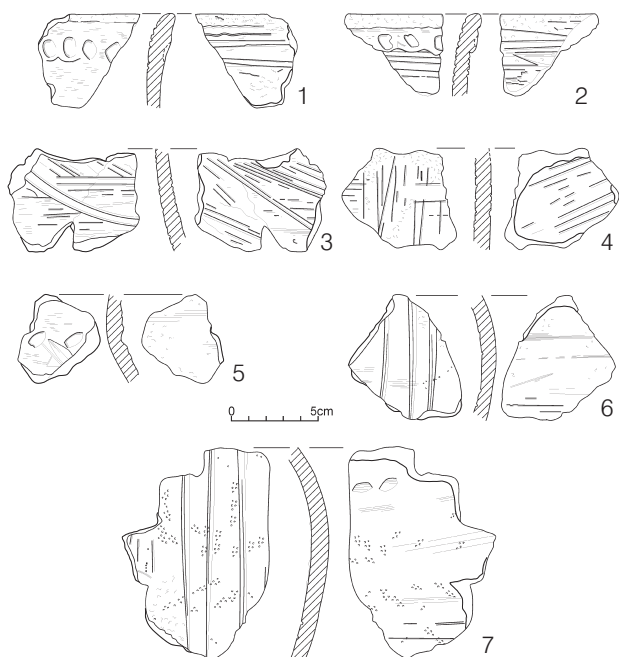


Fig. 4. Świnna Poręba, dist. Wadowice, site 9. Pottery fragments from pit 1/05 (drawings by U. Bąk).

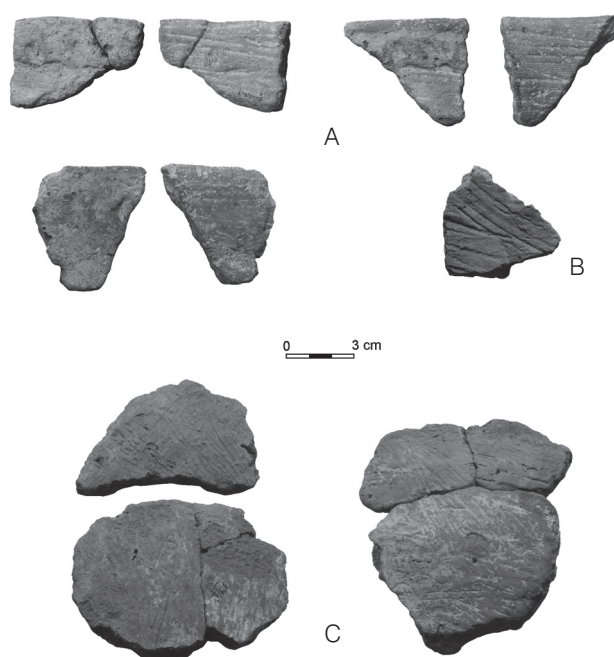


Fig. 5. Traces of grass wisp wiping on the outer and inner surface of Baden pottery: A Świnna Poręba, dist. Wadowice, site 9, pit 1/05, B Velká Lomnica “Burchbrich” (material at Podtatranske Muzeum Poprad, Republic of Slovakia, unpublished), C Cave Okno at Demänovská Valley, (material at the Museum at Lip-tovsky Mikulaš, Republic of Slovakia, unpublished).

object was found at a depth of 10–20 cm below the levelled area (plan I). In its transverse section the object was synclinal. Its lower part had been washed away; it met bedrock at the depth of about 40 cm from plan I. An irregular patch of grey-orange clay adjoined the object on its western side. The dimensions of the patch were approximate-

ly 4 x 4 m. Some fragments of pottery were also found in this layer. The layer seems to be the result of the gradual erosion of the top part of the object. It was very thin, measuring only 3 cm at the most. Adjacent to the object in the east was a layer of Magura flysch eluvium, which from an archaeological point of view was sterile.

#### Description of the Material

A total of 39 fragments of hand made pottery, tempered with crushed/broken pottery (schamotte), was recovered which can be presented as follows:

- Three fragments of a vessel rim decorated with a plastic band under the rim. The outer surface is grey-brownish in colour and smooth; the inner surface, horizontally and diagonally brushed with a wisp of coarse grass (Fig. 4. 1–2; 5 A). Only one of these fragments displays preserved patches of its original smooth exterior surface. This was achieved by coating the vessel surface with a layer of fine clay (engobe). The rims are slightly everted.
- Ten fragments of undecorated pottery. Both the interior and exterior were brushed horizontal-

ly and diagonally with a wisp. These traces are slightly smoothed (Fig. 4: 3-4). They are surely fragments of the neck of the vessel. The surface is covered with an engobe.

- Twenty-two fragments of the body of a vessel, decorated with vertical fluting. The fluting was made with an implement, whose end was formed in such a way that at the bottom of the fluting two grooves were formed (Fig. 4: 6–7).
- Two fragments of a vessel with a decoration of large irregular hollows, most probably situated at the transition of the neck to the belly (Fig. 4: 5). One of these fragments has a well preserved fluting as ornamentation on the exterior wall,

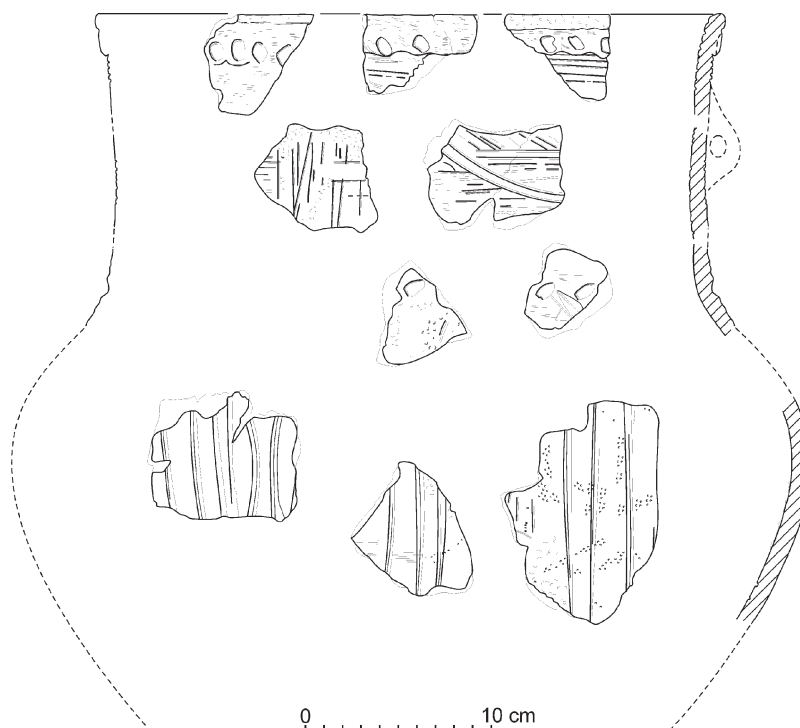


Fig. 6 Świnna Poręba, dist. Wadowice, site 9. Reconstructed amphora from pit 1/05 (drawings and reconstruction by U. Bąk).

starting directly below. One fragment of a vessel. The outer and inner surfaces display traces of rough smoothing to a great extent.

- One uncharacteristic fragment. The outer surface completely lacks an engobe, the inner surface has traces of wiping.

#### Analysis of Pottery Remains

In the first phase of analysis the described assemblage of pottery sherds were viewed as the remains of at least two vessels; one vessel of “rough work” with a plastic band under the rim and a wiped surface, and one vessel with a smooth surface, decorated with fluting. However, the great technological similarity of all fragments of this pottery and the traces of engobe also on the rim fragments with a plastic band proved that all of the fragments belong to one vessel. Traces of wiping both of the outer as well as the inner surface were another element that united the majority of the fragments to a single vessel.

The attempted reconstruction of the whole form was preceded by joining some of the fragments.

This showed that the resultant vessel represented an amphora with a small handle or handles. A slight swelling on one of the rim sherds, most probably at the base of the handle, suggests the presence of a handle (kind information from U. BĄK, M.A.). This vessel is characterized by an apparently round belly and cylindrical neck with a slight bend in the lip for pouring. Under the rim was a plastic band. The surface of the neck was covered with a decoration of marked horizontal and diagonal traces of wiping. At the base of the neck was a horizontal row of large shallow dots (about 5 mm in diameter). Below these and already on the belly began the flutings that run towards the bottom of the vessel (Fig. 6).

#### Cultural and Chronological Identification

Apart from the fragments of pottery described above, no other remains were found in object 1/05. No material that could be dated by the radiocarbon

method was found there either. Thus, in this case the dating of finds can base only upon technological-typological premises.

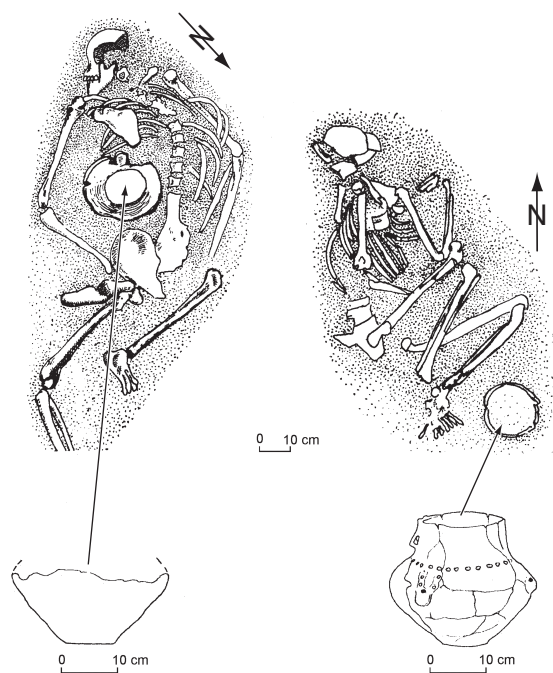


Fig. 7. Two Baden inhumation graves from Kraków-Nowa Huta - Zesławice equipped with one single amphora (after ZEMELKA 1959; GODŁOWSKA 1979).

Technological characteristics such as firing, in addition to characteristic effect of smoothness, clearly indicated the Neolithic date of the finds already in the first phase of analysis. Thick bands under the rim are a frequent element of vessels of the Funnel Beaker Culture and Radial Decorated (Baden) Pottery. Bands encountered in pottery of the Lusatian Culture or in La-Tène complexes differ in many ways, including their place of occurrence. A slightly diagonal, irregular roughness of the outer and in-

ner surface of the vessel is an element that points explicitly to the Baden Culture.

Comparisons for the reconstructed form are found in the precise patterns in the material of the whole range of the Baden Culture (cp. BANNER 1956) as well as in the material of the Baden sites in Lesser Poland (Małopolska), there especially in the complexes from Kraków - Nowa Huta - Pleszów. Attention should be specially paid to the vessel from pit 63 at the site Pleszów IV (ROOK 1972, 123 Fig. 9). The reconstructed vessel from Świnna Poręba is almost its copy. Similarities include the proportions of particular parts of the vessel and ornamental and technological characteristics. Here we may point out the similar applications observed on pottery sherds, exclusively in rich Baden complexes (collections) from Nowa Huta - Pleszów, traces of covering the vessel surface with a thin layer of fat clay as well as smoothing the surface probably with a bone burnisher and brushing the surface with a brush made of grass, straw or even sticks (ROOK 1972, 201, 205). Fragments of Baden pottery similarly wiped on the inner and outer walls are known, among others, in the north Slovakian sites at Liptov, for example, Okno Cave at Demänovská Valley (STUHÁR 2001a, 82; collection in the Museum at Liptovský Mikuláš; Fig. 5 C). Pottery of the Baden Culture, likewise with a plastic band under the rim, derives from another north Slovakian locality, Trniny near Dolný Kubín, and from a nearby elevation, Ostra Skala (ČAPLOVIČ 1987, 31 Tab. III), as well as from the rich Baden complexes in the Poprad (Zips) valley, for example, Veľká Lomnica "Burchbrich" (collection in the Podtatranske Muzeum Poprad, Republic of Slovakia; unpublished). It appears that the pottery series from Świnna Poręba finds its best analogies in material of the late Classical Baden phase IIb in the middle phase or its decline in the presentation by A. ZASTAWNY (1999, 17-19 Fig. 5; 2000, 38 Table II).

#### Function of the Site

For many reasons the presence of material of the Baden Culture at Świnna Poręba is puzzling. Neolithic material is rather rare in this part of the Carpathian Mountains. Until now only few stray finds of hammer axes and axes have been recorded (TUNIA 1978; VALDE-NOWAK 1988). In view of this situation, the well preserved and numerous fragments of only one ceramic vessel does attract attention. The area in the west of the surroundings of the object was thoroughly examined, but ended with negative results. Hence, chances of discovering possible traces of Baden Culture activities there decreased. In the absence of any clear evidence of settlement activity, there are at least three hypotheses that we can consider.

Hypothesis 1: The find is connected with a specific economical activity, for example, pastoral activities or tar production. Lack of other traces of every day life – flint fragments, fragments of other vessels or lumps of tar or charcoal – place this hypothesis in doubt.

Hypothesis 2: The find is that of a grave. The fact that only one vessel was discovered, as was the case in grave finds of the Baden Culture in Lesser Poland, as well as the well preserved state of the pottery affirms this hypothesis. The form of the vessel corresponds with the amphora found in grave 217 in the Baden settlement at Kraków Nowa Huta-Zesławice as well as with a similar form preserved



only in half of its original height, found in grave 10 at the same site (ZEMEŁKA 1959; GODŁOWSKA 1978, 312 Fig. 189). In both cases the inventory of grave-goods consists of only one single amphora. The shape and dimensions of the grave pits found at Ześlawice also correspond with the object identified at Świnna Poręba (Fig. 7). The skeleton of the deceased was not preserved because of the acidic soil (Prof. S. SKIBA, personal communication).

### Final Remarks

The results of rescue excavations at Świnna Poręba cast some new light on the archaeological potential of the region deeper in the West Carpathian Mountains. Sites of the Baden Culture that form distinct complexes in the vicinity of Gdów and on the adjacent elevations of the foreland and plateau of the West Carpathian Mountains, such as Grodkowice or Chełm, display the character of large villages, in which settlement developed over a longer period (CABALSKA 1975; SOCHACKI 1965; 1969; 1980). In general, the sites do not diverge in size and intensity of settlement traces from other contemporary sites known on the left terrace of the Vistula River in Kraków – Nowa Huta region (comp. GODŁOWSKA 1979; BOBER 1998). The discovery of an object with Baden Culture material at the boundary of the Small and Middle Beskidy Mountains is more proof that the main ridge of the Carpathians was conquered by southern Neolithic communities. The distance of the nearest settlements of the Baden Culture in Lesser Poland (Małopolska), exactly at the threshold of the Carpathians on the Raba River, is about 80 km. The distance from the north Slovakian sites in Liptov (STRUHÁR 2001) and Poprad valley (SOJÁK 2001) is even greater. The few Baden finds from

Hypothesis 3: If we are dealing with a grave, then another question arises. In many cases Baden graves are situated in or close to a contemporary settlement. Why then would a Baden grave be located so far away from any known settlement area of this culture? Do the presence of the grave and the vessel indicate that there was a settlement in the vicinity, which has not been discovered yet?

the Orava valley in Slovakia (ČAPLOVIČ 1987) show one route of penetration of Eneolithic groups from the south. The burial at Świnna Poręba may be interpreted as the grave of a member of a community, who died during a trek of many days across the mountains. The distance to the nearest settlements of these communities was too long to transport the body. This explanation of the burial find may be proposed.

A further explanation may be offered as well. Members of a small group operated seasonally in the territory of the Beskidy Mountains. This might have been a pastoral group, one member of which died somewhere far from the base settlement. In this interpretation the aspect of crossing the mountains is an element of secondary importance. This permits the assumption that a seasonal Neolithic settlement had developed in the mountainous region of the Carpathians.

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### Abstract

In September 2005 a series of 39 homogenous pottery fragments with features of Neolithic technology was discovered in the Middle Beskidy Mountains at a late medieval and modern archaeological site. The pottery appeared in a cultural pit and also close to it as a result of post-depositional dislocation. The pottery fragments were reconstructed into one vessel: an amphora. The form and decoration (dots and finger-tip impressions in horizontal pattern on the necks, vertical grooves on the belly) point to its ascription to the late Classical stage of the Baden Culture. Apart from the vessel, no other archaeological material appeared at the site. This discovery may be correlated with two Baden graves known

from Kraków-Ześlawice, in which only one amphora was found in each of two inhumation graves. The dimensions and form of the pit as well as the characteristic pottery suggest that the discovery in the Beskidy Mountains should be interpreted as a grave. Human bones were not preserved there due to the acidic soil. The nearest known Baden Culture site lies at a distance of over 50 km. The discovery of the isolated grave with Baden affinities in this “unsettled” territory changes our view of the very stable settlement forms known from the Baden settlement centres and shows that traces of human activity in the Carpathian Mountains can be difficult to find and interpret.

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## The Jurassic Flint Type G in Central Europe in the Late Neolithic (3100 – 2300 BC)

By Andrzej Pelisiak

### Introduction

Comprehensive research on silicious rocks in the Kraków-Częstochowa Upland carried out by M. KACZANOWSKA, J.K. KOZŁOWSKI and M. PAWLIKOWSKI led to differentiation and description of seven types of local siliceous rocks. These are designated A, B, C, D, E, G and K. In the case of types A, B, C, D, E and K, their natural deposits were already localised. In addition, each of these types showed an inner diversity, which became the basis for dividing them into sub-types. Type G was described merely on the basis of the archaeological artefacts for which it was used as a raw material. Its deposits were not known then (KACZANOWSKA/KOZŁOWSKI 1976; KACZANOWSKA ET AL. 1979). However, it should be stressed that at that time it was recognised that this type of flint had been used mainly during the Late Neolithic period, mostly by the people of the earliest phases of the Funnel Beaker Culture as well as by the people of the Baden and Corded Ware cultures.

Jurassic flint type G deposits were identified for the first time by A. PELISIAK and J. KOPACZ in the vicinity of the Krzynia River in the central part of the Kraków-Częstochowa Upland in 1983 (Fig. 1). In 1984 a systematic surface survey was undertaken. In the course of the surface survey numerous flint workshops were discovered along the Krzynia River, in which rectangular axes and long blades had been produced (KOPACZ/PELISIAK 1986). In 1986 excavations in the workshop complex designated Pradła, site 3 (KOPACZ/PELISIAK 1988 a) were carried out, and in 1986 and 1987 the workshops in Huta Szklana, site 1B, were excavated too (KOPACZ/PELISIAK 1990).

In the course of the excavations in Pradła and Huta Szklana, numerous remains of rectangular-axe production were found, including semi-finished products of axes and long blades. Moreover, it could be observed that both sites comprised at least a few separate workshops. The sites mentioned above as well as many others within the Krzynia River basin were in fact vast workshop grounds, in which rectangular axes and long blades

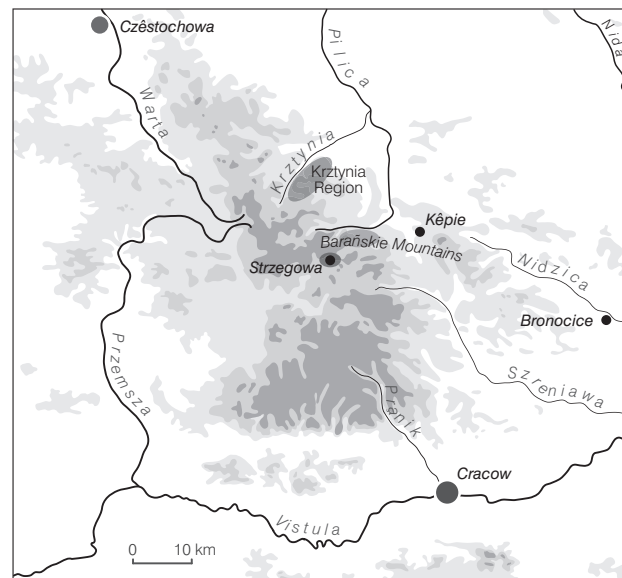


Fig. 1. Central part of the Kraków-Częstochowa Upland. Regions of exploitation of Jurassic flint type G.

were mass-produced in enormous quantities. In each individual workshop production debris was found in amounts ranging from a few thousand to a few dozen thousands. The material retrieved during excavation became the basis for reconstructing the production cycle of rectangular axes within this territory (KOPACZ/PELISIAK 1988 b). Subsequently, the first summary of the information regarding the exploitation of the Jurassic flint type G was drawn up (KOPACZ/PELISIAK 1991; 1992; PELISIAK 1987).

In 1991 and 1992 systematic archaeological research was carried out in the surroundings of the village Strzegowa. During the comprehensive surface survey more than 100 archaeological sites, at which flint had been mined and processed, were revealed (Fig. 2). These sites were grouped around Strzegowa and in the so-called Barańskie Moun-

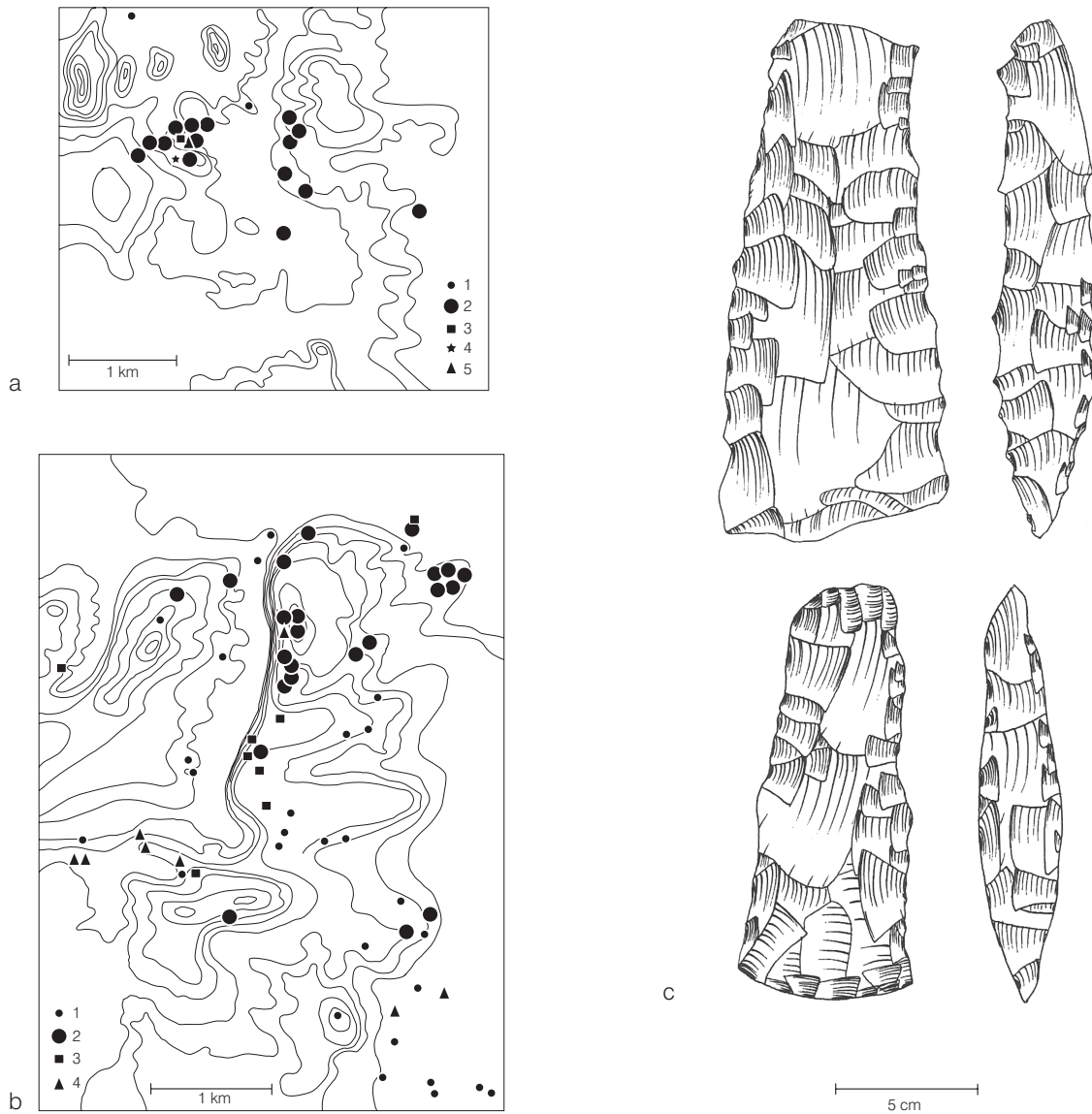


Fig. 2. A Strzegowa region; B Barańskie Mountains; C semi-finished rectangular flint axes made of Jurassic flint type G. 1 stray finds of semi-finished flint axes; 2 flint workshop complexes of the Baden and Funnel Beaker-Baden Cultures; 3 flint workshops of the Lengyel-Polgar complex; 4 caves; 5 flint workshops and settlement sites of the Corded Ware Culture.

tains. Additionally, excavations were conducted at several other sites, with special attention paid to the workshop complex located atop the Strzegowska Rock above the Jasna Strzegowska cave. Many remains of the production of rectangular axes and long blades connected with the late phases of the Funnel Beaker Culture and the Baden Culture were discovered as well as a camp-site and workshops for rectangular axes and blades of the Corded Ware Culture (PELISIAK 2003/2004).

The data obtained in the course of the surface surveys and excavations in the Krztynia region, Strzegowa and the Barańskie Mountains became the basis for distinguishing within the type

G flint, or more specifically, differentiating flints from the middle part of the Kraków-Częstochowa Uplands, four sub-types designated with reference to the existing system as “GA”, “GB”, “GC” and “GD”. Furthermore, the natural deposits of each of the sub-types mentioned were indicated (Peliśiak 2003/2004; 2006).

The unusual “career” of flint raw material from the central part of the Kraków-Częstochowa Upland began around 3200–3100 BC. Previously, such flint had been exploited only locally (PELISIAK 1988 a; 1988 b). This flint raw material became one of the most popular silicious rocks used by the Baden Culture communities, the Funnel Beaker-Baden (among the ar-

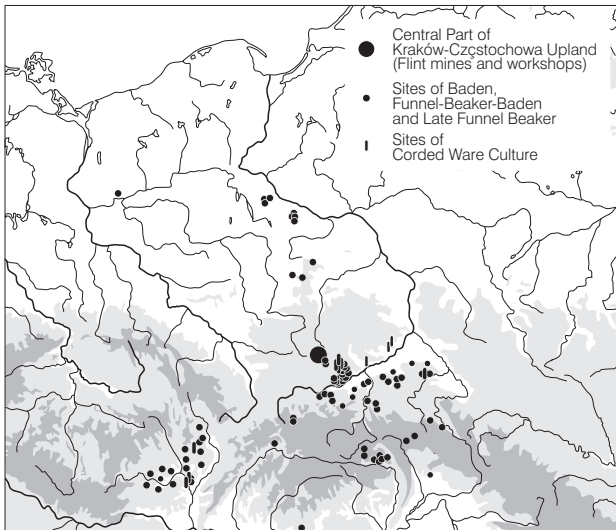


Fig. 3. Distribution of artefacts made of Jurassic flint type G.

tefacts from phase V of the settlement at Bronocice, the flint products made of this flint constitute 100% of the stone assemblages), late phases of the Beaker Funnel Cultures and the Corded Ware Culture. Large rectangular axes and long blades were mostly made of it. During the Late Neolithic period the resources described here were obviously of common use, especially by the Late Neolithic inhabitants in the western areas of the loess uplands of Little Po-

#### Distribution of Flint in the Middle and Late Neolithic to the North of the Carpathian Mountains

The artefacts made from non-local siliceous rocks, which were found in the flint assemblages may be taken as the evidence of indirect and/or direct contacts between the communities living in the regions, in which such tools were used and the inhabitants of areas in which such deposits were mined and/or these tools were made. The cultural picture of the Neolithic period as well as the network of contacts that enabled flint distribution were changing in time. In order to answer the basic questions concerning the “career” of the type G of Jurassic flint, we shall follow such changes. The questions that I shall attempt to answer are the following: (1) Why did the essential change within the range of the exploited flint resources in the late Funnel Beaker and the Baden Cultures occur at the end of the 4th millennium BC; and (2) Why was it specifically flint type G that was exploited. The foundation of this deliberation is the information gathered from research on settlements, knowledge about economy and results of analyses on flint assemblages of the Lengyel-Pol-

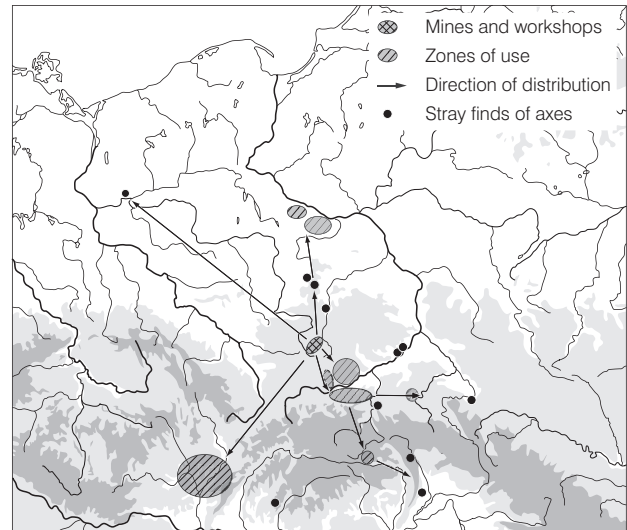


Fig. 4. Late Funnel Beaker and Funnel Beaker-Baden cultures. Distribution of rectangular axes and long blades made of Jurassic flint type G. General model.

land. Nevertheless, axes, long blades and tools produced of type-G flint appeared throughout the vast areas of Central Europe: in Central Poland, in the Carpathian Mountains, the Carpathian forelands, Slovakia, Moravia, Bohemia and Hungary (Fig. 3). Moreover, the directions and mechanisms of distribution on a micro-regional as well as meso-regional scale can be traced (Fig. 4) (PELISIAK 2003/2004; 2006).

gar complex groups, but foremost the Funnel Beaker, Funnel Beaker-Baden, Baden, Globular Amphora and the Corded Ware Cultures.

The people of the Lengyel-Polgar complex used various siliceous rocks (KACZANOWSKA 1985). Chocolate, Świeciechów and Volhynian flints as well as Jurassic flint from the southern part of Kraków-Częstochowa Upland and obsidian were exploited by the communities of the Lengyel-Polgar Culture. Tools and blanks made of these raw materials were commonly used and widely dispersed. The dispersion of artefacts suggests a multidirectional, short- and long-distance exchange and the existence of a contact-network among Lengyel-Polgar communities. In the territories to the north of the Carpathian Mountains the distribution of flints followed a latitudinal and meridional pattern (Fig. 5).

Around 4000 BC the people of the Funnel Beaker Culture appeared in the territory of Little Poland (KRUK/MILISAUSKAS 1999). In the loess uplands of the western part of Little Poland a few chrono-

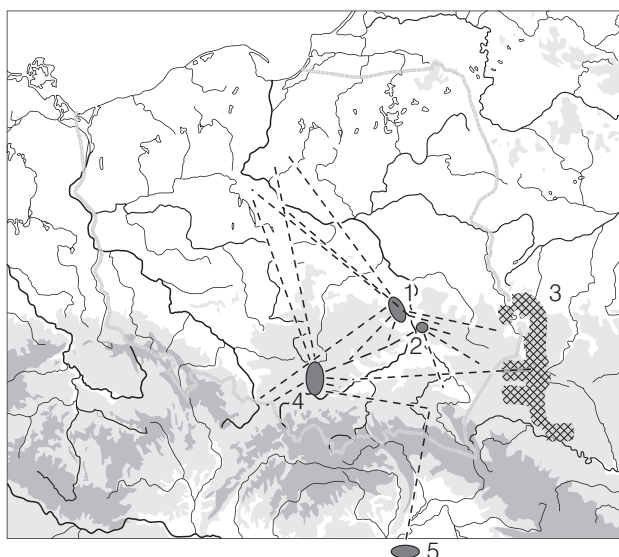


Fig. 5. The distribution of artefacts made of various flint raw materials by the community of the Lengyel-Polgar complex north of the Carpathians: 1 Chocolate Flint; 2 Świeciechów Flint; 3 Volhynian Flint; 4 Jurassic flint from the southern part of Cracow-Częstochowa Upland; 5 Obsidian.

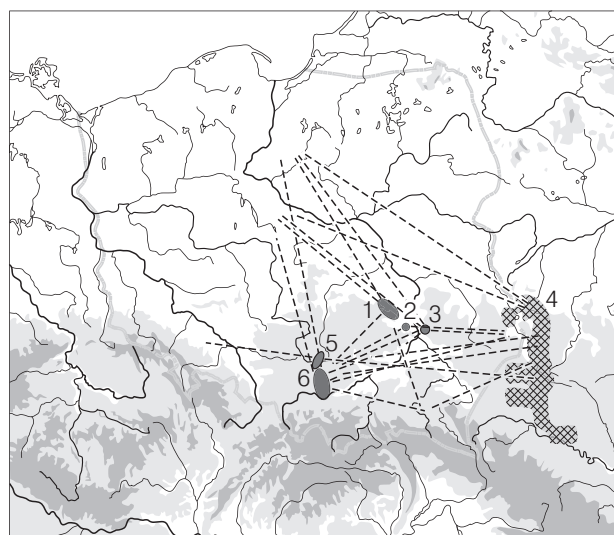


Fig. 6. The distribution of artefacts made of various flint raw materials by the community of the Funnel Beaker Culture (except the late phase) north of the Carpathians: 1 Chocolate Flint; 2 Striped Flint; 3 Świeciechów Flint; 4 Volhynian Flint; 5 Jurassic flint from the central part; 6 Jurassic flint from the southern part of Cracow-Częstochowa Upland.

logical phases of the Funnel Beaker Culture were distinguished. The first three phases (early, classical and late) refer to the typical Funnel Beaker Culture. In the Bronocice phases BR IV and BR V the Funnel Beaker pottery style evolved into the Funnel Beaker-Baden style. In the region of the settlement Bronocice significant changes in the population size occurred (the population was in decline) as well as in the social organisation along with the economic and political situation. The Baden Culture was developing within the area of present-day Nowa Huta and its close vicinity during phases BR IV and BR V. The Funnel Beaker Culture communities used various flint raw materials, including those from the fringes of the Świętokrzyskie Mountains as well as flints, whose natural deposits are located even farther east. In particular, Świeciechów flint and Volhynian flint were of great importance. At this time, these raw materials were the only materials suitable for making the long blades and large rectangular axes, which were indispensable for the economy of the Funnel Beaker people. As far as the communities of the Funnel Beaker Culture in the loess uplands of western Little Poland are concerned, the flint distribution pattern was latitudinal (Fig. 6). This situation changed in the Funnel Beaker-Baden Culture, as presented below.

Around 3000/2900 BC the earliest people of the Corded Ware Culture inhabited the loess uplands of Little Poland. Numerous Corded Ware Culture stray

finds, burial mounds (on the highest points in a region), and rarely sites of short occupation are known in the Carpathians and Little Poland. Archaeological evidence and ethnographic analogies suggest that the Corded Ware people were pastoralists in both an economic and social sense. Lithic assemblages of the Corded Ware Culture display a great variability in the flint raw materials utilised. Axes, arrowheads and other tools were made of Świeciechów, striped, chocolate and Volhynian flints as well as Jurassic flints from the southern and central part of the Kraków-Częstochowa Upland. Moreover, tools of non-local raw materials are common in the assemblages of this culture found in the Sandomierz-Opatów Upland, Bronocice region and the adjacent area as well as the Carpathians foothills (Fig. 7).

Around 3100 BC groups of the Globular Amphora Culture arrived in the territory of the Sandomierz-Opatów Upland. Thereafter, settlement development of the Funnel Beaker Culture declined in this area. Members of the Globular Amphora Culture were herders. According to our knowledge, most of the settlements of these people were small and of short duration. Relatively large settlements that were inhabited for a long time are rare. Many graves show significant divergences in burial practices. The animal bones and cattle burials suggest that domesticated animals were of significant importance for these communities. Cattle and sheep/

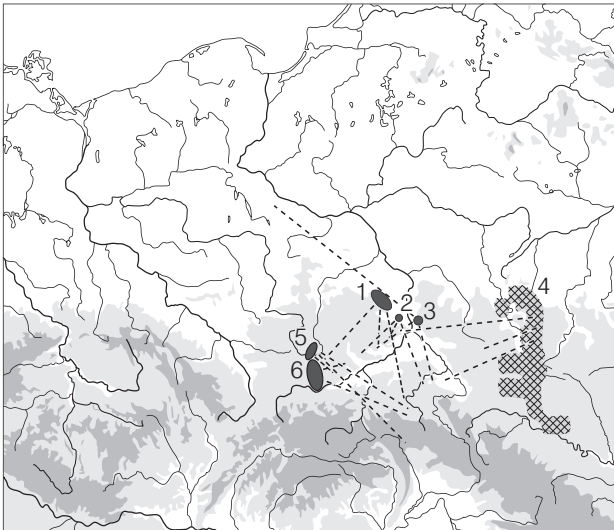


Fig. 7. The distribution of artefacts made of various flint raw materials by the community of the Corded Ware Culture north of the Carpathians: 1 Chocolate Flint; 2 Striped Flint; 3 Świeciechów Flint; 4 Volhynian Flint; 5 Jurassic flint from the central part; 6 Jurassic flint from the southern part of Cracow-Częstochowa Upland.

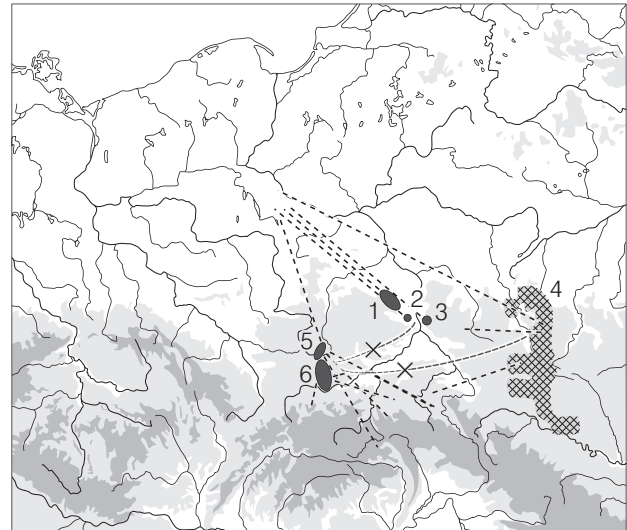


Fig. 8. The distribution of artefacts made of various flint raw materials by the community of the Late Funnel Beaker, Funnel Beaker-Baden and Baden Cultures north of the Carpathians: 1 Chocolate Flint; 2 Striped Flint; 3 Świeciechów Flint; 4 Volhynian Flint; 5 Jurassic flint from the central part; 6 Jurassic flint from the southern part of Cracow-Częstochowa Upland.

goats were the source of food, yet they were also – perhaps even predominately so – the determinant of wealth and social prestige.

It is interesting and significant that around 3000 BC, that is, when the people of the Corded Ware Culture emerged in Little Poland and the people of the Globular Amphora Culture appeared in the Sandomierz-Opatów Upland, more than 50% of the Funnel Beaker-Baden population in Bronocice micro-region was concentrated within one large “central” settlement at Bronocice. Moreover, the settlement

at Bronocice (phase BR V) was fortified. These facts and many other findings in Bronocice (KRUK/MLI-SAUSKAS 1999) are evidence of an escalation in conflicts in this region.

Around 3100 BC considerable changes took place in the utilisation of flint raw materials in the western part of Little Poland. Large-scale exploitation of Jurassic flint in the central part of the Kraków-Częstochowa Upland (type G) began. At the same time, the importation of “eastern” raw materials, mainly Volhynian flints and Świeciechów flint, stopped (Fig. 8).

## Discussion

The slash-and-burn agriculture of the people of the Funnel Beaker Culture required specific stone tools, such as large rectangular axes that were indispensable for preparing arable fields and pastures for animals as well as long blades for making sickles. Due to the considerable size of the natural nodules and/or high quality of the raw materials, Volhynian and Świeciechów flints were used in the production of such tools. Flint axes, long blades and tools made of long blades were mass-produced and widely distributed to the north, west and south of the mining centres of Volhynian and Świeciechów flint.

Besides Volhynian and Świeciechów flints, the Funnel Beaker Culture exploited other raw materials: chocolate flints, striped flint and Jurassic flints

from the southern part of the Kraków-Częstochowa Upland as well as – only to a small extent and locally – Jurassic flint from the central part of the Kraków-Częstochowa Upland (that is, type G). Except for Jurassic flint type G, the tools and blanks made of all flints mentioned were used by communities of the Funnel Beaker Culture in many regions. The dispersion of such devices reflects and attests that multidirectional contact and exchange networks among the Funnel Beaker communities must have existed.

The patterns of dispersion and utilisation of tools and blank made of chocolate, striped, Świeciechów, and Jurassic flints from both the central and the southern part of the Kraków-Częstochowa Upland



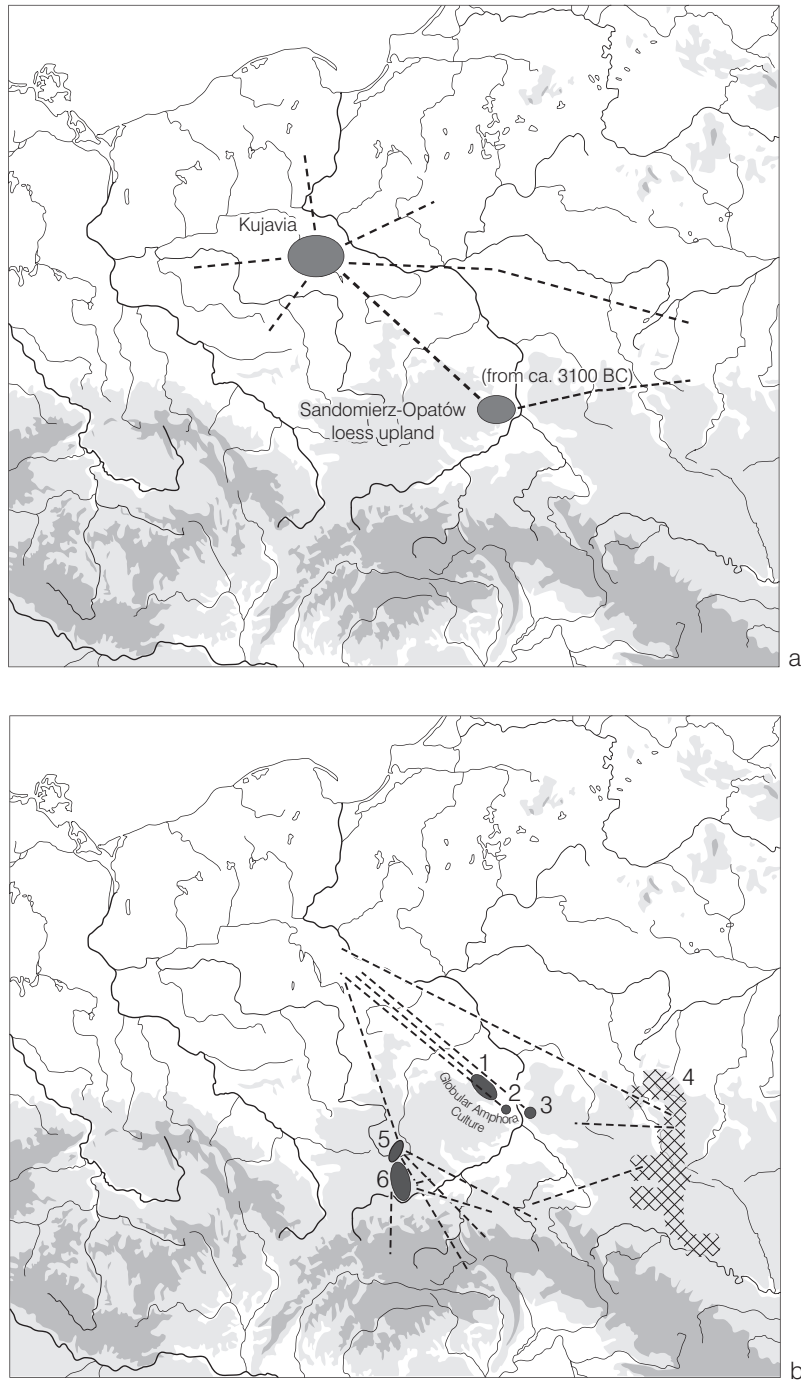


Fig. 9. Migration of the Globular Amphora Culture (a) and changes in the distribution of flint raw materials in the Late Funnel Beaker, Funnel Beaker-Baden and Baden Cultures (b) north of the Carpathians.

by communities of the Late Funnel Beaker Culture and the Funnel Beaker-Baden Culture are completely different. The large axes and long blades made of Volhynian and Świeciechów flints were exchanged to the south and northwest. They were not present in the assemblages of the Baden and Funnel Beaker-Baden Cultures in the loess uplands of western Little Poland, including the Bronocice region. In-

stead, large axes and long blades made of Jurassic flints from the central part of the Polish Jura (type G) began to come into common use.

It should be stressed that, as mentioned above, flint assemblages from Bronocice phase BR V comprised solely type G flint artefacts. No tools or blanks made of other flint raw materials were found. The absence of tools and blanks of Świeciechów and Vol-

hynian flints in the Funnel Beaker-Baden assemblages in Bronocice and the paucity of such artefacts in the Baden Culture assemblages in the western part of Little Poland may be considered as evidence of far-reaching changes in the previously existing exchange and contact networks (Fig. 9). The latitudinal contacts and exchange between the communities of the Late Funnel Beaker Culture and other cultures inhabiting the Sandomierz-Opatów Upland and the area farther east, on the one hand, and the Funnel Beaker-Baden and the Baden Cultures in the western loess uplands of the Little Poland (including the area of Bronocice), on the other hand, ceased around 3000 BC. That is, the beginning of the type G flint large scale exploitation coincided with the cessation of importation of the artefacts made of Volhynian and Świeciechów flints to communities of these cultures inhabiting the loess uplands of western Little Poland. This occurred together with the emergence of the oldest groups of the Corded Ware Culture and, above all, with inhabitation of the Sandomierz-Opatów loess zone by the

Globular Amphora Culture. In my opinion, the people of the Globular Amphora Culture posed a serious problem for the contacts between communities living in the loess uplands of western Little Poland and communities living “to the east”, especially in the Lublin Upland (Świeciechów flint deposits) and in Volhynia (Volhynian flint deposits). The political changes in Little Poland at the turn of the 4th to 3rd millennium BC could have brought about a crisis and sudden decrease in the import of tools and blanks made of Volhynian and Świeciechów flints “to the west”. It became the reason for searching for other flint resources of a similar utilisation value. The only such type of flint north of the Carpathian Mountains was the type G silicious rock. Thus, these resources began to be exploited on a mass scale and became the substitute for Volhynian and Świeciechów flints.

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#### Abstract

The “career” of Jurassic flint of variant G began about 3100 BC; prior to this the raw material was used only locally. Flint of variant G was utilised mainly by communities of the Baden, Funnel Beaker-Baden and late Funnel Beaker Cultures as well as by the Corded Ware Culture. Initially the rectangular axes and long blades were made from this flint. Large-scale flint production is confirmed by more than 200 flint workshops, in which thousands of axes and flake blanks were produced. Jurassic flint of variant G was mainly utilised by communities in the loess uplands of western Little Poland, but axes and other tools made of this flint appear in the large territory of central Europe (central Poland, the Carpathian Mountains and the Carpathian forelands, Slovakia, Moravia, Bohemia). The beginning of large-scale utilization of flint from the central part of the Kraków-Częstochowa Upland coincides with the decreasing role of Vol-

hynian and Świeciechów flints within the Baden, Funnel Beaker-Baden and late Funnel Beaker cultures, who inhabited the loess uplands of western Little Poland and appeared in the Globular Amphora Culture in the area of the Sandomierz-Opatów Upland and the Corded Ware Culture in Little Poland. It is possible that the people of Globular Amphora and Corded Ware Cultures had difficulty keeping contact with communities living in the loess uplands of western Little Poland and those who inhabited the Lublin Upland (natural resources of Świeciechów flint), Volhynia and the areas of western Ukraine (natural resources of Volhynian flint). As a consequence, “political” changes in Little Poland around the turn of 4th and 3rd millennium BC might have caused a crisis and resulted in a decrease of the import of tools made of Volhynian and Świeciechów flints from “the east” to the settlements in the “western loess uplands”.

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## The Baden Complex and the Outside World





## Balkan-Anatolian Cultural Horizons from the Fourth Millennium BC and Their Relations to the Baden Cultural Complex

By *Lolita Nikolova*

### Introduction

In our study on the Cernavodă III - Boleráz horizon, we pointed to the importance of the Hotnitsa-Vodopada site for the analysis of the beginning of the Bronze Age in the Lower Danube region and generally in the Balkans. The goal of this paper is to further expand the research towards West Anatolia and to connect the earlier Early Bronze basic sites in cultural horizons, which will be related to the Baden cultural complex. Basing our argument upon comparative ceramic, radiocarbon and archaeomagnetic evidence, we will demonstrate that the Balkans and West Anatolia shared some similar cultural processes during the fourth millennium BC. Two cultural horizons<sup>1</sup> can be argued as stages in the genesis of the Bronze Age in the western Pontic region: Hotnitsa-Vodopada - Ilipinar IV - Kuruçay 6A-6, and Dubene-Sarovka IIA - Dyadovo 12/13 - Drama-Merdzhumekya - Kum Tepe

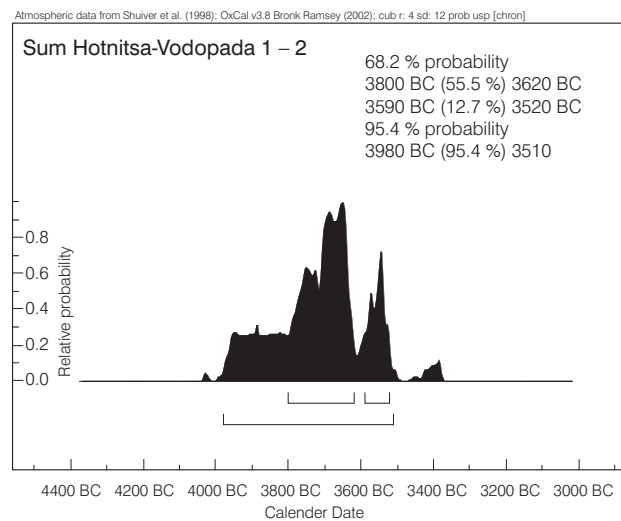


Fig. 1. Sum-probability of the radiocarbon dates from Hotnitsa-Vodopada. (n=6).

### Cultural Horizon

For the time being, the site of Hotnitsa-Vodopada (NIKOLOVA 1999 and references cited there) best represents the beginning of the Early Bronze Age in the Balkans (cp. MANZURA 2003). The pottery has some analogies with the Cernavodă I Culture as well as with Oltenița-Renie II in Muntenia (Romania), and with Koprivets (Northeast Bulgaria), Ovcharovo-Platoto and others (NIKOLOVA 2001 and references cited there). The metal finds from Hotnitsa-Vodopada represent some of the earliest high-arsenic bronze finds south of the Danube River, but typologically the dagger found there relates the site with the Middle Danube (Hotnitsa-Vodopada - Topolje

- Mondsee horizon) (VAJSOV 1993: Fig.12: 1). The radiocarbon dates (Fig. 1) are comparable with the earliest Baden dates from Central Europe, and, attributing Hotnitsa-Vodopada to the first stage of the Cernavodă III Culture (NIKOLOVA 2001)<sup>2</sup>, we have determined that the Baden - Cernavodă III horizon in the Middle and Lower Danube basin began about 3600 BC.

Of significance for our argument are some analogies in the pottery from Hotnitsa-Vodopada and from West Anatolia – Ilipinar (ROODENBERG/THISSEN 2001; ROODENBERG 2001) and Kuruçay (DURU 1996). One of the lines of comparison is Ilipinar IV

<sup>1</sup> Compared to the chronological horizon, the cultural horizon includes sites or cultures, which could be only partially synchronous.

<sup>2</sup> Recently, I. MANZURA (2003) defined Hotnitsa-Vodopada as an independent group.

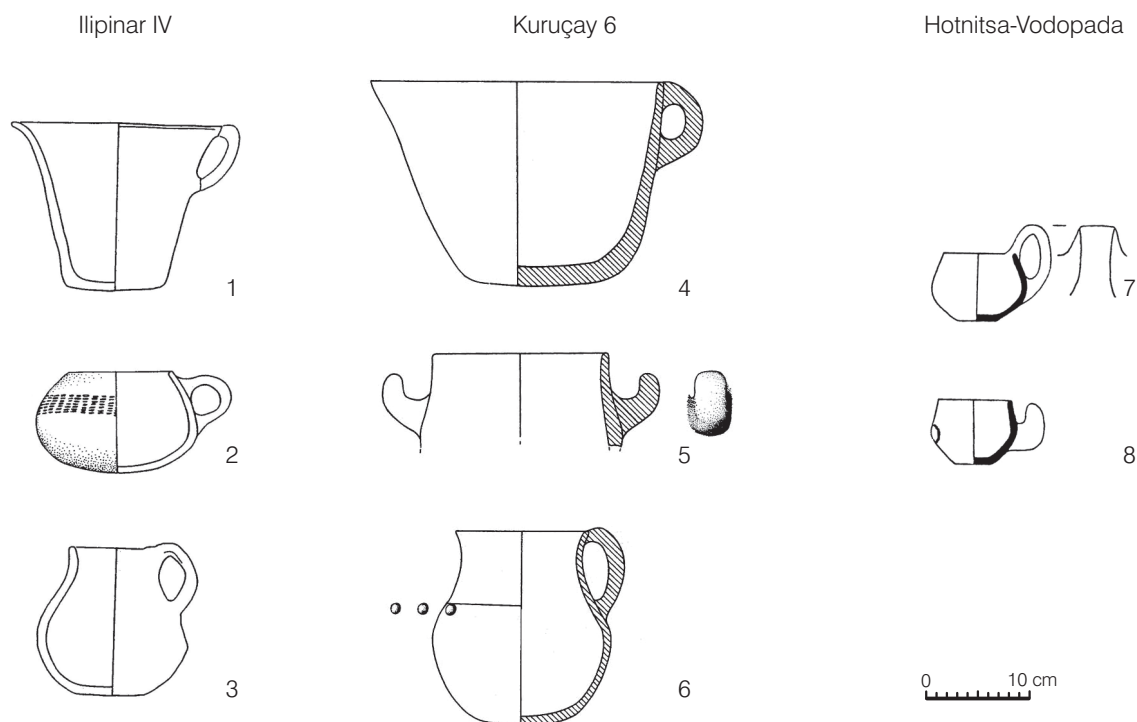


Fig. 2. Comparable table of pottery from Ilipinar IV, Kuruçay 6 and Hotnitsa-Vodopada.

(Northwest Anatolia); vessels with a rounded body are present there and in Hotnitsa-Vodopada. However, at the latter site the cups documented show a high handle (Fig. 2, 7). The other line of comparison is Kuruçay 6 (Southwest Anatolia), where a specific arch-shaped handle establishes a connection (Fig. 2, 5, 8). Since all of these sites are very distant, we believe that the similarity could indicate an indirect relationship and that it points to one of the directions of the flow of cultural interactions in the eastern Balkans within the earlier fourth millennium cal BC, that is, contacts with Anatolia. Inasmuch as pottery is a very ambiguous record, it is worth noting that Ilipinar IV and Northwest Anatolia were an integrated part of the earliest distribution of arsenic bronze in the western Pontica (BEGEMANN et al. 1994) (Fig. 3). Typologically, the daggers of Ilipinar are similar to the Bodrogkeresztúr type from Central Europe (VAJSOV 1993, Fig. 34), although the last were made of poor copper (VAJSOV 1993). Technologically, the Ilipinar bronze finds are in one group with the high-arsenic finds from Hotnitsa-Vodopada and Usatovo (or Tripolje CII) (see the map in VAJSOV 1993 for the arsenic bronze finds from Usatovo).

High arsenic bronze technology in Anatolia is steadily practiced at least from the beginning of the fourth millennium cal BC (YENER 2000). The finds from Ilipinar IV not only confirm this early dating, but probably show that the direction of the distribution of this innovation was from Anatolia to the eastern Balkans (towards the Cernavodă III - Usatovo horizon), and/or there were social interactions.

The sum probability of radiocarbon dates from Ilipinar (3940 BC<sup>3</sup> – 3530 BC at 68.2% probability) (Fig. 4) yield a very vast span, but in general the values correspond to the sum probability of the dates from Hotnitsa-Vodopada – 3800–3520 cal BC. The later values of the dates from both sites parallel the radiocarbon dates from Kuruçay – 3630–3360 BC (Fig. 5). Thus, the overlapping date for all three sites is about 3600 BC, which has been accepted as an approximate starting date for Hotnitsa-Vodopada in the Yantra Valley. However, the typological similarity between the daggers from Ilipinar and Bodrogkeresztúr may indicate that the cemetery of Ilipinar IV was founded earlier. Later Bodrogkeresztúr is documented at the Ostrovul Corbului

<sup>3</sup> The abbreviation “BC” refers to the calibrated date. Uncalibrated dates are referred to as “bp” (Ed.).



Fig. 3. Horizon Kuruçay 6 - Ilipinar - Hotnitsa-Vodopada. Comparable metal and ceramic data.

cemetery (NIKOLOVA 1999). This cemetery chronologically follows Telish 3, which dates from c. 4050 BC. On the other hand, in Central Europe the latest Bodrogkeresztúr possibly corresponds to the early Scheibenhengel horizon (NIKOLOVA 1999). Thus, it could be argued, in light of metal finds from Central Europe, that the beginning of the Ilipinar IV cemetery could even be about 3900 BC. As we do not know the duration of use of these daggers, and as the cemetery data of Ilipinar IV is not complete-

ly published, for the time being it is reasonable to offer tentative dates from about 3900/3800 BC to about 3600/3530 BC<sup>4</sup>.

In view of the comparable data discussed above, the cultural horizon possibly begins with Ilipinar IV (c. 3900/3800 BC) and ends with Hotnitsa-Vodopada and Kuruçay (after 3600 BC) (Fig. 5; 6). Following the West Pontic periodisation systems, the beginning of Ilipinar IV could have been in the later Final Copper Age as is presented in Fig. 7.

<sup>4</sup> In a preliminary communication J. ROODENBERG (2001) compares Ilipinar IV with Stara Zagora-Bereket, but in light

of recent evidence the latter cemetery follows Ilipinar IV.



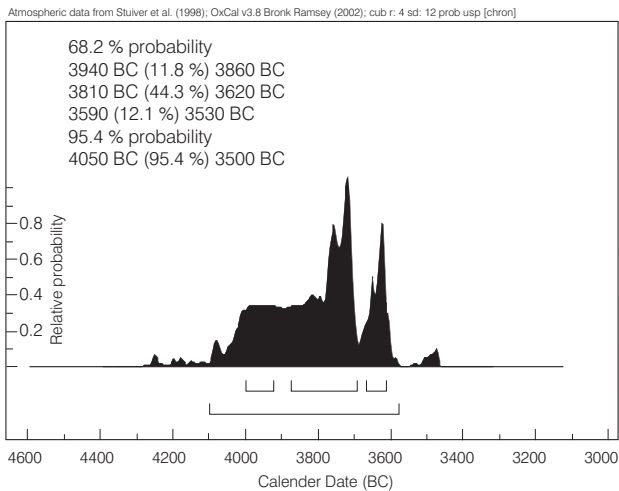


Fig. 4. Sum-probability of the radiocarbon dates from Ilipinar IV. (n=2).

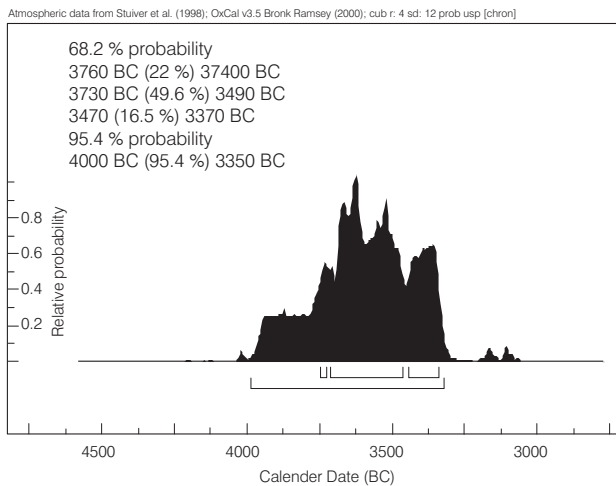


Fig. 5. Sum-probability of the radiocarbon dates from Hotnitsa-Vodopada, Ilipinar IV, Kuruçay 6A & 6b. (n=14).

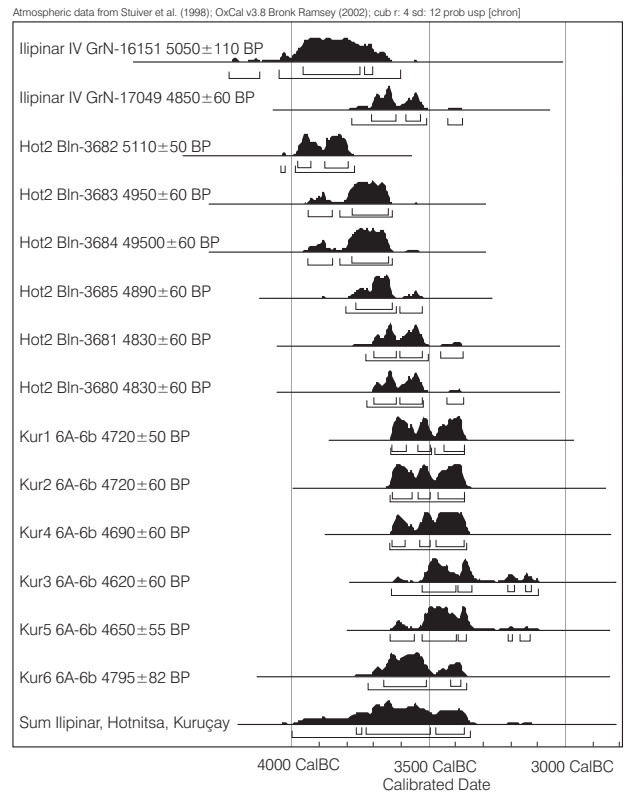


Fig. 6. Calibrated radiocarbon dates from Hotnitsa-Vodopada, Ilipinar IV, Kuruçay 6A & 6b. (n=14).

#### Earlier Dubene-Sarovka IIA - Drama-Merdzhumekya - Earlier Kum Tepe IB

Earlier Dubene-Sarovka IIA - Drama-Merdzhumekya - earlier Kum Tepe IB is the second important cultural horizon that can be defined as related to the genesis of the Bronze Age in the West Pontic region. Dubene-Sarovka is located in the Upper Stryama River valley (NIKOLOVA 2000). The Early Bronze levels were divided into three stages: Dubene-Sarovka IIA, IIB and IIC (a total of nine building levels documented stratigraphically in different parts of the sites for the time being), with the earliest (IIA) representing the Early Bronze I on the tell (Dubene-Sarovka 6-9). The levels of stage IIA are not excavated extensively, but the control trench from 2000 reveals four levels, which were below the ones excavated in 1993–1999 and represent an extended

duration of the Early Bronze I multilevel village. In view of the stratigraphic data (NIKOLOVA 2000), one radiocarbon date (NIKOLOVA/GÖRSDORF 2002) and the archaeomagnetic data (KOVACHEVA ET AL. 2002), one can argue that Dubene-Sarovka II was founded before Yunatsite 17, belonging to the earliest phase known for now of the Early Bronze Age in western Thrace.

The range of the radiocarbon date Bln-5233 ( $4571 \pm 32$  BP) from Dubene-Sarovka IIA obtained at the depth of 1.90–2.46 m ( $+313.10/+312.54$  m a.s.l.) lies between 3490 BC and 3120 BC at 68.2% probability (NIKOLOVA/GÖRSDORF 2002) (Fig. 5; 6; 8). The date has been supplemented by archaeomagnetic samples that demonstrate the relative chron-

Period	Cal/BC	The Yantra Basin (North Central Bulgaria)	The Sryama Basin (South Central Bulgaria)	The Upper Maritsa Valley	The Suzljika Basin (Southeast Bulgaria)	The Lower Tundzha Basin (Southeast Bulgaria)	Northwest Anatolia	Southwest Anatolia	Period
Early Bronze I	3000			Yunatsite	Ezero				The so-called Late Chalcolithic
	3100			17-15	13-11				
	3200		Dubene- Sarovka IIA		Dyadovo				
	3300				Pythoi 1-9 (?)		Kumtepe IB		
	3400					Drama- Merdzhumekya			
Final Copper	3500	Hotnitsa- Vodopada 1-2						Kuruçay 6A-6	
	3600								
	3700								
	3800						Ilipinar IV		
	3900								
4000									

Fig. 7. Cultural sequence in the western Pontic region (Early Bronze I).

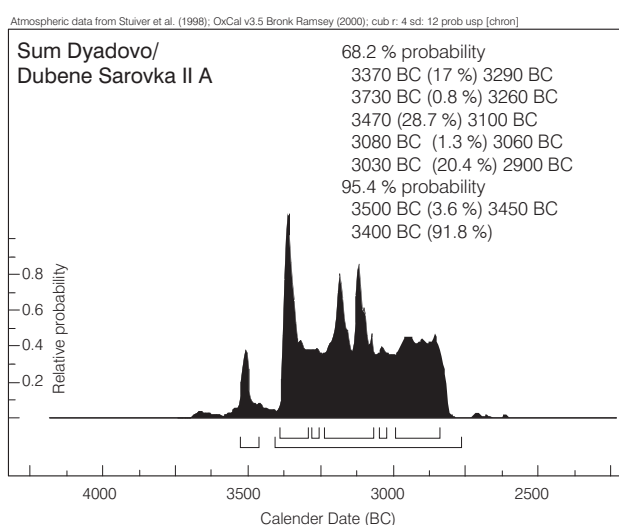


Fig. 8. Sum-probability of the radiocarbon dates from Dyadovo and Dubene-Sarovka IIA. (n=4).

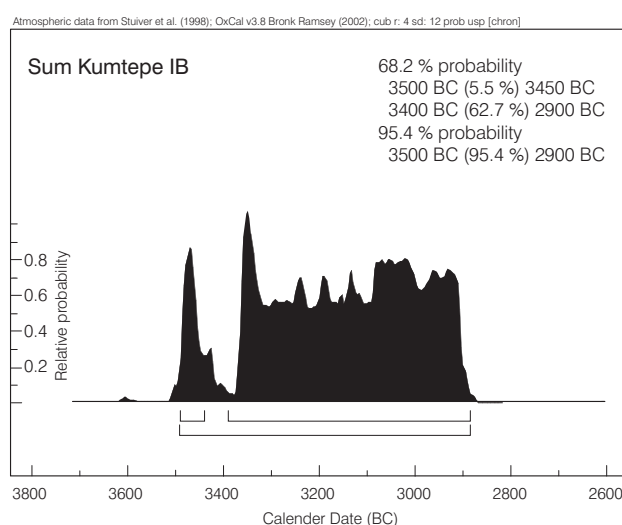


Fig. 9. Sum-probability of the radiocarbon dates from Kumtepe IB. (n=4).

ological priority of Dubene-Sarovka IIA in comparison to the earlier Yunatsite horizons from the Early Bronze Age (KOVACHEVA ET AL. 2002). In light of comparative chronology, the earliest Bronze Age horizon on the last tell, Yunatsite 17, dates to c. 3300 BC (NIKOLOVA 2000).

In western Thrace and in the upper Maritsa River valley in particular, Early Bronze I is represented at Yunatsite 17–15 as well as by the earliest Bronze Age levels of Ognyanovo (NIKOLOVA 1999; LESHTAKOV 2000). There is also data from Plovdiv-Nebet Tepe, which perhaps indicate an Early Bronze I occupation (see the discussion in NIKOLOVA 1999).

Recently, important new evidence has been published from Drama-Merdzhumekya (the lower Tundzha Valley in Southeast Bulgaria). At that site settlement pottery with some parallels at Cernavodă

III was found (LICHARDUS/ILIEV 2001) as well as at Dubene-Sarovka IIA, Dyadovo and Karanovo VIIA (NIKOLOVA 2003). Evaluation of the site data suggests that the pottery from Drama-Merdzhumekya represents the earliest phase of the Ezero Culture in Thrace, thereby demonstrating that the genesis of the Ezero Culture was a long process (NIKOLOVA 2003).

New data also came from the Dyadovo tell (Suzljika basin, Southeast Bulgaria) including radiocarbon dates (Fig. 8). The pottery from the ovens of the lowest Early Bronze levels (in the Japanese Sector) has the typical early Ezero under-rim ornaments (KAMURO ET AL. 2000), but it lacks the other specific characteristics of the Ezero 13 ceramic style.

The pottery of Karanovo VIIA also differs in some details from Ezero 13 (NIKOLOVA 1999 and references cited there). Although the published information

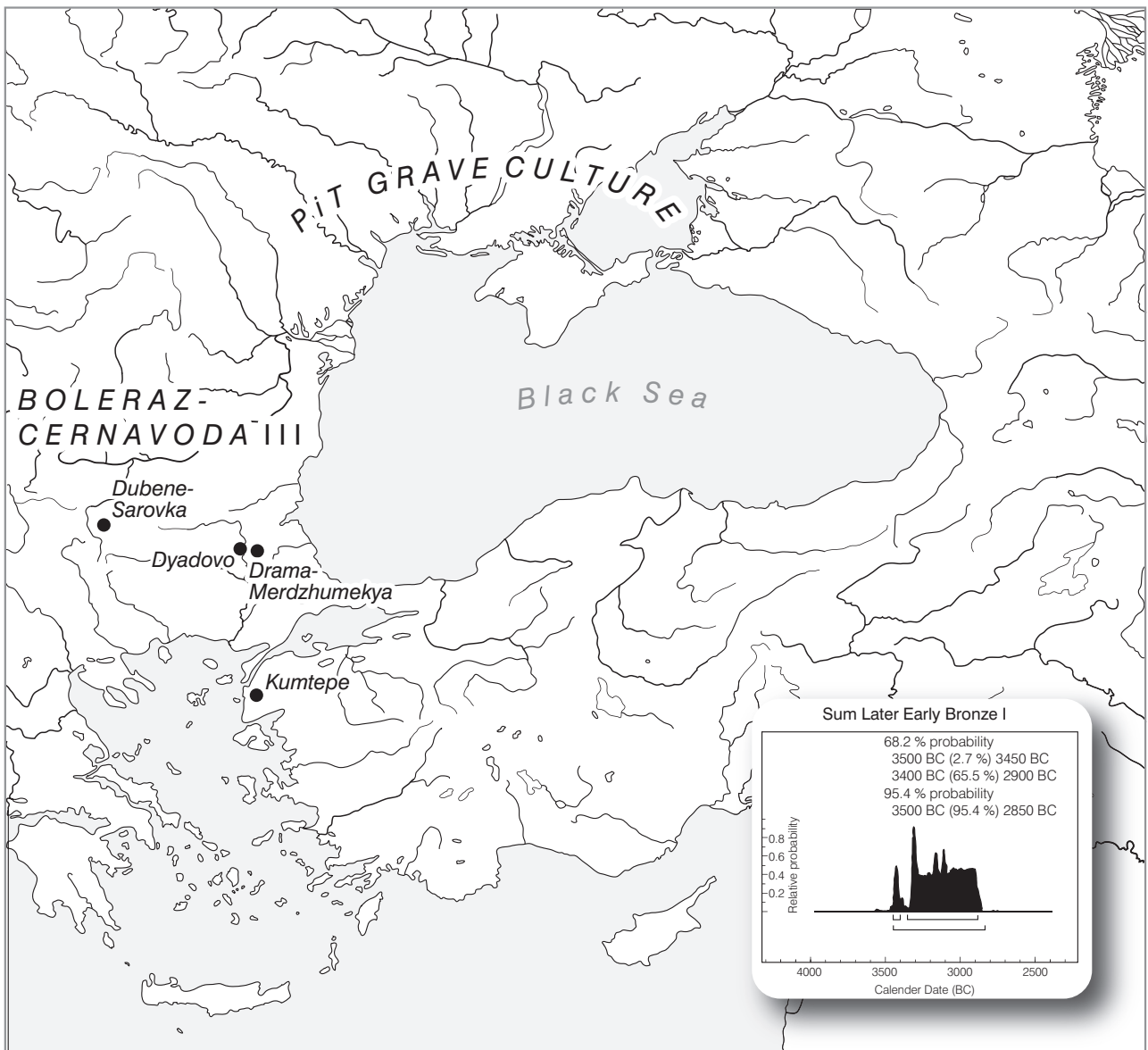


Fig. 10. The western Pontica in later fourth millennium cal BC (newly investigated sites).

on ceramic material from all three listed sites (Drama-Merdzhumekya, Dyadovo and Karanovo VIIA) is very limited, we can determine, basing upon comparative analysis, that the beginning of the Early Bronze Age cultures in northeastern Thrace (the Ezero Culture) was earlier than Ezero 13. Two new chronological levels have possibly been documented: Drama/Merdzhumekya and Dyadovo (the ear-

liest Early Bronze levels) /Karanovo VIIA.

The radiocarbon dates from Kum Tepe IB came from a well-documented stratigraphic context (KORFMANN ET AL. 1996; GABRIEL 2001). The range of two specific dates from the IB layer is between 3500 BC and 3020 BC (at 68.2% probability) (Fig. 9). The pottery is typical of the pre-Troy stage of the Early Bronze Age development in Northwest Anatolia.

#### Discussion

Recent data that include new regional evidence for a cultural sequence (Fig. 7) indicate that the origin of the Bronze Age in the Western Pontic region

was the result of an interrelated process of multi-aspected cultural interactions between close and distant communities. In our view, at this early stage the

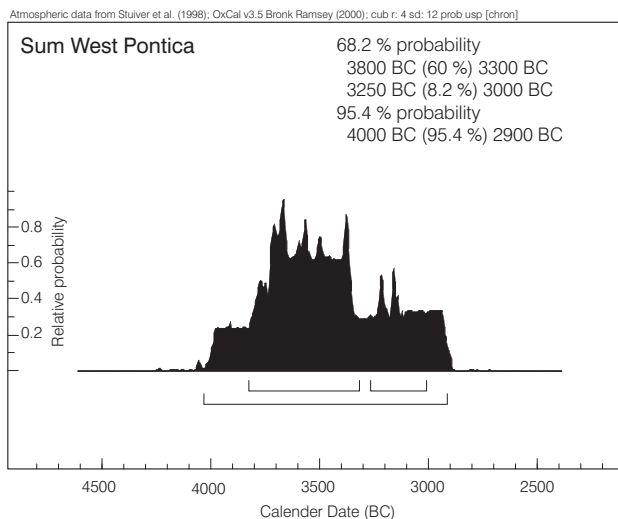


Fig. 11. Sum-probability of the radiocarbon dates from the sites discussed in the text. (n=22).

semi-mobile Balkan and Western Anatolian groups were involved in different kinds of interaction, including possible transhumance-traders of metal and other goods. To add weight to this hypothesis, we refer to the assertion that pottery with analogies at Hotnitsa-Vodopada was found at Drama-Merdzhumekya (LICHARDUS/ILIEV 2001). This finding marks one of the interrelated points between the eastern Balkans and western Anatolia.

On the other hand, Kuruçay 6A was explained as a new culture in Southwest Anatolia (DURU 1996). As a support for our hypothesis, metal finds from Kuruçay have analogies at Ilipinar. We can add that there exist some typological similarities or common tendencies in the morphological development in the pottery of Kuruçay 6A–6 and Ilipinar IV (Fig. 2:1–6). These similarities also relate the former site to Northwest Anatolia. Unfortunately, Western Anatolia from the earlier fourth millennium cal BC is not well known, and for now we can only hypothesize that the ceramic changes possibly relate to social changes and economic developments of the semi-mobile and semi-sedentary communities in the different parts of western Anatolia during the earlier fourth millennium cal BC (for the Balkans see NIKOLOVA 2003).

The significant scientific value of the recent complex investigation into the cultural processes in the Balkans and Anatolia stems from the fact that for several decades it has been popular for social scientists to posit an invasion theory as the genesis of the Bronze Age in the Balkans. According to this theory (especially the works of MARIA GIMBUTAS), the beginning of the Bronze Age in the Balkans was closely interrelated with the nomadic tribes of the Pit Grave Culture (the so-called Kurgan Culture) from

the Northwest Black Sea. According to the invasion theory, these nomads gradually penetrated into the Balkans during the fourth millennium cal BC. Recent research, however, suggests that the change in the material culture of the Balkans in the latest fifth and during the fourth millennium cal BC was the result of a complex of factors. At its core were the social changes and transformations of Old Europe from a sedentary and semi-mobile system to a system of mobile and semi-mobile communities (NIKOLOVA 2003). The process was mostly internal within the latest fifth and earlier fourth millennium cal BC, while in the later fourth millennium cal BC there was a reverse process of sedentarisation, one of the causes of which was possibly climatic variations as recently documented by geomorphological research at Dubene-Sarovka (KENDEROVA 2000).

Therefore, in light of recent evidence, one can argue that the later fourth millennium cal BC consisted of a dynamic process of graduated sedentarisation of Thrace by groups of communities that may have had dominant mobile or semi-mobile socio-economic structures in the earlier fourth millennium cal BC, archaeologically documented in the Central Rhodopes (the Yagodina group, Final Copper Age).

In modern historiography, the fourth millennium cal BC of western Anatolia is usually defined as Late Chalcolithic (ROODENBERG 1995; ROODENBERG/THISSEN 2001; cp. YAKAR 1985). However, such a definition does not describe the cultural process, since the Chalcolithic period in Anatolia started in the sixth millennium cal BC (YAKAR 1991). Arsenic bronze had been known and widely distributed since the earlier fourth millennium cal BC (YENER 2000), and there are periodisation differences between eastern and western Anatolia. Thus, another school of thought that sees the genesis of the Bronze Age in Anatolia in the later fourth millennium cal BC and even earlier (KAVTARADZE 1999) deserves attention. We propose that Ilipinar IV and Kuruçay 6A-6 were at least partially synchronous and represent the earliest Early Bronze Age in western Anatolia. However, it is possible that the cemetery of Ilipinar IV was founded in the Final Copper Age (see above).

Another early stage of Early Bronze in western Anatolia is documented at Kumtepe IB. It is the so-called pre-Troy stage, named from the time before the re-excavation of the site when that stage was known only ceramically. The investigation of the team of PROF. M. KORFMANN confirms that Kumtepe IB dates to the later fourth millennium cal BC (KORFMANN ET AL. 1996). The radiocarbon dates are close to both Sitagroi IV (see the discussion for Sitagroi IV in NIKOLOVA 1999), as well as to the newly obtained date from Dubene-Sarovka IIA.

The correlation of the new stratigraphic, typological and radiocarbon data from the sites of Kumtepe IB, Drama - Merdzhumekya, and Dubene-Sarovka IIA represent the second cultural horizon in the Early Bronze Age I in the Western Pontica, dating from c. 3400 BC. Strictly interpreted, the radiocarbon dates offer possible dating as early as c. 3500 BC (68.2% probability) (Fig. 9), while the sum-probability of the discussed radiocarbon dates from Ilipinar, Kuruçay, Kumtepe IB, Hotnitsa-Vodopada, Dyadovo

and Dubene-Sarovka IIA (Fig. 5; 6) is between 3800 BC and 3000 BC (at 68.2% probability) (Fig. 11).

The increasing evidence for a cultural transformation stands in contrast to the invasion model of M. GIMBUTAS. Because the evidence of the North Pontic region is very limited in the eastern Balkans in the earlier fourth millennium cal BC, we assume that nomads were also integrated in the West Pontic cultural network, not as invaders, but as partners and groups with similar social-economic structures.

### Relations with the Baden Cultural Complex

Since the Baden cultural complex developed over a vast territory, we will limit our conclusions to the areas which were close to the Yunatsite Culture.

First of all, we need to stress the fact, that in the old scheme the basic comparative site from Thrace was the Ezero tell. However, the Baden cultural complex is a central European phenomenon, and there are no direct contacts between the Ezero and this complex. It is the earlier Yunatsite Culture (NIKOLOVA 2000) that contains some analogies in the pottery with early Baden, but they developed in a different cultural context. Most typical are the burials in settlements, which at the Yunatsite tell include mostly infants while the typical village burials of the Baden population were adults. However, there are two adult graves at the Yunatsite (possibly the 16th horizon), although they occurred in the context of typical infant burials. These cultural characteristics may be an argument that the similarity in the pottery was a result of contacts, but not a strong migration from the Middle Danube region.

In relative chronological terms, our first horizon corresponds to the Boleráz in the Middle Danube (see also NIKOLOVA 2001). The Boleráz analogies closest to Thrace come from Radomir-Vakhovo and from Vaksevo in the Struma valley, where the Boleráz influence was especially strong. However, both sites do not consist of thick layers from Early Bronze I, and there are missing radiocarbon dates,

on the one hand. On the other hand, analogies with the Yunatsite I Culture exist as elements in the general style of the channeled pottery. It is also worth noting that we do not have typical Classical Baden pottery in the Struma River valley, for instance like in the region of Banat. In other words, the archaeological data do not allow us to argue with certainty that late Boleráz finds in the Struma valley pre-date the beginning of Dubene IIA and Yunatsite 17. The indirect radiocarbon dates favor such conclusions, while the general distinctiveness of the Yunatsite 17–15 and Dubene IIA make the pottery closer to Boleráz than to later Baden.

We have two opportunities to resolve the problem. First, we have to give priority to the radiocarbon dates and to acknowledge that about 3300/3200 cal BC contacts of the South Balkans with the Middle Danube were limited; in the latest fourth millennium in the Yunatsite Culture we can document retarded Boleráz elements together with typical Yunatsite-style elements. Then, our first horizon is synchronous with Boleráz, and the second horizon – with Classical Baden.

The second model is to accept that the beginning of the Yunatsite Culture corresponds to the latest Boleráz. Then, we have to date the end of the southern peripheral regions of Boleráz at 3300/3200 cal BC.

We believe that new radiocarbon and stratigraphic data would help to resolve the problem.

### Conclusion and Summary

Recent archaeological evidence suggests that similar cultural processes and strong interactions between communities developed in vast regions of the prehistoric Circumpontic region. During the fourth millennium cal BC these processes and interactions produced a similarity in the material culture and the distribution of advanced bronze technology, as initiated by arsenic bronze artifacts (the so-called Circumpontic metallurgical province, after E. CHERNYKH). It can be presumed that arsenic

bronze technology was invented in Anatolia and then spread rapidly in the western Pontica during the first half of the fourth millennium cal BC (and even to Central Europe – e.g. Mondsee (BEGEMANN ET AL. 1994)), or at least there were intensive social interactions in the distribution of this innovation. We assume that the transmitters of this innovation were transhumance-traders from Anatolia and the Balkans. The data from Thrace confirm a graduated sedentarisation of this territory during

the period of the initial development of the Ezero and Yunatsite Cultures (the later fourth millennium cal BC).

Ceramic evidence, metal finds and radiocarbon dates constitute a basis from which to argue that Hotnitsa-Vodopada - Ilipinar IV and Kuruçay 6A-6 represents a cultural horizon, which possibly represents the end of the Final Copper Age (earlier Ilipinar) (?) and the genesis of the Early Bronze Age in the western Pontic region, to which also the Usatovo culture (that is, the horizon of the first high-arsenic bronze finds in the western Pontica) belongs (approx. 3800 BC–3600/3500 BC). Recent stratigraphic, ceramic, radiocarbon and archaeomagnetic data allow one to posit a second Early Bronze cultural horizon in the western Pontica – earlier Dubene-Sarovka IIA - Dyadovo 13/12 - Drama-Merdzhumekya - earlier Kum Tepe IB (c. 3400–3300/3200 BC), which preceded Ezero 13 - Yunatsite 17. Both horizons correspond to Boleráz and Classical Baden in the Middle Danube basin in light of the radiocarbon dates, while typologically at least the beginning of the second horizon could have overlapped with latest Boleráz to the south of the Danube.

This study demonstrates the benefit of complex comparative research of archaeological sites from distant, yet interrelated regions in Eurasia. It offers the thesis of an interrelated genesis of the Bronze Age in the Balkans and in Anatolia. The archaeological data are in accord with recent Indo-European research, which describes the prehistoric continuity

of the Balkans and Indo-Europeanisation as a long process of development of the autochthonous population (STEFANOVICH 2003 and ref. cited there).

Thus, in light of recent evidence, a theory of interactivity can be proposed for the genesis of the Bronze Age in the western Pontica, which included western Anatolia, the eastern and central Balkans and the Northwest Black Sea. In this large region we can also include the Middle Danube basin, expressively demonstrated by the Boleráz-Cernavodă III horizon. We aver that a process of similar social change and transformation characterized both near and distant communities in this vast region. The Baden cultural complex was, through the central Balkans and the Danube, integrated into the western Pontica cultural network and possibly even continental Greece was linked. In vast regions of Eurasia, comparable cultural processes and strong interactions between communities resulted in a similarity in the material culture and in the distribution of advanced bronze technology, initiated by high-arsenic bronze artifacts. The bearers of the earliest bronze cultures were mostly mobile and semi-mobile communities, with tendencies toward sedentarisation.

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## Abstract

In our study on the Cernavodă III - Boleráz horizon, we pointed to the importance of the Hotnitsa-Vodopada site for the analysis of the beginning of the Bronze Age in the Lower Danube and generally in the Balkans. The goal of this paper is further to expand the research towards West Anatolia and to connect the earlier Early Bronze basic sites in cultural horizons, which will be related to the Baden cultural complex. Basing our argument upon comparative ceramic, radiocarbon and archaeomagnetic evidence, we will demonstrate that the Balkans and western Anatolia shared some similar cultural processes during the fourth millennium cal BC. In light of recent evidence, a theory of interactivity for the genesis of the Bronze Age in the western Pontica, which included western Anatolia, the eastern and central Balkans, and the Northwest Black Sea,

can be proposed. In this large region we can also include the Middle Danube basin, expressively demonstrated by the Boleráz-Cernavodă III horizon. We aver that a process of similar social change and transformation characterized both near and distant communities in this vast region. The Baden cultural complex was, through the Central Balkans and the Danube River, integrated into the western Pontica cultural network and possibly even continental Greece was linked. In vast regions of Eurasia, comparable cultural processes and strong interactions between communities resulted in a similarity in the material culture and in the distribution of advanced bronze technology, initiated by high-arsenic bronze artifacts. The bearers of the earliest Bronze cultures were mostly mobile and semi-mobile communities, with tendencies toward sedentarisation.

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## Mappings of Late Neolithic Cultures in the Austrian Danube Region<sup>1</sup>

*By Christian Mayer*

### Study Area and Data

The study area comprises the Austrian federal states of Burgenland, Vienna, Lower Austria, Upper Austria and the northern part of Salzburg (Fig. 1). About 1600 sites are known from the time span discussed here, whereby 205 sites of them belong to the Baden Culture.

The data on which paper is based comes from the National Archaeological Survey conducted by the Bundesdenkmalamt. This survey stores all available archaeological reports and fuses them into sites according to a specific data model (MAYER 1996a, 321; 2002, 37).

### Chronological Aspects

This section introduces just some of the chronological aspects concerning the Baden Culture in Austria; it is not intended to present a comprehensive chronological discussion.

Current knowledge of the Baden Culture's chronology and typology relies almost exclusively on two sites in Lower Austria. The first is the settlement site of Ossarn, Grasberg, partly excavated by JOSEF BAYER (1928) between 1927 and 1931; the second one is Lichtenwörth, Oberes Kreuzfeld, excavated in 1978 by J.W. NEUGEBAUER (1978, 233).

The finds from Ossarn were published in 1996 (MAYER 1996b), and Lichtenwörth was analysed in 1983 (MAYER 1983). Some of the findings concerning Lichtenwörth were presented in papers and lectures (MAYER 1990, 101; 1996c, 161). A monograph about some twelve hundred objects from Lichtenwörth is currently being worked on.

Both Ossarn and Lichtenwörth belong to the so-called classical period of the Baden Culture. The detailed comparison of Ossarn and Lichtenwörth revealed that Ossarn existed at least over two consecutive periods (Ossarn I and OssarnII/Lichtenwörth), while Lichtenwörth markedly exhibits the typological characteristics of the younger chronological horizon.

No well published Austrian site could be named to characterise the older horizon of the Baden Culture, the so-called Boleráz phase. In her paper on

the Baden Culture from 1967 (RUTTKAY 1967, 441), E. RUTTKAY mainly referred to sites around the town of Mödling south of Vienna and later to the results of her excavation on the Jennyberg near Mödling (RUTTKAY 1966/70, 252; 1971 a, 16; 1995, 145), but still no monograph on a major Boleráz site has been published so far. Only numerically small amounts of material from Donnerskirchen, Kreutberg (KAUS 1984, 20), Neusiedl am See (FOLTINY/OHRENBERGER 1952, 20) and Schwechat (RUTTKAY 1971 b, 21) have been published. However, these assemblages certainly do not provide a sufficient overview of the typology of Boleráz phase of the Baden Culture. The Jennyberg site might possibly hold such a potential, but due to the stratigraphical characteristics of the site, most of the finds must be regarded as not stratified.

Therefore, concepts of the chronology of the Baden Culture in Austria should be developed cautiously: Since none of the sites quoted so far was excavated completely, none gives reliable evidence concerning the typology of the site itself, much less the typology of the Baden Culture in Austria as a whole. However, three major typological groups of obvious chronological character are discernible, but the current knowledge of the typology of the Baden Culture in Austria does not justify the connotation of these three typological groups as periods or phases. It seems more appropriate to

<sup>1</sup> I am grateful to Dr. Suzanne Weinberger, Stillwater/Oklahoma, for her comments on my text.



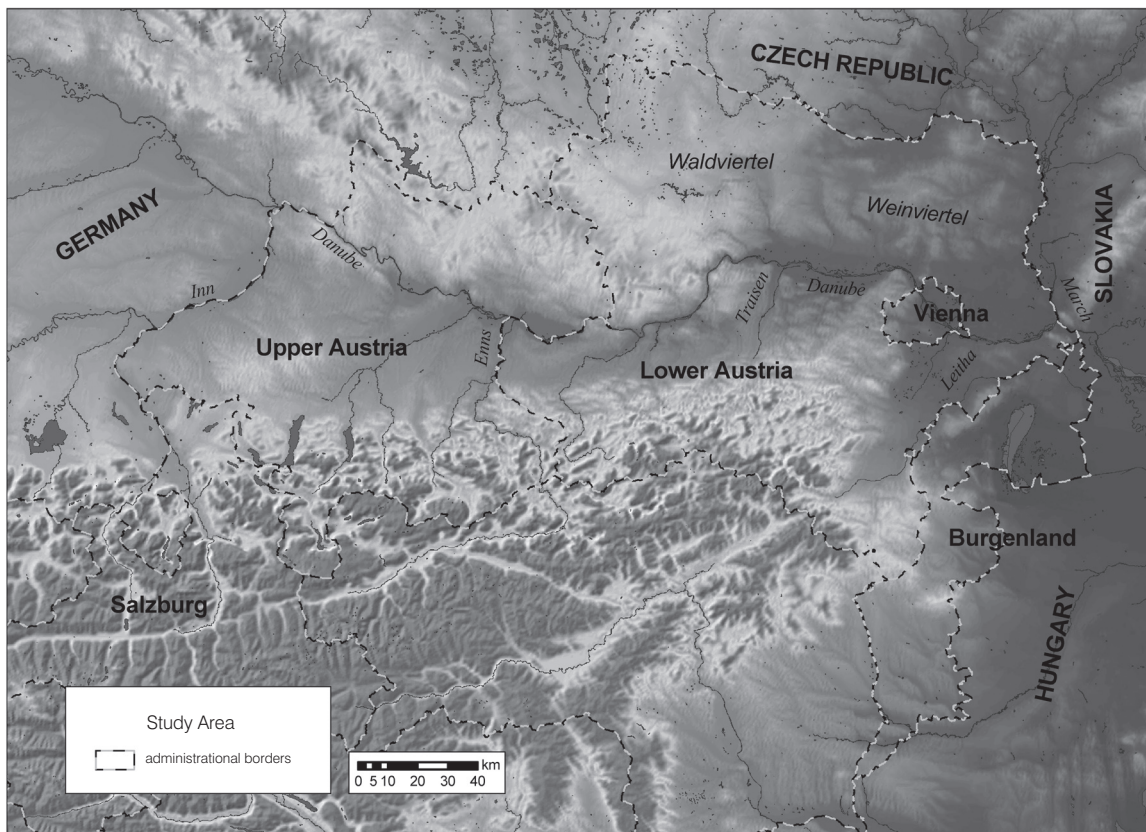


Fig. 1. Study area with marked administration borders.

denote these typological groups as horizons (MAYER 1985; 1996 b).

Nonetheless, the situation is not as hopeless as it seems: Ossarn makes clear that the typological development from Ossarn I to Ossarn II/Lichtenwörth is not so much a replacement of index types, but rather a shift in the relative occurrence of typical pottery shapes and decoration patterns. In 1995 a major Baden site was partially excavated at Kittsee, Steinfeld Äcker (MAYER/EGGER 1995, 10, 604), within sight of the castle of Bratislava, where a piece of pottery decorated with herringbone decoration was found together with finds of horizon Ossarn I. In Pottenbrunn near St. Pölten, only a few kilometres south of Ossarn, a spool-shaped whorl ('Tonspule' in German), a type usually dated to the Boleráz horizon of the Baden Culture, was found together with objects from Ossarn I (FRIESINGER 1972, 113; NEUWIRTH/WINDL 1973, 18; WINDL 1973, 30). This hints at a continuous development from Boleráz to Ossarn I, as stated by V. NEMEJCOVÁ-PAVUKOVÁ (1974, 238).

Before discussing the map of the Baden Culture in Austria, one more look at Kittsee: A piece of pottery decorated with herringbone decoration was used as an index feature for the Boleráz phase. But using that decoration as a key dating element attaches an

importance to the herringbone decoration, which it possibly does not have. In fact, since only very few closed finds were published in Austria, and not only in Austria, it seems to be nearly impossible to assess the importance of this decoration pattern for typological use. Even other elements usually regarded as characteristic of the Boleráz period, like decoration on the inner side of large dishes, are present in the very young material from Lichtenwörth. Equally, the fluting decoration ('Kannelur' in German), is deemed as the principal decoration of the Classical phase of the Baden Culture, a notion that ignores the presence of fluting decoration in the Boleráz horizon as well as in Ossarn II. This reminds us again that the typological development in the Baden Culture is a shift in portions of types and decorations, but not a complete replacement of one type by another. Nevertheless, most datings of sites to the Boleráz phase rely on the occurrence of herringbone decoration as the key dating element of this period, while most sites that produced objects decorated with fluted patterns are dated to the classical period of the Baden Culture. Necessarily, our picture of the Baden Culture is very blurred. This fact should be kept in mind, when drawing and analysing a map of the sites of the Baden Culture.

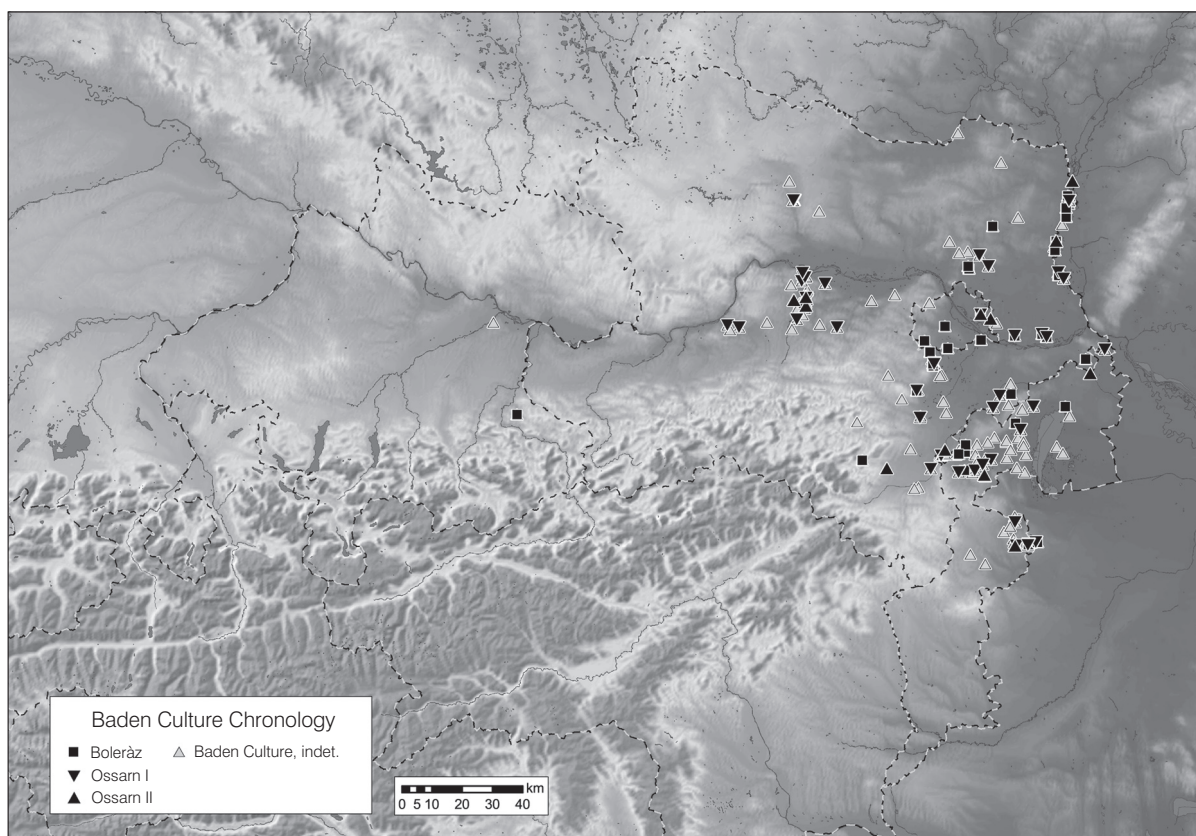


Fig. 2. Baden Culture Chronology.

### A Distribution Map of the Baden Culture in Austria

The distribution map of sites of the Austrian Baden Culture according to their chronological position (Fig. 2) reveals concentrations in Lower Austria along the River Traisen, in central and northern Burgenland and in the northeastern parts of Lower Austria along the River March. Currently, no sites of Baden Culture are recorded from regions like the central Weinviertel and the eastern Waldviertel, although both regions are known for their mass of prehistoric sites. A similar lack of Baden Culture sites occurs in the region southeast of Vienna and east of the Neusiedler Lake in Burgenland.

The majority of the sites are settlements (Fig. 3). Nevertheless, not even a single posthole can be ascribed reliably to the Baden Culture. Remains of a house from Pottenbrunn usually dated to the Baden Culture (WINDL 1973, 30) go back to the beginning of the Late Neolithic, since the characteristics of the building as well as the pottery attest a higher age of the house. Until the 1980s, only very few graves had come to light, but since then quite a number of graves were discovered. Still only one proper cemetery is currently known.

It is located near Sitzenberg about 25 km northwest of Vienna (MAYER 1991, 36; NEUGEBAUER ET AL. 1997, 453).

Experience has shown that one should not jump to conclusions about concentrations of sites observed in distribution maps. Knowing the history of prehistoric research in Austria raises serious doubts about the reliability of the map in Fig. 2. In fact, each concentration in the map can be explained not only as a result of the prehistoric situation: The concentration on the Traisental reflects the activities of J. BAYER and G. HAHNL, the excavators of Ossarn between 1920 and 1940, and of J. W. NEUGEBAUER in the 1980s and 1990s. Most of the sites along the River March, northeast of Vienna, were found in the 1920s during the construction of the March river embankment. The concentration near Eisenstadt is result of the efforts of the Burgenländisches Landesmuseum from the 1940s to the 1990s. Hence, the actual spatial distribution of the sites shown in Fig. 2 possibly reflects foremost activities of researchers and institutions and not a cultural phenomenon.

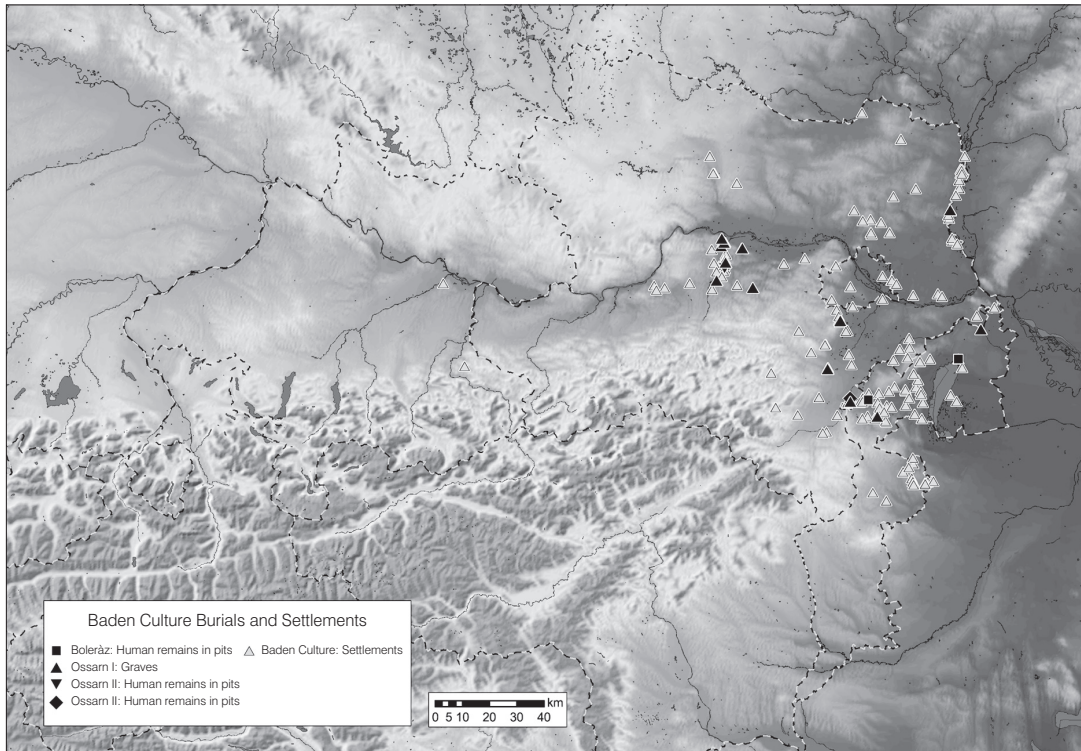


Fig. 3. Baden Culture: burials and settlements.

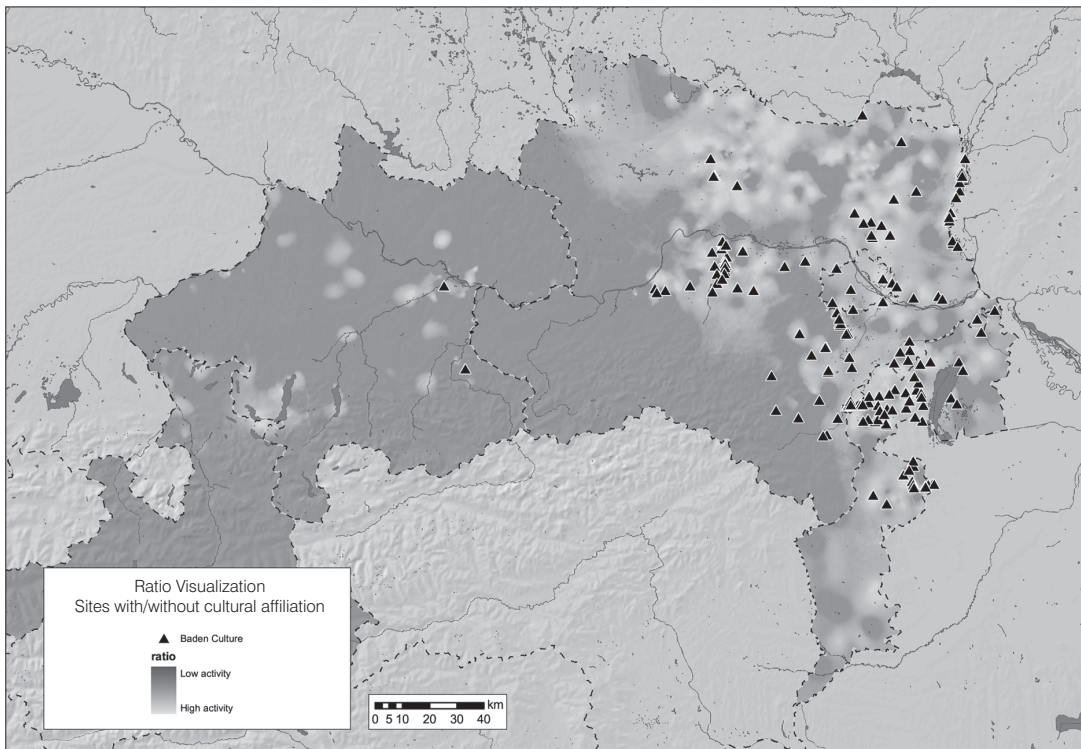


Fig. 4. Ratio of sites with/without cultural affiliation.

## A Measure of Archaeological Activity

To discuss whether the spatial distribution of sites in Figure 2 is due to properties of the Baden Culture or due to activities of persons and institutions, a measure of archaeological activities is of help.

To construct such a measure, one can suppose that the more scientific work is performed in a region, the better the knowledge of the prehistoric situation is, as most of the typological and chorological characteristics of a region are known. Consequently, the number of sites without cultural affiliation per spatial unit in such a region should be low compared to the number of sites with cultural affiliation. Expressed as a ratio of the number of sites with and without cultural affiliation, the value obtained can serve as a simple measure for high or low regional research activity:

To compute the ratio between sites with and without cultural affiliation, about 3600 Neolithic sites known in the study area were classified accordingly, and the ratio proposed was computed for each site. Finally, the data were transformed into a map (Fig. 4) using an interpolation method called Kriging (CRESSIE 1993, 105). The dark grey parts on the map in Figure 4 denote areas with about an equal number of sites with and without cultural affiliation. The light grey regions correspond to many sites with known cultural affiliation and only a few without. Obviously, the archaeological activity in the Austrian Danube region is intense only in its eastern part. Consequently, our picture of the Late Neolithic period is dominated by the concepts developed for these parts of Austria.

## The Map of the Baden Culture Revisited

It is not difficult to read from the map in Fig. 4, that in regions where comparatively many sites have cultural affiliation, the intensity of sites of the Baden Culture is high as well. We conclude from this, that the map of the Baden Culture in Austria displays – above all – the activities of persons and institutions. The concentrations of sites should not be interpreted as a property of the Baden Culture. Nevertheless, can Fig. 4 tell us at least something about the spatial distribution of the Baden Culture in Austria?

The hypothesis about the artificial character of the distribution of sites fits quite well with the exception of a region northwest of Vienna, the eastern Waldviertel. There the measure applied suggests high archaeological activity, but no sites of the Baden Culture are known so far.

To investigate further into this matter, a classified elevation map of the working area was drawn (Fig. 5). The dark grey colour denotes elevations higher than 350 m. Obviously the vast majority of the sites are located in regions below 350 m. So it is safe to conclude that the Baden Culture is a culture of the lowlands and that the lack of sites in the Waldviertel does reflect very well the prehistoric situation in this region. Of course, there are exceptions to this: The sites in the Semmering region, south of Vienna at the

border of Lower Austria to Styria, are located at altitudes up to 800 m, yet close to copper deposits.

Is the same conclusion true for the southernmost Burgenland, where no sites of the Baden Culture are known so far? The topography there is not very different from the regions, in which the Baden Culture is well known, and the level of archaeological activities is comparable to that in northern Burgenland. Therefore, the lack of sites most likely reflects the prehistoric situation; the southernmost border of the Baden Culture is located at the hills southwest of Oberpullendorf that separate the middle part of Burgenland from the southern part.

The western border of the Austrian Baden Culture is much more difficult to determine. Fig. 4 shows two sites in Upper Austria, one from Ebelsberg, Wachtberg near Linz (PERTLWIESER/TOVORNIK 1970, 15, Taf. IV.1), and one from Rebensteiner Wand, about 30 km south of Linz (MITTERKALKGRUBER 1992, 36). Both sites lie at a great distance from the majority of sites of the Baden Culture and are separated from other sites of the Baden Culture by a region of very low archaeological activity. Therefore, the map in Fig. 4 does not provide reliable evidence about western border of the Baden Culture in Austria.

## Neighbours of the Baden Culture

It is clear from the maps presented thus far that we do not have a reliable picture of the spatial distribution of the Baden Culture. While there is some good evidence of the southernmost and the northwestern borders of the Baden Culture in Austria, it

is not possible to locate its western border by the distribution of the sites of the Baden Culture alone. To gain more information about the western border of Baden Culture, one can look at its neighbours in space and time.

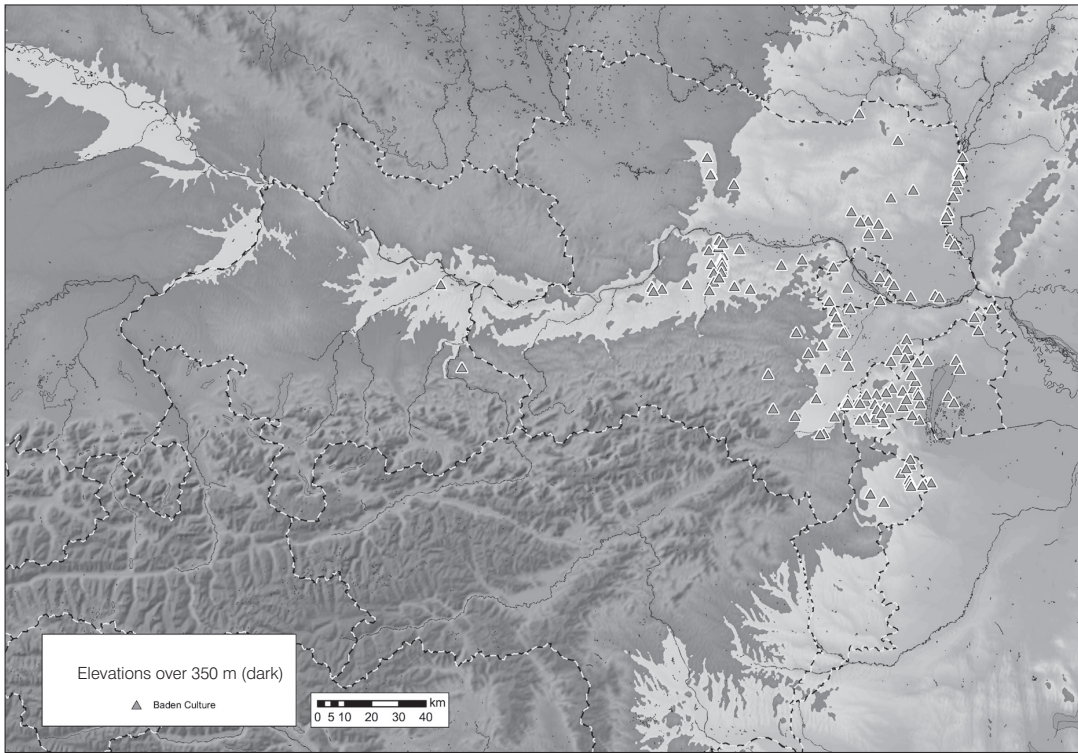


Fig. 5. Elevations over 350 m (dark).

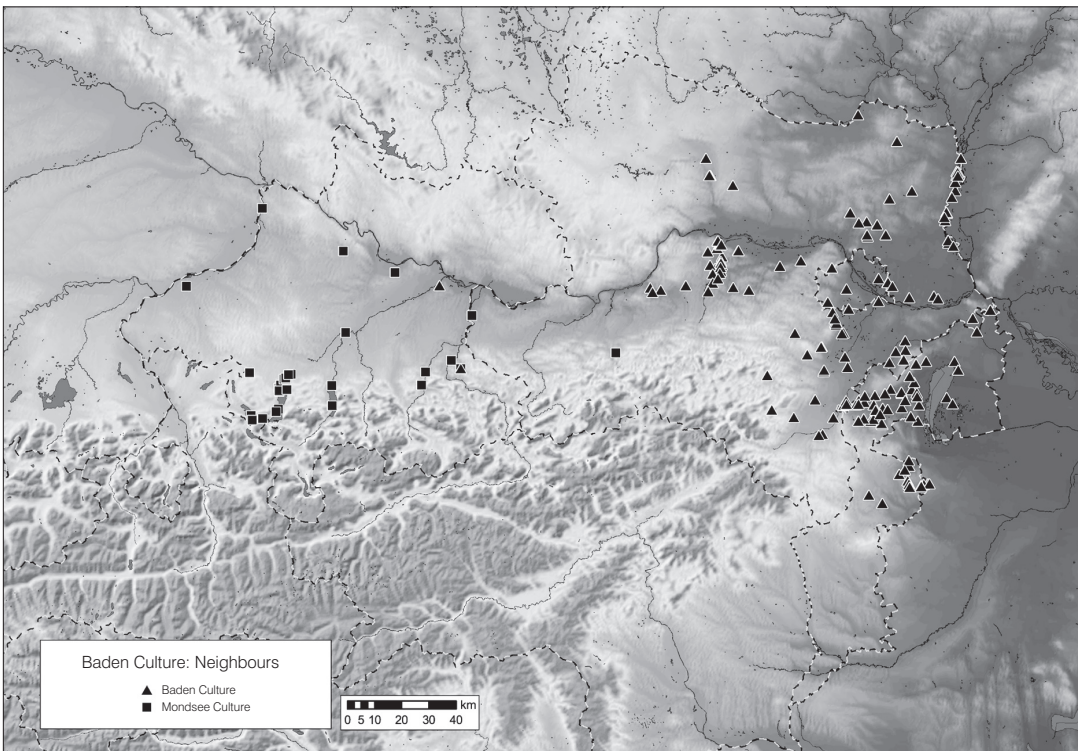


Fig. 6. Baden Culture: Neighbours.

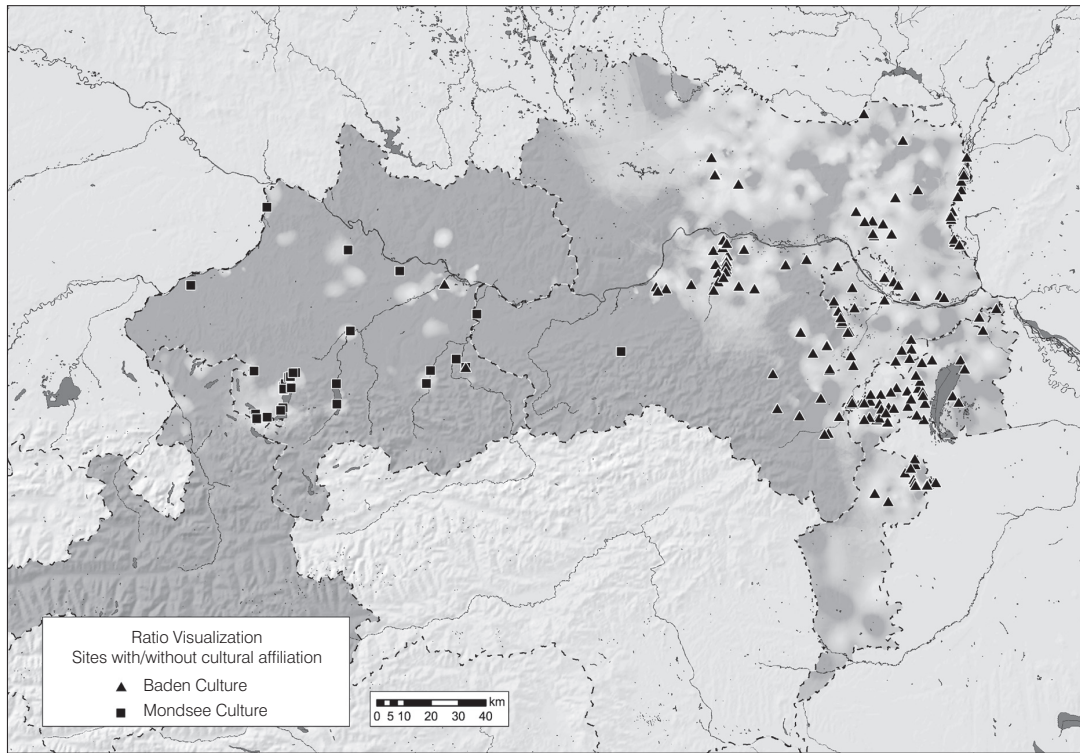


Fig. 7. Ratio of sites with/without cultural affiliation.

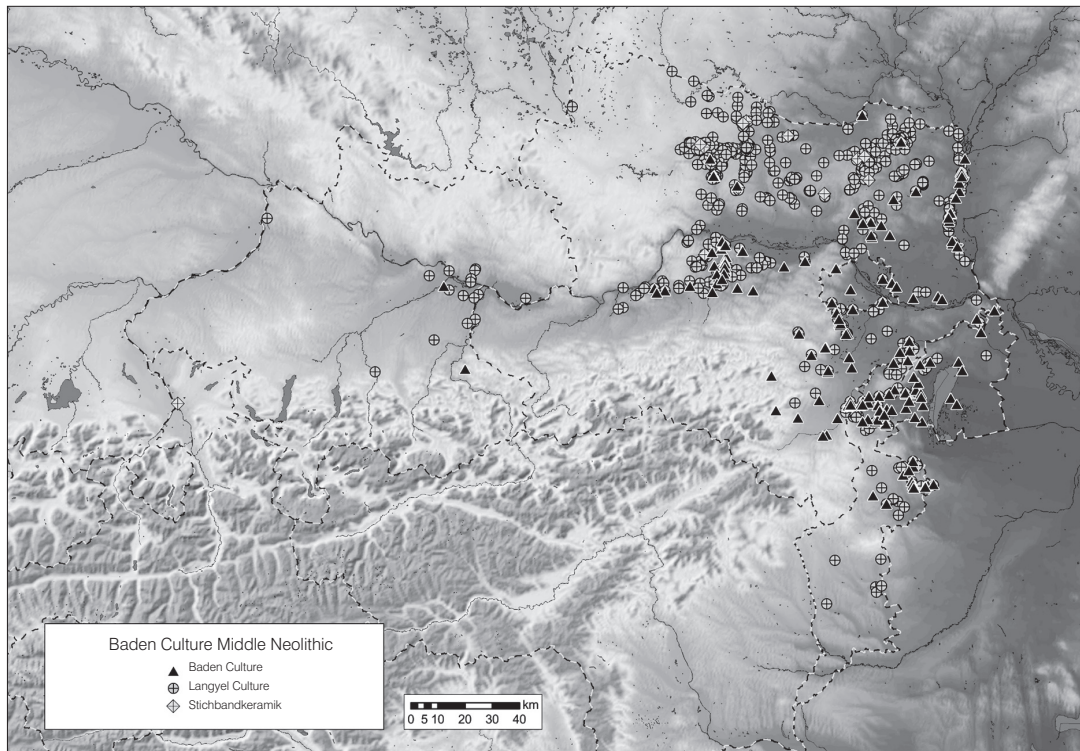


Fig. 8. Baden Culture: Middle Neolithic.

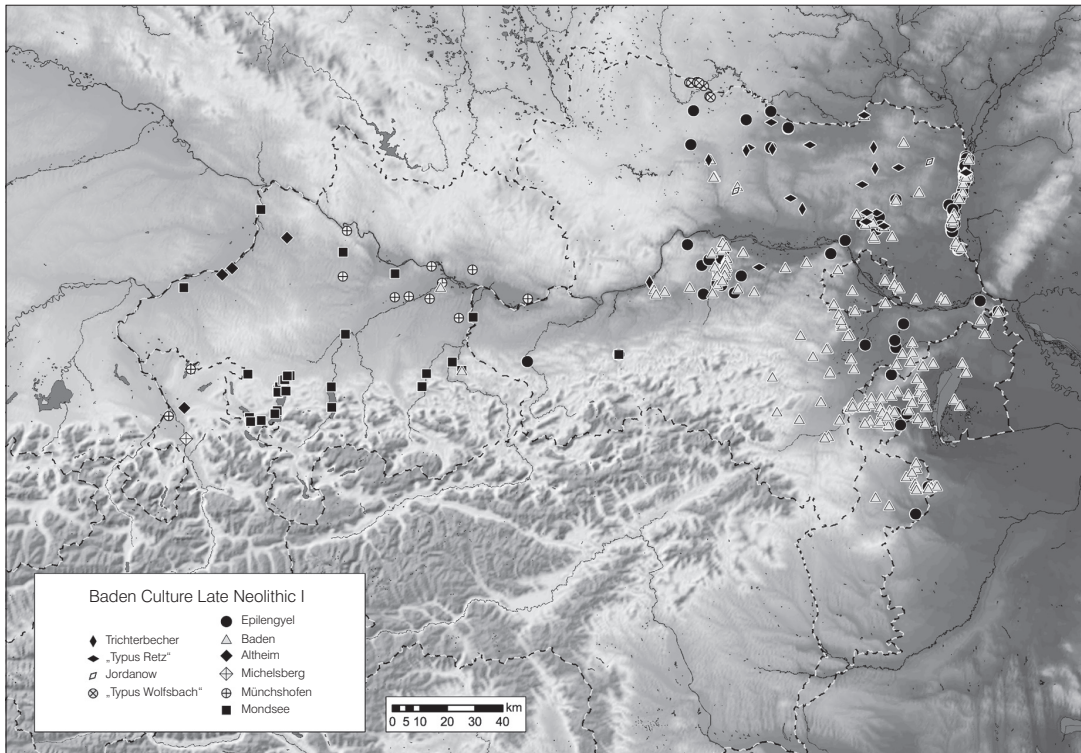


Fig. 9. Baden Culture: Late Neolithic I.

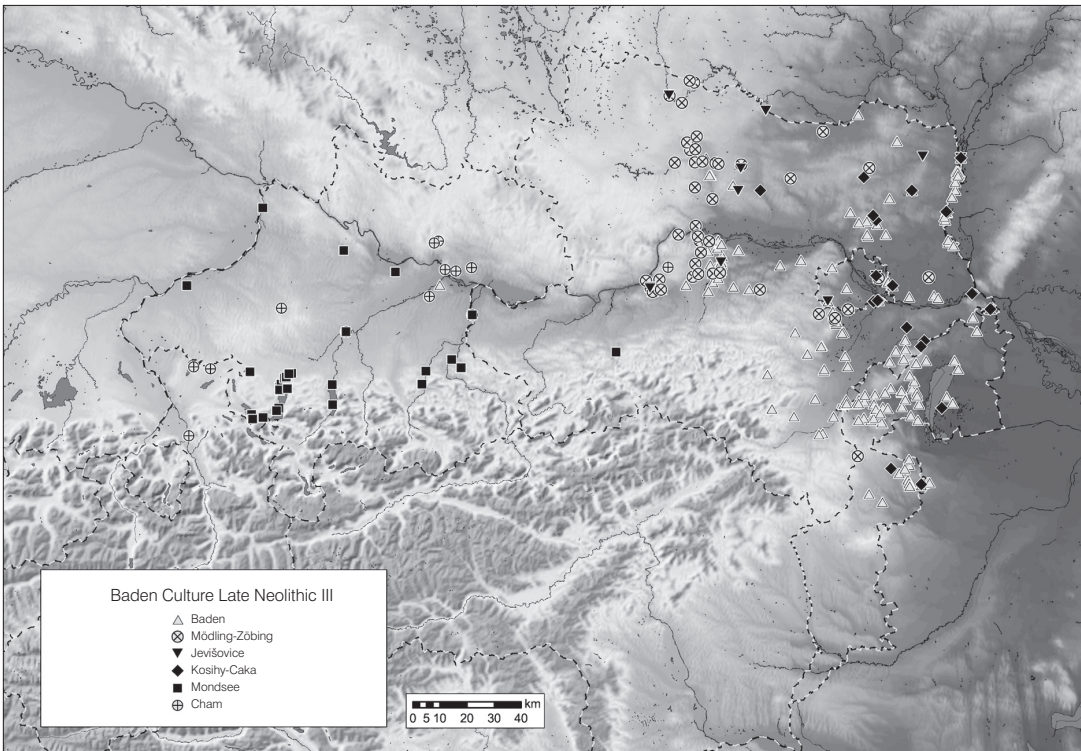


Fig. 10. Baden Culture: Late Neolithic III.

Judging from the  $^{14}\text{C}$ -data collected for Austria, an obvious spatial neighbour of the Baden Culture is the Mondsee Culture. About 40 sites of the Mondsee Culture are plotted in Fig. 6. Not surprisingly, we find sites of the Mondsee Culture not only at lakes. More of a surprise is a site located quite deep within Lower Austria and a site at which finds of both the Mondsee and the Baden Cultures occur together. Certainly this site would give us deep insight into the relationship between the Baden and the Mondsee Cultures, but the finds are not from a regular excavation. They must be considered as not stratified. So a plot of the Mondsee Culture does not bring us closer to knowledge about the western border of the Baden Culture. In fact, our knowledge about the Mondsee Culture is even less reliable than our knowledge about the Baden Culture. When the plot of archaeological activity is included in the map, we see that the major archaeological activities are concentrated around the lakes in Upper Austria, whereas the other parts of Upper Austria are barely known archaeologically (Fig. 7).

Another approach to determine the western border of the Baden Culture is to look for analogies in the regional distribution of cultures neighbouring the Baden Culture in time.

Without doubt, the Middle Neolithic Lengyel Culture ranks among the ancestors of the Baden Culture, so the distribution of its sites could give us some idea of the area, in which sites of the Baden Culture can be found. In fact, we find sites of the

Lengyel Culture in about the same regions as the Baden Culture (Fig. 8).

Of course, there are about 1000 years between the earliest radiocarbon dates of the Baden Culture and the latest ones of the Lengyel Culture (STADLER 1995, 217). A plot of the cultures of the early Late Neolithic, for simplicity's sake denoted here as Late Neolithic I, suggest a cultural border located somewhere between the Wachau and the River Enns (Fig. 9). Yet one still wonders how much we really know about this part of the Late Neolithic: In fact, in Lower Austria the cultures plotted share a common dispersal area, hinting at their mutual chronological position. In addition, except for the Epilengyel Culture, the cultures dated to Late Neolithic I are concentrated only in the Weinviertel, and what is more, Epilengyel is not a culture but a chronological horizon. Hence, our present knowledge about Late Neolithic I definitely does not help in locating the western border of the Baden Culture.

What about the Neolithic cultures after the Baden Culture, denoted here as Late Neolithic III? The map of Late Neolithic III (Fig. 10) exhibits characteristics similar to the map of Late Neolithic I: The overlapping regions of dispersion of certain cultures hint at some chronological aspects not fully understood yet. Or – this should always be kept in mind – the number of ill-dated sites due to the lack of sound typologies is very high. Anyway, it is not possible to determine the western border of the Baden Culture in Austria by analogy to cultures of Late Neolithic III.

## Conclusions

What can we learn from the maps presented? Firstly, the Baden Culture is still the best known culture of the Late Neolithic period, although at quite a low level. The knowledge about the neighbours of the Baden Culture as well as its ancestors and its heirs is too poor to even determine borders of dispersal of the Baden Culture. Hence, we do not dispose over enough reliable data to discuss the tem-

poral and regional relationships of the Baden Culture in Austria.

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## Abstract

This paper discusses problems concerning the spatial distribution of several prehistoric cultures in the Austrian Danube region. The time span considered in this paper is the Late Neolithic period (Jungneolithikum in German) and reaches from the end of the Lengyel Culture to the advent of the Corded Ware Culture, altogether a time span

of about 1500 years. The Baden Culture serves as the core of the discussion, since it is still the best known Late Neolithic culture in Austria. To interpret the spatial distribution of its sites and to determine the borders of the Baden Culture, maps of the neighbouring cultures in both time and space are presented. By investigating these maps, it is



demonstrated that the actual spread of sites mainly reflects activities of archaeologists and institutions, but should better not be interpreted as reliable information, neither about the Baden Culture nor the other prehistoric cultures dealt with in

this paper. The current knowledge of the cultures considered in this paper is still too poor to provide a reliable picture of the Late Neolithic in the Austrian Danube region.

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## The Baden and the Funnel Beaker-Baden Settlement in Lesser Poland

By Albert Zastawny

### Impacts from the Baden Circle in Lesser Poland – Two Faces of Interrelations

The end of the 4<sup>th</sup> millennium BC and the beginning of the 3<sup>rd</sup> millennium BC in western Lesser Poland was marked by the influence of the Baden Circle (Fig. 1). Throughout the entire period of interrelations between Lesser Poland and the Danube region we can observe a certain dualism. Firstly, there were direct migrations of people from the Danube River basin into Lesser Poland. Secondly, the Baden style was adopted by local communities of the Funnel Beaker Culture and of the Late Polgár Wyciąże group. It is significant that both of these streams of influence reached Lesser Poland during the same span of time. As a result, two different cultural units emerged.

The best known and most important manifestation of the impact of the Baden Circle upon the entire territory of present-day Poland is the so-called Zesławice–Pleszów group of the Baden Culture<sup>1</sup>, which has been identified in western Lesser Poland in the vicinity of Kraków. Aside from the Boleráz group in Silesia, this is the only area with autonomous, permanent Baden settlements and not just stylistic influences, as is the case in other cultural units. The settlements are located in a small, dense area in the Vistula River valley in the region of Kraków. This settlement area corresponds with the late Classical period of the Baden Circle in Europe, that is, phase IV according to the chronological division of V. NĚMEJCOVÁ–PAVÚKOVÁ (1981). Baden settlements in Lesser Poland can be viewed as the northernmost enclave of Baden communities that resulted from a migration of people from Danubian areas (Fig. 1).

Besides permanent settlements of the Baden Culture proper, the area of Poland was open to the influence of the Baden style, which is particularly evident in the Funnel Beaker Culture (abbreviated

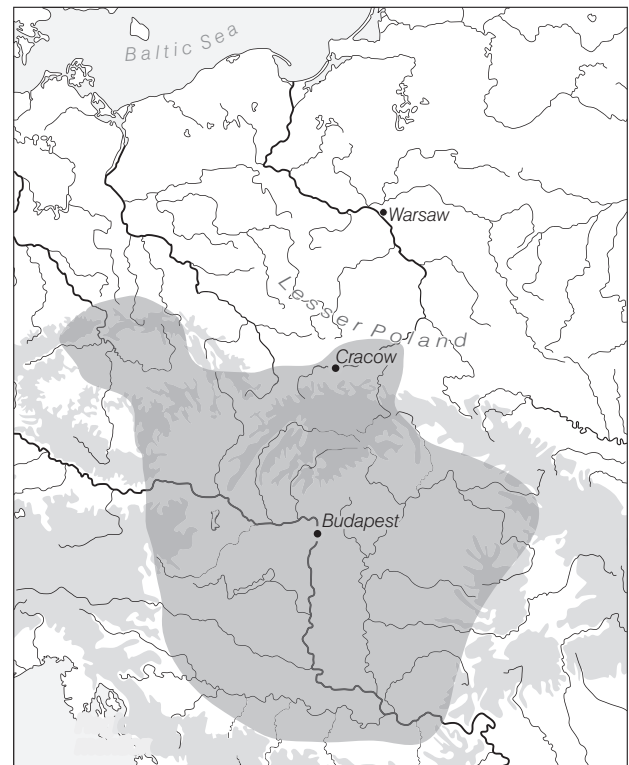


Fig. 1. Lesser Poland and the extent of the Baden Culture during its Classic Phase.

henceforth: FBC). However, this influence had a different character and was not related to the Baden settlements. It instead encompassed vast territories, mainly in Lesser Poland, Kuyavia, and Greater Poland.

Although studies focused on the interrelationship between the Baden Culture and the Funnel Beaker Culture have a long history in Polish archaeology

<sup>1</sup> In the earlier literature it is often referred to as „Radial-Decorated Pottery Culture“.

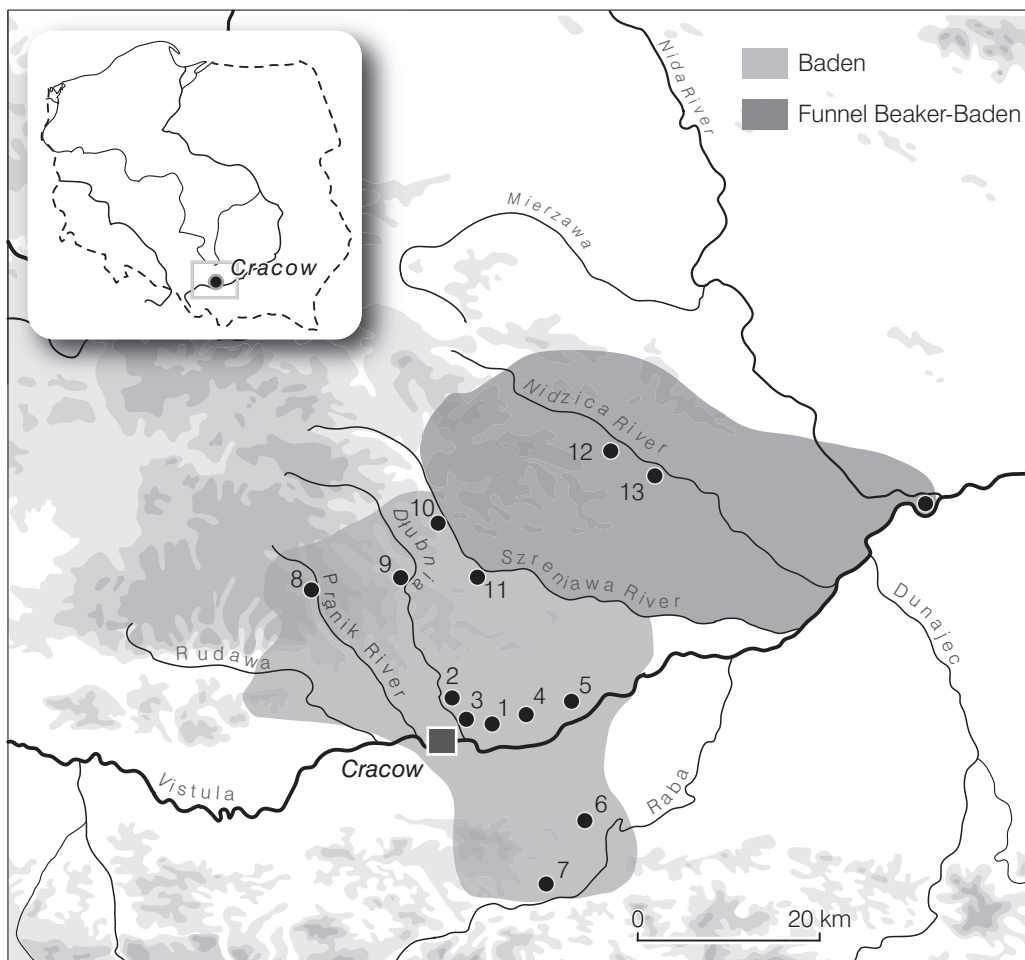


Fig. 2. Western Lesser Poland. Extent of the Baden and Funnel Beaker-Baden settlement. Major sites: 1 Kraków Pleszów 17–20; 2 Kraków Zesławice 21; 3 Kraków Mogiła 53, 55; 4 Kraków Wyciąże 5; 5 Igołomia 1; 6 Grodkowice 4; 7 Gdów 2; 8 Ojców 18; 9 Iwanowice 1; 10 Smroków; 11 Niedźwiedź; 12 Bronowice; 13 Szarbia Zwierzyniecka.

(ŻUROWSKI 1933; KOZŁOWSKI 1971; BURCHARD 1981; 1997; GODŁOWSKA 1981; KRUK/MILISAUSKAS 1999; KOŚKO 2000), many questions still remain open. This situation can be attributed to the diverse state of the study of archaeological evidence, but foremost to the local specificities of Baden influence upon the FBC in various regions of Poland. There the influence is manifested in specific ways in different areas, depending upon the local settlement context and partly upon the different chronology.

An especially interesting situation can be observed in Lesser Poland, which aside from Silesia is the region closest to the Danubian centre of the Baden

Circle. Under strong Baden influence the local late Funnel Beaker Culture transformed into the typical assemblages of syncretic character. These assemblages have been labelled “Funnel Beaker-Baden” (KRUK ET AL. 1996; KRUK/MILISAUSKAS 1999). It is interesting that the period of their existence partially corresponds with the development of the Baden Culture. Therefore, Lesser Poland can be viewed as an example of a territory, in which two cultural units featuring Baden elements developed in close proximity: the Baden Culture proper and Funnel Beaker-Baden assemblages (henceforth: FBC–Baden) rooted in the local FBC tradition (Fig. 2).

#### Horizons of influence

Three horizons of influence by the Baden Circle can be observed in western Lesser Poland (Fig. 3): I – Proto-Baden/the Boleráz group, II – Classical

Baden, subdivided into Early Classical Baden/Post-Boleráz and Late Classical Baden with the Zesławice-Pleszów and Mogiła groups, and III – Epi-Baden the

HORIZONS OF INFLUENCE		Baden after Nemejcová-Pavůvková	FORMS OF INFLUENCE		
			People's migrations		Stylistic influences in local cultural groups
			seasonal settlement	permanent settlement	
I. Proto-Baden		Ic II	settlement traces in caves (Boleráz)	—	Late-Polgár Wyciaże group FBC-BADEN (BR IV) assemblages
II. Classic horizon	II.a Early Classic	III	settlement traces in caves (Postboleráz)	—	FBC-BADEN (BR V) assemblages
	II.b Late Classic early stage (with Early Classic elements) medium stage final stage (with Bošáca elements)	IV	settlement traces in caves (the Mogiła group)	the Zesławice-Pleszów and Mogiła groups	FBC-BADEN (BR V) assemblages
III. Epi-Baden		Bošáca	settlement traces in caves (Bošáca)	—	—

Fig. 3. Chronological division of influences of the Baden circle in western Lesser Poland.

Bošáca group (SOCHACKI 1980; KOZŁOWSKI 1989; ZASTAWNY 1999).

Each horizon reflects Baden influence in the form of migrations of peoples and stylistic impacts. In horizon I – Proto-Baden, the presence of people of the Boleráz group is marked in caves in the Ojców Jura, while the Boleráz style reached areas settled by FBC and Late-Polgár communities. The evolution of the Baden Culture during horizon II (Classical Baden), during which new immigrants established a local enclave along the Vistula river, was more complex, yet it was always marked by Danubian impulses. The early Classical stage (IIa) is sparsely represented (Post-Boleráz material from

caves). The major Baden development took place during the Late Classical stage (IIb), during which local groups of the Zesławice-Pleszów and Mogiła emerged. We can subdivide this stage into three phases: early, which is still related to Early Classical material, middle, and late, the latter clearly marked by stylistic features of the Bošáca group. The influence of the Bošáca group was also more direct, in the form of the penetration by its people from areas that were abundant in flint (as was the case earlier with the Boleráz group).

The „Bošáca“ horizon (III – Epi-Baden) sees the end of the influence of the Baden Circle in Lesser Poland.

### The Baden Culture

As already stated above, early settlement activities of the Baden Circle in Lesser Poland were not intensive. Members of the Boleráz and Post-Boleráz groups arriving from the Danube basin did not establish any permanent settlement structures. Instead, they made seasonal use of caves in the vicinity of flint outcrops (as can be recognised in the archaeological material from four caves). The situation changed radically during the next, Late Classical horizon. A new wave of immigrants

contributed to the emergence of a new, clearly definable enclave of the Baden settlement (Fig. 4). In archaeological literature this enclave is identified with the so-called Zesławice-Pleszów and Mogiła groups of the Baden Culture (KOZŁOWSKI 1965; GODŁOWSKA 1968; SOCHACKI 1970; ZASTAWNY 1999). The absence of the initial phase of the development of these groups, their limited and dense distribution as well as the relatively short period of their existence (about 200 years) suggest the arrival

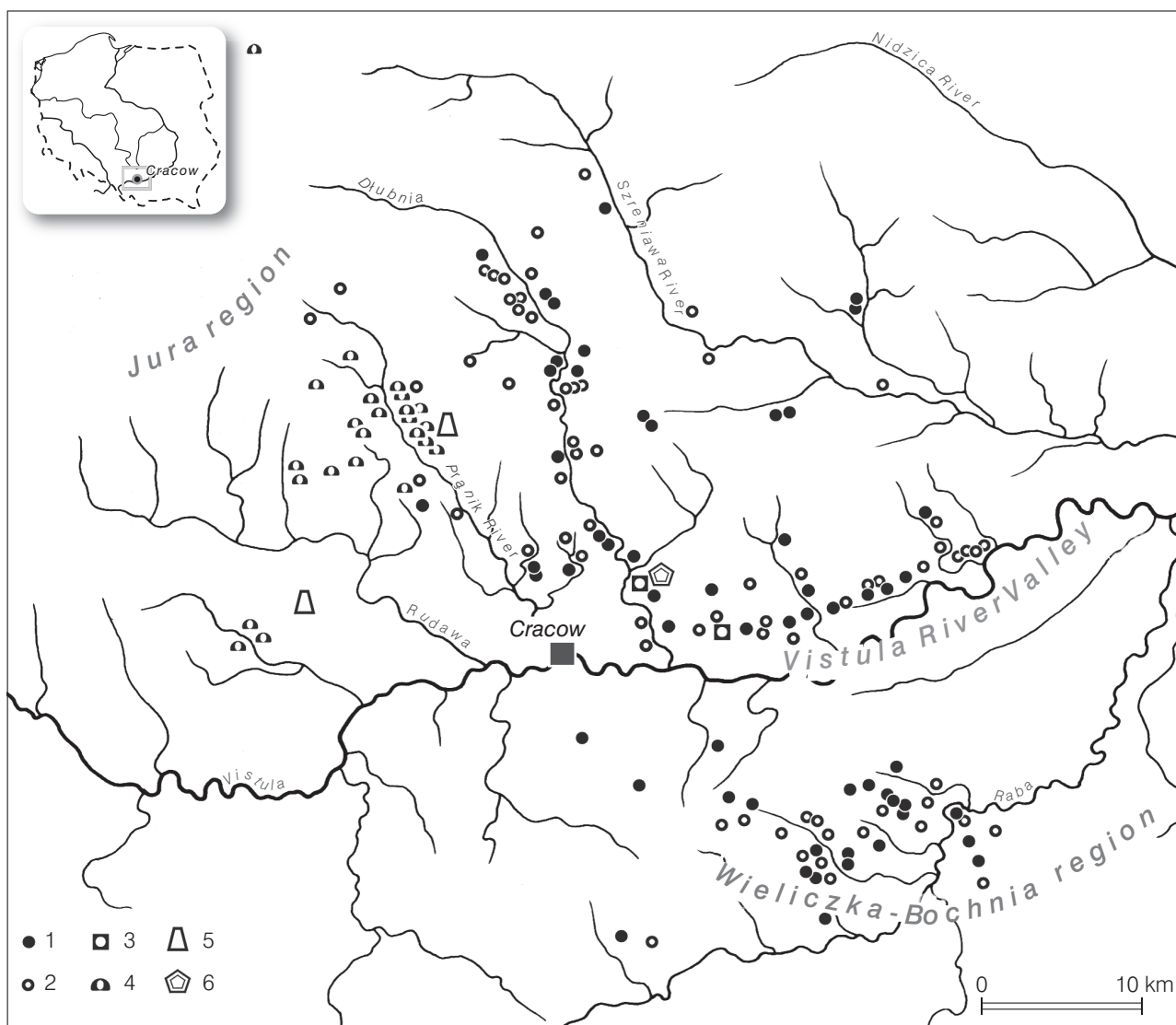


Fig. 4. Settlement of the Baden Culture in western Lesser Poland: 1 settlement sites, 2 single finds, 3 settlement sites with graves, 4 caves, 5 workshops of flint axes, 6 camp site with cattle enclosure traces.

of a people representative of the developed Late Classical stage of the Baden Circle.

Baden settlements in the area of our interest were very dense (Fig. 3). This settlement area was bordered to the west by sites in the vicinity of Kraków, in valleys of the Prądnik river and tributaries of Rudawa and Vistula, while the Szreniawa basin was on its eastern flank. To the north the area reached the upper course of the Dłubnia river in the Miechów Uplands, while the southern boundary should be placed on the west side of the Raba River basin in the Wieliczka-Bochnia region. The main axis of the Baden milieu was the Vistula valley, where most traces of settlements are concentrated. At present, a total of 163 sites of the Baden Culture are known in western Lesser Poland (Fig. 4). These include 58

settlements, 28 caves, 72 stray finds, one camp with traces of a cattle enclosure and two workshops for the production of flint axes. Two settlement sites yielded four human burials; one grave is a separate find. Altogether, 67 sites have been excavated; the others are surface and chance discoveries.

Despite a small area ( $47 \times 52 \text{ km} = 2444 \text{ km}^2$ ), the Baden settlement network covers a few micro-regions. We can point out three main zones of habitation: the north part of the Vistula valley (centre of settlement area), the Wieliczka-Bochnia region to the south of the Vistula river, and the Jura region to the north of it. Each zone corresponds with an area of different environmental characteristics; each has its specific character. The areas around the Vistula valley and its largest tributaries, the Raba and the

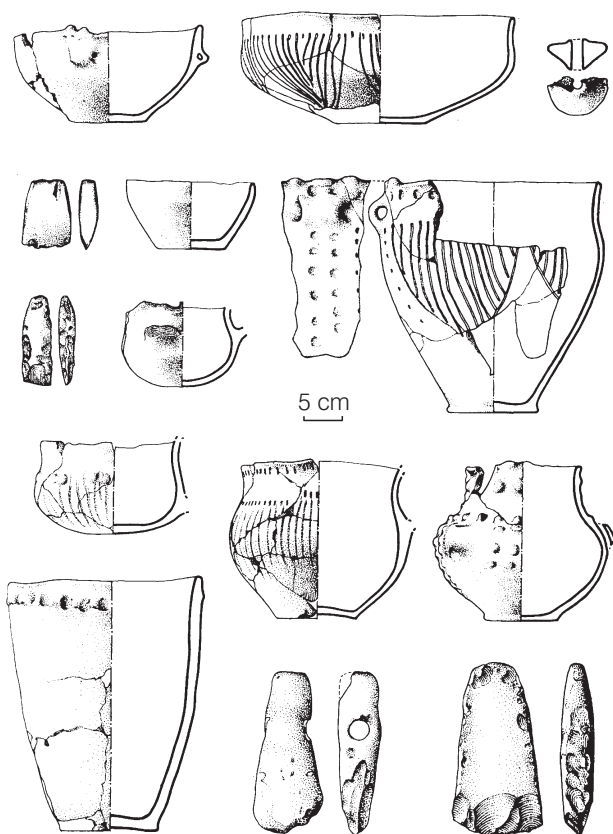


Fig. 5. The Baden Culture in Lesser Poland – Late Classic horizon: Kraków Mogiła 55 (after GODŁOWSKA 1973).

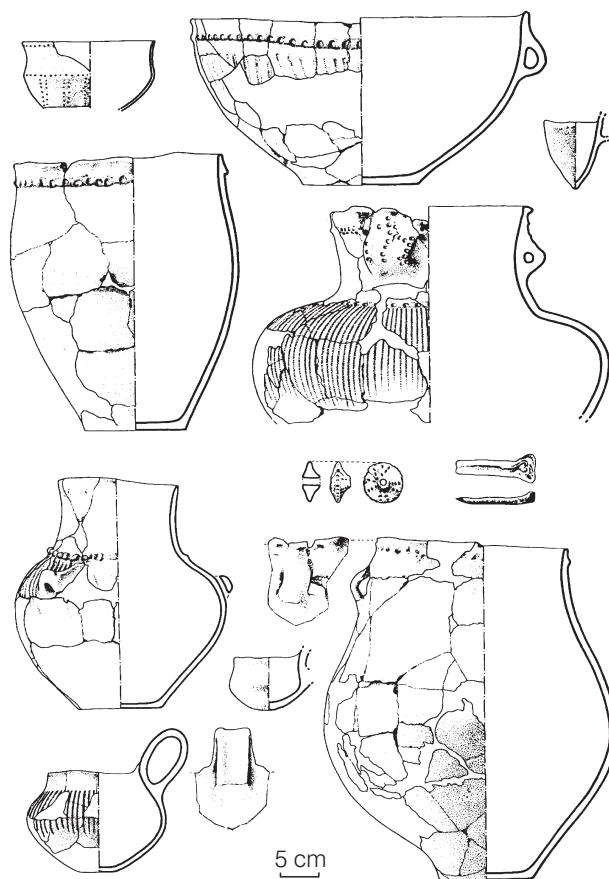


Fig. 6. The Baden Culture in Lesser Poland – Late Classic horizon: Kraków Zesławice 21 (after GODŁOWSKA 1973).

Dłubnia, feature fertile soils developed on loess. The Wieliczka–Bochnia region offers saline springs, while the Jurassic Kraków–Częstochowa Uplands provide access to high-quality lithic raw material. Salt, flint, and good soils were the main advantages of the region in question.

Within the scope of the material culture, we can observe well developed and diverse pottery forms and ornamentation. Grooved motifs, replicated in many variants, are very common (ROOK 1971; GODŁOWSKA 1979; ZASTAWNY 1999). The most common pottery forms are cups, bowls, amphorae, and storage vessels (Fig. 5, 6). Among the specific forms are the so-called pseudo-kernei (pocketed vessels) from Kraków Zesławice 21 (SOCHACKI 1970). They have analogies in a few sites in Austria and Slovakia (NEVIZÁNSKY 2000). We can observe an abundance of grooved and high-relief ornamentation (ledges, knobs), while stamped motifs are less frequent. Pottery stylistics are clearly related to areas in central Slovakia (Zips) and northeastern Hungary (the Ózd and Viss groups). Lithic technology is distinguished by the production of large rectangular axes of the Jurassic flint, variant G

(matt, brownish in colour), imported from areas outside of the permanent settlements (KOPACZ/PELISIAK 1992; PELISIAK 2003).

The variability in pottery constitutes the basis for the chronological division of the Classical stage in the development of the Baden Culture in Lesser Poland (Fig. 3). These features were also used to study taxonomical diversities. Taking into account the differences in ornamentation and pottery forms and above all territorial differentiation, we can point out the existence of a second territorial unit (apart from the Zesławice-Pleszów group), referred to as the Mogiła group in this phase (ZASTAWNY 1999; 2000). While the Zesławice-Pleszów group developed around the Vistula valley, sites of the Mogiła group are located on the fringes of the valley, in the Jura and Wieliczka-Bochnia regions. Both groups existed at the same time in adjacent territories. We can assume that they maintained contact, possibly through the distribution of lithic raw material and finished tools (e.g. axes). It is possible that the cultural differentiation observed is indicative of the presence of Baden groups of a different origin on the upper Vistula river.

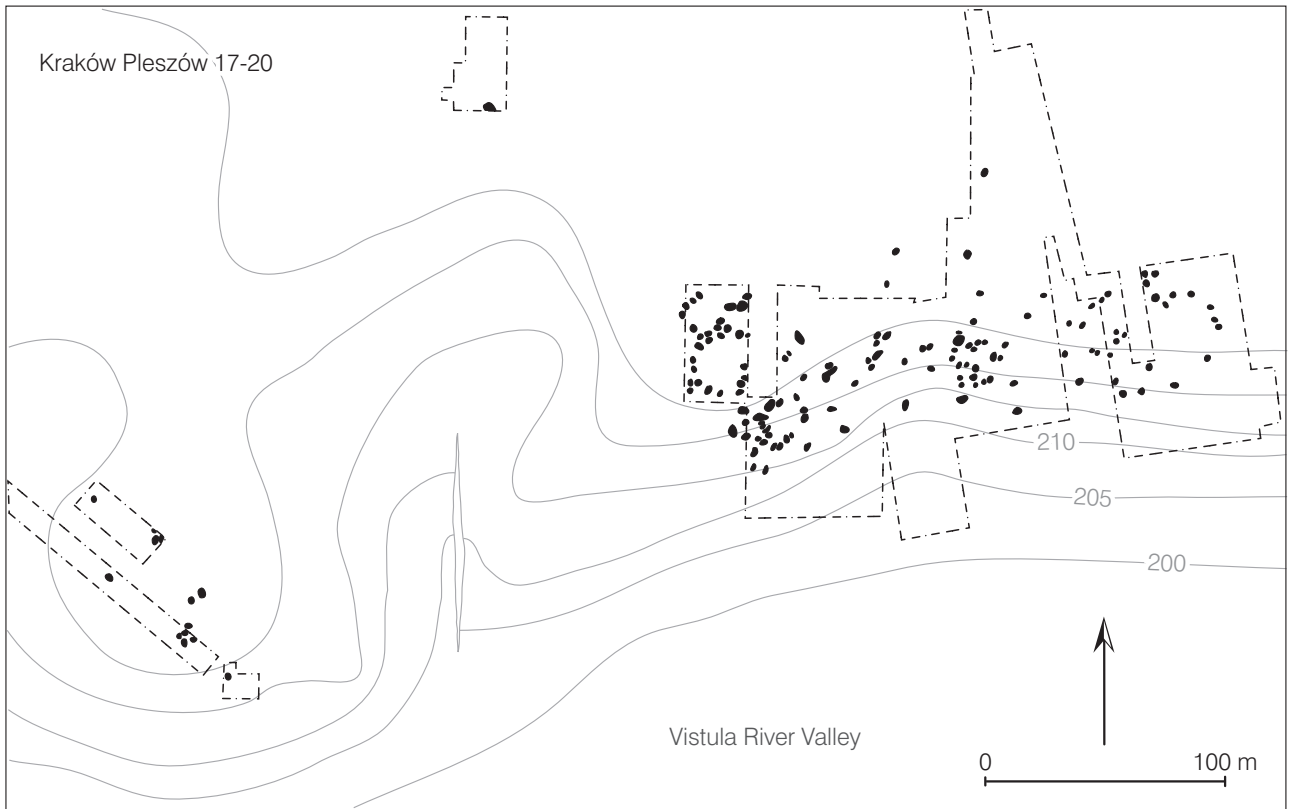


Fig. 7. Kraków Pleszów 17-20. Settlement of the Baden Culture (after GODŁOWSKA 1976, with modifications).

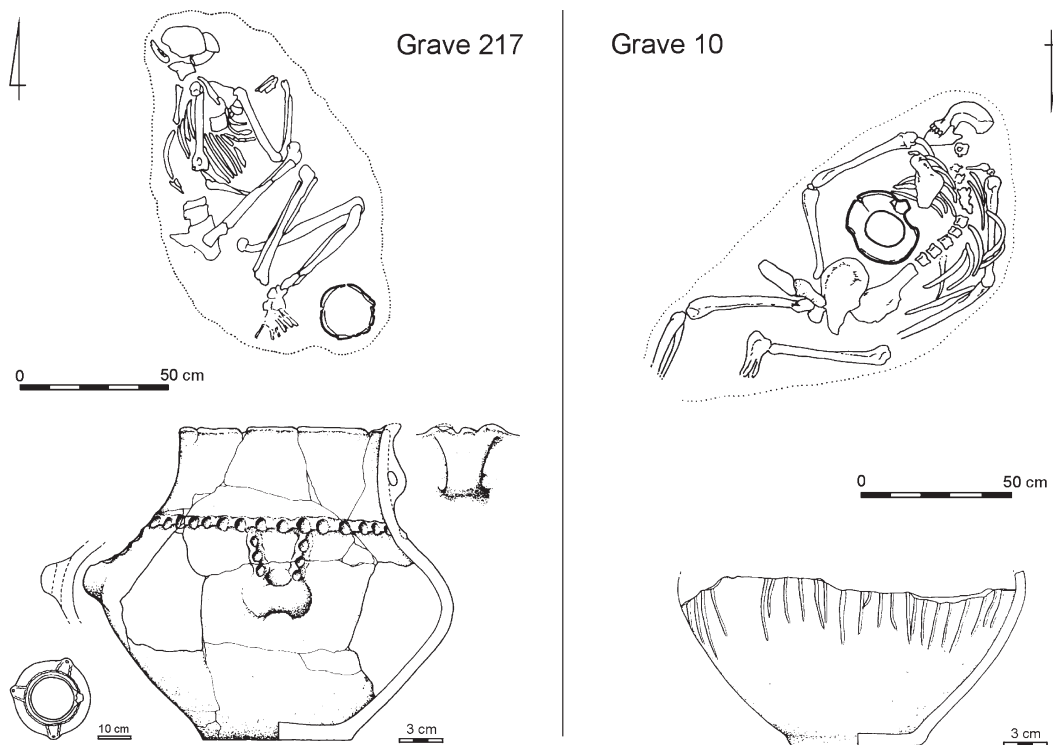


Fig. 8. Graves of the Baden Culture from Kraków Zesławice 21 (after ZEMELKA 1959 and verification of materials and field documentation by A. Zastawny).

Tab. 1. Absolute chronology of the Baden Culture in Lesser Poland.

No.	Site	Feature No.	Sample Context	Sample material	Lab. No.	bp	References
1	Kraków Pleszów 17	1273	pit	bone	GrN-9265	4445±60	GODŁOWSKA/GLUZA 1989
2	Kraków Pleszów 17	876 A	pit	bone	GrN-9181	4430±40	GODŁOWSKA/GLUZA 1989
3	Iwanowice 1	1	pit	bone	UtC-13264	4365±43	FURHOLT/MACHNIK 2006
4	Iwanowice 1	21	pit	bone	UtC-13266	4380±50	FURHOLT/MACHNIK 2006
5	Iwanowice 1	38b	pit	bone	UtC-13267	4300±40	FURHOLT/MACHNIK 2006
6	Iwanowice 1	62	pit	bone	UtC-13268	4362±43	FURHOLT/MACHNIK 2006
7	Iwanowice 1	18	pit	bone	UtC-13265	4336±44	FURHOLT/MACHNIK 2006
8	Kraków Zesławice 21	97	pit	bone	UtC-13260	4387±45	FURHOLT/MACHNIK 2006
9	Kraków Zesławice 21	140a	pit	bone	UtC-13261	4420±43	FURHOLT/MACHNIK 2006
No.	Site	Feature No.	Sample Context	Sample material	Lab. No.	bc	References
10	Iwanowice 1	.	.	.	M-2166	2350±200	KRUK 1980
11	Iwanowice 1	.	.	.	BlN-352	2250±100	KRUK 1980

The largest settlement sites and those best examined are located around the Vistula River valley, that is, in the centre of the Baden milieu in Lesser Poland. They extend along the edge of the northern low terrace of the river, from Kraków Zesławice to Igołomia and Złotniki. The most extensive site is Kraków Pleszów 17–20 (ROOK 1971), where more than 190 features have been discovered in an area of c. 5 ha (Fig. 7). It is distinguished by two burials and traces of houses originally built above ground (empty rectangular spaces between pits). The second largest site is Kraków Zesławice 21 (SOCHACKI 1980, 1988), which also comprises two graves and a separate cattle enclosure with an adjoining camp. In Zesławice, 270 pits were discovered in an area of c. 2.5 ha. Other sites (e.g. Kraków Mogiła 53, 55, Kraków Wyciąże 5, Igołomia 1, Iwanowice 1, Grodkowice 4, and Gdów 2) yielded dozens of settlement features.

A substantial number of sites (28) is located in caves of the Jurassic Kraków-Czestochowa Upland, especially in the so-called Ojców Jura (Fig. 4). Seasonal occupation of caves was mainly related to the exploitation of the flint raw material. Poor soils hindered the development of an agricultural economy in the Jurassic areas (ROOK 1980; ZASTAWNY 2006). Nevertheless, it is the only region of Lesser Poland, in which archaeological material representing all phases of influences of the Baden Circle is found: the Boleráz and Post-Boleráz groups, the Late Classical horizon, and the Bośaća group.

Only five documented burials have been registered in the whole settlement area of the Baden Culture in Lesser Poland. Such a small number is surprising, especially in comparison with the well developed settlements and numerous examples of diverse funeral rites in other territories (NEVIZÁNSKY 1985). Two graves are known from the settlement site at Kraków Zesławice 21 (ZEMEŁKA 1959) and two more from Kraków Pleszów 17 (unpublished research of 1976)<sup>2</sup>. A fifth grave was recently discovered at the site of Świnna Poręba in the Polish Beskid mountains (see P. VALDE-NOWAK in this volume). It is a separate burial located outside of the settlement area. All graves (with the exception of Świnna Poręba where human remains have disintegrated) have been documented as single inhumations in grave chambers or settlement pits. They were furnished either with a single amphora (3 graves) or a set of several vessels (Fig. 8).

Very few radiocarbon dates are available for the Baden Culture in Lesser Poland. Only 11 features on 3 sites have been dated by this method (Tab. 1). These sites include the largest settlements in the entire region: Kraków Pleszów 17–20 (GODŁOWSKA 1986; GODŁOWSKA/GLUZA 1989) and Kraków Zesławice 21 (FURHOLT/MACHNIK 2006), as well as the medium-sized site of Iwanowice 1 (KRUK 1980; FURHOLT/MACHNIK 2006). Radiocarbon dates place the developmental stage of the Late Classical horizon of the Baden Culture at 4445–4300 BP (3050–2900 BC).

<sup>2</sup> Actually in elaboration by J. BOBER.



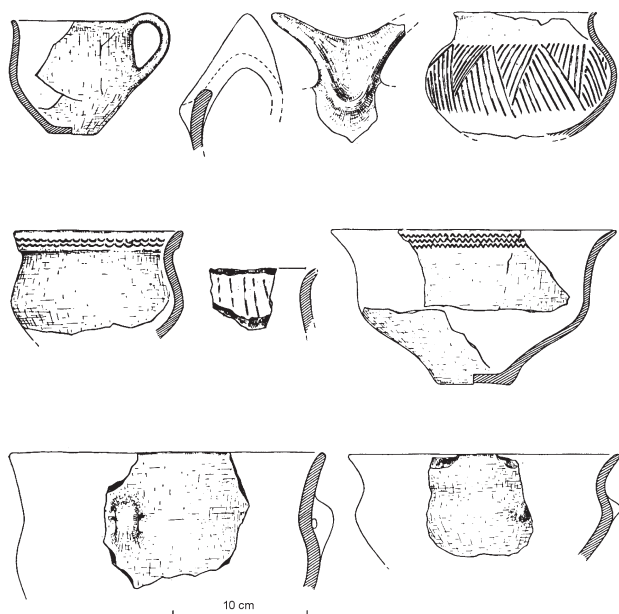


Fig. 9. Site at Bronocice. Funnel Beaker Culture pottery with elements of the Boleráz group (after BURCHARD 1973)

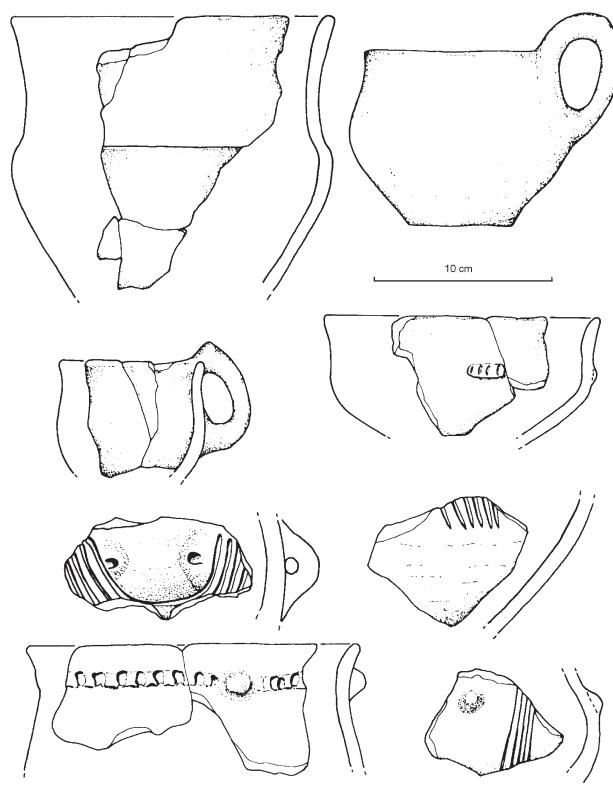


Fig. 10. Funnel Beaker-Baden assemblages (of phase BR IV). Artifacts from the site at Bronocice (after KRUK/MILISAUSKAS 1990).

### The Funnel Beaker–Baden assemblages

The adaptation of the Baden style by the Funnel Beaker Culture took place in a very limited territory, only in the western part of the vast milieu of the southeastern group of FBC. At present about 35 sites with FBC-Baden materials are known, all concentrated in a loess area between the rivers of the Szreniawa to the west, the Nida to the east and the Vistula to the south (Fig. 2). In size this area is comparable with the territory of the Baden Culture located more to the southwest. So far the FBC–Baden assemblages have not been fully studied, and only eight sites have been excavated. Fortunately, amongst these is one that yielded a variety of important data. We are referring to the settlement at Bronocice, which was investigated by J. KRUK and S. MILISAUSKAS and is well known in literature (KRUK/MILISAUSKAS 1990; 1999; KRUK ET AL. 1996). This site serves as a reference point for any discussions about the FBC-Baden assemblages in Lesser Poland. In regard to the course of stylistic changes in pottery, we can observe the process of influence upon the FBC by the Baden Circle. Moreover, the chronological scheme developed for Bronocice is an anchor for the FBC-Baden settlement with the Late Neolithic in southeastern Poland.

The first influence from the Baden Circle appears very early and can be attributed to the Boleráz phase. Among the still prevailing FBC pottery are cups with handles protruding above the rim and vessels with the Boleráz type ornamentation of opposing triangles (Fig. 9). Later the Early Classical style of the Baden Culture can be observed with diverse channelled ornamentation and „new“ pottery forms, such as jars and amphorae (Fig. 10; 12). In Bronocice, five FBC chronological stages have been distinguished, the last two (i.e. phases IV and V) related to FBC-Baden. Phase IV reveals elements of the Boleráz style, which begin to appear as early as the end of phase III. They can be synchronized with phase Ic–II of the Baden Culture after V. NEMEJCOVÁ–PAVUKOVÁ. Phase V (the latest) in Bronocice is linked with Early Classical phase III, according to the same author. On the contrary, elements of the late stage of the Classical phase, especially those of Nemejcová-Pavuková’s phase IVb, are absent. The sequence in stylistic changes observed in Bronocice has been observed at other excavated sites, e.g. in Niedźwiedz, Szarbia Zwierzyniecka, and Książnice Wlk. All of this evidence constitutes the basis for the presumption that the Baden style (Boleráz and Early Classical

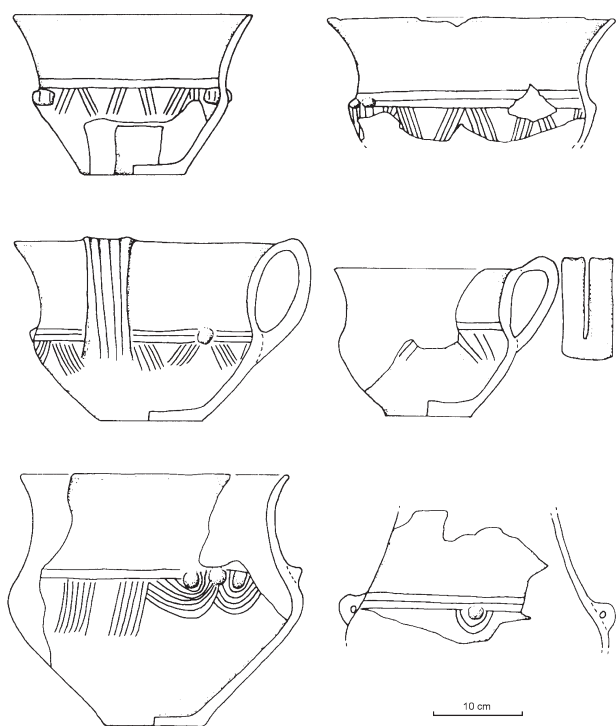


Fig. 11. Funnel Beaker-Baden assemblages (of phase BR V). Artifacts from the site at Szarbia Zwierzyniecka (after BACZYŃSKA 2000).

Tab. 2. Absolute chronology of the Funnel Beaker-Baden assemblages in Lesser Poland (after KRUK/MILISAUSKAS 1996).

No.	Lab. No.	Absolute chronology			Relative chronology
		bp conv	bc conv	BC	
1	DIC 717	4440±80	2490±80	3060	BR IV
2	DIC 541	4400±80	2450±80	2980	BR IV
3	DIC 1739	4340±75	2390±75	2920	BR IV
4	DIC 1797	4340±70	2390±70	2920	BR IV
5	DIC 1736	4330±60	2380±60	2910	BR IV
6	DIC 977	4320±55	2370±55	2910	BR IV
7	DIC 543	4320±130	2370±130	2910	BR V
8	DIC 1794	4260±70	2310±70	2890	BR V
9	DIC 978	4250±115	2300±115	2880	BR V
10	DIC 361	4240±115	2290±115	2880	BR IV/V
11	DIC 979	4200±60	2250±60	2800	BR V
12	DIC 1795	4090±140	2140±140	2620	BR V
13	DIC 1740	4080±65	2130±65	2590	BR V
14	DIC 1792	4080±110	2130±110	2590	BR V

Baden) were first adopted and then transformed, always strongly manifesting FBC elements.

The syncretic character of the FBC-Baden assemblages is best visible in the ceramics. Beaker elements are related to the technology and

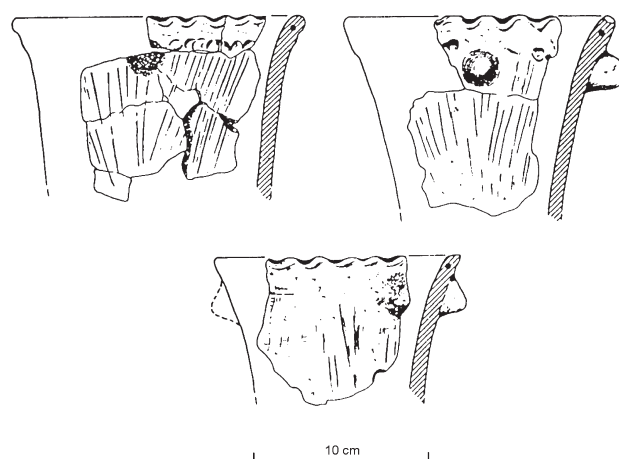


Fig. 12. Funnel Beaker - Baden assemblages. Cups from the site at Bronocice, related to salt extraction activities (after KRUK/MILISAUSKAS 1990).

morphology of the pottery. In particular, funnel-like necks on cups, pots, and jars are typical (Fig. 11). Vessels with such profiles are absent in sites of the Baden Culture in the Kraków area. Among the typical Beaker elements are rectangular stamped imprints below the rim. Features related to the Baden Circle can be observed mainly in the ornamental motifs, with dominant vertical, horizontal, slanting, or arched channelled grooves, and in knobs (Fig. 11). Motifs composed of grooves in horizontal positions are noteworthy. They are typical of the assemblages discussed, but very rare at sites of the Baden Culture in the Kraków region. Among the vessels influenced by the Baden style, cups with a handle rising above the rim are very frequent as are small bowls, large jars and amphorae. Unique are cups that are related to salt extraction activities (Fig. 12).

The Baden influence upon FBC is best visible in the ceramics. Yet, relations to the Baden Circle were even more far-reaching. We assume that they encompassed many aspects of social and economic life. For example, multiple burials, such as those found in Bronocice, testify that there are clear relationships with diverse forms of funerary rites recognized in the Baden Culture (KRUK/MILISAUSKAS 1999). At the same site vestiges of the fortification system of the FBC-Baden settlement have been discovered together with a cattle enclosure (KRUK/MILISAUSKAS 1999). All of these elements have analogies at Baden sites. They can be interpreted as a result of cultural transformation influenced by the Baden Circle, which is much more important than pottery changes.

At present we have 15 radiocarbon dates related to FBC-Baden assemblages (Tab. 2). As many as 14 of these are from Bronocice, while one is from

Szarbia Zwierzyniecka. On this basis the beginning of the development of the assemblages in question should be placed at 3060 BC and the end to 2690/2510 BC (KRUK/MILISAUSKAS 1996). The earliest phase with Boleráz elements – Phase BR IV (Bronocice IV), is dated to 3060–2880 BC, the latest with Early Classical relations – Phase BR V

(Bronocice V), to 2880–2690/2510 BC. Comparison with other Baden cultural units in Lesser Poland indicates a partial concurrence of FBC-Baden assemblages of the Baden Culture in the Kraków area, the Złota Culture, the Globular Amphora Culture and the earliest phase of the Corded Ware Culture.

## Conclusions

As far as Baden influences are concerned, the partial contemporaneity of the Baden Culture and FBC-Baden assemblages is very interesting. It is confirmed not only by the absolute chronology, but also by the distribution of sites that clearly respect settlement zones (Fig. 2: 9, 14). The border zone between the area with FBC-Baden sites and that of the Baden Culture was the Szreniawa River valley. Only very few FBC-Baden sites are located to the east of this river, i.e. in the territory occupied by the Zesławice-Pleszów and Mogiła groups. Thereby, the recently discovered settlement at Smroków<sup>3</sup>, with pits containing both Baden and FBC-Baden material, is unique (Fig. 2). No analogies for it are known so far.

The spatial distribution of Baden and FBC-Baden sites indicates that Lesser Poland was a territory, in which two Baden-like units developed close to one another. Rooted in the same cultural centre and at the same time occupying adjacent territories, each developed in a specific, independent way. It is notable that, despite the proximity of the settlement zones, the archaeological material does not show evidence of interrelationships between both units.

It is probable that the local Kraków enclave of the Baden Culture did not participate in the contacts between FBC-Baden communities and those of the Baden Circle. These contacts reached the area of the Danube River. Moreover, Baden influence upon the Funnel Beaker-Baden assemblages was long-lasting and clearly retarded in relation to stylistic changes in the Danube Basin. This resulted in the situation that, while the development of the Baden Culture

in the Kraków area corresponds with NĚMEJCOVÁ-PAVÚKOVÁ's phase IV, the contemporary FBC-Baden communities adhered to the style of phase III.

Despite the retardation mentioned above, the Funnel Beaker-Baden assemblages, yet not the Baden Culture proper, was the major factor in transmitting Baden elements to other Neolithic units in Lesser Poland, such as the Złota and Globular Amphora cultures, and to the FBC in the Polish Lowlands. They also played an important role in the process leading to the emergence of the local Kraków-Sandomierz group of Corded Ware Culture, developing in territories previously occupied by FBC-Baden communities and the Zesławice-Pleszów and Mogiła groups of the Baden Culture in western Lesser Poland.

The example of Lesser Poland, where in a small territory the influence of the Baden Circle was so diverse in form and history, underlines the importance of local conditions and cultural tradition. In studies on these influences outside of the Baden milieu, every direction and every kind of source, both original and secondary (already transformed by such influences), should be considered. Therefore, to understand the relation of Baden Culture and the outer world, regional conditions are of paramount importance.

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## Abstract

At the end of the 4<sup>th</sup> millennium BC and the beginning of the 3<sup>rd</sup> millennium BC the territories of western Lesser Poland were under the influence of the Baden cultural sphere. The cultural

impacts were a long-lasting and widespread process of different intensity and, as a result, of various forms. With regard to the classical horizon of the Baden Culture in Europe, best known is a perma-

<sup>3</sup> Research of P. WŁODARCZAK.

ment settlement of the Baden Culture in the Kraków region. This settlement was a Baden enclave, which probably formed as the result of migrations from the Danube basin. However, trans-Carpathian influence of the Baden complex began with the adoption of stylistic elements of Baden pottery by communities of the late phase of the Funnel Beaker Culture. This resulted in the emergence of syncretic Funnel Beaker-Baden assemblages. Besides a new ceramic style, Funnel Beaker-Baden people adopted some cultural features connected with socioeconomic aspects of life, however retaining a strong local tradi-

tion of the Funnel Beaker Culture. It is interesting that both units (Funnel Beaker-Baden and Baden) developed partly parallel in two neighbouring geographic zones, each respecting the territory of the other. In fact, the Funnel Beaker-Baden communities played a more important role in the development of the late Neolithic cultures than actual Baden Culture in Lesser Poland, as seen in the influence of the Funnel Beaker Culture-Baden upon other cultures in the upper basin of the Vistula River and the Polish Lowlands.

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## The Badenisation of the Late Neolithic Funnel Beaker Culture Communities Between the Oder and Vistula River Basins in the Light of <sup>14</sup>C-Datings

By *Agnieszka Przybył*

### Introduction

Assessment of the sequence as well as the chronological framework of past cultural processes is of primary importance in the attempt to discover their nature. A precise dating of particular events on the basis of archaeological remains enables a better understanding of their broader context, which in due course allows the inclusion of numerous aspects and conditioning unattainable without defining a precise time reference and relation.

At the time of the latest stages of the Funnel Beaker Culture societies (henceforth, TRB), the cultural setting was immensely complicated in the Polish Lowlands between the Oder and Vistula rivers. Recent research has confirmed complex characteristics of transformational processes in TRB. Finally in the Late Neolithic, it was the Baden Culture that brought about the greatest changes.

Today the events of that time with their multifaceted characteristics can be judged, thanks to material remains. The obvious syncretism of traditions visible in ceramic fragments makes any comparative comparisons barely applicable in describing the chronology of these events. Fortunately, the established taxonomy can be verified by the data obtained from radiocarbon chronometry. It enables numerous dilemmas remaining in the sphere of interminable discussions to be resolved. This is best seen in the chronological classification of the “Badenisation” visible in youngest TRB societies in the aforementioned territory between the Oder and Vistula rivers.

In the following article the author aims at presenting the results of the most recent findings pertaining to the chronological description of the Late Neolithic assemblages of the TRB, which were obtained on the basis of new radiocarbon datings of remains found in Kujawy (Kujavia), Wielkopolska (Greater Poland) and the drainage basin of the lower Oder River. Archaeological discoveries made in the

region of Kujavia that relate to the last link of eastern group (the so-called Konary-Papros subgroup) and to Radziejów group of the TRB, in Greater Poland associated with the Mrowino group and in northwestern Poland relating to with Ustowo group are all synchronised here with the Baden Culture in respect to the presence of characteristic decorations and shapes of pottery (CZERNIAK ET AL. 1991; JANKOWSKA/WIŚLAŃSKI 1991; KOŚKO; 2000 a; 2000b; PRINKE 1991; PRZYBYŁ 2007; TETZLAFF 1991; WIŚLAŃSKI 1981; 1989).

In the later phases of the characteristic TRB in the area between the Oder and Vistula rivers, many of the Baden-like ornamental features underwent modification. However, the origin of cultural inspirations cannot be doubted, which is organizationally, economically and socially simultaneous. The most significant influences are as follows: the relation between settlements and the stretch of very fertile black soils (Inowrocław-Mątwy, Kuczkowo, Łojewo; see KOŚKO 1981 a, 196; 1983; 1988 a; 2000 a); fortification of settlements (e.g. Opatowice 3; KOŚKO/SZMYT 1993, 178); the development of rituals and the sacred-ritual sphere of life, a major part of which can be ascribed to solar cultures (COFTA-BRONIEWSKA/BEDNARCZYK 1998, 10-12; KOŚKO 1981 a, 196; 1989, 46–58; 2006, 189; KOŚKO/SZMYT 2004); and, finally, the growing importance of more mobile forms of animal husbandry together with an increase in relevance of settlements located on trade routes (KOŚKO 1981 a; 1988b; 1996; 2006, 189; KOŚKO/SZMYT 2004). On the pan-European scale these influences are attributed more often than not to members of the Baden culture (CHROPOVSKÝ 1973; GODŁOWSKA 1979; KRUK 1980; 1993; 1991a; 2004; KRUK/MILISAUSKAS 1999, 141-170; LICHARDUS 1991; PAVELČIK 1972; 2001; ROMAN/DIAMANDI 2001; SCHLICHOTHERLE 2002; SHERRATT 1981; 1987; 2006; SOCHACKI 1980; 1981; 1985; ZÁPOTOCKÝ 2000; ZASTAWNY 2000).

Tab. 1. Compilation of all dates for the group of Kujavian sites reflecting the lowland Badenisation of the TRB.

No	Site / Feature No	T R B Phase	Sample material	Lab. No	BP	BC - 1 $\sigma$ 68,2%	References
1	Opatowice 42 / 52	IVA/VA?	charcoal	Gd-2764	4460 $\pm$ 80	3340-3020	KOŚKO/SZMYT 2008; PRZYBYŁ 2007
2	Opatowice 42 / 21	IVB/VB	ceramic	Ki-13237	4380 $\pm$ 80	3270-2900	KOŚKO/SZMYT 2008; PRZYBYŁ 2007
3	Chelmiczki 10	IVB/VB	pigment	Ki-13127	4370 $\pm$ 110	3330-2880	PRZYBYŁ 2007
4	Papros 6B	IVB/VB	ceramic	Ki-12731	4330 $\pm$ 90	3270-2870	KOŚKO 1987; PRZYBYŁ 2007
5	Opatowice 42/21	IVB/VB	ceramic	Ki-13238	4310 $\pm$ 80	3090-2870	KOŚKO/SZMYT 2008; PRZYBYŁ 2007
6	Piecki 1 / 8	IVB/VB	ceramic	Ki-13240	4300 $\pm$ 110	3100-2650	KOŚKO/PRZYBYŁ 2004; PRZYBYŁ 2007
7	Chelmiczki 10	IVB/VB	ceramic	Ki-13239	4290 $\pm$ 90	3090-2700	PRZYBYŁ 2007
8	Piecki 1 / 8	IVB/VB	bone	Ki-5686	4290 $\pm$ 25	2915-2890	KOŚKO/PRZYBYŁ 2004; PRZYBYŁ 2007
9	Papros 6A	IVB/VB	ceramic	Ki-12730	4280 $\pm$ 90	3090-2690	KOŚKO 1987; PRZYBYŁ 2007
10	Papros 6B	IVB/VB	ceramic	Ki-12732	4270 $\pm$ 90	3030-2680	KOŚKO 1987; PRZYBYŁ 2007
11	Papros 6A	IVB/VB	ceramic	Ki-12729	4205 $\pm$ 90	2910-2630	KOŚKO 1987; PRZYBYŁ 2007
12	Opatowice 1 / 64	IVB/VB	bone	Gd-8034	4190 $\pm$ 60	2890-2670	KOŚKO/SZMYT 2007 a; PRZYBYŁ 2007
13	Bożejewice 22 / F32	IVB/VB	bone	Ki-6897	4160 $\pm$ 50	2880-2670	KOŚKO 2000
14	Opatowice 1 / 64	IVB/VB	ceramic	Ki-13124	4160 $\pm$ 100	2890-2620	KOŚKO/SZMYT 2007 a; PRZYBYŁ 2007
15	Opatowice 1 / 6	IVB/VC	charcoal	Gd-4686	3980 $\pm$ 80	2620-2340	CZEBRESZUK/SZMYT 2001; KOŚKO/SZMYT 2007 a
16	Opatowice 1 / 39	IVB/VC	bone	Ki-5139	3960 $\pm$ 45	2570-2340	CZEBRESZUK/SZMYT 2001; KOŚKO/SZMYT 2007 a
17	Opatowice 1 / 9	IVB/VC	bone	Ki-5598	3930 $\pm$ 60	2550-2300	CZEBRESZUK/SZMYT 2001; KOŚKO/SZMYT 2007 a
18	Opatowice 1 / 6	IVB/VC	bone	Ki-5600	3890 $\pm$ 60	2470-2290	CZEBRESZUK/SZMYT 2001; KOŚKO/SZMYT 2007 a
19	Inowrocław-Mątwy 1	VA	ceramic	Ki-12725	4700 $\pm$ 100	3640-3360	KOŚKO 1988 a; PRZYBYŁ 2007
20	Łagiewniki 3 / 40	V?	charcoal	Gd-813	4620 $\pm$ 110	3650-3100	KOŚKO 1996
21	Łagiewniki 5A / 45	V?	charcoal	Gd-814	4630 $\pm$ 60	3520-3350	SZENICOWA 1982; WIŚLAŃSKI 1989
22	Kuczkowo 5 / D62	VA	bone	Ki-6500	4630 $\pm$ 35	3500-3360	KOŚKO 2000 a
23	Kuczkowo 5 / D27	VA	bone	Ki-6499	4620 $\pm$ 35	3500-3350	KOŚKO 2000 a
24	Inowrocław 55	V?	?	G r N - 10772	4600 $\pm$ 40	3500-3190	KOŚKO 1981a; 2000 a
25	Kuczkowo 1 / A32	VA	bone	Ki-6498	4600 $\pm$ 40	3500-3190	KOŚKO 2000 a
26	Łatkowo 5	V?	?	Gd-4424	4560 $\pm$ 90	3500-3090	KOŚKO 2000 a
27	Kuczkowo 5 / D117	VA	bone	Ki-6501	4560 $\pm$ 55	3490-3110	KOŚKO 2000 a
28	Kuczkowo 1 / C9	VA	bone	Ki-6496	4520 $\pm$ 45	3350-3100	KOŚKO 2000 a
29	Kuczkowo 1 / D31	VA	bone	Ki-6497	4470 $\pm$ 40	3330-3030	KOŚKO 2000 a
30	Łojewo 4	VB	ceramic	Ki-12726	4450 $\pm$ 90	3340-3010	KOŚKO 1983; Przybył 2007
31	Łojewo 4	VB	ceramic	Ki-12727	4380 $\pm$ 90	3310-2890	KOŚKO 1983; Przybył 2007
32	Opatowice 12	VB?	corn	Lod-20	4340 $\pm$ 180	3350-2700	CZEBRESZUK/SZMYT 2001
33	Opatowice 3 / 69	VB	bone	Gd-2642	4330 $\pm$ 110	3350-2750	KOŚKO 1990; KOŚKO/SZMYT 1993; PRZYBYŁ 2007
34	Łojewo 4	VB	ceramic	Ki-12728	4320 $\pm$ 90	3270-2770	KOŚKO 1983; PRZYBYŁ 2007
35	Opatowice 3 / 44	VB	bone	Poz-15054	4280 $\pm$ 40	2925-2875	KOŚKO 1990; KOŚKO/SZMYT 1993; PRZYBYŁ 2007
36	Inowrocław-Mątwy 1 / 29	VB	ceramic	Ki-13236	4220 $\pm$ 90	2910-2630	KOŚKO 1988 a; PRZYBYŁ 2007
37	Smarglin 22 / 54	VB	ceramic	Ki-13132	4150 $\pm$ 100	2880-2620	PRZYBYŁ 2002; 2007
38	Smarglin 22 / 54	VB	ceramic	Ki-13133	4090 $\pm$ 100	2870-2490	PRZYBYŁ 2002; 2007

The region of Kujavia is the most important in understanding the processes of Badenisation across the whole of the Polish Lowlands. The summary comprising the  $^{14}\text{C}$ -datings of the Kujavian TRB settlements from the third millennium BC was presented in the first volume of this series (CZEBRESZUK/

### Kujavia

There were only 21 radiocarbon datings for the material excavated in settlements that represent the Late Neolithic TRB. So far these comprise: Opatowice 1 (7 datings), Opatowice 3 (1 dating), Opatowice 12 (1 dating), Piecki 1 (1 dating), Kuczkowo 1 (3 datings), Kuczkowo 5 (3 datings), Łagiewniki 3 (1 dating); Łagiewniki 5 (1 dating), Inowrocław-Mątwy 1 (1 dating), Inowrocław 55 (1 dating), Latkowo 5 (1 dating) (CZEBRESZUK/SZMYT 2001; KOŚKO 1981 b; 1988 a; 1990; 2000 a; KOŚKO/PRZYBYŁ 2004; SZENICOWA 1982; WIŚLAŃSKI 1989). The shortage of absolute chronological datings was particularly problematic in the case of some important complexes of settlement sites: Inowrocław-Mątwy 1, Konary 6B, Papros 6A and 6B, as well as Łojewo 4 (KOŚKO 1981 b; 1983; 1987; 1988 a; PRINKE/WEBER 1982). Thanks to the analysis of archaeological material from those sites it was possible to set up a periodical scheme for the horizon of the TRB Badenisation in the Polish Lowlands. However, a more precise dating based upon comparative methods was not possible due to the lack of any remains of bones or charcoal, a circumstance that resulted from the nature of the light sandy soil of the Lowlands and from frequent disturbances in the sites' stratigraphy (KOŚKO/SZMYT 2007 b).

These limitations as well as the varying cognition of the cultural context of lowland Badenisation resulted in a taxonomy based predominantly upon premises of relative chronology. The subjective character of such a systematic scheme necessitated verification in the process of absolute dating. This need was also confirmed by the asynchronicity in stylistic and radiocarbon dating (KOŚKO 1996, 94; KOŚKO/PRZYBYŁ 2004, 261–262).

The aforementioned research project of 2005–2007 enabled the impasse in verifying and specifying patterns of chronological and taxonomical classification to be resolved. In the course, it was possible

(SZMYT 2001). Due to research in 2005–2007<sup>1</sup>, we currently possess even more accurate datings. As a result we can finally identify chronological aspects of the Badenisation process of the TRB in Kujavia, Greater Poland and in the drainage basin of the lower Oder River.

to fill cognitive gaps, thanks to the usage of some innovative methods that are applicable in dating particular fragments of pottery, namely those consisting of 'chronometrically active' substances in the form of organic coating or of ceramic components (KOVALIUCH/SKRIPKIN 2007). In this way it was finally possible to broaden the scope of absolute dating in relation to the Kujavian diagnostic sites with the additional 16 markings, one of which was based upon the analysis of the wood tar-based dye.

A compilation of all dates for the group of Kujavian sites that reflect the lowland Badenisation of the TRB is presented in Table 1.

The diagnostic value of the 38 datings as shown in Table 1 is diminished by a wide margin of error. These particular radiocarbon datings are prone to error variance between 100–110 or 80–90 years in 9 and in 13 cases respectively. Some additional limitations in the accuracy of measurements were caused by the characteristics of the calibration curve. Within the period of cultural events under study here there are four distinct flattenings (RAETZEL-FABIAN 2001, 15–16; WALANUS/GOSLAR 2004, 64–68). As a result even these datings, which seem most elucidative due to a very narrow margin of error of ca. 35 years, after calibration distribute measurements over wider curves of probable calendar dates, making them similar with the scope of the plateau.

The findings that stem from the calibration of  $^{14}\text{C}$ -datings enabled further verification of the comparative chronology set up so far. Consequently, it became possible to establish shared values for the datings of the aforementioned phases of two main development trends of the TRB: endogenous (Konary-Papros subgroup of the eastern TRB group) and exogenous (Radziejów group, described in PRZYBYŁ 2007). Each of the phases can be said to include two distinct sub-phases, early and late. They are identified by the datings, which after calibration present intervals that partly or totally overlap with the given flattenings of the calibration curve (Table 2).

<sup>1</sup> "The Great Valley Area of Funnel Beaker Culture Badenization. Carpathian Eneolithic Protocivilization Centre's Contribution to the Development of the Elbe-Saale and

Vistula drainages societies on the threshold of the Early Metal Age"; project No. 1 H01H 012 28, financed by the Polish Committee for Scientific Research.



Tab. 2 Chronology Table due to the calibrated <sup>14</sup>C-dates of Kujavia with overlapping intervals

No	Site / Feature No	Lab. No	Date BP	cal. BC - 1σ 68,2%	Combine BC		Phase of TRB
1	Kuczkowo 1/ A32	Ki-6498	4600±40	3500-3190	3500-3350	3490-3360	VA
2	Inowrocław-Mątwy 1	Ki-12725	4700±100	3640-3360			
3	Kuczkowo 5	Ki-6500	4630±35	3500-3360	3500-3360		
4		Ki-6499	4620±35	3500-3350			
5		Ki-6501	4560±55	3490-3110			
6	Kuczkowo 1/ C9	Ki-6496	4520±45	3350-3100	3350-3100	3350-3100	
7	Łojewo 4	Ki-12726	4450±90	3340-3010	3090-2910	3090-2910	VB
8		Ki-12727	4380±90	3310-2890			
9		Ki-12728	4320±90	3270-2770			
10	Smarglin 22	Ki-13132	4150±100	2880-2620	2870-2570	2870-2570	
11		Ki-13133	4090±100	2870-2490			
12	Opatowice 42-21	Ki-13237	4380±80	3270-2900	3030-2900		
13		Ki-13238	4310±80	3090-2870			
14	Papros 6B	Ki-12731	4330±90	3270-2870	3020-2870	3010-2890	
15		Ki-12732	4270±90	3030-2680			
16	Chelmiczki 10	Ki-13127	4370±110	3330-2880	3080-2880		
17		Ki-13239	4290±90	3090-2700			
18	Opatowice 1-64	Gd-8034	4190±60	2890-2670	2890-2670		
19		Ki-13124	4160±100	2890-2620			
20	Papros 6A	Ki-12729	4205±90	2910-2630	2920-2690	2900-2710	
21		Ki-12730	4280±90	3090-2690			
22	Piecki 1-8	Ki-5686	4290±25	2915-2890	2915-2890		
23		Ki-13240	4300±110	3100-2650			

### *Radziejów Group of the TRB*

The exceptional complexity of decoration found in the Radziejów group of the TRB should be regarded as the evidence of some extraordinary processes of cultural transmission and transformation. The changes were common in Central Europe starting in the second half of the fourth millennium BC due to well developed, vast, and stable systems of interregional interactions. Culturally dominant in the region, the Carpathian centres of the Chalcolithic period inspired and activated the Central European TRB.

As a consequence of the dynamic and deep transformations related to the 'Lowland strategy' in Chalcolithic period on the basis of Baden Culture, today it is difficult to register the remains of transitional nature adequately. For this reason alone there is a quantitative disproportion in the amount of material deriving from the early and late developmental periods of the Radziejów group in comparison to the remains from the middle phase.

From the very start of its development, the Radzie-

jów group of the TRB was characterized by an advanced and polygenetic system, which comprised multicultural and multigenetic traditions, e.g., those related to Baden Culture, the Corded Ware Culture (henceforth, CWC), and the Globular Amphora Culture. This is most obvious in the material culture and in the sphere of rituals. The highly developed syncretism of decorations and of ceremonial rites distinguish the group as possessing a new quality that differs from its cultural basis, from which it is said to have originated. Nevertheless, the observations of adaptation connected with the cultural and chronological transformations in the local models of culture does not allow any irrefutable conclusions to be drawn, which would provide answers about both the origins of the group and its connections determining its specificity (KOŚKO 1981 a, 200-202; 1996; 2000 a, 133; 2000 b; 2000 c; KOŚKO/PRZYBYŁ 2004, 265; PRZYBYŁ 2007; RYBICKA 1995).

The results pertaining to the taxonomy and chronology of Badenisation within the region of Kujavia brought forth some unexpected early datings for the beginning of Radziejów group of the TRB at approx-

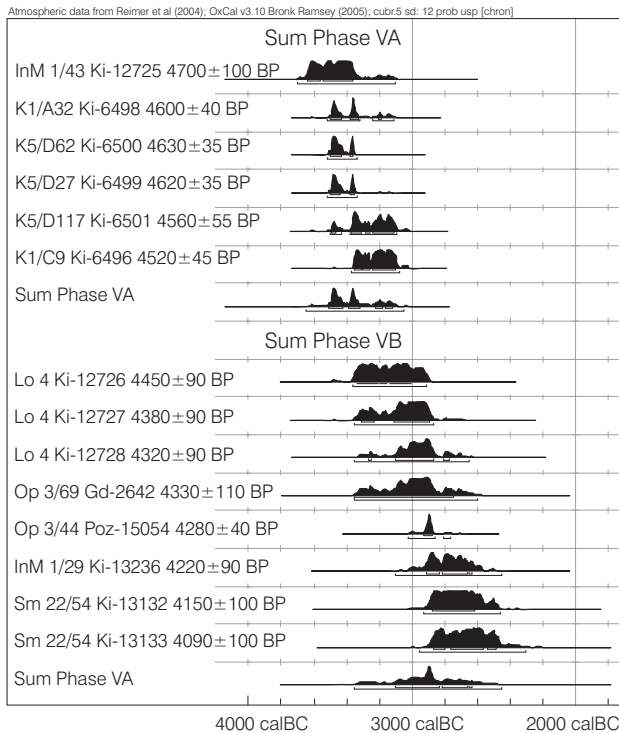


Fig. 1. Calibration results of radiocarbon dates and the sum of probability distribution for the TRB phases VA and VB of Radziejów group (Kujavia).

imately 3500 BC. However, the dates of such radiocarbon findings seem too old in comparison to the outcome of comparative analysis (Fig. 1).

This is especially visible in the very early datings preceding the expected results for the site of Kuczkowo 1, which is characterised by decorations that are widely recognized as representative for early Corded Ware tradition. The  $^{14}\text{C}$ -datings obtained go before the time of the early stages of the CWC (CZEBRESZUK 2000; CZEBRESZUK/SZMYT 2001; FURHOLT 2003). It is vital to stress here that the nature of the identified features cannot be regarded as conclusive. There are doubts and conclusions relating to the investigated cultural component, which remain in accordance with the previous opinion about the genetic complexity of the earliest forms of the Lowland (Kujavian) CWC (KOŚKO 1997; 2000a: 130).

Despite detailed studies encompassing the earliest phases of the CWC in the Polish Lowlands as seen from the perspective of the genetic context of the TRB, the issue of correlation between the two cultures has not been categorically explained so far (KURZAWA 2001).

From the perspective of absolute chronology, it is not possible to do anything more than imply some indirect premises in favour of the rather early datings obtained for the sites in Greater Poland and in

the lower basin of the Oder River. A careful interpretation of pottery shows some signs of stylistic syncretism, which may support the presented datings (see below). However, until additional data is acquired, neither verification nor contradiction of the offered chronology remains conclusive. Some problematic cases of very early radiocarbon findings of the initial phases of the Radziejów group of the TRB still continue to exist, particularly when discussing the oldest material with clear correlations to the early Corded Ware Culture.

#### *Konary-Papros Subgroup of the Eastern TRB Group*

In contrast to dynamic trends of exogenous transformations as seen in the Radziejów group of the TRB, in the case of Konary-Papros subgroup, usually associated with an endogenous development, a surprisingly conservative approach to decorations prevailed. The linear development of stylistics observable in long consecutive time sequences of the TRB phases in the region of Kujavia sustains the endogenous nature of the Konary-Papros cycle, associated with the eastern group of the TRB. In respect to the Baden Culture and closely related Beaker-Baden sites in Śląsk (Silesia) and Małopolska (Lesser Poland), the communities associated with the Konary-Papros subgroup were characterized by a strong autonomy. During the Late Neolithic, they took an active part in a widespread network of connections independent of the Radziejów group. These strong contacts may be attributed to the water routes of the Oder and Warta rivers. This view is supported by analogies both in form and in style found in the Kujavian and Silesian late TRB pottery. The most distinctive elements in question are those of decorative rhomboid nets and three-ply cord impressions (KOŚKO 1987, 53–58, fig. 4; PRZYBYŁ 2006; KIRSCH 1993; 1994, 98–99, Fig. 48–49). The use of tools made of Jurassic flint of type G, especially in relation to ceramics, also supports this opinion (DOMAŃSKA 2007; KOPACZ/ PELISIAK 1991; 1992).

After the calibration of radiocarbon datings prepared for the whole set of sites related to the TRB subgroup of Kujavia, the findings may be placed in the period of 3000–2350 BC (Fig. 2). There may be a few premises of earlier beginnings of the stylistics discussed above, e.g., feature 52 in the site Opatowice 42 is dated just after 3350 BC. Nevertheless, a later date of the whole local context of stylistics belonging to phases IIIB-C-IIIC, which remains the genetic background in this case, suggests accepting the more appropriate initial date of 3000 BC.

The time span of the last of the phases, IVB/VC, seems justified. The data collected from the site Opatowice 1 confirms the results presented,

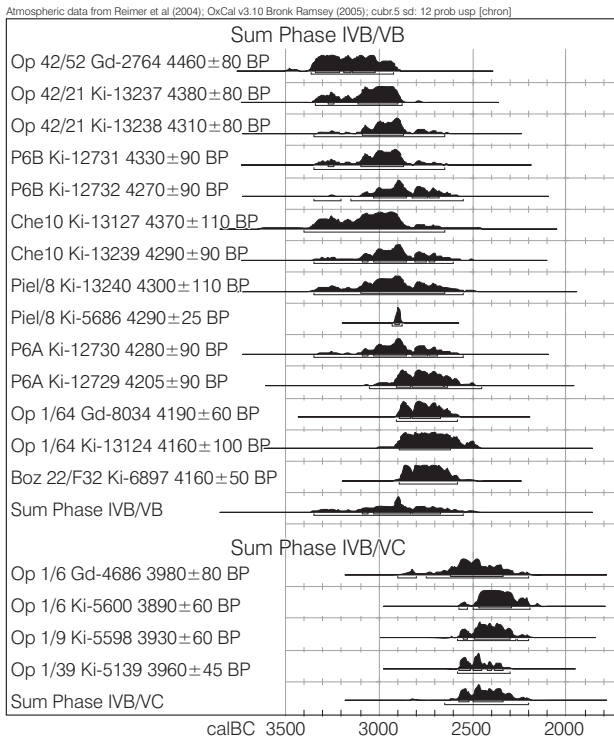


Fig. 2. Calibration results of radiocarbon dates and the sum of probability distribution for the TRB phases IVB/VB and IVB/VC of the eastern group – Konary-Papros subgroup (Kujavia).

even though there are no verified cases of similar datings for other sites in the Polish Lowlands, which could be linked to the final phase of the TRB societies (CZEBRESZUK/SZMYT 2001; KOŚKO/ŁUKSZA 2007).

### Greater Poland

The number of conclusions drawn from the analyses of Late Neolithic TRB settlements in Greater Poland is of a limited scope, due to the fact that these sites are still not suitably analysed and published. Therefore, their applicability in depicting the time span of Badenisation processes in the Polish Lowlands is of less importance. In spite of the documentation of findings from numerous important sites with an abundance of settlement remains, no broader study has been conducted about the form and function of Late Neolithic TRB agglomerations in Greater Poland (PRINKE 1991; PRINKE/PRZYBYŁ/CHACHLIKOWSKI/KABACIŃSKI 2002; TETZLAFF 1981; 1988; 1989; 1991). Because of the lack of a scheme that would include systematic changes in both taxonomy and chronology, it is not possible to relate archaeological material, which would provide information about cultural processes in Greater Po-

land, to the context created by other areas, in which the Badenisation of the TRB took place. In addition, there are difficulties in depicting the time boundaries of that process, which were shaping a wider image of this cultural phenomenon in the region during the Late Neolithic.

Until recently there were merely two  $^{14}\text{C}$ -datings for the sites Mrowino 3 and Śrem 8, which dated the Badenisation processes in the area to 3330–2890 BC (TETZLAFF 1989; 1991). Some time ago radiocarbon findings were expanded by two additional measurements for pottery from Szczuczyn, a site that was investigated in a rescue excavation (PRINKE ET AL. 2002; PRZYBYŁ 2007).

Table 3 includes all of these  $^{14}\text{C}$ -datings together with the periods resulting from calibration.

The most recent datings are significant, because they expand the chronological boundaries of the discussed processes in the region of Greater Poland, which in turn allows comparisons to be made with the phases VA–VB of the TRB in Kujavia. After taking the calibration of all laboratory-conducted measurements into account, the potential time period of the Mrowino group of the TRB existence should be given as 3400–2550 BC (Fig. 3).

Another reason why datings from Szczuczyn are so important is the fact that one of the dates documents the earliest phase of Badenisation. Even though there are still no publications that would summarize the whole context as well as the available ceramic sources dated to 3510–3090 BC, it can nevertheless be concluded already that the early VA phase of the Radziejów group of the TRB in Kujavia might have begun as early as ca. 3500 BC.

This short review of the present data suggests that archaeological material collected from Greater Poland sites is of great cognitive potential. Even such a limited scope of chronometric findings indicates that processes connected with social development identified with the Mrowino group of the TRB occurred over a longer period of time. Due to the specific location, they were influential even beyond the boundaries of the region. Therefore, there is an urgent need for holistic studies from taxonomical and chronological perspectives and for an adequate analysis of local archaeological material associated with those processes, which were inspired by the Baden Culture.

### Lower Oder Drainage

Of all zones of the known sphere of the late TRB presented in this article, in which the stylistic influence connected with Baden-like patterns appeared, the number of radiocarbon chronometry for groups

Tab. 3. <sup>14</sup>C-dates of the TRB Mrowino Group Greater Poland.

No	Site	Sample Material	Lab.No.	BP	BC – 1σ 68,2%	BC – 2σ 95,4%	References
1	Szczuczyn 5	ceramic	Ki-11361	4570±120	3510-3090	3650-2900	PRINKE/PRZYBYŁ/CHACHLIKOWSKI/KABACIŃSKI 2002; PRZYBYŁ 2007
2	Mrowino 3	bone	GrN-14017	4480±35	3330-3090	3350-3020	TETZLAFF 1989; 1991
3	Śrem 8	bone ?	Gd-4163	4350±80	3090-2890	3350-2750	TETZLAFF 1988
4	Szczuczyn 5	ceramic	Ki-13241	4070±100	2860-2480	2900-2300	PRINKE/PRZYBYŁ/CHACHLIKOWSKI/KABACIŃSKI 2002; PRZYBYŁ 2007

Tab. 4. <sup>14</sup>C-dates of the TRB Ustowo Group Lower Oder Basin.

No.	Site	Feature	Sample Material	Lab. No.	BP	BC – 1σ 68,2%	BC – 2σ 95,4%	References
1	Ustowo	.	?	Bln-1807	4510±60	3350-3100	3380-3010	SIUCHNIŃSKI 1981; KUKAWKA 1983
2	Gorzów Wielkopolski 10	14	bone	Ki-13128	4320±90	3270-2770	3350-2650	SZCZUREK 1981; PRZYBYŁ 2007
3	Gorzów Wielkopolski 10	7	bone	Ki-13129	4260±80	3010-2680	3100-2550	SZCZUREK 1981; PRZYBYŁ 2007

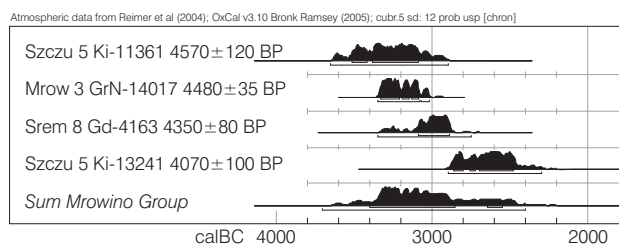


Fig. 3. Calibration results of radiocarbon dates and the sum of probability distribution for the TRB Mrowino group (Greater Poland).

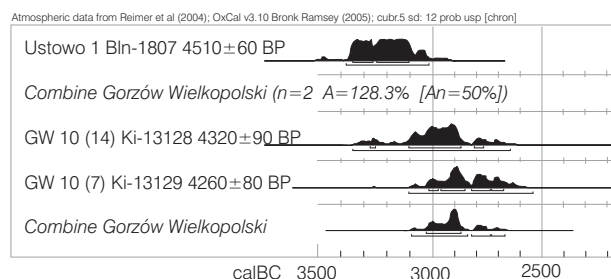


Fig. 4. Calibration results of radiocarbon dates and the combine of probability distribution for the TRB Ustowo group (Lower Oder Basin).

of the Oder River was the most modest of all. It contained only one <sup>14</sup>C-dating, made at the beginning of the 1980s for the eponymous site of the Ustowo group of the TRB (SIUCHNIŃSKI 1981). Today the dating group can be broadened, thanks to datings of two objects, documented at site no. 10 in Gorzów Wielkopolski. These datings authenticated the evaluation of the group's relevant position, achieved by the results of typo-chronology (phase IIB of the local TRB, according to SIUCHNIŃSKI 1981: 150–152 Table 1).

All of the <sup>14</sup>C-datings from the Lower Oder Basin are presented here in the Table 4 and Figure 4.

The above-mentioned choice enables the synchronization on the basis of a technological-stylistic evaluation of the course in the younger developmental phase of communities living in the northern and eastern parts of the Baden-like TRB

along with the turn of Kujavian phase VA to VB. The periodisation scheme of the Ustowo group follows as such:

- Phase IIA (3380–3010 BC); synchronic with the younger part of the VA phase,
- Phase IIB (3020–2870 BC): synchronic with the older part of the VB phase.

Although there are no direct premises that would allow a chronological framework for the oldest phase I, this scheme permits the assumption that it was parallel in time with a marked older part of phase VA in the region of Kujavia. Therefore, the beginning of the Ustowo group of the TRB could be dated within the time 3500–3350 BC, which would agree with observations in the lowland area of Kujavia and Greater Poland.

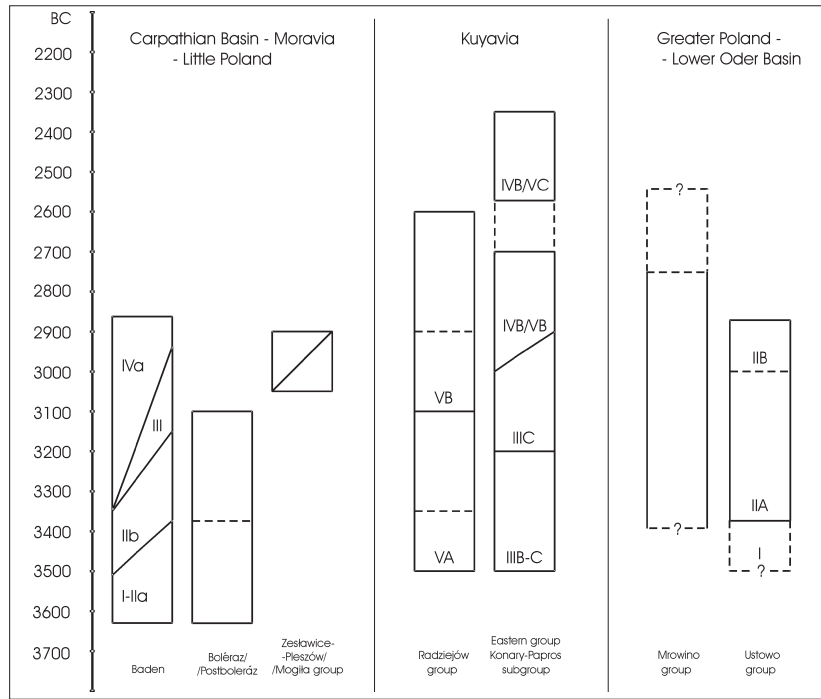
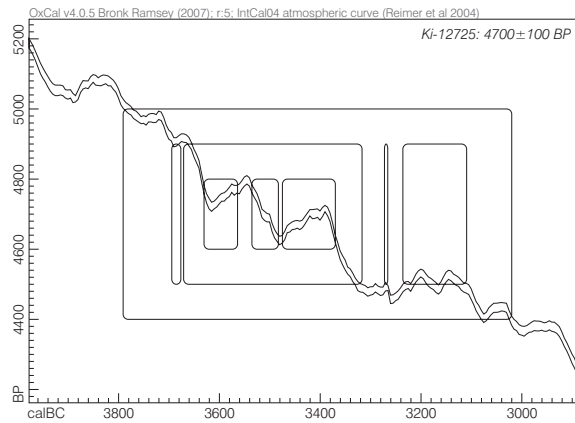


Fig. 5. Synchronisation of Baden Culture units and Late Neolithic TRB groups.

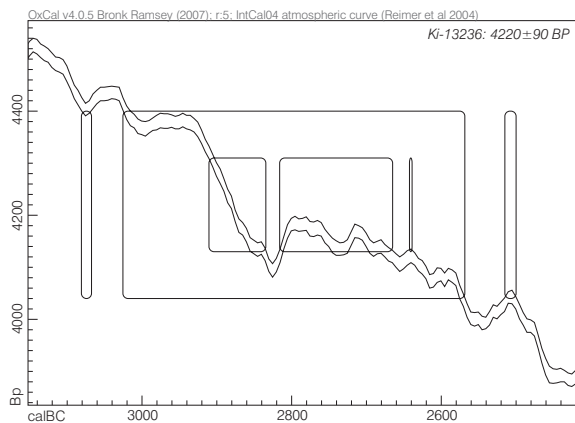


Inowrocław\_Matwy 1  
pit 43; Ki-12725: 4700 ± 100 bp

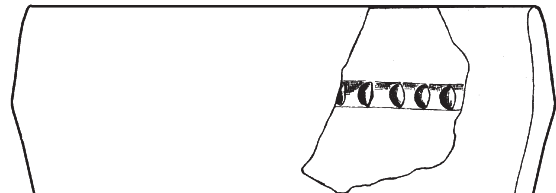


68.2% probability  
3640 BC (18.7%) 3560 BC  
3540 BC (49.5%) 3360 BC  
95.4% probability  
3700 BC (95.4%) 3100 BC

a



Inowrocław\_Matwy 1  
pit 29; Ki-13236 4220 ± 90 bp



68.2% probability  
2910 BC (22.9%) 2830 BC  
2820 BC (44.1%) 2660 BC  
2650 BC (1.2%) 2630 BC  
95.4% probability  
3100 BC (95.4%) 2450 BC

b

Fig. 6. Calibration results of radiocarbon dates from Inowrocław-Matwy, site 1 (Kuyavia) TRB phase VA and VB (Radziejów group).

## Radiocarbon chronology of the Late Neolithic TRB in the Polish Lowland – a Summary

Thanks to technological developments in recent years, the current knowledge concerning the chronology of the groups representing the original groups of the Baden cultural sphere as well as those groups under the influence of the TRB groups can be presented here quite satisfactorily.

The complex character of the processes connected with the development of the genetic centre of Baden Culture has its counterpart in the parallel setting of taxonomic divisional phases based upon the typological evaluation, ranging from 3650/3600–2870 BC (Fig. 5; STADLER ET AL. 2001; WILD ET AL. 2001).

It is worth noting that the collection presented here of the newly acquired radiocarbon data has an anchor in time for the stages of Badenisation in the Polish Lowlands (Fig. 6; Plate 1–4). Thanks to the data the chronology of the discussed phenomena in Kujavia, Greater Poland and the lower basin of the Oder River can be presented in the following way:

3500–2600 BC: Radziejów group;  
3000–2350 BC: Konary-Papros subgroup (last part of the Eastern group);  
3400–2550 BC: Mrowino group;  
[3500?]/3400–2900 BC: Ustowo group.

It should be emphasized that it is necessary to continue research on the chronological recognition of manifestations in the processes of Lowland syncretism that accompanied the spread of culture-forming impulses of the Baden Culture. Many aspects are still unsolved, owing to statistical limits, archaeological evaluation methods of laboratory measurements as well as shortages in the source pool.

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### Abstract

In the paper the author aims at presenting the results of the most recent findings pertaining to the chronological description of the latest assemblages of the TRB, which were obtained on the basis of new radiocarbon datings of remains found in the Polish Lowland. The collection of data presented here has allowed an anchor in time for the stages of Badenisation of the TRB. Thanks to them the chronology of some phenomena in Kujavia (Radziejów group and Konary-Papros sub-

group), Greater Poland (Mrowino group) and the lower basin of the Oder river (Ustowo group) can be presented in a new way, respectively 3500–2600 BC, 3000–2350 BC, 3400–2550 BC and [3500?]/3400–2900 BC. It should be emphasized that it is necessary to continue research on the chronological recognition of manifestations in the processes of Lowland syncretism that accompanied the spread of culture-forming impulses of the Baden Culture.

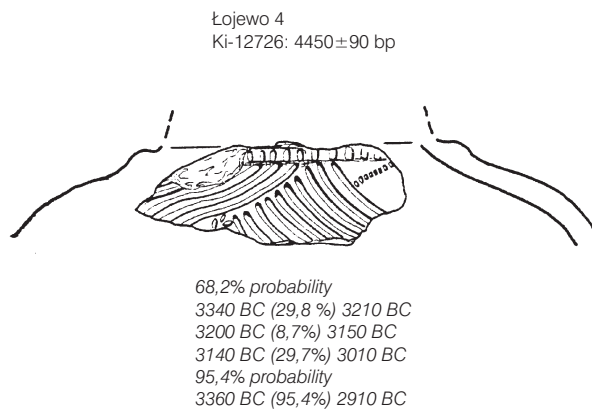
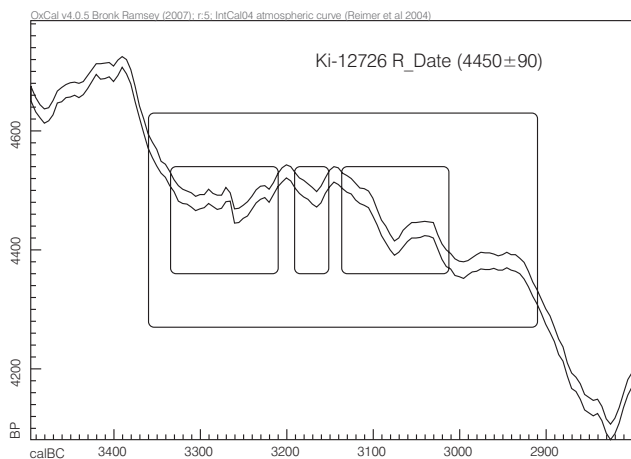
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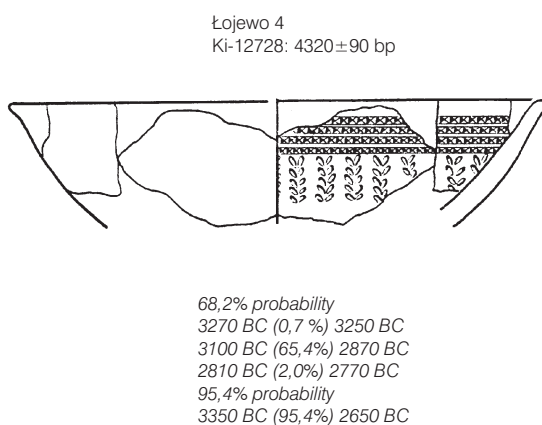
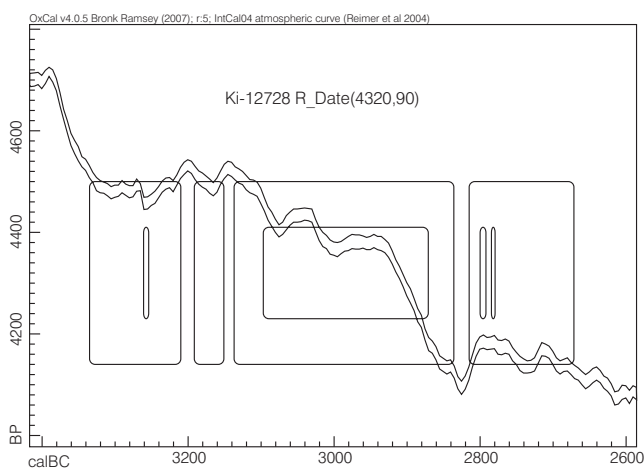
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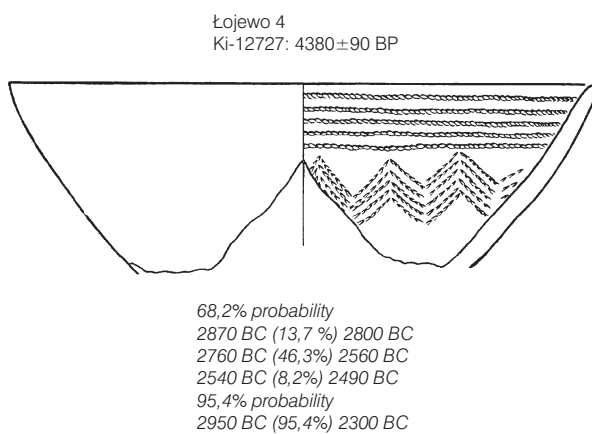
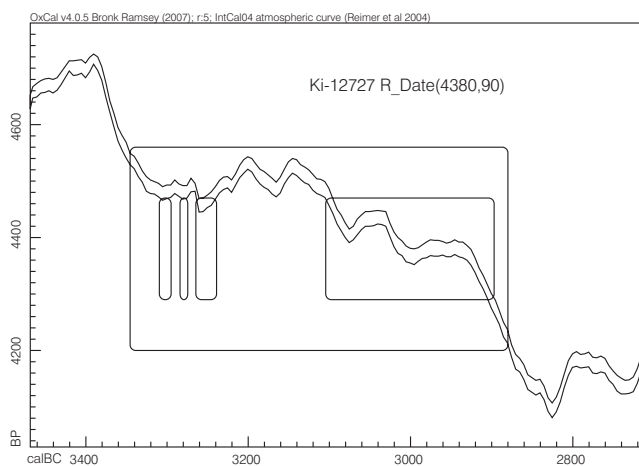
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a

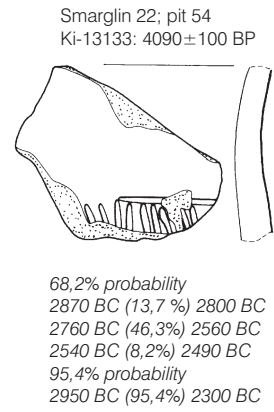
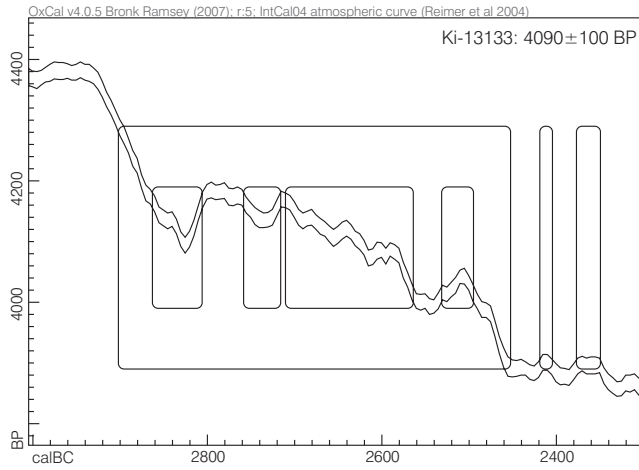


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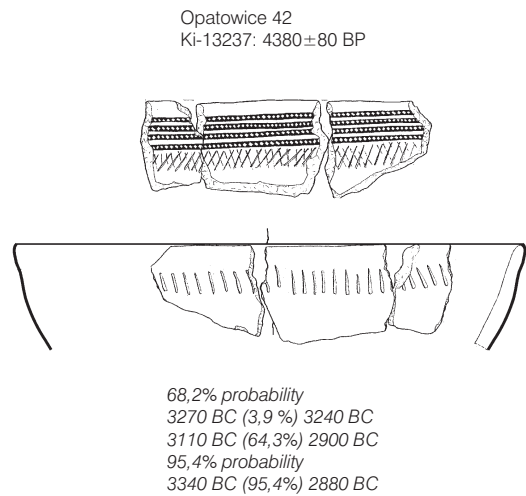
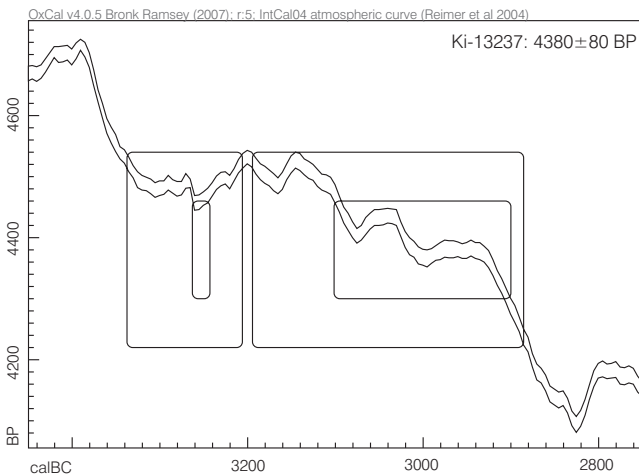


c

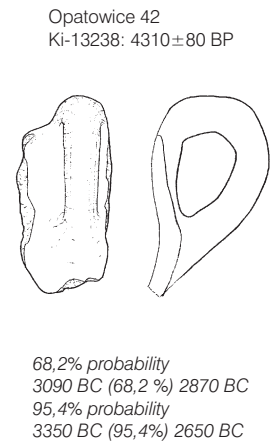
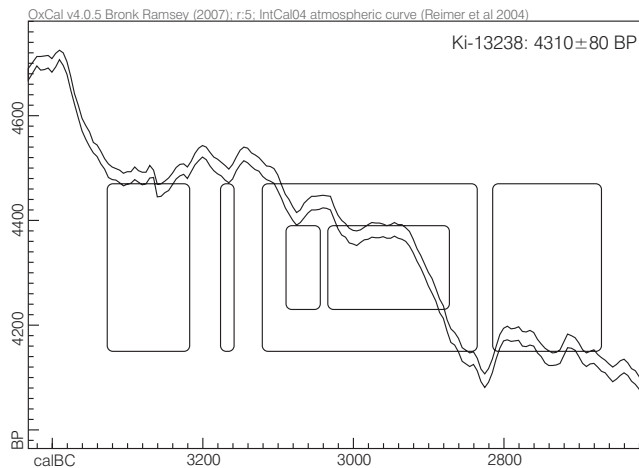
Plate 1. Calibration results of radiocarbon dates from Łojewo, site 4 (Kujavia) TRB phase VB (Radziejów group).



a

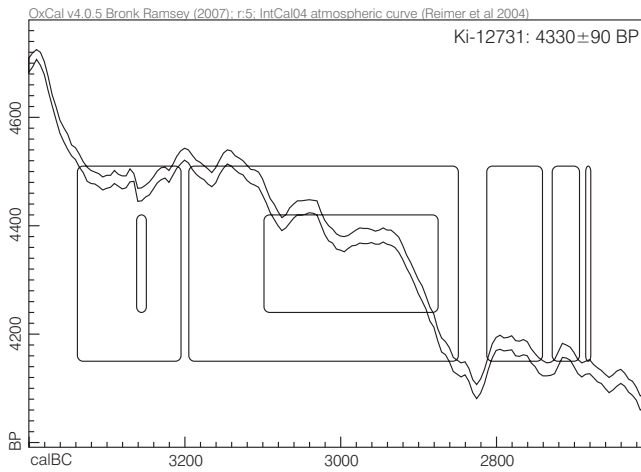


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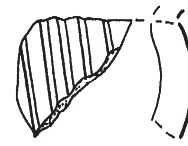


c

Plate 2. Calibration results of radiocarbon dates from (a) Smarglin, site 22 (Kujavia) TRB phase VB (Radziejów group) and from (b, c) Opatowice, site 42 (Kujavia) TRB phase IVB/VB (Eastern group – Konary-Papros subgroup).

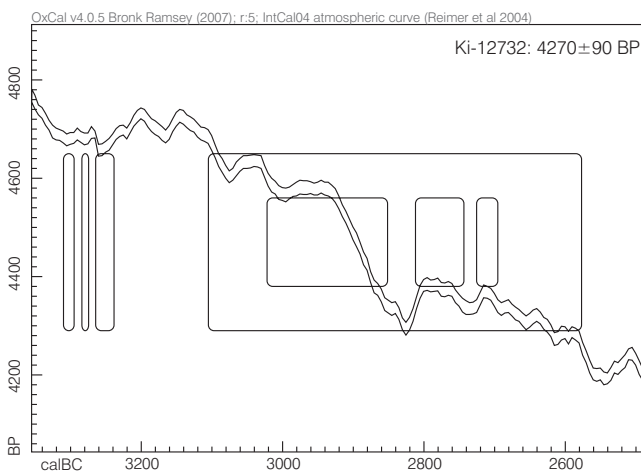


Papros 6B  
Ki-12731: 4330±90 BP



68,2% probability  
3270 BC (1,8 %) 3240 BC  
3100 BC (66,4%) 2870 BC  
95,4% probability  
3350 BC (95,4%) 2650 BC

a

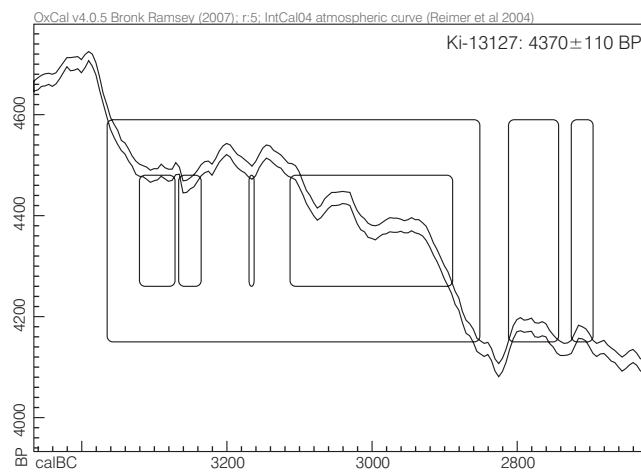


Papros 6B  
Ki-12732: 4270±90 BP

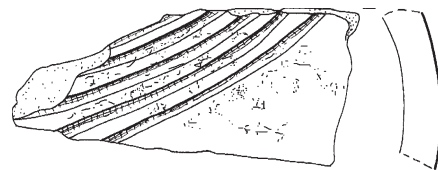


68,2% probability  
3030 BC (45,4 %) 2850 BC  
2820 BC (16,5%) 2740 BC  
2730 BC (6,3%) 2680 BC  
95,4% probability  
3350 BC (1,6%) 3200 BC  
3150 BC (93,8%) 2550 BC

b



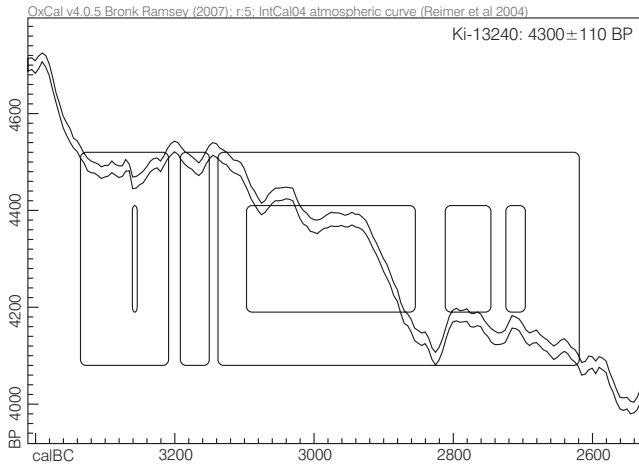
Chelmiczki 10  
Ki-13127: 4370±110 BP



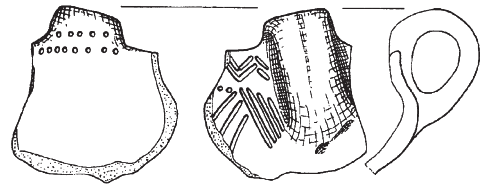
68,2% probability  
3330 BC (13,2 %) 3230 BC  
3170 BC (1,1%) 3160 BC  
3120 BC (53,9%) 2880 BC  
95,4% probability  
3400 BC (95,4%) 2650 BC

c

Plate 3. Calibration results of radiocarbon dates from (a, b) Papros, site 6B (Kujavia) and from (c) Chelmiczki, site 10 TRB phase IVB/VB (Eastern group – Konary-Papros subgroup).



Piecki 1; pit 8  
Ki-13240: 4300±110 BP

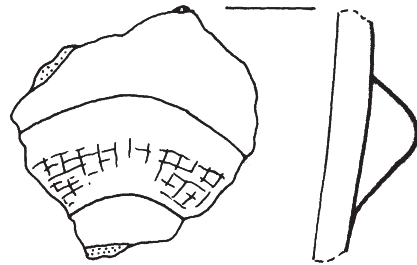


68,2% probability  
3100 BC (68,2%) 2650 BC  
95,4% probability  
3350 BC (95,4%) 2550 BC

a

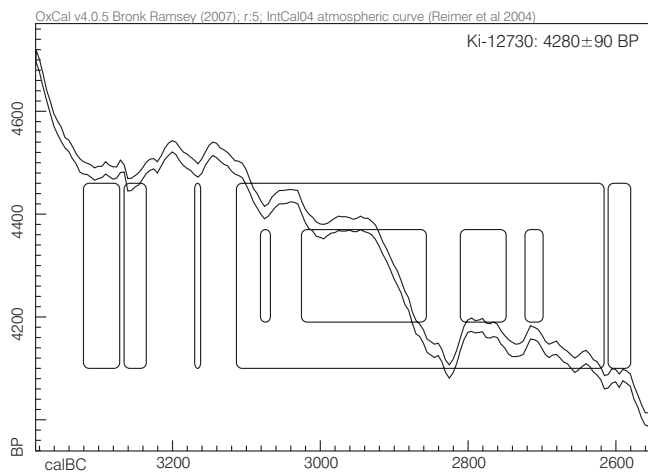


Papros 6A  
Ki-12729: 4205±90 BP

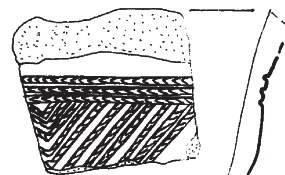


68,2% probability  
2910 BC (20,4 %) 2830 BC  
2820 BC (46,5%) 2660 BC  
2650 BC (1,3%) 2630 BC  
95,4% probability  
3050 BC (1,6%) 2450 BC

b



Papros 6A  
Ki-12730: 4280±90 BP



68,2% probability  
3090 BC (2,1 %) 3230 BC  
3030 BC (46,6%) 3160 BC  
2730 BC (13,8%) 2690 BC  
95,4% probability  
3350 BC (95,4%) 2550 BC

c

Plate 4. Calibration results of radiocarbon dates from (a) Piecki, site 1 and from (b, c) Papros, site 6A (Kujavia) TRB phase IVB/VB (Eastern group – Konary-Papros subgroup).

## Settlement, Chronology and Economy of the Funnel Beaker-Baden Society in Kujavia and the Gostynin Lake District

By *Małgorzata Rybicka*

### Introduction

Excavations carried out by L. GABAŁÓWNA at Radziejów Kujawski and Opatowice (Włocławek district, Kujawsko-Pomorskie voivodship) in the 1950s revealed extremely interesting finds, including those of the Funnel Beaker Culture. In her reports GABAŁÓWNA (1960) defined the problems posed by the chronology of the settlement in the Radziejów Hills (Fig. 1–2). Moreover, she differentiated assemblages of the latest phase of the Funnel Beaker Culture, characterized by “Baden” influences, which she designated as assemblages of the Radziejów-Opatowice type. The finds in question have not been fully studied yet.

The concentration of sites recorded in the Radziejów Hills was defined as a “settlement microregion” (Fig. 3; GABAŁÓWNA 1970), with large settlement sites of the Funnel Beaker-Baden soci-

ety. In the fertile Kujavia, settlement of the Funnel Beaker Culture with Baden elements was very intensive (Fig. 4; RYBICKA 1995; KOŠKO 2000). Studies on the settlement of the Funnel Beaker Culture in the Gostynin Lake District have been a marginal issue for archaeologists for years, despite the location on the border between Kujavia and the Vistula River valley. Fluvio-glacial and eolian sands form the soil basis in most of the area. In 1987–2000 the Gostynin Lake district became the subject of a research program that was focused on Funnel Beaker Culture settlement. This resulted in the discovery of a number of archaeological sites of this culture. In contrast to Kujavia, the Baden type settlement of the Funnel Beaker Culture was relatively sparse in the district of Lake Gostynin (RYBICKA 2004).

### Kujavia

#### Regional Settlement of the Funnel Beaker Society

The settlement pattern of the Funnel Beaker Culture in northwestern Poland was described by T. WIŚLAŃSKI (1969). Its major features are the absence of a distinct relationship between the distribution of settlements and the soil types, the preference for areas with a diversified landscape and with abundant water supply and finally the penetration of the uplands.

The area between Lake Gopło and the Bachorza and Zgłowiączka valleys (characterized by a developed hydrographic system and low relief) shows distinct links of Funnel Beaker settlement locations to small streams and ice-block kettles that occur in the upland (Fig. 4–5). A similar situation (for example, occupation of areas around tributaries of larger rivers) was also observed in the loess uplands of Little Poland (KRUK 1973; 1980) and in the Warta and Pilica basins (PELISIAK 2003). A feature shared by Funnel Beaker settlements

in those areas, which differ considerably in landscape, is their concentration in the central parts of the uplands. What distinguishes the Funnel Beaker sites in central Kujavia from settlement in the uplands or in the Warta and Pilica basins (PELISIAK 2003) is their association with relic lakes. This was mainly determined by the hydrography of that region. In the western part of Little Poland (KRUK 1973) and the Nałęczów Plateau (RYBICKA 1995, 30) settlements were frequently located on the borders of uplands, in higher places that sometimes had defensive properties. A similar topography of settlements is also observable in the area under discussion, that is, in the marginal zones of end moraines (Radziejów Kujawski, Opatowice, Chełmce; Fig. 4–5).

The location of Funnel Beaker settlements between Lake Gopło and the Bachorza and Zgłowiączka valleys is usually in places with small differences in height between valley floors and site levels, frequently in the vicinity of ice-block kettles.

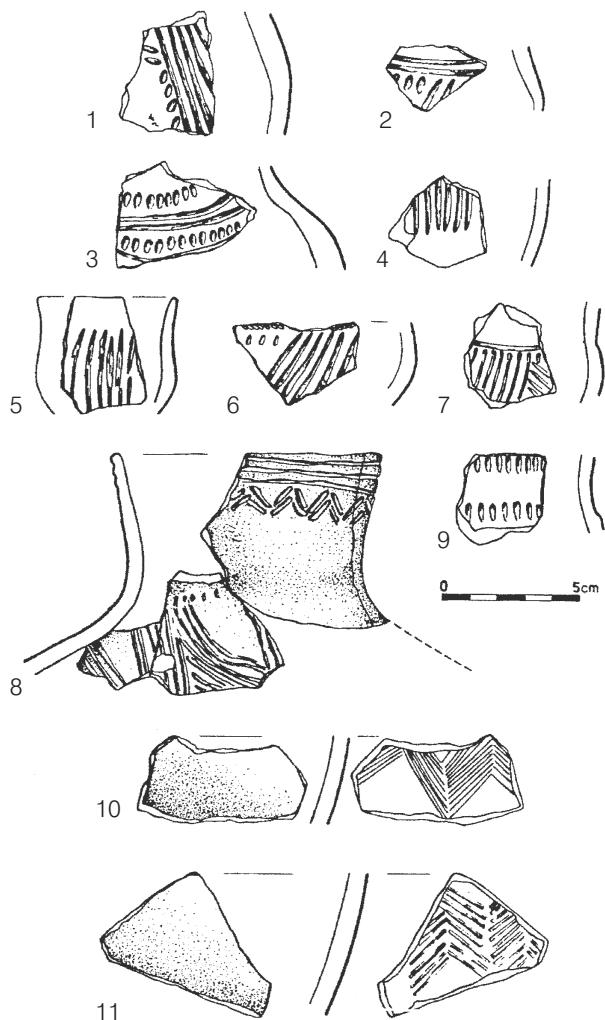


Fig. 1. Opatowicie, site 3, Włocławek district. Potsherds.

The tendency to select “dry” sandy substratum for Funnel Beaker settlement locations is observable in the area in question. Most sites identified as settlements or camps lie in areas with a sandy substratum, for example, the concentrations on hills in the area of Radziejów Kujawski and Opatowice (Fig. 4). This tendency can also be noted in the Bachorza valley, where short-lived settlements were located in sandy places, often on small hills surrounded by wetlands. The location of sites in “dry” areas has also been observed by A. PELISIAK (2003) in the Warta and Pilica basins, by T. WIŚLAŃSKI (1969) in northwestern Poland and by M. RYBICKA (2004) in the Gostynin Lake district. Some of these concentrations include sites that are positioned either high in “dry” places, or low, right at the edge of ice-block kettles or near stream beds, for example, the distribution of settlement locations in the region of Radziejów and Opatowice.

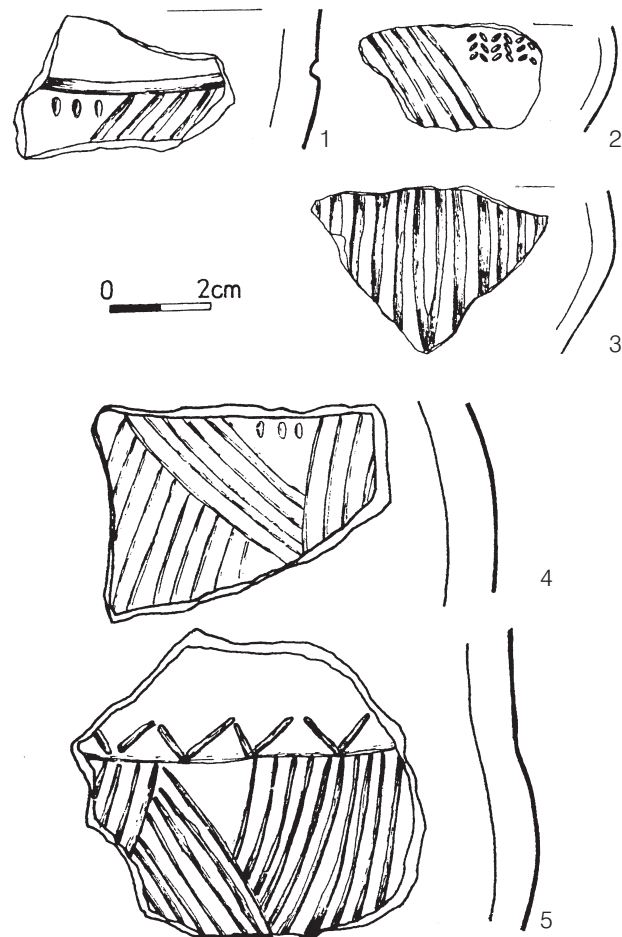


Fig. 2. Radziejów Kujawski, site 4, Włocławek district. Potsherds.

With regard to the location of sites in relation to soils, two types have been recognized in the area between Lake Gopło and the Bachorza and Zgłowiączka valleys. The data recorded there show that the differences in settlement locations in relation to their height above valley floors and with regard to the substratum resulted from the differences in their function. On the basis of excavation results, sites recorded on morainic hills can be regarded as permanent settlements (Fig. 3; RYBICKA 1995, 127–137). On the other hand, those located at the foot of hills, where surface formations are of the same type as on the site, may be the remains of temporary occupation.

Funnel Beaker culture settlement patterns reflect, to the some extent, the subsistence economy of this group. These communities occupied various environmental niches of highly differentiated lowlands landscape. It can be supposed that both poor sandy areas and relatively productive ice-block kettles were used in different ways.

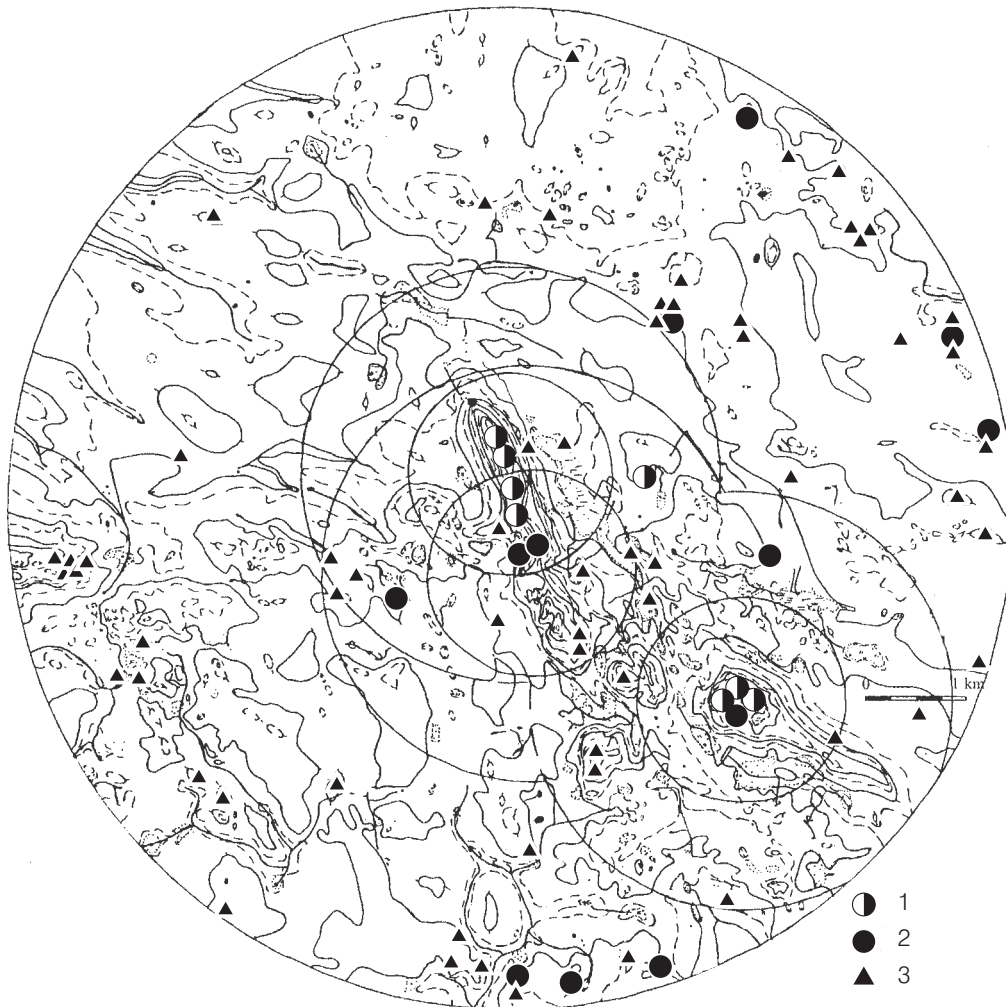


Fig. 3. Settlement locations of the Funnel Beaker Culture within the radius of 5 km from the settlements on Radziejów Hill. 1 Wiórek phase; 2 "late Luboń" phase; 3 of undetermined chronology.

According to J. KRUK (1980), apart from the cultivation system of burning-fallow land, horticulture was also practised in the loess area of Little Poland. The considerable number of Funnel Beaker settlement locations near ice-block kettles may suggest that intensive soil cultivation also played an important part in the farming system of the Funnel Beaker people in the region under discussion.

According to B. JANKOWSKA (1980), the analysis of pollen profiles from the Gopło region shows that during the Subboreal period good soils in that area were occupied by oak forests with hazel underbrush. This seems to hold true for the areas east of Lake Gopło as well. This kind of underbrush facilitated the practice of burning fallow land for cultivation and stockbreeding. The fact that such practices were followed seems to be attested by settlement locations in areas covered with boulder clay. The occurrence of sites at the edge of various types of water reservoirs (for ex-

ample, streams and ice-block kettles) points to the importance of hunting and fishing.

According to T. WIŚLAŃSKI (1969), two types of settlements are characteristic of the Funnel Beaker Culture: permanent settlements, located on a "dry" substratum, and temporary settlements near bogs and camps (on dunes). On the basis of data presented earlier, such as characteristic traits of site location as well as finds revealed there, settlement locations on morainic hills can be regarded as permanent settlements, and those at the foot of hills as temporary ones.

#### Chronology

There are two stages in the study of the Radziejów Hills. The first covers the activity of L. GABAŁÓWNA, who recognized 16 Funnel Beaker sites in that area (Fig 3; 6A). Some of these were



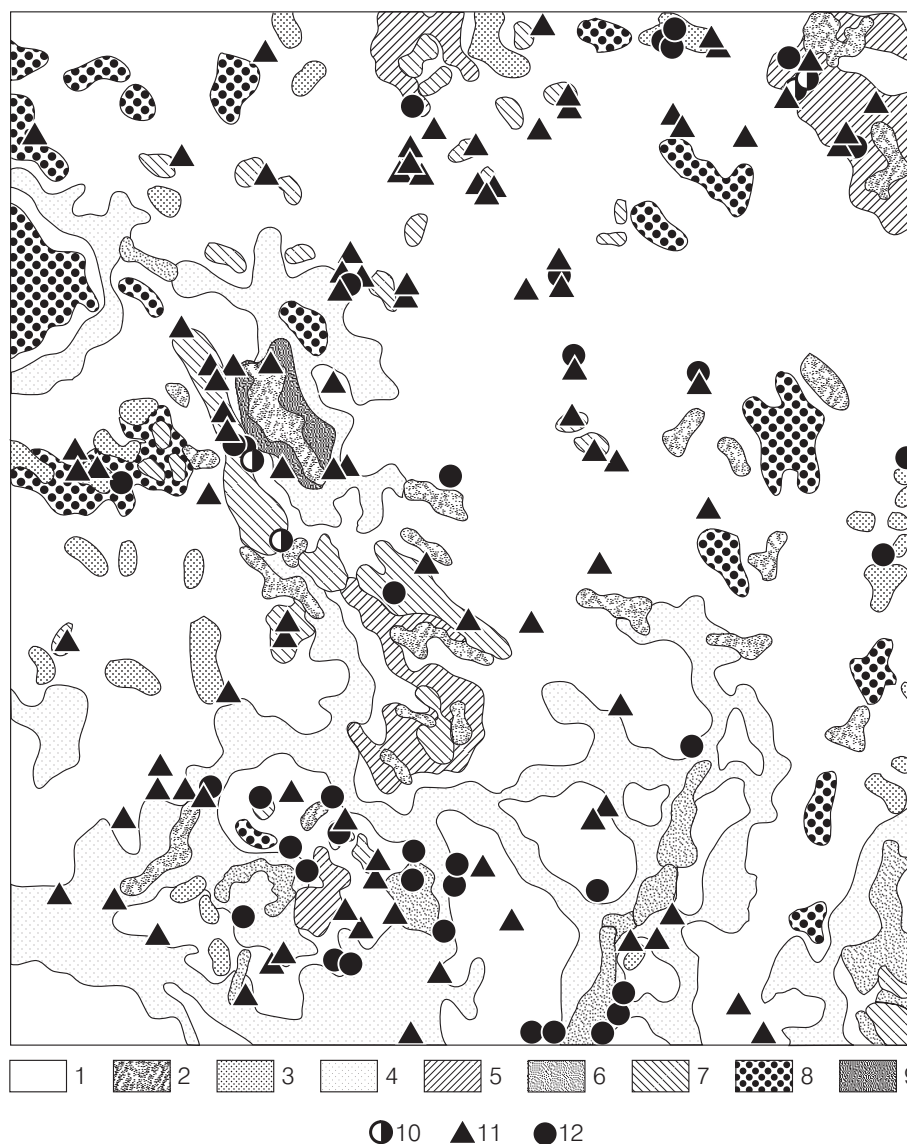


Fig. 4. Settlement locations of the Funnel Beaker Culture in relation to the subsoil layers. Scale 1: 50 000. 1boulder clay; 2 ket-  
tles; 3 sands and gravels of end moraines; 4 glacifluvial sands with gravel; 5 kettle clays, silts and sands; 6 peats and gyttja; 7 kame  
clays, silts and sands; 8 glacial sands with gravel; 9 lake silts and sands; 10 locations of undetermined chronology; 11 Wiórek  
phase; 12 late Luboń phase.

excavated by her (Radziejów Kujawski, sites 3 and 4; Opatowice sites 1, 3, 12), and others were thoroughly surveyed (Radziejów Kujawski, sites 1, 2, 20, 22; Opatowice site 7). The second stage is linked with the activity of the team directed by A. Kośko (Kośko/Szmyt 1994). Since 1983 research has been concentrated on the Opatowice hill.

To establish the chronology of the Funnel Beaker settlements in the Radziejów Hills, stylistic attributes (that is, shape and decoration) of the pottery found in 10 sites, which were investigated by L. Gabałówna, have been analysed in detail (Radziejów Kujawski, sites 1, 2, 3, 4, 20, 22; Opatowice, sites 1, 3, 7, 12; Rybicka 1995).

As a result, the pottery from the Radziejów Hills has been classified into three stylistic horizons. The first horizon coincides with the Wiórek phase. The second, late Wiórek-early Luboń horizon is represented in the Radziejów Hills by pottery fragments from site 1 at Radziejów Kujawski (Rybicka 1995, 63–67). The third, late Luboń horizon is represented by potsherds from sites 3 and 4 at Radziejów Kujawski, and site 3 at Opatowice.

Pottery from site 4 at Radziejów Kujawski merits special attention. An excavation unit of 930 m<sup>2</sup> explored there by L. Gabałówna revealed numerous features abounding in finds (Fig. 6B; Rybicka 1995, 69–91). Analysis of the material has shown that the

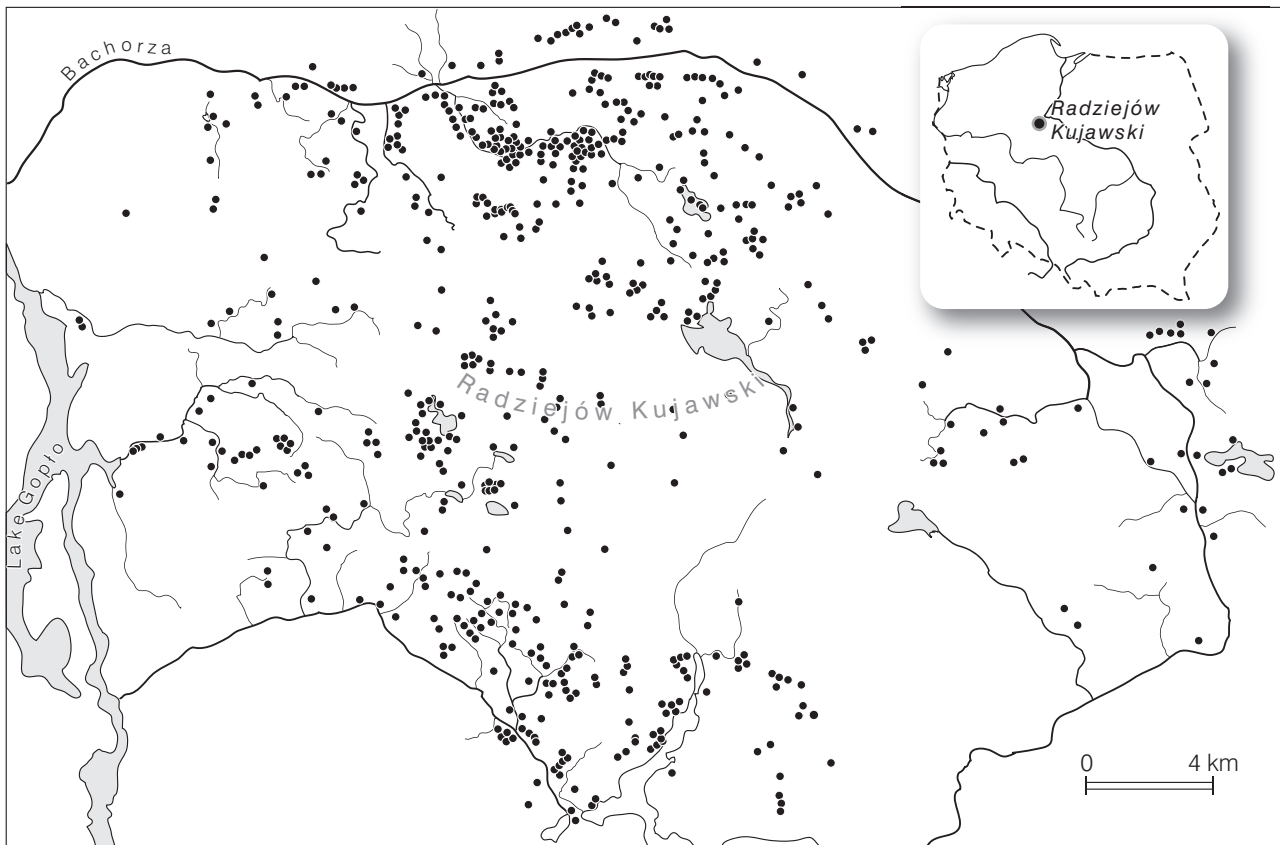


Fig. 5. Settlement locations of the Funnel Beaker Culture on the Radziejów Plain.

assemblage of Funnel Beaker pottery found there is not homogenous. As already mentioned, it represents two stylistic phases: “Wiórek” and “Luboń”. The Wiórek pottery, which comprises fragments of several vessels and was concentrated in a small area in the north part of the excavation unit (Fig. 6B; RYBICKA 1995, 212), marks settlement phase I in that site.

The assemblage of potsherds representing the Luboń phase from site 4 at Radziejów Kujawski was classified within three groups. The first group includes pottery of rather simple shape and decoration.

Among the potsherds assigned to the Luboń phase of the Funnel Beaker Culture, ceramic finds from the remaining features and from the layer in the northern part of the unit are of great interest. They represent the second group that could be differentiated in the assemblage of “Luboń” pottery from site 4 at Radziejów Kujawski and include pottery showing various stylistic links with such cultures as the Globular Amphora (RYBICKA 1995), Baden (Figs. 2: 4–5; 7: 6, 9, 10) and the Saale-Elbe cycle (Tiefstichkeramik-Salzmünde; Figs. 8: 7). They co-occur with finds of the “Luboń” type (Figs. 8: 3–5; 9: 1, 3, 6).

In the material mentioned above it was possible

to recognize shapes and ornamental motifs that are analogous to those found in the Baden Culture (Figs. 2: 4–5; 8: 1, 4). Because of the occurrence in the remaining features of pottery bearing these motifs together with pottery decorated with alternating diagonal grooves (that is, a pattern associated with the Boleráz style), it is not possible to link this material from site 4 at Radziejów Kujawski with the beginnings of the Baden Culture, as has already been pointed out by SOCHACKI (1980). On the other hand, their “post-Boleráz” traits are noticeable.

Potsherds, whose total array of attributes – also technological ones – are shared by the ceramics of the Baden Culture (the “pure material” of this culture), were identified by Z. SOCHACKI in the material from Radziejów Kujawski (site 4) and from Opatowice (site 3). This opinion cannot be accepted. The smoothing of the surface with a polisher and the use of crushed pottery as temper are characteristics not only of the pottery with “Baden” attributes, but also of that of the “Luboń” style (RYBICKA 1995). The use of an admixture of coarse-grained potsherds was likewise detected in vessels with various cultural links.

The third ceramic group displaying the “Luboń” style includes potsherds from pits as well as most

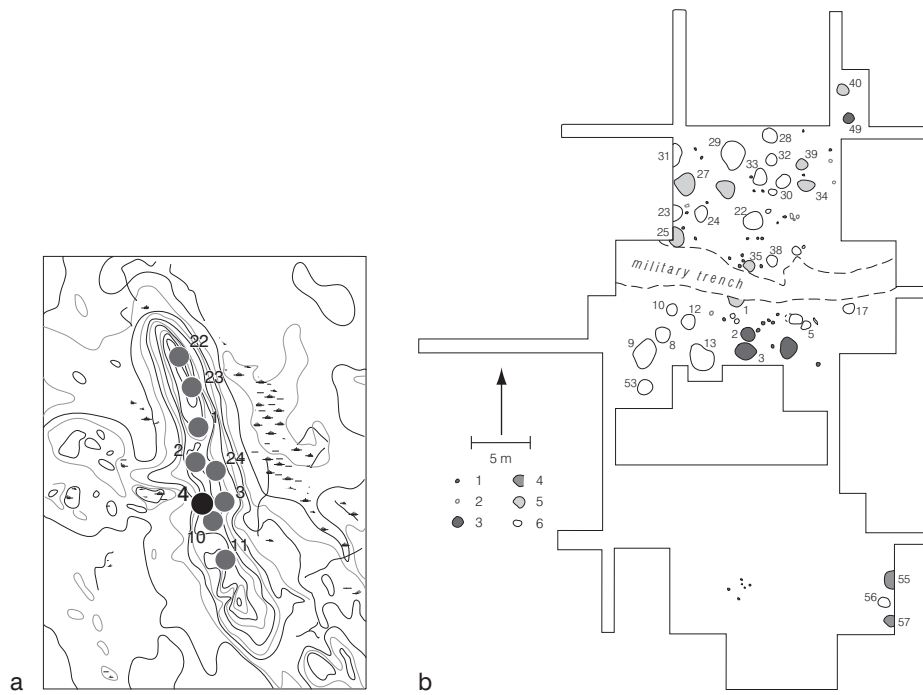


Fig. 6. A. Settlement locations of the Funnel Beaker Culture on Radziejów Hill (after L. GABAŁÓWNA). B. Radziejów Kujawski, site 4, Włocławek district. Plan of the excavation (after L. GABAŁÓWNA): 1 postholes; 2 stones; 3 Globular Amphora pits; 4 Funnel Beaker pits linked with the later phase of the “Radziejów” settlement; 5 Funnel Beaker pits linked with the early phase of the „Radziejów” settlement; 6 Funnel Beaker pits of uncertain chronology.

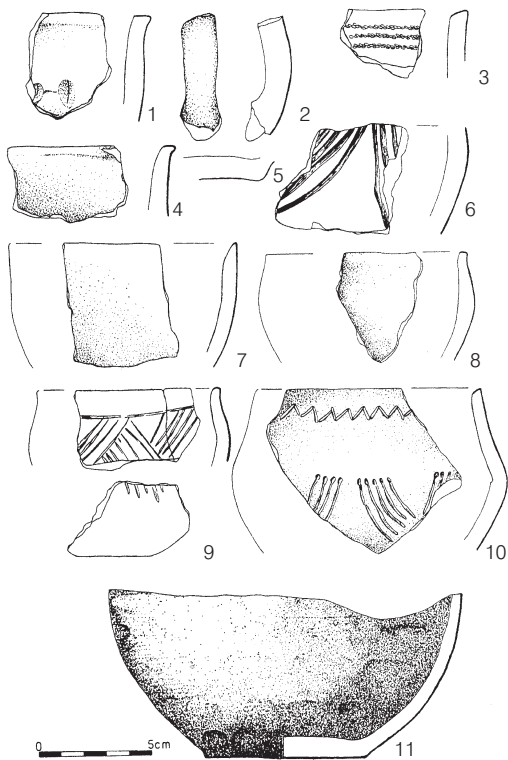


Fig. 7. Radziejów Kujawski, site 4, Włocławek district. Potsherds.

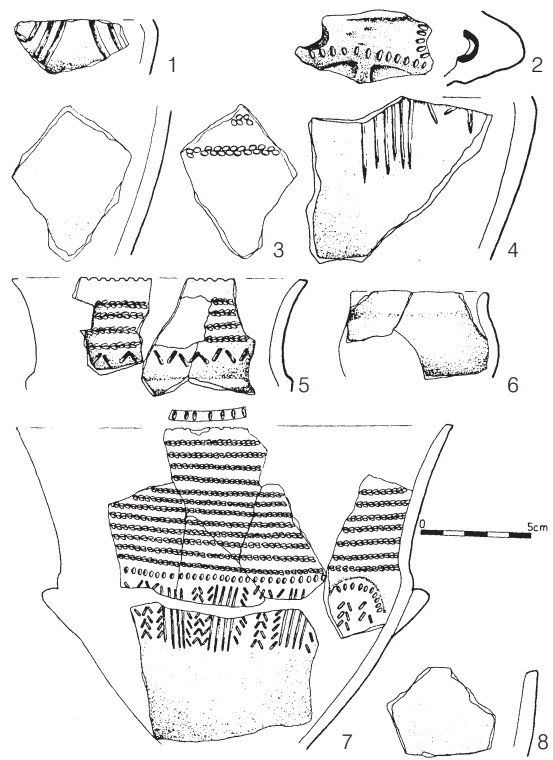


Fig. 8. Radziejów Kujawski, site 4, Włocławek district. Potsherds.

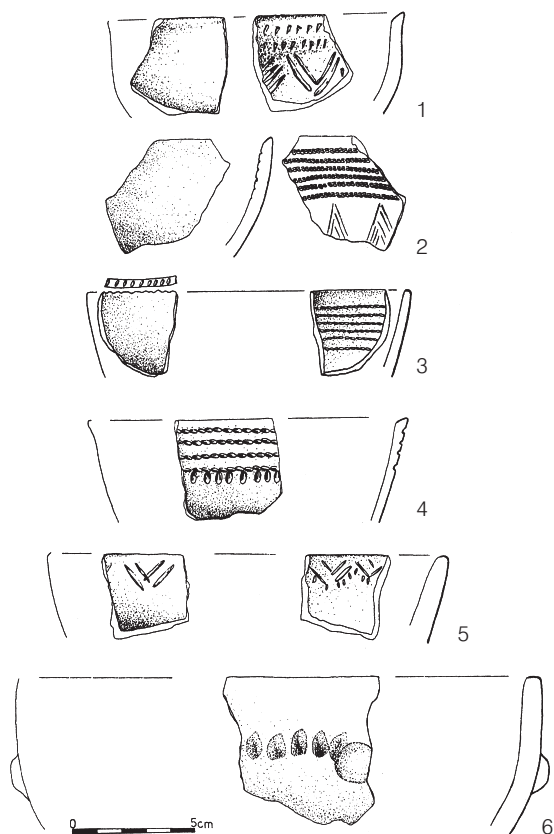


Fig. 9. Radziejów Kujawski, site 4, Włocławek district. Potsherds.

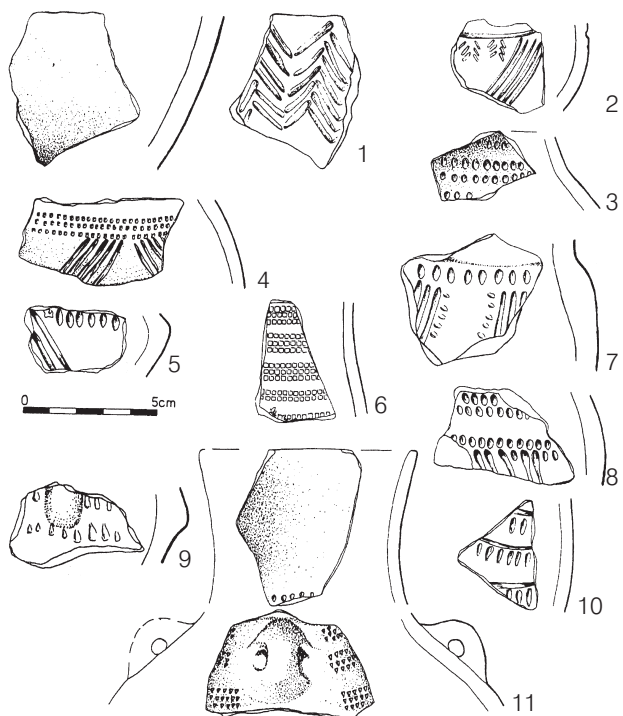


Fig. 10. Radziejów Kujawski, site 4, Włocławek district. Potsherds.

finds from the layer in the southern part of the excavation unit at Radziejów Kujawski (site 4). This group exhibits varied motifs, which in addition to stylistic elements typical of the group mentioned above includes motifs are linked with the Walterienburg-Bernburg Culture (Fig. 10: 3, 6, 11; BEHRENS 1973) and generally similar to the Saale-Elbe material (RYBICKA 1995, 90). The last mentioned motifs are represented by zigzag ornaments found on the vessels' body (often combined with other elements). They are probably derived from ornaments used in the Tiefstichkeramik Culture and in the Walterienburg-Bernburg Culture (PREUSS 1980; BEHRENS 1973). At present, it is difficult to determine which cultural milieu inspired this pattern (RYBICKA 1995, 85–91).

Ornamental motifs displayed on potsherds from the southern part of the excavation unit have their counterparts in the Funnel Beaker site at Bronocice IV (KRUK/MILISAUSKAS 1990). Like the northern part of the excavation unit, the southern part did not contain typical diagnostic material that would date particular Baden phases. However, a considerable increase in the number of vessels with “Baden” attributes as well as the presence of motifs with counterparts in Baden sites, such as Pleszów (ROOK 1971) and Zesławice (GODŁOWSKA 1968), suggest that at least part of the pottery from the southern section of the unit is later than that from the northern section.

The Funnel Beaker pottery found in the Radziejów Hills was classified in three stylistic phases (Fig. 3). It would be interesting to determine the number of corresponding settlement phases. The appearance of new ornamental motifs in phase III and the disappearance of some earlier patterns may indicate the discontinuity of settlement (RYBICKA 1995). However, it should be stressed that at present it is not possible to state with certainty whether the ornamental motifs of the “Baden” type, which are the main components in the ornamentation of phase III, were in use at the close of phase II. The ceramic material from site 22 at Radziejów Kujawski, which displays the influence of the Tiefstichkeramik Culture (RYBICKA 1995, 210), is assigned to phase II. Links with the Saale-Elbe cycle were also recorded in the “Radziejów” phase. However, on the basis of these data it is not possible to state that the settlement of phase III continued directly after the earlier habitation. According to SOCHACKI (1980), a group of the Baden population might have reached Kujavia. In this case – maintains SOCHACKI – all changes occurred at the same time, and the periods of adaptation for all variables are of the same length.

The Radziejów-Opatowice moraine has provided only sparse data concerning the late part of sty-

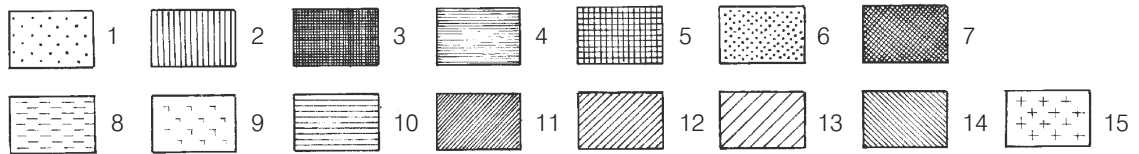
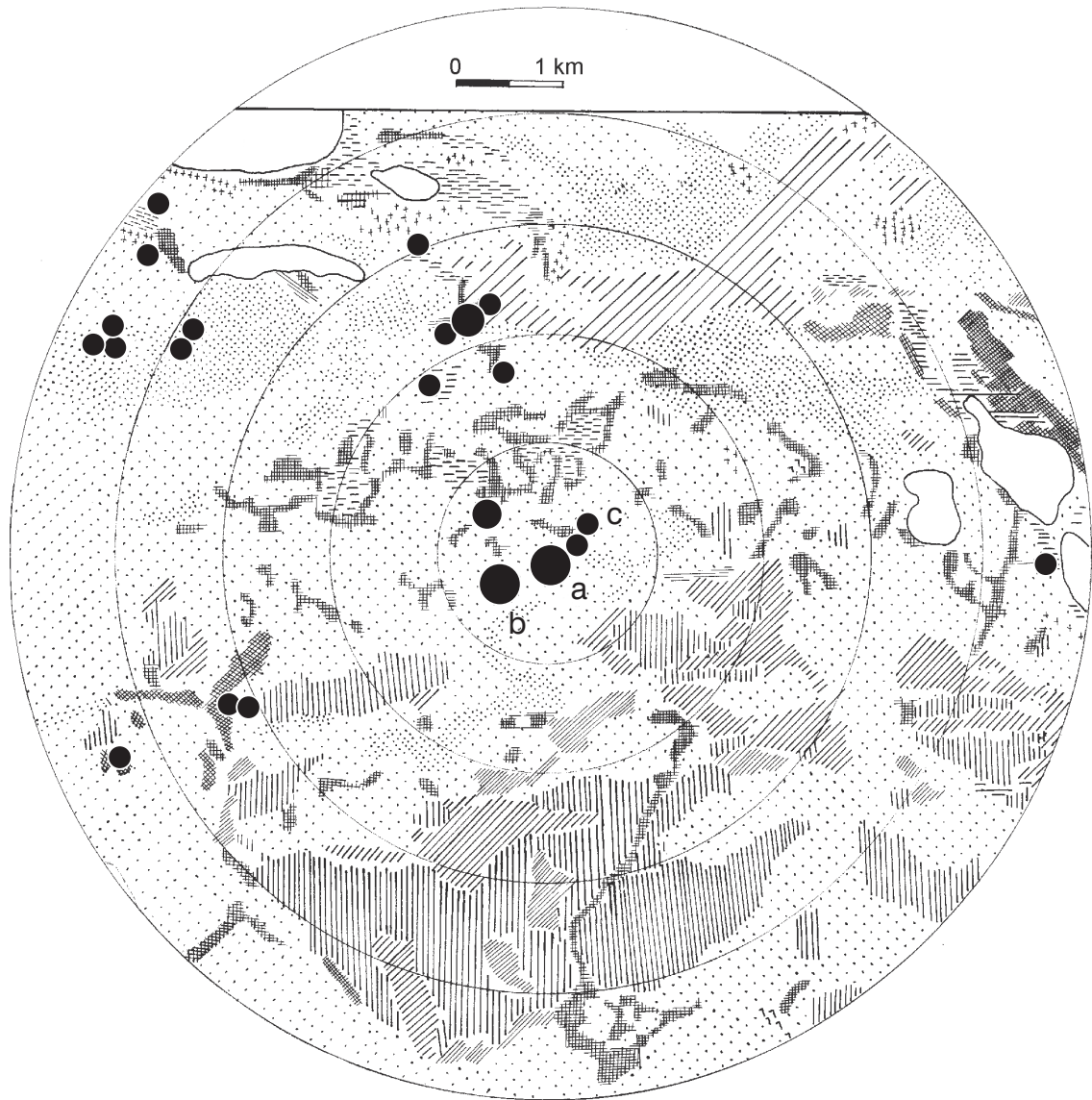


Fig. 11. Settlement points of the Funnel Beaker Culture on the soil background in the close vicinity of the settlement site in Stefanów, Gostynin district (after RYBIŃSKA 2004). a Stefanów, site 3; b Stefanów, site 4; c other settlement points of Funnel Beaker Culture; 1 fluvio-glacial sands; 2 boulder clay; 3 silts of valley floors and blind depressions; 4 river sands; 5 residue of boulder clay; 6 eolian sands; 7 sands with gravels of eskers and kames; 8 peat; 9 lacustrine chalk and lake silts; 10 diluvial sediments; 11 fluvio-glacial sands on boulder clays; 12 eluvia of sandy boulder clays; 13 glacial sands on fluvio-glacial sands; 14 sands of lake terraces; 15 silts and stagnant braize.

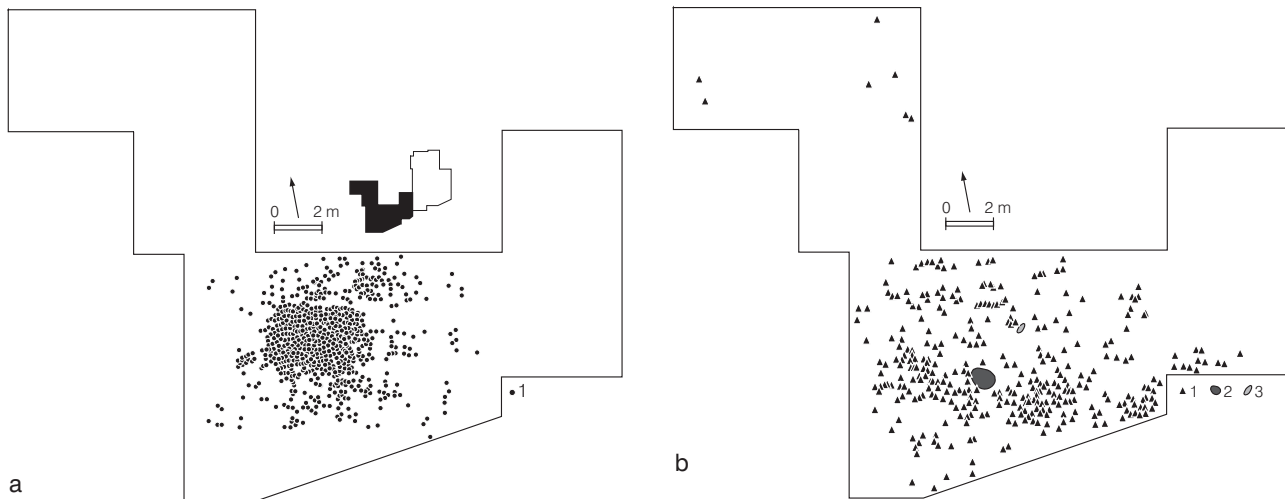


Fig. 12. Stefanów, site 4, Gostynin district. a: planigraphy of daub clay. 1 daub; b: planigraphy of pottery. 1 pottery; 2 features; 3 stones with traces of utilization wear.

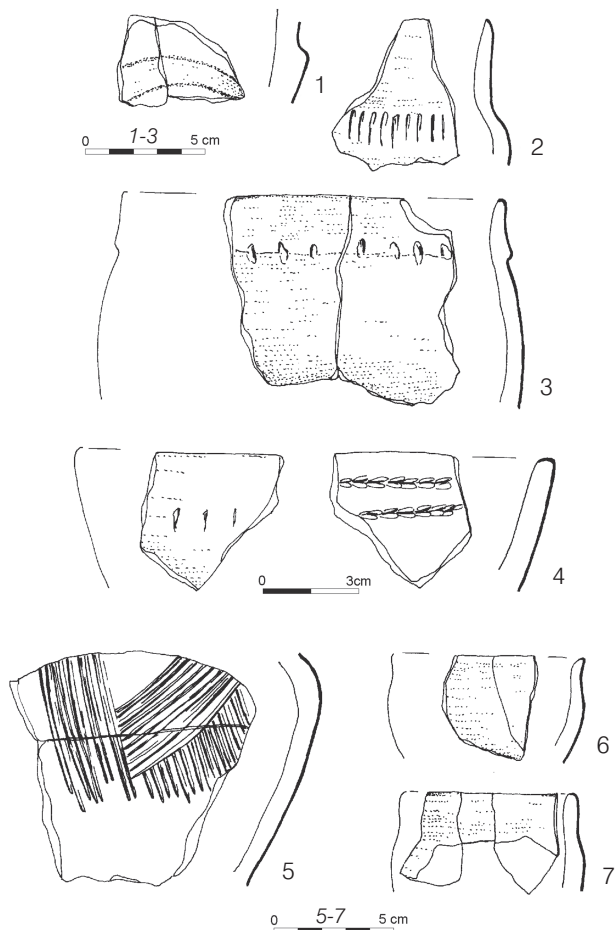


Fig. 13. Stefanów, site 4, Gostynin district. Selection of pottery of the Funnel Beaker Culture.

listic phase II. The beginning of the settlement associated with the Radziejów group may have been accompanied not only by the disappearance of earlier ornamental motifs and the introduction of new ones, but also by changes in other components of the material culture. The use of Jurassic flint of variety „G“, previously unknown in Kujavia (RYBICKA 1995, 166), and of coarse-grained crushed pottery as temper should be linked with stylistic phase III. The nearly simultaneous appearance of several new traits may suggest the lack of continuity between stylistic phases II and III. Yet the number of settlement phases corresponding to stylistic phases is difficult to determine. The occurrence of “skein-comb” ornament and of bipartite cord impressions in features associated with stylistic phase I on “Prokopiak Hill” may suggest the continuity of settlement in that area during the period coinciding with stylistic phases I and II (RYBICKA 1995, 132). With reference to Radziejów Hill, it is not possible to determine whether the “Wiórek” material reflects settlement reality, as it may have originated both in a small or large settlement. For this reason it is not possible to define the relationship between settlements on the Radziejów and Opatowice hills, where the earlier traces of Funnel Beaker settlement were recorded.

On the other hand, it may be surmised that two separate settlements could have developed simultaneously on the Radziejów-Opatowice moraine during stylistic phase II. Since the pottery of phase III – despite certain similarities – differs considerably in ornamentation from that of phase II, it may be acceptable to regard these differences as resulting from lack of settlement continuity (the “Radziejów” settlement represents a separate habitation phase).

Funnel Beaker sites at Radziejów Kujawski and Opatowice are located on sandy hills. The distance between the settlements, during the particular phases discussed above, ranges from 2.5 to 3 km (Fig. 3). Numerous settlements located on boulder clay were recognized at the foot of the hills, that is, in an area with good soils. The Funnel Beaker sites at Radziejów Kujawski and Opatowice reveal hierarchic dependencies between contemporary settlements. In the environs of the Radziejów Kujawski and Opatowice settlements, in an area delineated by a circle with a radius of 1 km, the soils that formed on boulder clay account for 36–46% (RYBICKA 1995, 146; Fig. 4). The area around the morainic hills seems to have been an economic hinterland for the Funnel Beaker people living in the Radziejów Kujawski and Opatowice settlements. A high percentage of good soils in the environs of these locations was conducive to long habitation.

During the process of settling the Radziejów Hills, the Funnel Beaker communities had contact with various groups of this culture. Links with the Lublin-Volhynian region are detectable during the early period (stylistic phase I). The materials associated with stylistic phase II display influences from Little Poland (southern Funnel Beaker group) and Saale-Elbe region. Links to these regions are also traceable in the “late Luboń” period, that is, in the assemblages of the Radziejów-Opatowice type. However, it is difficult to determine the direction from which the Baden elements arrived in Kujavia. The formation of the so-called Radziejów group (KOŚKO 1981) of the Funnel Beaker Culture may have been influenced by groups of this culture in Silesia and by “Baden” communities from the environs of Kraków.

### Gostynin Lake District

#### Settlement, Chronology and Economy of the Funnel Beaker-Baden Society

According to an analysis of 234 settlement points of the Funnel Beaker Culture, only eight can be related to the youngest stage of this culture (RYBICKA 2004, 139, 145).

During the whole period of the Funnel Beaker Culture development in the area of our interest, settlement sites were being located on lands with sandy sediments of various origins. The most common location was a flat area in the lower part of the valley (RYBICKA 2004, 148). On the basis of the research at site 4 in Stefanów, Gostynin district, Mazowieckie voivodship (Fig. 11), it can be assumed that settlement sites of the Funnel Beaker Culture were not long-lived (RYBICKA 2004, 125–126), like the one at site 4 in Radziejów Kujawski, (RYBICKA 1995). In the excavation trench covering an area of 550 m<sup>2</sup> (Fig. 12A–B) at site 4 in Stefanów, only infrequent flint artefacts and potsherds were found (Fig. 13). Pottery fragments derived from about 40 clay containers, some of them possibly representing large storage vessels (for example, Fig. 13: 3). At the same site vestiges of a hut (in form of a clay concentration) were discovered. Functionally diverse settlement points in the Gostynin Lake District form a pattern composed of settlement sites (an area of c 0.5 ha) surrounded by zones of economic activities (RYBICKA 2004). There are no hierarchic dependencies between contemporary settlements. A spatial layout such as this is typical for the Early Wiórek to Luboń (Baden) phases.

Beaker assemblages from these sites feature Baden elements (for example, Stefanów, site 4, Gostynin district, Mazowieckie voivodship: Rybicka 2004; Grzybów, site 23, Płock district, Mazowieckie voivodship: RYBICKA 2004, 27) of the Radziejów-Opatowice type (KOŚKO 1981; RYBICKA 1995). Their chronology is not quite clear. We can only speculate that these decorative elements (of Baden type) arrived from Kujavia during the period that corresponds with the younger stages of the “Radziejów” settlement in Kujavia.

We have already mentioned that between Gościąż Phases 6 and 7 (RALSKA-JASIEWICZOWA/VAN GEEL 1998, Fig.9.8) the human impact upon the natural environment decreased considerably. In relation to the Funnel Beaker Culture in the Gostynin Lake District a certain settlement hiatus is probable. Assemblages of the Kuczkowo Type (KOŚKO 2000), which in Kujavia represent an early stage of the „radial pottery“ influence or are similar to that from Radziejów Kujawski site 4 (RYBICKA 1995), have not been identified there. The appearance of Beaker-Baden assemblages (similar to Stefanów, site 4; Rybicka 2004) in the Gostynin Lake District should be interpreted as the result of Kujavian influence. Distinguishing the Radziejów group of Funnel Beaker Culture, KOŚKO (1981, 196) underlined its relations with the Kujavian black soils. These areas were probably very attractive for communities of the Funnel Beaker Culture with Baden elements (cf. RYBICKA 1995), and they introduced their intensive agriculture (RYBICKA 1995). Relatively poor soils of the

Gostynin region were much less suitable for agriculture. Therefore, the impact of Funnel Beaker-Baden people, who settled briefly at Lake Gos-

tynin, on the environmental changes observed in Phase 7 in the Gościąż pollen diagram was not significant (PELISIAK ET AL. 2006).

### Conclusions

We can only speculate that bearers of the Beaker-Baden communities arrived from Kujavia during the period that corresponds with the younger stages of Radziejów-Opatowice settlement in Kujavia. On the basis of research at site 4 in Stefanów, Gostynin district, it can be assumed that settlement sites of Funnel Beaker Culture were not of long duration, like site 4 in Radziejów Kujawski, Włocławek district. Distinguishing the Radziejów group of Funnel Beaker Culture, KOŚKO (1981) emphasised its relations with the Kuyavian black soils. These areas were probably very attractive for communities of Funnel Beaker Culture with Baden elements with their intensive agriculture. The relatively poor soils of the Gostynin Lake District were much less suitable for agriculture.

In the fertile Kujavia, bordering the Gostynin Lake district in the east (RYBICKA 2004), settlement of Funnel Beaker Culture with Baden elements was very intensive (RYBICKA 1995; KOŚKO 2000) with large settlement sites (RYBICKA 1995). The economy of these communities was focused on husbandry, mainly on cattle breeding.

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### Abstract

The excavations carried out by LIDIA GABAŁÓWNA at Radziejów Kujawski and Opatowice in the 1950s brought forth extremely interesting finds, including those of the Funnel Beaker Culture. L. GABAŁÓWNA differentiated assemblages of the latest Funnel Beaker phase, characterized by “Baden” influences, which she named the assemblages of the Radziejów-Opatowice type. The concentration of sites recorded in the Radziejów Hills was defined as a “settlement microregion”, with large settlement sites of the Funnel Beaker-Baden Culture. In the fertile countryside of Kujavia, settlement of the Funnel Beaker Culture with Baden elements was very intensive. Yet, studies on the settlement of the Funnel Beaker Culture in the Gostynin Lake District have been a marginal issue for archaeologists for years, despite its location on the border between Kujavia and the Vistula River valley. Fluvio-glacial and eolian sands form the soil basis in the most of the area. In 1987–2000 the Gostynin Lake district became the subject of a research program

that was focused on the Funnel Beaker Culture settlement. As a result, a number of archaeological sites of this Culture were discovered. Contrary to Kujavia, the Baden type settlement of Funnel Beaker Culture in the Gostynin Lake district was relatively sparse. We can only speculate that people of Baden Culture arrived from Kujavia in the period corresponding with younger phases of the Radziejów-Opatowice settlement in Kujavia. On the basis of the research at site 4 in Stefanów, Gostynin district, it can be assumed that settlement sites of Funnel Beaker Culture were not long-lasting as site 4 in Radziejów Kujawski, Włocławek district. In distinguishing the Radziejów group of Funnel Beaker Culture, ALEKSANDER KOŚKO underlined its association with the Kuyavian black soil. These areas were probably very attractive for communities of Funnel Beaker Culture with Baden elements in regard to their intensive agriculture. The relatively poor soils of the Gostynin Lake district were much less suitable.



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## Baden Patterns in the Milieu of Globular Amphorae: Transformation, Incorporation and Long Continuity. A case study from the Kujavia region, Polish Lowland

By *Marzena Szmyt*

### Introduction

The question of interactions between the societies associated with the Globular Amphora Culture (GAC) and the Baden Culture or Baden Complex (BC) has been discussed in relevant literature since the 1950s. Most of the works, however, touched upon this question only in passing, while discussing broader issues (e.g. JAŹDŹEWSKI 1981, 251). Far more often the question was dealt with by scholars working on the GAC (e.g. GABAŁÓWNA 1958, 98; WIŚLAŃSKI 1966, 94; NOSEK 1967, 317) rather than experts on the BC (e.g. GODŁOWSKA 1979, 316). For a long time a single exception was Z. SOCHACKI, who included a number of comments on the subject in his book about BC (SOCHACKI 1980, 160–172; see also SOCHACKI 1970, 313–315 and SOCHACKI 1985, 52). Then some scholars have dealt with the relationships between the GAC and the BC in regions north of the Carpathians, e.g. in Kujavia (CZERNIAK/CZERNIAK 1985, 43; KOŠKO 1988, 169 and Fig. 10; KOŠKO 1989 a, 169 and Fig. 10; KOŠKO 1990, 96; KOŠKO 1991, 95; RYBICKA 1995, 116–121; SZMYT 1996, 257–264) and in Little Poland (ŚCIBIOR 1991, 68–70).

In my paper I would like to outline a few basic questions concerning interactions between the GAC and the BC from the position of a scholar studying the former culture. I shall focus on the following questions: (1) spatial relations between the GAC and BC, (2) synchronization of both cultures, (3) identification of tell-tale characteristics as evidence of contacts or links as attested in the greatest regional agglomeration of the GAC on Polish Lowlands, located in the Kujavia region,

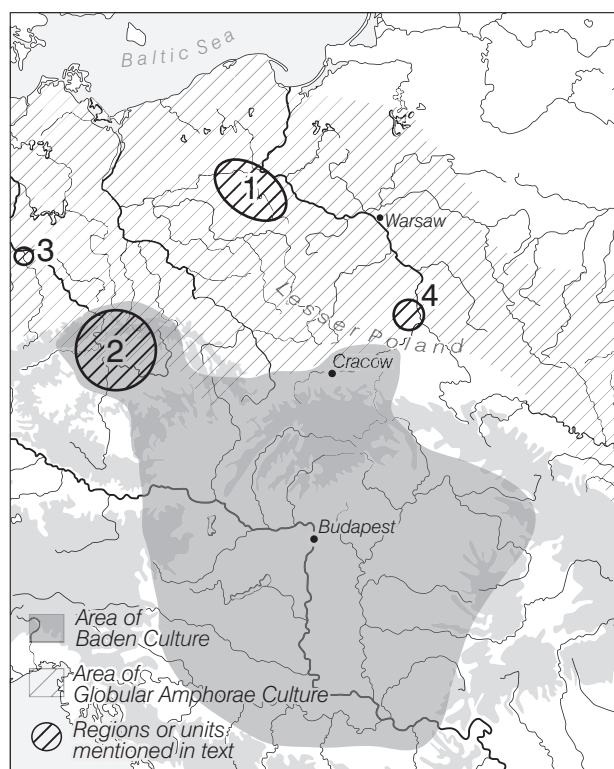


Fig. 1. Spatial relations of the GAC and the BC: 1 Kujavia; 2 Bohemian Plateau (area of the Rivnač Culture); 3 the Rietzmeck Group; 4 Sandomierz Upland (area of the Złota Culture).

and (4) determination of the role of such characteristics in the socio-cultural structure related to the GAC in Kujavia.

### Spatial Relations

Generally, the oecumenes of the GAC and the BC came in touch only at their peripheries: on the upper Elbe and Oder rivers and, in part, on the upper Vistula (Fig. 1). In the case of the first two

tangent regions this concerned the societies of the western group of the GAC, which resulted in the formation of syncretic groups such as the Rivnač Culture (PLESLOVÁ 1978, 253–254) or the so-called

Rietzmeck group (WEBER 1966). The societies of the central GAC group were in touch with populations associated with the BC in the upper Vistula drainage. In the western part of the Małopolska (Little Poland). Upland, north of the Vistula, we are most likely dealing only with an occasional (and relatively late?) GAC presence (e.g. KRUK/MILISAUSKAS 1983, 313; TUNIA 1997, 167–172), while a strong and stable BC settlement (Zesławice-Pleszów and Mogiła groups; KOZŁOWSKI 1965; GODŁOWSKA 1968; SOCHACKI 1970; ZASTAWNY 1999) and a Funnel Beaker-Baden-like settlement (Bronocice type; KRUK/MILISAUSKAS 1983, 1999) were both observed there (cf. a paper of A. ZASTAWNY, this volume; KRUK/MILISAUSKAS 1999; WŁODARCZAK 2006). However, the relationship of GAC societies to both types of groups (Baden itself and Baden-like) is not clear. In turn, a significant contact area emerged on the Sandomierz Upland, where a syncretic unit developed, namely the Złota culture (see papers of H. KOWALEWSKA-MARSZAŁEK and P. WŁODARCZAK in this volume, here also older references).

Besides these areas of direct spatial contact, territories distant from the GAC-BC frontier are important for the questions discussed here as well, especially Kujavia (Fig. 1). Single traits related to the BC can be also found in GAC assemblages in Chełmno Land, Pomerania, Mazurian Lakeland and on the

Years BC	Baden (general)	FBC & FBC-Baden (Little Poland)	Globular Amphora (Kujavia)
2300			IIIb
2400			IIIa
2500			
2600			IIb
2700		BR V	
2800			IIa
2900			
3000	Late Baden	BR IV	I
3100			
3200	Baden	BR III	
3300			
3400	Late Boleráz		
3500			
3600	Early Boleráz	BR II	
3700			
3800		BR I	

Fig. 2. Synchronization of the GAC in Kujavia, the FBC-Baden in Little Poland and the BC (general). Phases of less (light grey) or more (dark grey) intensive reception and/or continuity of Baden patterns in the GAC in Kujavia marked (after FURHOLT/MACHNIK 2006; FURHOLT 2008; SZMYT 2000; WŁODARCZAK 2006).

Lublin Upland (WIŚLAŃSKI 1966; NOSEK 1967). In the following discussion I shall rely mainly on observations made in Kujavia, as it is the region where the study of the GAC is the most advanced thus far.

### Chronology

Generally speaking, both units (GAC and BC) were basically contemporaneous over a long time (Fig. 2). Yet, this statement is very general and not at all satisfactory. Far more interesting results are obtained by synchronizing different regional chronologies. It must be stressed here, however, that at present such an approach is easier in the case of the GAC than the BC.

#### List of the Baden-related Elements in the GAC as Exemplified in Kujavia

The material evidence that can be interpreted as signs of ties between the two cultural units is relatively modest and only unidirectional: BC to GAC, as practically all of the evidence comes from GAC sites. Contrarily, in BC materials there are virtually no traits that would testify to connections with the GAC or – which is plausible too – they are hard to identify or unequivocal (as examples quoted by SOCHACKI 1980, 171 and SZMYT 1996, 263).

In the Kujavian GAC, the list of elements that can be traced to the BC is relatively short and includes: (1) certain forms of ceramic vessels, (2) decorations placed chiefly on vessels or more rarely on other

It is worth mentioning that for the central group of the GAC, the identification of connections to the BC has a division-setting character: In the Kujavian periodization, these connections are one of the major indicators of the so-called classical horizon (comprising two subphases: II b and III a) of the GAC (SZMYT 1996, 260–262).

artefacts, and (3) the so-called animal burials. It must be emphasized that in all cases we are not dealing with the simple emulation of Baden patterns, but rather with their transformation.

#### Baden Elements in GAC Pottery

With regard to pottery mention should be made of: (a) special vessel forms and (b) particular details of vessels.

(a) Among vessel forms of fundamental importance are cups with long handles protruding above

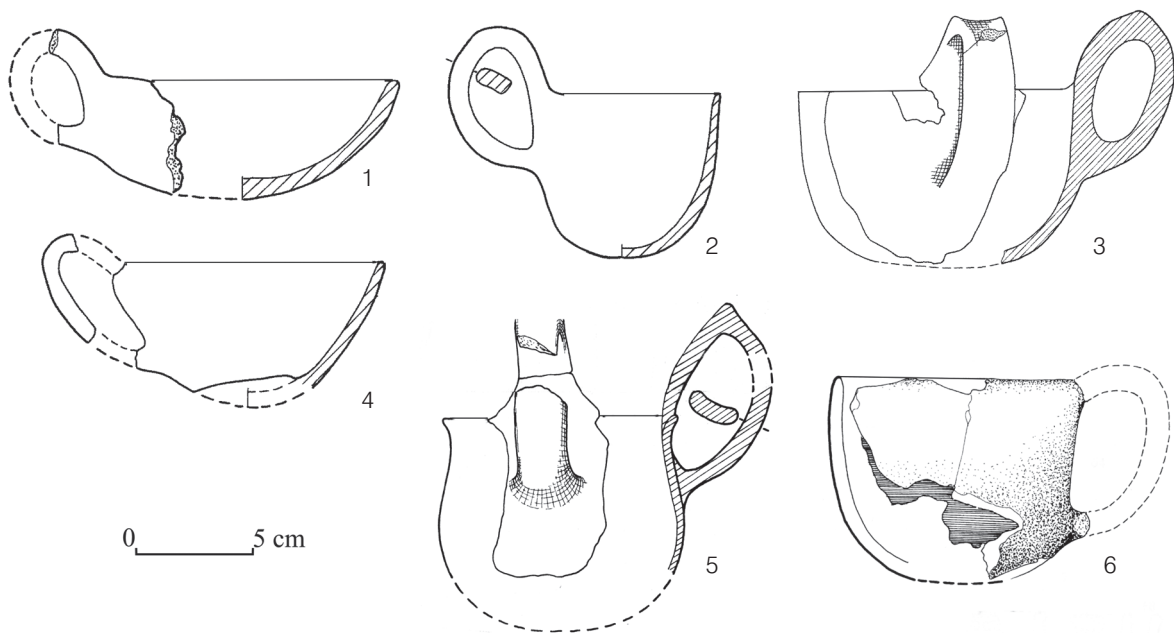


Fig. 3. Baden patterns in the pottery of the GAC on Polish Lowland. 1, 2, 4 Strzelce site 3 (Kujavia); 3 Smarglin site 51 (Kujavia); 5 Polanowice site 3, feature 40 (Kujavia); 6 Mirkowice 33 (Great Poland) (after WIŚLAŃSKI 1966; CZERNIAK/CZERNIAK 1985; SZMYT 1996; KABACIŃSKI/SOBKOWIAK-TABAKA 2005).

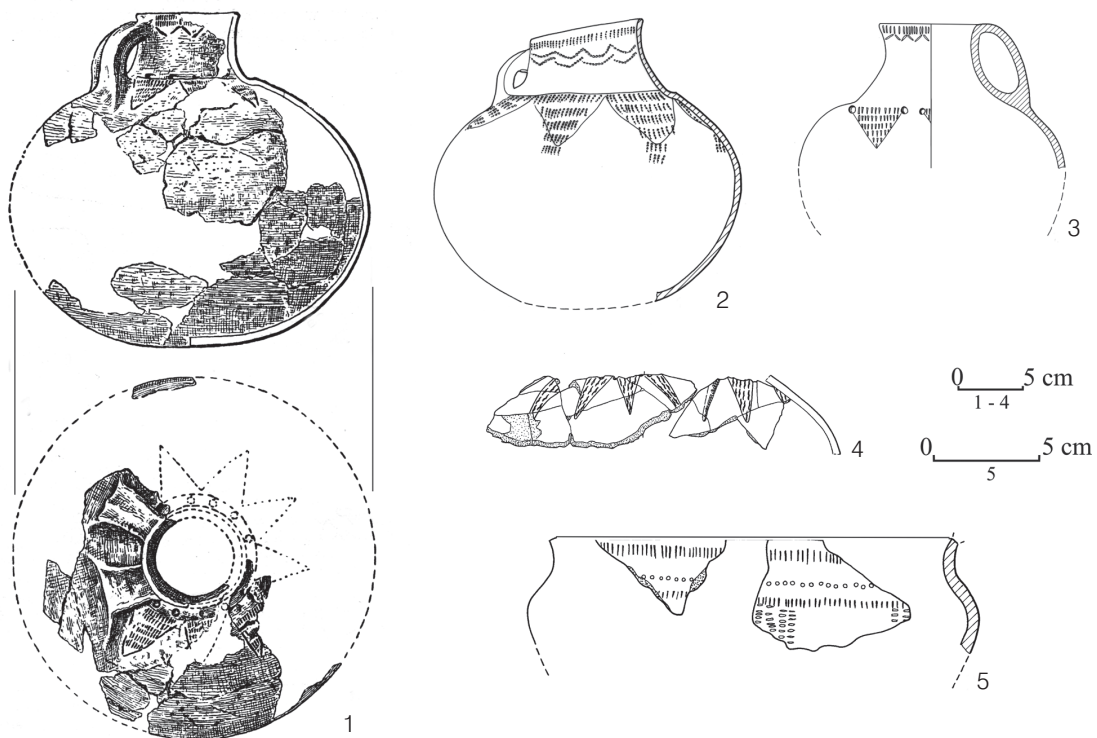


Fig. 4. Baden patterns in the pottery of the GAC on Polish Lowland. 1 Strzelce site 2 (Kujavia); 2-3 Marcinkowo site 1 (Kujavia); 4 Kuczkowo site 1, feature A15; 5 Łagiewniki site 5, feature 42 (Kujavia) (after WIŚLAŃSKI 1966; CZERNIAK/CZERNIAK 1985; SZMYT 1996; SZMYT 2000).

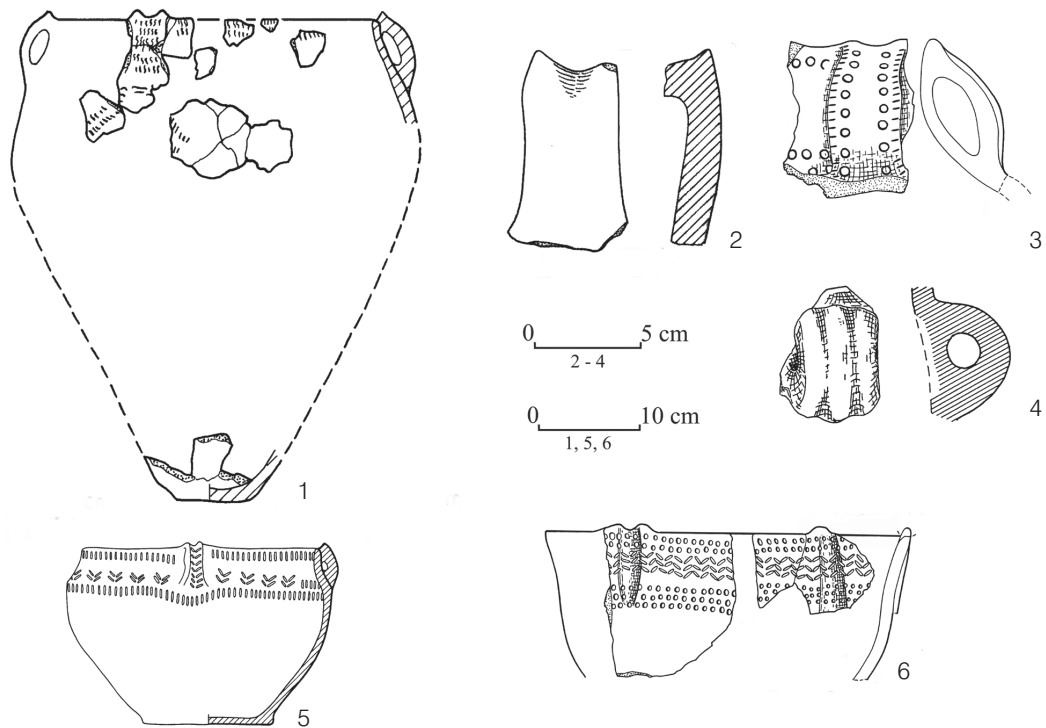


Fig. 5. Baden patterns in the pottery of the GAC on Polish Lowland. 1 Krusza Zamkowa site 13 (Kujavia); 2 Dęby site 29 (Kujavia); 3 Kuczkowo site 1, feature A15 (Kujavia); 4 Piecki site 1, feature 8 (Kujavia); 5 Radziejów site 4 (Kujavia); 6 Żegotki site 2 (Kujavia) (after CZERNIAK/GRYGIEL/TETZLAFF 1977; KOŚKO 1989b; CZEBRESZUK/SZMYT 1992; SZMYT 2000; SZMYT 2004).

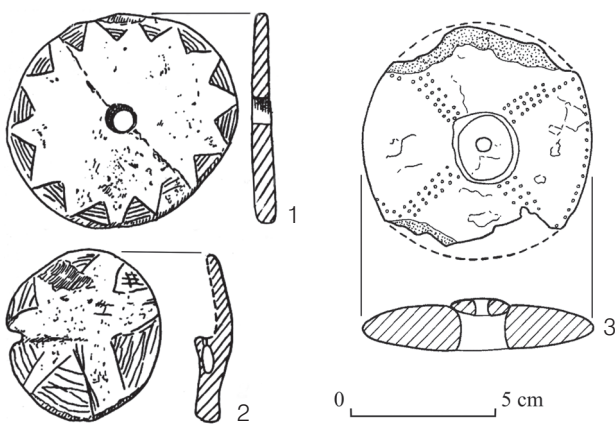


Fig. 6. Baden patterns in the ornaments of the GAC on Polish Lowland. Bone (1, 2) and amber (3) discs. 1,2 Brześć Kujawski site 4 (Kujavia); 3 Dębice Kolonia site 1 (Kujavia) (after WIŚLAŃSKI 1966).

the vessel's rim and with rounded bottoms (Fig. 3). Several complete specimens have survived, while several others may be easily identified thanks to the very characteristic handles. Also worth mentioning is the fact that each of these forms exhibits a certain peculiarity, whereby there are no two identical vessels in the Kujavian series. The cups were recorded in

Kujavia in both settlements and sepulchral features. It must be stressed that they show affinities with Baden vessels (as prototypes?), but as their changed and forms rather than simply imitations. The most visible difference is the unimodular shape of cups (Fig. 3). However, in the evolution of Baden cups a clear tendency can be observed towards unimodularity. Only in the late stage (phase IIb), according to V. NEMĚJCOVÁ-PAVÚKOVÁ (1991, Abb. 7), do forms appear with rounded bottoms, high handles and lightly marked lips. In the Zesławice-Pleszów and Mogiła groups of the BC, such forms were identified in the late classical stage (e.g. Zesławice, Kraków-Pleszów and Mogiła-Kopiec Wandy; GODŁOWSKA 1968, Tabl. III:12-13, V:7, XIV:3, XV:7; ROOK 1971, Tabl. XXIV:13, LXVI:7; ZASTAWNY 1999, Fig. 5). Similar (but not identical!) forms are also found in the assemblages of phase IV and especially phase V of the Funnel Beaker Culture in Wielkopolska (e.g. Śrem site 8, Chaławy site 15; see TETZLAFF 1988, Fig. 3:4-5; TETZLAFF 1991, Abb. 1:2, 2:4-5; PRINKE 1988, Abb. 4) and Kujavia (Łagiewniki site 5/feature 953 – WIŚLAŃSKI 1989, Abb. 3:11-12), where they are dated to ca. 3500–2400 BC (see paper of A. PRZYBYŁ in this volume). It is noteworthy, by contrast, that these forms are absent in Baden-like assemblages in Little Poland.

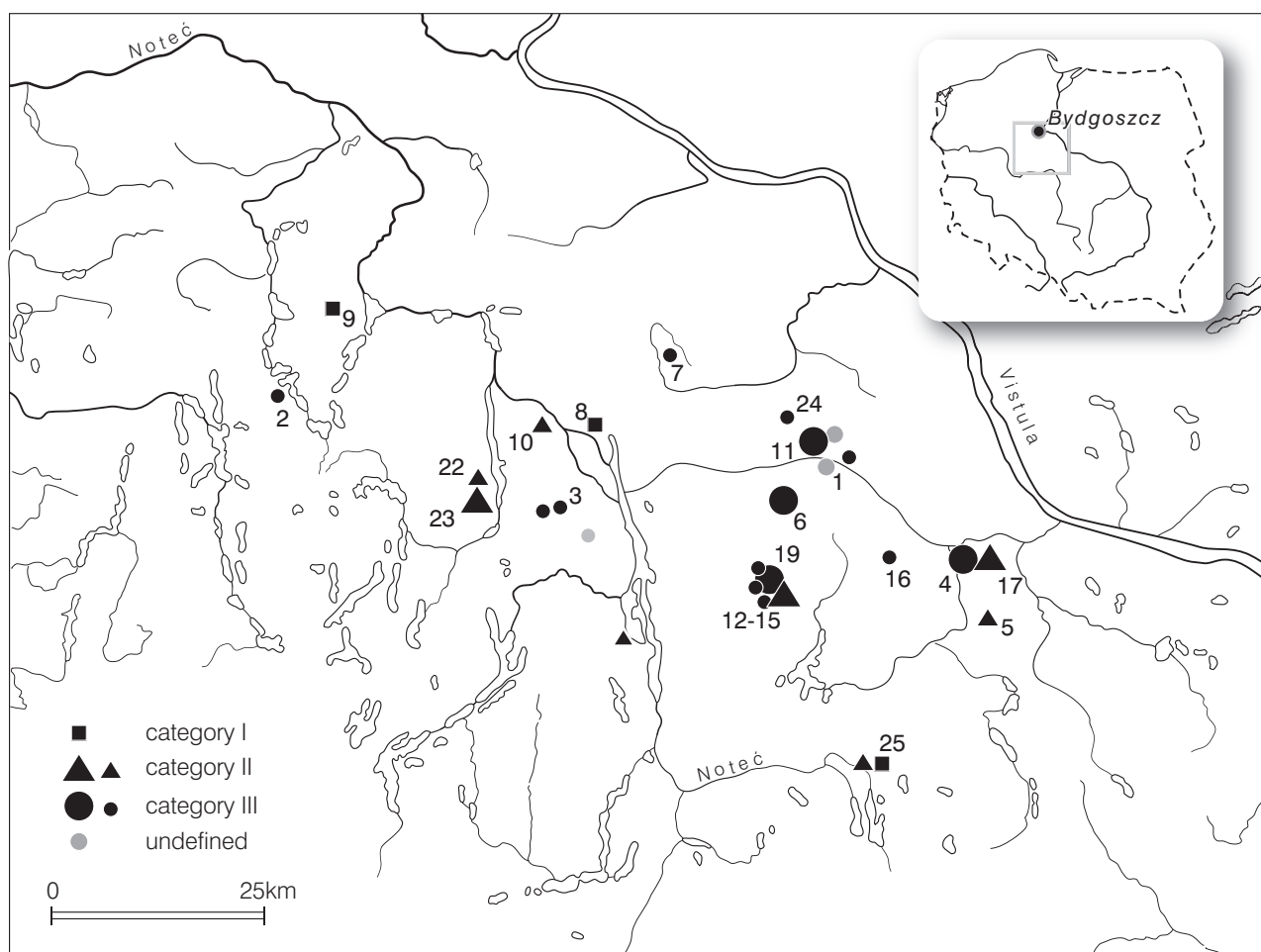


Fig. 7. Distribution of the GAC animal deposits in Kujavia (after SZMYT 2006) Key: I-III – categories of functional context of deposits (see text); 1 Adolfin; 2 Biskupin 2 a; 3 Bozejewice site 22/ feature A2; 4 Brześć Kujawski site 4/ features 1-5; 5 Dębice Kolonia site 1; 6 Dobrze site 6/ features I-II; 7 Gąski site 18; 8 Inowrocław-Szymborze site 1; 9 Kierzkowo site 1; 10 Krusza Zamkowa site 13; 11 Kuczkowo site 1/ features: A132, A136, A148, C2; 12 Opatowice site 1/ features: 1 and 38; 13 Opatowice site 3/ feature 64; 14 Opatowice site 35/ feature 34; 15 Opatowice site 36/ features: 67, 101A and 123; 16 Osłonki site 1; 17 Pikutkowo site 5/ features I-II; 18 Polanowice site 4; 19 Radziejów site 4; 20 Rzeszynek site 1; 21 Siniarzewo site 1/ feature 148; 22 Strzelce site 2; 23 Strzelce site 3/ two features; 24 Zarębowo site 1; 25 Zdrojówka site 1/ two features; 26 Żegotki site 2/ feature A113.

One may also mention, although with more doubt, bowl forms with moulded walls and some jars (Fig. 4). In GAC assemblages they could be associated with phases II b-III a, however similar vessels are quite often in the BC – from the Boleráz style to the late classical Baden (NEMĚJCOVÁ-PAVÚKOVÁ 1981).

(b) Highly characteristic are certain specific details of vessels, namely types of handles (Fig. 3). I have mentioned already band-like handles of cups protruding above the bowl's rims. More frequent, however, are handles that protrude slightly above the vessel rim and end in one or two knobs as well as handles with a relief cordon running along their center (Fig. 5). The majority of Kujavian specimens were found in settlement contexts, while human graves yielded far fewer of these vessels. The handle

forms display clear connections to details in Baden pottery, as analysed by V. NEMĚJCOVÁ-PAVÚKOVÁ (1991, 71–73; see also NEMĚJCOVÁ-PAVÚKOVÁ 1981). Simple band-like handles (on cups) appear in the BC in phases II a–II b (possibly from late phase I and early phase II). Similar dates are assigned to handles ending in a single or double projection at the top. A longer chronology is enjoyed by specimens with a central protruding “fin”: phases Ib–IV of the BC (NEMĚJCOVÁ-PAVÚKOVÁ 1981 and 1991).

#### Ornaments

With regard to ornaments one must consider the “star” and “cross” ornaments on vessels (mostly

Tab. 1. Radiocarbon dates of the Late Neolithic period.

Site / feature	14C datings of animal bones	References
Bozejewice 22 / A2	Kiev-6914: 4305±45 BP	SZMYT 2000
Kierzkowo 1	GrN-15412: 4270±40 BP	BAKKER 1992
Krusza Zamkowa 13	GrN-14022: 4330±35 BP	KOŚKO 1989b; see also Gd-309: 5140±140 BP (charcoal – probably redeposited)
Kuczkowo 1 / A132	Kiev-6509: 3910±40 BP	SZMYT 2000
Kuczkowo 1 / A136	Kiev-6927: 4420±55 BP; Kiev-6917: 4415±45 BP; Kiev-6929: 4400±50 BP; Kiev-6928: 4385±45 BP; Kiev-6926: 4370±50 BP	SZMYT 2000
Kuczkowo 1 / C2	Kiev-6238: 4970±30 BP; Kiev-6920: 4525±45 BP; Kiev-6496: 4520±45 BP; Kiev-6919: 4490±40 BP; Kiev-6921: 4480±40 BP	SZMYT 2000
Opatowice 1 / 38	Gd-8035: 3900±60 BP; Gd-8036: 3820±60 BP	SZMYT 2001; KOŚKO/MAKOWIECKI/SZMYT 2007
Opatowice 3 / 64	Gd-4117: 4230±110 BP	SZMYT 2001
Opatowice 35 / 34	Kiev-5595: 3950±60 BP	SZMYT 2001
Opatowice 36 / 67	Gd-6438: 4010±100 BP	SZMYT 2001
Opatowice 36 / 101A	Kiev-5137: 3920±60 BP; Gd-8037: 3850±50 BP	SZMYT 2001
Opatowice 36 / 123	Gd-6522: 4350±120 BP; Kiev-5136: 4180±70 BP	SZMYT 2001
Siniarzewo 1 / I48	Kiev-5910: 4350±45 BP	SZMYT 2000
Żegotki 2 / A113	Kiev-6221: 4030±60 BP	SZMYT 2000

on jars - Fig. 4) and on other artefacts (e.g. discs made from bone or amber - Fig. 6). The ornaments were made using different techniques and decorative elements. In this case, Baden models did not provide ready-made patterns to imitate; instead they were rather the source of a general “idea” behind specific decorative solutions. Close analogies can be found for stellar and crucial ornaments on discs and spindle whorls in the BC, beginning as early as the Boleráz stage (SOCHACKI 1980; NEMĚJCOVÁ-PAVÚKOVÁ 1981). By contrast, “stellar” ornaments on GAC clay jars (Fig. 4) are more remote from Baden examples (e.g. SOCHACKI 1988, tabl. XXIV:3).

In addition, hints of Baden and even Bošáca-like stamped pit ornaments on pottery have been documented sporadically (Fig. 4: 5; see also RYBICKA 1995, 116). It is worth stressing, however, that unlike the Funnel Beaker Culture, GAC pottery decoration did not adapt popular Baden ornamental elements such as, for example, vertical flutes (“channels”).

### Animal Burials

Undoubtedly, the most spectacular data are supplied by the ‘animal burials’ or rather ‘animal depositions’ placed in pits (see POLLEX 1999, 542). In particular, deposits of carcasses of one or several cattle

are a common trait of the BC (see papers of PATAY/HERBICH/SÜMEGI and HORVÁTH in this volume; cf. also older literature: BEHRENS 1964; ZALAI-GAÁL 1998; POLLEX 1999) and the GAC. Within all three main GAC territorial groups (i.e. western, central and eastern) animal depositions, in particular those of cattle, can be found in many different regions (see BEHRENS 1964; GABAŁÓWNA 1958; WIŚLAŃSKI 1966, 73-75; NOSEK 1967, 281-283; KRYSIAK/LASOTAMOSKALEWSKA 1977; BEIER 1988, 61-63; POLLEX 1998; SZMYT 1999, 30-31; MÜLLER 2001, 383-384; DÖHLE/PAPE 2006). Concentrations of these features make some regions quite notable in this respect, e.g. middle Elbe and Saale region, Sandomierz Upland and especially Kujavia. In this paper I shall present selected data from the latter region (see SZMYT 2006).

In Kujavia one of the largest concentrations of ‘animal burials’ (26 sites with 43 features; Fig. 7), most of which fall in the Late Neolithic period from 3250 BC to 2250 BC (Table 1), is found. Of these, 40 deposits (93%) are related to the GAC (SZMYT 1996 and 2000), while only three (7%) to the late Funnel Beaker Culture (Radziejów stage, phase V; cf. KOŚKO 1989b; KOŚKO/KURZAWA 1997; COFTA-BRONIEWSKA/BEDNARCZYK 1998). In the following discussion, I shall concentrate only on the series of GAC features. There were different forms of placement of animal carcasses in the features. Moreover,

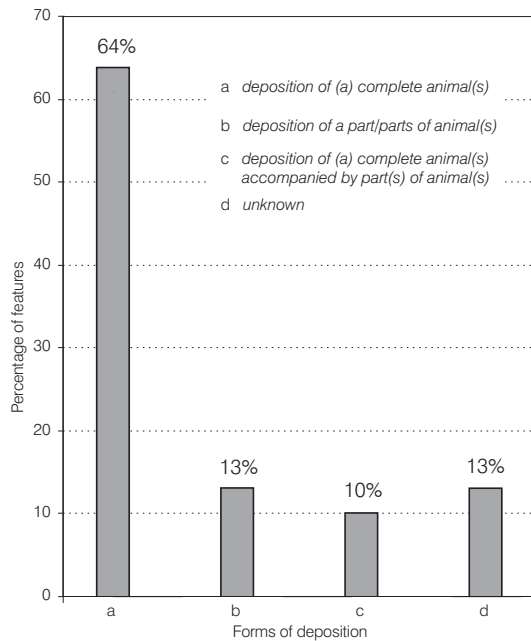


Fig. 8. Animal deposits of the GAC in Kujavia. Frequency (%) of deposit forms (see text). (after SZMYT 2006).



Fig. 9. Kuczkowo site 1 (Kujavia). Cattle deposit from the feature C2 (1 male, 2.5–3 years old). <sup>14</sup>C-dates (bones): see Table 1 (after SZMYT 2000).

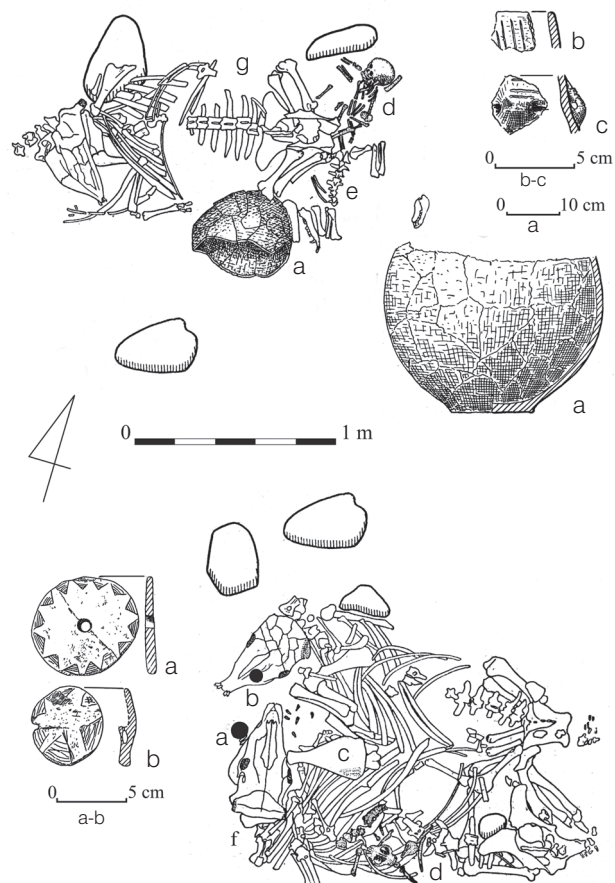


Fig. 10. Brześć Kujawski site 4 (Kujavia). Animal deposits from features: (A) 1 (cattle, 1 female, > 9 years old; 2 parts of pigs) and (B) 5 (cattle, 2 males, 2,5–3,5 years and 5,5 years old; 1 dog). (after WIŚLAŃSKI 1966). Key: (A) a-c ceramics, d skeleton of a child (1.5 year old), e-f parts of pigs; (B) a-b bone discs, c antler objects (?), d skeleton of a dog.

the functional context of the depositions was varied as well as the species, sex and age of the buried animals. It should be stressed that animal depositions in the Kujavian GAC included not only cattle, but also other kinds of domestic mammals.

#### *Forms of Depositions.*

A distinction must be made between two forms of depositions (Fig. 8): (a) a complete animal(s) (26 features = 64%) or (b) only a part(s) of an animal(s) (5 features = 13%). Finds are also made of (c) mixed form depositions, in which a whole animal is accompanied by part of a carcass of another animal(s) (4 features = 10%).

(a) In the 'burials' of whole animals it is a cattle that dominates (Figs 9–11). This occurred in 21

such features. A pig was recorded once, a dog four times, a sheep/goat twice and a deer only once. It must be added that three features were discovered that contained several (3–6) complete animal carcasses, with cattle carcasses (2–5 individuals) dominating and accompanied by other animals (a single pig or a dog, in one instance of a pig and sheep/goat). In most cases, the animals were laid on their sides (without clear rules in orientation), sometimes with strongly flexed legs (originally tied?). Rarely, traces of additional practices were discovered as, for instance, crushing the animal with a large boulder (Fig. 11). In 23% of the depositions, animals were accompanied by intentionally placed objects (e.g. vessels, bone discs, bone tools). In the case of a further 42%, only a small number of potsherds were found (a possible result of destroying vessels during rituals?). Some pits, in which animals had been placed, had some struc-



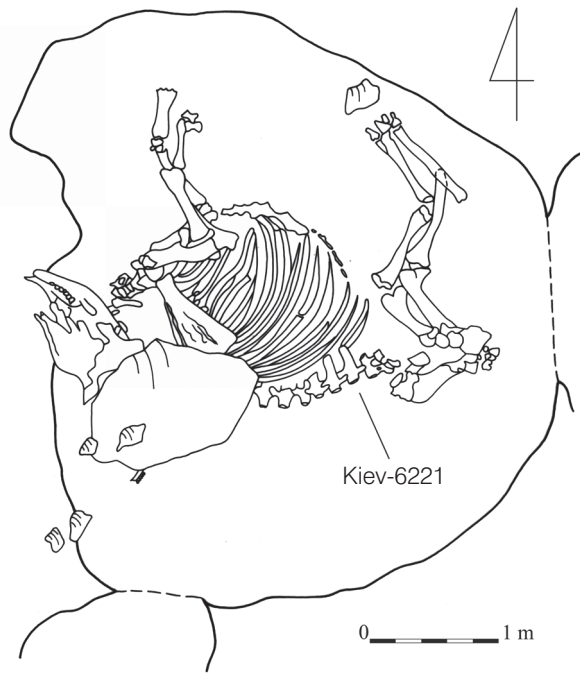


Fig. 11. Żegotki site 2 (Kujavia). Animal deposit from the feature A113 (cattle, 1 female, 7-10 years old).<sup>14</sup>C-date: see Table 1 (after SZMYT 2000).

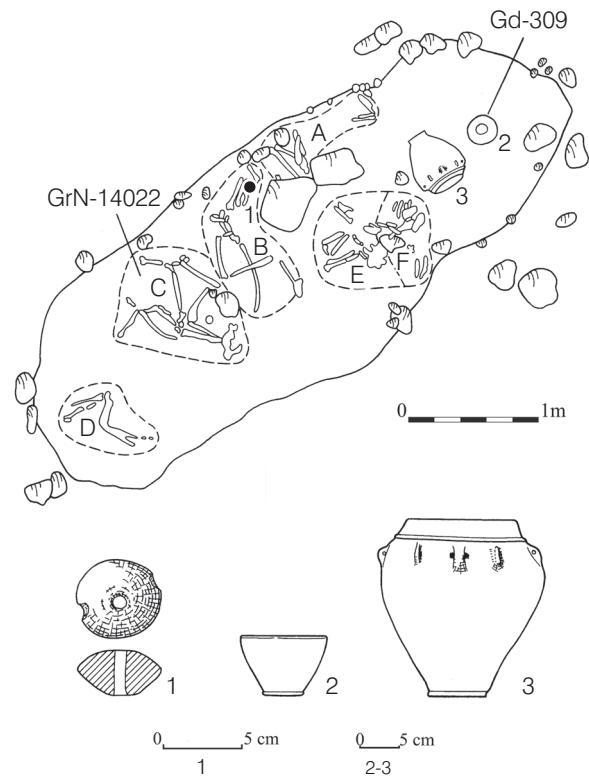


Fig. 12. Krusza Zamkowa site 13 (Kujavia). Animal deposits (cattle, limbs of 5 females and 1 male).<sup>14</sup>C-dates: see Table 1 (after Kośko 1989 b).

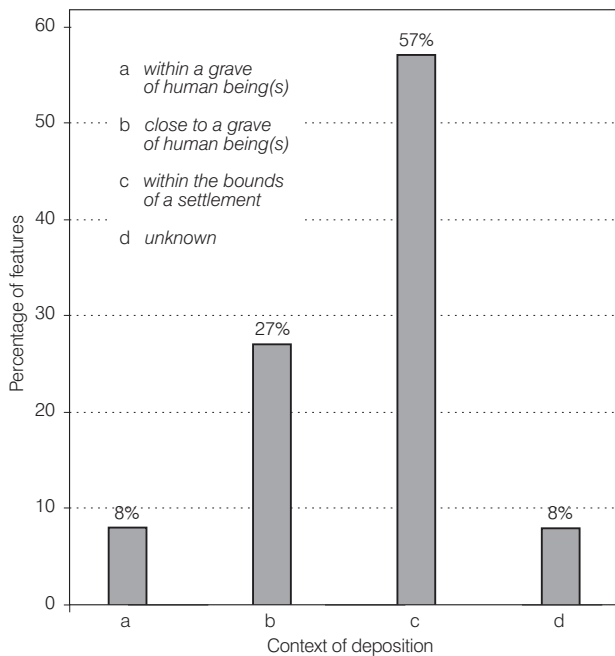


Fig. 13. Animal deposits of the GAC in Kujavia. Frequency of deposits in three form of the functional context (see text) (after SZMYT 2006).

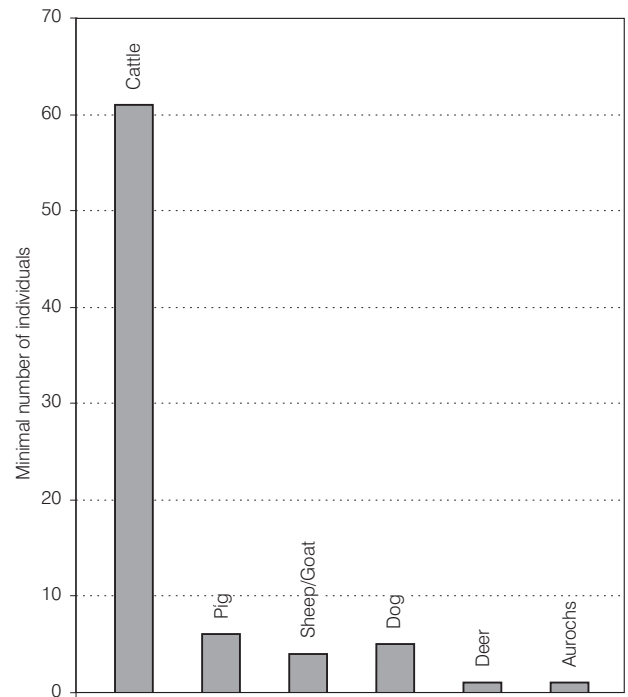


Fig. 14. Animal deposits of the GAC in Kujavia. Number of individuals of different species (after SZMYT 2006).

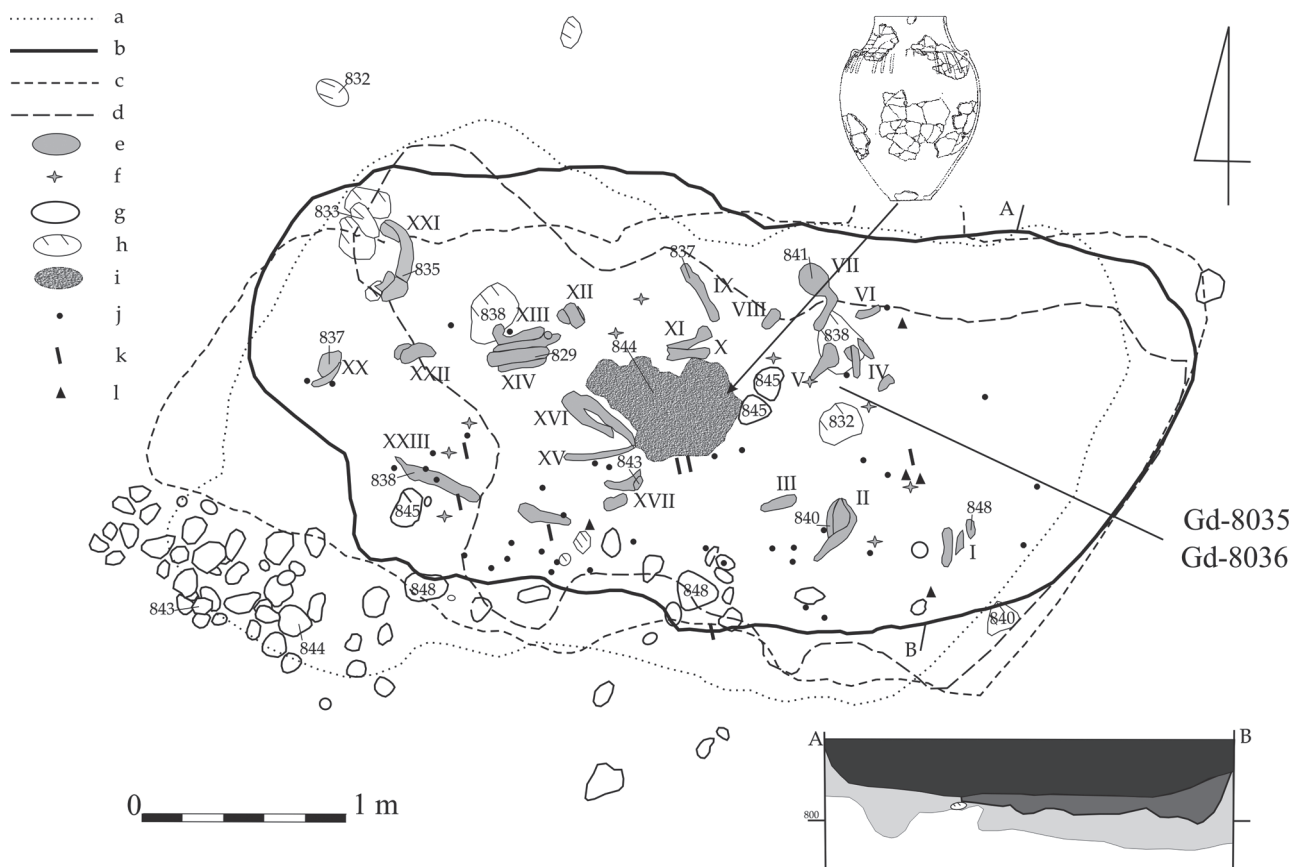


Fig. 15. Opatowice site 1 (Kujavia). Animal deposits from the feature 38 (cattle, parts of at least 3 individuals: 1 male and 2 females?; all >3.5 years old). <sup>14</sup>C-dates: see Table 1 (after KOŠKO/MAKOWIECKI/SZMYT 2007) Key: a bone clusters (I-XXIII); b fine bones; c stones; d a vessel of the GAC; e pottery fragments of the Funnel Beaker culture; f daub lumps; g flints.

tural elements, such as the sides built of rubble or paved floors; the latter were sometimes made from carefully placed pieces of vessels.

(b) Features with partial depositions contained the remains of cattle (from 1 to 6 individuals) and only once an aurochs. In the latter case, this was the head of an aurochs. In partial 'cattle burials' the legs or front parts of carcasses were deposited (Fig. 12). In three features, body parts of cattle lay alongside objects such as vessels, a clay drum or a clay spindle whorl. The depositions were sporadically accompanied by stone elements of a structure.

(c) Mixed depositions always contained one or two whole cattle carcasses and body parts of other cows as well as pigs. On a single occasion two cows were placed alongside a whole sheep/goat. The arrangement of all of the remains rendered prominence above all to the bodies of cattle. In one case, under the remains of an animal (pig), the body of a one-and-a-half-year old child was found. The goods included vessels, clay drums

and bone tools. No additional structures were recorded.

#### *Contexts of Depositions.*

Animal depositions were placed (Fig. 13): (I) within a grave of a human being(s) (7.5% of the features), (II) close to a grave of a human being(s) (27.5% of the features), or (III) within the bounds of a settlement (57.5% of the features; for the description of GAC settlements, cf. SZMYT 2002). Most of the features belonged to category III and represented type (a) of depositions. Out of five partial depositions, three belonged to category II, while two represented category III. Out of three mixed depositions, two belonged to category III, while one represented category II. In all of the categories 'cattle burials' predominated. Accompanying goods were placed with a slightly higher frequency in settlement features (III). Within settlement bounds, clusters of pits containing animal depositions were found containing 2–5 separate features. Clusters of 'animal burials' were less frequent in cemeteries and comprised two features.

*Species of deposited animals*

The following species of animals were recorded in the GAC 'animal burials' in Kujavia: cattle, pigs, sheep/goats, a dog and single specimens of deer and aurochs (Fig. 14). A clear domination of cattle depositions was observed (85% of features), in which the remains of animals aged 3–5 years prevailed (Fig. 15). Remains of a very young animal (calf) were identified

only once. There is no clear difference in the frequency of depositing female or male animals, although female individuals are in the majority among partial depositions (b), whereas males predominate in settlement features (III). What is more, in 'burials' containing old individuals (6–10 years) two females and one male were identified. No clear differences in 'burial goods' in relation to the age or sex of animals were recorded.

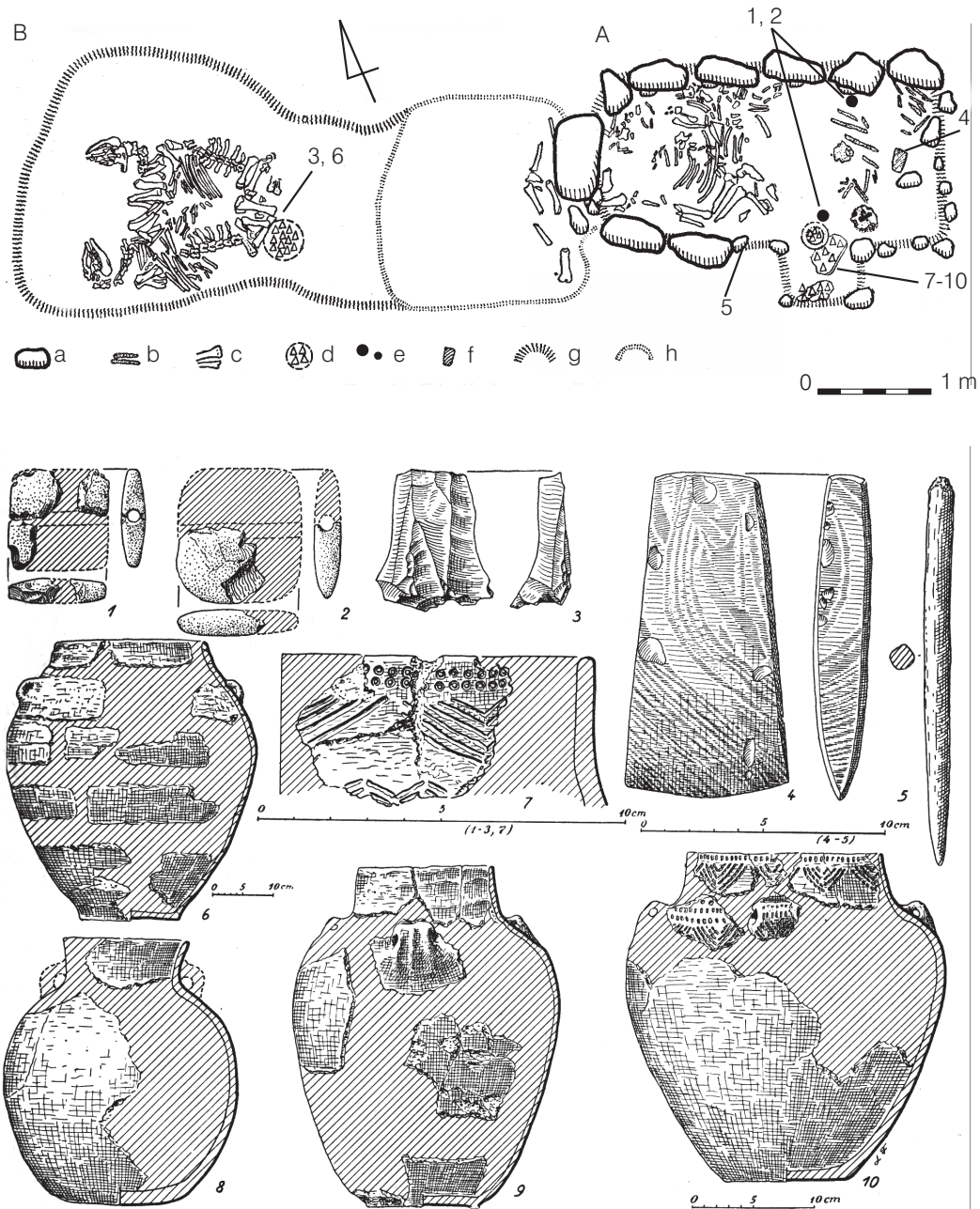


Fig. 16. Zdrojówka site 1 (Kujavia). Human grave (A) and animal deposits (A: cattle - at least 4 cows; 1? sheep; 1? pig; B: cattle, 2 females, 2.5-3 and 3.5 years old) (after WIŚLAŃSKI 1966) Key: a stones; b human bones; c animal bones; d ceramics; e amber; f flint axe; g black soil; g black and burnt soil.

Summing up, the collection of data on animal depositions, made by the populations of the GAC in Kujavia, has – when compared to data for other regions – a number of specific characteristics. Special mention must be made of the clear tendency to place depositions in pits within small settlements. In some cases we have data indicating a purposeful placement of deposits along the limits of a settlement, where they could have marked its boundaries. In this way dead (slain?) and intentionally buried animals became part of the space used by the living members of the community. A smaller group is made up of depositions in a direct or indirect connection with graves of a human being(s), in which dead animals were associated with the deceased (Fig. 16).

When seeking the origins of animal depositions,

specifically cattle deposits, reference was made to the transmission of Eneolithic rituals from south-east (the Aegean area - MARAN 1998) to Central Europe. In the transmission, a special role was played by Baden societies, who supposedly adapted the idea of the ritual burying of animals to Central European conditions. This hypothesis, however, now needs corroboration by a detailed investigation of the context, forms and absolute chronology of animal depositions in the BC. Yet, the absence of accurate data on their chronology in the BC makes a comparative analysis difficult. An interesting aspect is the fact that the tradition of the ritual burial of animal carcasses continued in the GAC circle for a long span of time, surviving the decline of the BC for several hundred years.

### The Role of Baden Elements in the Socio-cultural Structure of the GAC

The list of Baden elements in the GAC seems rather modest in number. Nonetheless, in my opinion the significance of the reception of Baden elements is more important than its quantity. A better way to demonstrate this significance is to analyze a culture-historical situation in Kujavia (SZMYT 1996).

A point of departure is the synchronization of cultural units (cultures or groups) during the late 4th and the 3rd millennium BC in Kujavia, based upon

the results of the most recent investigations (Fig. 17). It reflects the current views of scholars working in this field, who accept the coexistence of several separate cultural traditions over long periods of time, lasting even a few hundred years. In other words, it is assumed (and held as justified) that, generally speaking, in the relatively small area of Kujavia (ca. 7400 km<sup>2</sup>) societies coexisted who possessed different sets of material culture and had different cultural traditions. The chronological positions of these units have been determined by typological analyses (mainly by techno-stylistic seriation of pottery) as well as very numerous and still increasing series of radiocarbon datings (CZEBRESZUK/SZMYT 1998 and 2001, here older literature), taking advantage of stratigraphic sequences and cases of trait co-occurrence in compact assemblages. From these data it can be concluded that there were a few separate cultural traditions in each period of the late 4th – 3rd millennium BC. All of the societies under consideration were characterized by a relative small variability in settlement, economy and social organization (e.g. CZEBRESZUK/SZMYT 2008). Their peculiarity is manifested mainly by the material culture, especially in the production of objects related to a group's symbols and by rituals. In the Kujavian area there were no stable spatial barriers separating settlements of different societies. This means that the same territory was used by societies of different traditions. A long duration of the phenomenon shows the lasting awareness of a separate identity of individual societies grounded in their symbolic behaviour.

We can now return to the role of the Baden patterns in the socio-cultural structure of the GAC in Kujavia. To complete the above review, I would like to stress basic traits in the definition of

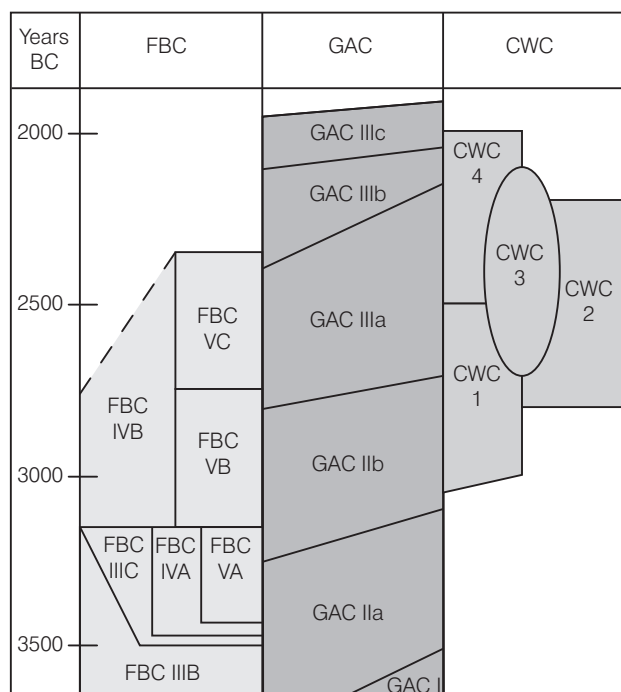


Fig. 17. Synchronization of cultural units (cultures or groups) during the late 4<sup>th</sup> and the 3<sup>rd</sup> millennium BC in Kujavia. (after CZEBRESZUK ET AL. 2000).

its forms and duration: transformations of these patterns in the GAC milieu, then the incorporation into its cultural structure and, finally, the long continuation in the GAC, much longer as in areas related to the BC itself. From this point of view, of primary importance is not a long list of elements of Baden provenance, but far more the recurrence and regularity in use of these elements. Indeed, Baden pottery patterns were regularly but not very oft used, during the entire “classical” stage of the GAC in Kujavia. However, the case of animal depositions is far more interesting. Such features should be equivocally referred to as the ‘sphere of the sacred’ in these communities. The degree to which this behaviour was non-utilitarian or even – from today’s perspective – counter-utilitarian could be shown by an estimate of the weight in meat that

was barred from consumption and deposited in the ground instead (SZMYT 2004a, 132–133). We should also recall that the kind of rituals in question was recurrent mostly in the GAC milieu and that it was practiced only rarely in other synchronous groups or cultures in Kujavia. All of the observations suggest that rituals associated with animal depositions were very important for the cultural identity of GAC societies. One can say that they became one of the main self-identity markers for the communities and were used to consolidate their members and separate them from other societies related to different cultural tradition. In this way Baden elements, incorporated into internal socio-cultural structure of the Kujavian communities of the GAC, became an integral and long-lived component of their identity.

### Conclusion

‘Foreign’ elements of Baden provenance in the GAC milieu were not accidental and singular, but clear and recurrent, although their reception was not a mass, all-inclusive process, but rather a narrowed number of elements. They were adopted, transformed and incorporated into the socio-cultural sphere of the GAC. Finally, they attained the status of important signs used in self-identification of the

communities in question, as could be demonstrated for the Kujavia region.

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### Abstract

The author discusses different forms of Baden patterns in the Globular Amphora Culture. It could be demonstrated that ‘foreign’ elements of Baden provenance in the Globular Amphora milieu were not accidental and singular, but clear and recurrent, although their reception was not a mass, all-inclusive process, but rather a narrowed number of elements.

They were adopted, transformed and incorporated into the socio-cultural sphere of the local communities connected to the Globular Amphora Culture. Finally, they attained the status of important signs used in self-identification of the communities in question, as could be demonstrated for the Kujavia region.

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## The Most Distant Outskirts. The Baden Elements in the Złota Culture (Little Poland)

By *Hanna Kowalewska-Marszałek*

### Introduction

The phenomenon of the Baden Culture<sup>1</sup> is a very interesting one and of great importance for the Neolithic period of Central Europe, not only because of the original character of this culture but also because of its various interactions with the outside world and its great influence upon other regions. Among the latter is the region of Little Poland, where the relationship with the Baden Culture can be observed over a relatively long time. The irregular character of Baden influences and the variety of their impact have already been mentioned in archaeological literature (i.e. SOCHACKI 1980, ZASTAWNY 1999). The complexity of the Baden Culture itself and the topographical and cultural diversity of the regions concerned were considered the main causes of those events (i.e. SOCHACKI 1980; J. K. KOZŁOWSKI 1989). Such an aspect having been widely underlined, the territorial extent of Baden presence has been divided into two main zones: that of real Baden Culture settlement and that of sporadic appearance of Baden elements or influences. A distinction between both zones seems particularly important for the region of Little Poland: an area of Baden Culture settlement as well as that of Baden influence with the epi-Polgar-Baden and the Funnel Beaker cultures with Baden assemblages (KRUK/MILISAUSKAS 1999, 174; ZASTAWNY 1999, 13) and a region where the artefacts of the Radial Pottery Culture have appeared in sites connected with other cultures (SOCHACKI 1968, 19).

An interesting article published recently concerns the Baden Culture in Little Poland (ZASTAWNY 1999), in which the author presents the territorial limits of the zone of Baden influence in this region. One of the most distant enclaves of this zone, forming its

northeastern boundary, is the Sandomierz Upland. It is connected indirectly with the Baden circle, in view of several Baden elements present in the assemblages of the Złota Culture. Although already mentioned in archaeological literature, these elements have never been treated as a whole. The aim of this paper is therefore to make an attempt to analyse them in detail.

The mixed, syncretic character of the Złota-type assemblages is well known; it has been widely emphasised in archaeological literature from the very beginning (i.e. KRZAK 1976, 22ff; KEMPISZ 1989; KRUK/MILISAUSKAS 1999; see also the interesting statements of J. MACHNIK, in print). The presence of Baden elements in such assemblages has long been mentioned, and different opinions have long been presented concerning the evaluation of the role of those elements in the genesis, chronology and development of the Złota Culture<sup>2</sup>. With the Globular Amphora and the Corded Ware Cultures being considered its main components, the Funnel Beaker and the Radial Pottery cultures have been mentioned in this context as units of secondary significance. The “multi-level” character of the presence of the Baden elements has also been stated: They have been seen not only as single components, but also as assemblages of artefacts (ANTONIEWICZ 1928, 66). L. KOZŁOWSKI evoked long ago the RPC influence on the manufacture of Złota-type pottery (L. KOZŁOWSKI 1924, 69). J. ŻUROWSKI pointed to the RPC as one of the three main components in Złota-type assemblages, besides the so-called “Megalithic” and Corded Ware cultures (ŻUROWSKI 1930, 171). According to Z. KRZAK, the role of the RPC was rather restricted (KRZAK 1961 b, 155), because “the framework of the

<sup>1</sup> Abbreviations used in the text: BBC – Bell Beaker Culture, BC – Baden Culture, CWC – Corded Ware Culture, FBC – Funnel Beaker Culture, GAC – Globular Amphora Culture, RPC – Radial Pottery Culture, ZC – Złota Culture.

<sup>2</sup> Despite the many controversies connected with it (see i. e. ŚCIBIOR 1991: 61; KRUK/MILISAUSKAS 1999, 208) the designation ‘Złota’ Culture is used in this text solely as the name for a taxonomical unit.

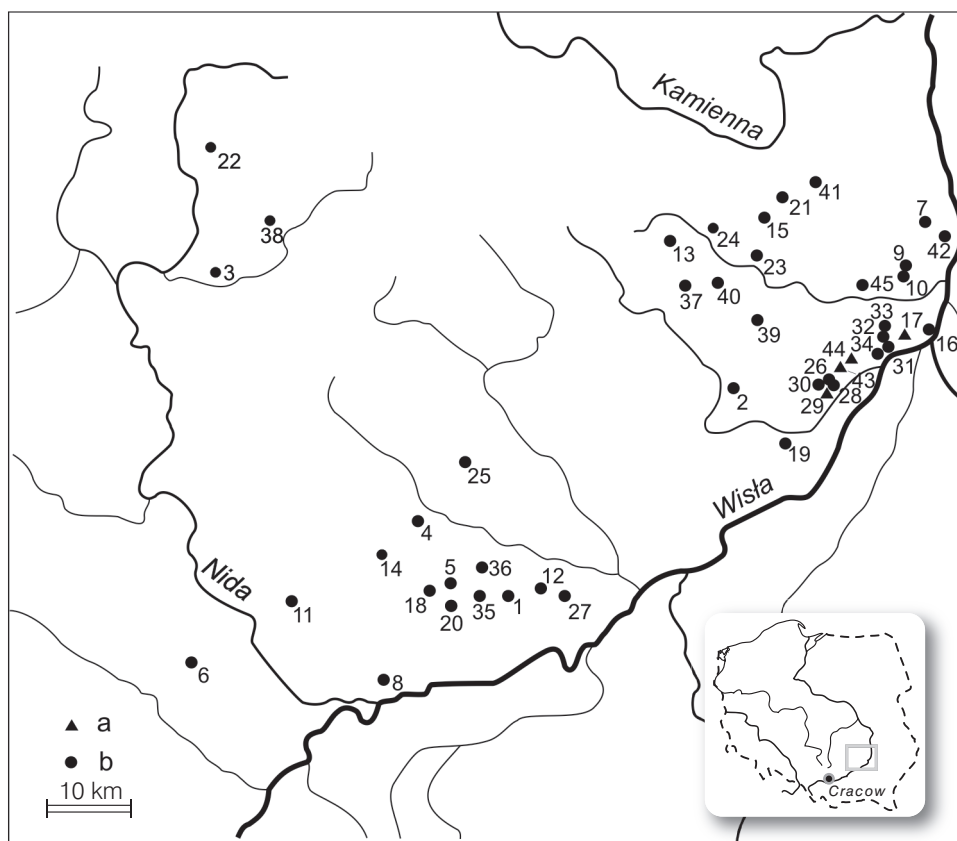


Fig. 1. The Złota Culture: distribution of sites. a sites with “Baden” elements; b other sites. 1 Beszowa; 2 Borek Klimontowski; 3 Brzeziny; 4 Brzozówka; 5 Chwalibogowice; 6 Cieszkowy; 7 Czyżów Plebański; 8 Działawice; 9 Garbów Nowy; 10 Garbów Stary; 11 Głuzu; 12 Grabowa; 13 Jałoweszy; 14 Janina; 15 Kaliszany; 16 Kamień Łukawski; 17 Kamień Plebański; 18 Kolonia Fałęcka; 19 Koprzywnica; 20 Książnice (site 2); 21 Mierzanowice; 22 Niewachlów; 23 Nikisiałka; 24 Opatów; 25 Ossówka; 26 Polanów Samborzecki; 27 Przeczów; 28 Samborzec; 29 Samborzec (site I); 30 Samborzec (site IV); 31 Sandomierz-Town Hill; 32 Sandomierz-Szpital (site. 78); 33 Sandomierz-Chwałki; 34 Sandomierz-Salve Regina; 35 Sroczków; 36 Strzelce; 37 Strzyżowice; 38 Suków; 39 Usarżów; 40 Włostów; 41 Wyszmontów; 42 Zawichost; 43 Złota-Grodzisko I; 44 Złota-“Nad Wawrem”; 45 Wilczyce (Drawing: H. Kowalewska-Marszałek).

Złota culture was created by the Globular Amphora and the Corded Ware Cultures” (KRZAK 1961 a, 19). Although this last statement was slightly modified later (KRZAK 1973, 135), the RPC continued to be seen as a unit “placed at the furthest position as to its effective force and meaning” (KRZAK 1976, 253). The opinion of MACHNIK was almost the same: According to him, the RPC made only the most modest contribution to the Złota Culture (MACHNIK 1979, 391). For J. ŚCIBIOR, the role of the RPC in the genesis of the Złota Culture (or rather, Złota-type assemblages) should be seen as the absorption of several Baden characteristics by the GAC. The result of this process would be “the emergence of assemblages that should be named ‘amphora-cum-Baden’ or ‘proto-

Złota’ units” (ŚCIBIOR 1991, 61). In turn, J. KRUK and S. MILISAUSKAS consider the “Beaker-cum-Baden” affiliations seen in the morphology and decoration of the pottery as a very important element of the Złota unit (KRUK/MILISAUSKAS 1999, 210).

There is also another question concerning the Baden elements in Złota inventories that has been brought up in the literature. ŻUROWSKI pointed out the real presence of Radial Pottery finds in the eastern part of Little Poland, citing “a star-decorated bowl from Złota” (ŻUROWSKI 1933, 161) as well as another vessel from this same site<sup>3</sup>. The presence of Baden elements in the Złota Culture was a subject of interest for M. BUCHVALDEK (1973) and KRZAK (1973; 1976) as well as J. K. KOZŁOWSKI (1973, 182).

<sup>3</sup> This is a vessel from pit No. 16 in the “Nad Wawrem” site, found in the context of GAC material (ŻUROWSKI 1933,

162; see also KRZAK 1973, 125).

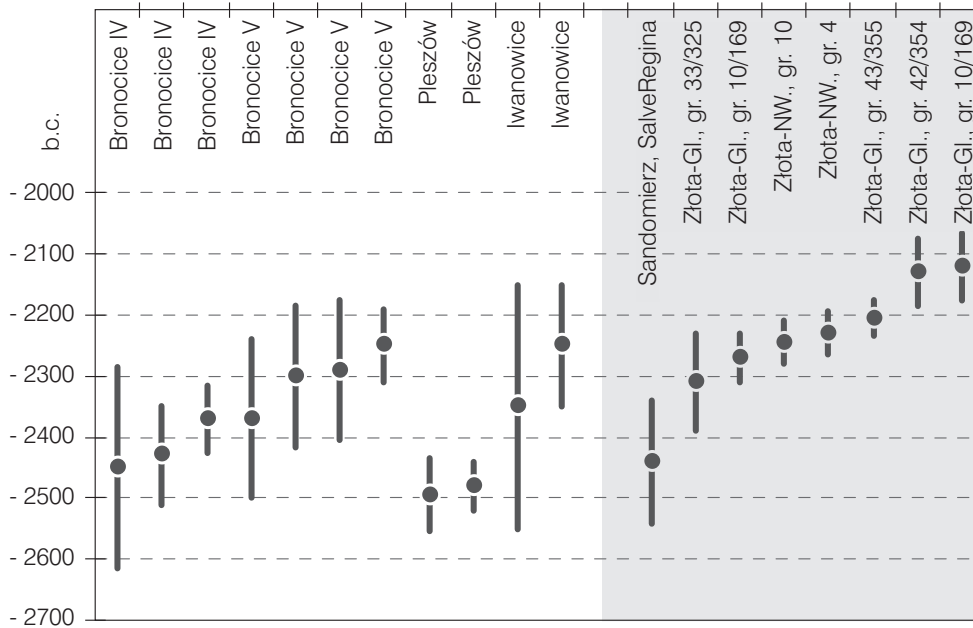


Fig. 2. The absolute chronology of the Radial Pottery and the Złota Cultures compared to <sup>14</sup>C-dates from Bronocice IV–V (after GODŁOWSKA 1986; ZASTAWNY 1999).

Z. SOCHACKI initially refuted the presence of real “radial” materials at sites in the Sandomierz Upland and considered all finds from this region as “radial-cum-Złota” ones (SOCHACKI 1967, 66). He later modified his approach, pointing out at least a few imported items of the RPC in Złota assemblages (SOCHACKI 1980, 173). He also stated that RPC influence on the ZC could be clearly defined according to its material and chronological aspects. With reference to material, “several stylistic elements [are] visible [...] in the group of bowls and mugs, espe-

cially in their decoration” (SOCHACKI 1980, 173). In turn, M. GODŁOWSKA considered the pottery with “radial” elements as an imitation of the real forms of the RPC (GODŁOWSKA 1979, 316).

Leaving aside the “genetic” questions concerning Złota assemblages, in this paper we would like to discuss only the second topic mentioned above: a re-examination of the Baden elements in Złota-type assemblages, with a special attention directed towards their contexts and the spatial relationship among them.

#### The Radial Pottery<sup>4</sup> and Złota Cultures: Spatial and Temporal Relationships

The territories of the Baden and the Złota Cultures were situated in the neighbourhood: the Baden Culture was located in the western part of the loess uplands in Little Poland, and the Złota Culture in the eastern part of the Nida Valley and in the Sandomierz Upland. A concentration of Złota sites is visible in the southeast of that region (Fig. 1). The Nida River formed a stable boundary between these regions; the settlements of both cultures seem to cross it in only very few cases (KRZAK 1970 b: 62, Fig. 1; 1973, 124; ZASTAWNY 2000, Fig. 10)<sup>5</sup>.

In the face of the very scant number of the <sup>14</sup>C-

dates for both of these cultures (Fig. 2), their absolute chronology may be defined only approximately. According to recent determinations, the period between 2500 and 2200/2100 bc (3060–2690/2510 BC) has been considered as the time of development of the RPC in Poland (ZASTAWNY 1999: 9; see also KRUK 1980; GODŁOWSKA 1986; GODŁOWSKA/GLUZA 1989; ŚCIBIOR 1992; KRUK/MILISAUSKAS 1999). It has been correlated with the third and fourth phase of development of the Baden Culture and with phase IV and V at Bronocice (GODŁOWSKA 1986: 53). A more narrow chronological range – about 3100–2700 BC – has been

<sup>4</sup> According to the recently proposed distinction between the “Radial Pottery Culture” and the “Baden Culture” (KRUK/MILISAUSKAS 1999, 176; see also ZASTAWNY 1999, 12).

<sup>5</sup> To be considered as exceptions: Ostrowce, Busko-Zdrój district, RPC, and Cieszkowy, Pińczów district, ZC (KRZAK 1973, 124).

proposed recently by P. WŁODARCZAK (WŁODARCZAK 2006, 129)<sup>6</sup>. In turn, the chronology of the Złota Culture (Fig. 3), based upon eight existing <sup>14</sup>C-dates (KRZAK 1989; ŚCIBIOR 1993, 319), has been estimated at 2450–2050/2000 bc, that is, about 2900–2600/2550 BC. (MACHNIK/ŚCIBIOR 1991, 51; ŚCIBIOR 1992, 262; WŁODARCZAK 2006, 129)<sup>7</sup>. Thus, as a result of the above (if accepting this large chronological range), the Złota Culture seems to be only slightly younger than the RPC, and the development of both cultures would have been parallel to a considerable extent.

These statements do not conform with previous opinions concerning the distinct temporal succession of these cultures, with only a short period of parallel development (i.e. KRZAK 1968, 109; 1970, 79). It is difficult, however, even when being very cautious, to distance oneself completely from the available <sup>14</sup>C-dates. Opinions about a longer period of the co-existence of the RPC and ZC, even though not commonly accepted, have previously been mentioned in the literature (i.e. MACHNIK/ŚCIBIOR 1991; ŚCIBIOR 1992; WŁODARCZAK 2006, 129), and – as it seems at present – they are substantiated, particularly when it is possible to find other arguments to support them. It should also be mentioned that the <sup>14</sup>C-dates published already for Złota assemblages and the progress of investigation during recent years have shaken the past systems of the periodisation and phasing of the Złota Culture. According to them, the assemblages containing Baden elements were considered as the oldest, and those with BBC affiliations as the most recent ones (i.e. KRZAK 1968; 1973). An early date from the Salve Regina hill in Sandomierz (for an assemblage without Baden elements) contradicts

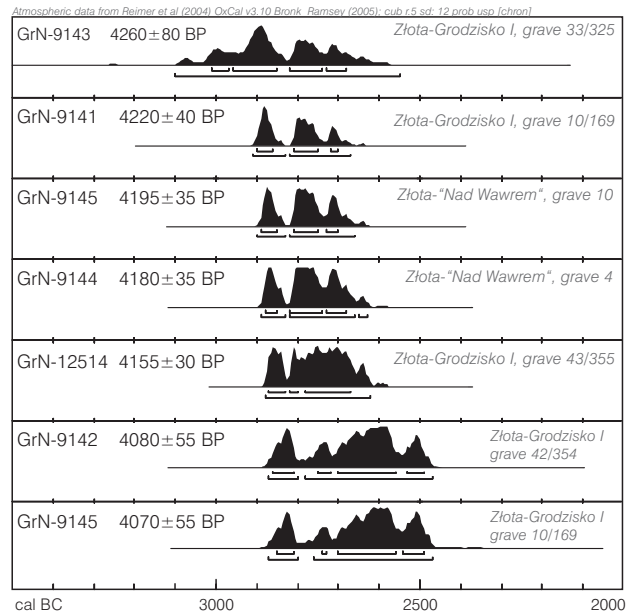


Fig. 3. The Złota Culture: calibration of the radiocarbon dates (made by P. Włodarczak).

such a scheme, however, as does the possible existence of Baden traces in relatively recent inventories, for example, that of grave No. 43/355 from Złota-Grodzisko I (KRZAK 1989, 261). On the other hand, the possibility of a ZC and BBC co-existence has also been questioned (MACHNIK 1979, 392), particularly in light of an increasing number of the available <sup>14</sup>C-dates for the BBC (WŁODARCZAK/KOWALEWSKA-MARSAŁEK 1998, 62; WŁODARCZAK 2006, 129).

### “Baden” Elements – a Problem of Identification

According to KRZAK (1976, 200), the connections between the Złota and Baden cultures should be observed in the stylistic characteristics of the pottery as well as the character of flint implements and several personal adornments. According to other researchers (MACHNIK 1979; SOCHACKI 1980), the most visible affiliations are those concerning the pottery; SOCHACKI even argued that the field of Baden influence in the Złota Culture was exclusively in the domain of pottery (SOCHACKI 1980, 173). The stylistic elements of the pottery are undoubtedly among the best visible and the most distinctive ones. Therefore, they will be the main subject

of analysis in this paper. However, the existence of Baden affiliations among other cultural items (production of tools, funeral rites and so on) should not be neglected, especially in view of the fact that other coincidences observed might have been the effect of the global similarities among Eneolithic assemblages over larger areas of Europe.

As to the identification of Baden elements, different authors (ANTONIEWICZ 1925; ŻUROWSKI 1930; KRZAK 1968; 1973; 1976; BUCHVALDEK 1973; MACHNIK 1979; SOCHACKI 1980) are rather in agreement, while the discrepancies concern only a few artefacts (see below). Several forms of vessels and special ornaments are

<sup>6</sup> See also his interesting remarks about the possibility of an earlier than usual dating of the end of the Bronocice V phase (WŁODARCZAK 2006, 127).

<sup>7</sup> According to J. KRUK and S. MILISAUSKAS, the “borderline” dates of the Złota unit are: 3022 and 2582 BC. (KRUK/MILISAUSKAS 1999, 210).

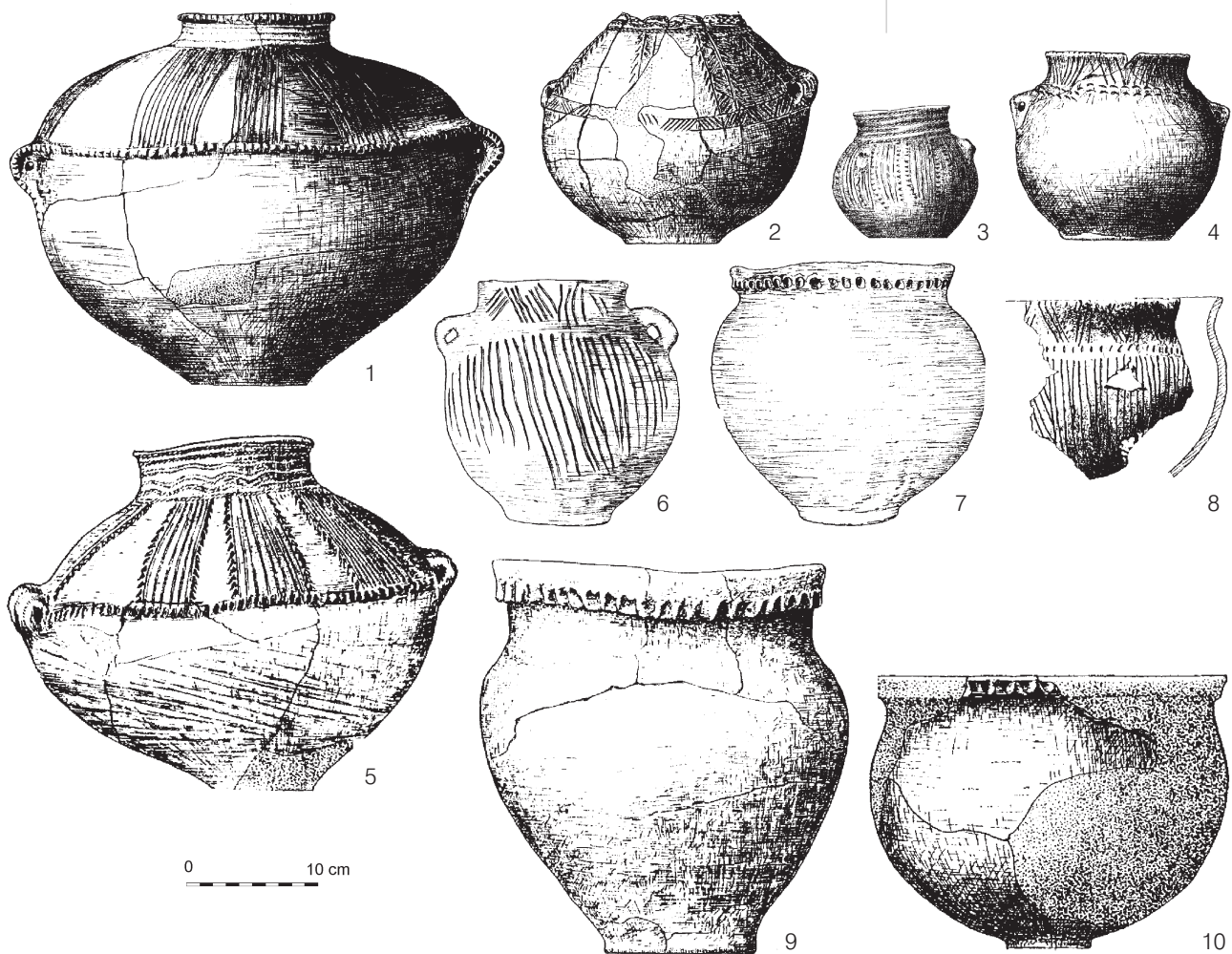


Fig. 4. Forms of "Baden" vessels in the Złota-Type inventories: amphorae and "bag-shaped" vessels. 1–3, 7, 9: Złota-Nad Wawrem (1-grave No. 196; 2-grave No. 5; 3-grave No. 75; 7-grave No. 196; 9-grave No. 14); 4–6, 8, 10: Złota-Grodzisko I (4-grave No. 56/446; 5-grave No. 57/436; 6-grave No. 17(I); 8-grave No. 6/60; 10-grave No. 43/355) (after KRZAK 1961 b; 1970 a; 1976; MACHNIK 1979).

considered as the main criteria for distinguishing Baden elements; they may occur together or separately. As to the vessel forms to be considered, there are several types of amphorae, bowls, beakers and mugs with "ansa lunata" handles, as well as "baggy"

forms and wide-mouthed vessels. They were mostly ray-ornamented or decorated with finger-tip or stamp impressions, sometimes also with cord impressions. The existence of vessels without decoration should also be mentioned.

#### Pottery with "Baden" Characteristics

Based upon the above-mentioned criteria, a few dozen vessels have been distinguished that have "Baden" traces *senso largo* (Fig. 4 and 5; see also: L. KOZŁOWSKI 1923; ANTONIEWICZ 1925; ŻUROWSKI 1930, 1933; KOWALCZYK 1947; RAUHUT 1953; MARCINIAK 1960; KRZAK 1961 b; 1968, 1970 a, 1973, 1976; see also: BUCHVALDEK 1973; KOZŁOWSKI 1973; MACHNIK 1979; SOCHACKI 1980). A few vessels should be added to these, namely: an ornamented "ansa

lunata" mug from grave No. 17 (I) at Złota-Grodzisko I (KRZAK 1961 b, 51), a bowl of this same type from grave No. II at Złota-Nad Wawrem (ŻUROWSKI 1930, 170) and – with several reservations – "ansa lunata" mugs decorated with cord impressions from grave No. [1] at Złota-Nad Wawrem (ANTONIEWICZ 1925, 201) and from graves No. 2/74, 9/161 and 33/325 at Złota-Grodzisko I (KRZAK 1961 b, Fig. 13 c, 32 c, 76 e; see also Fig. 5, 13), an undecorated "ansa lunata" mug

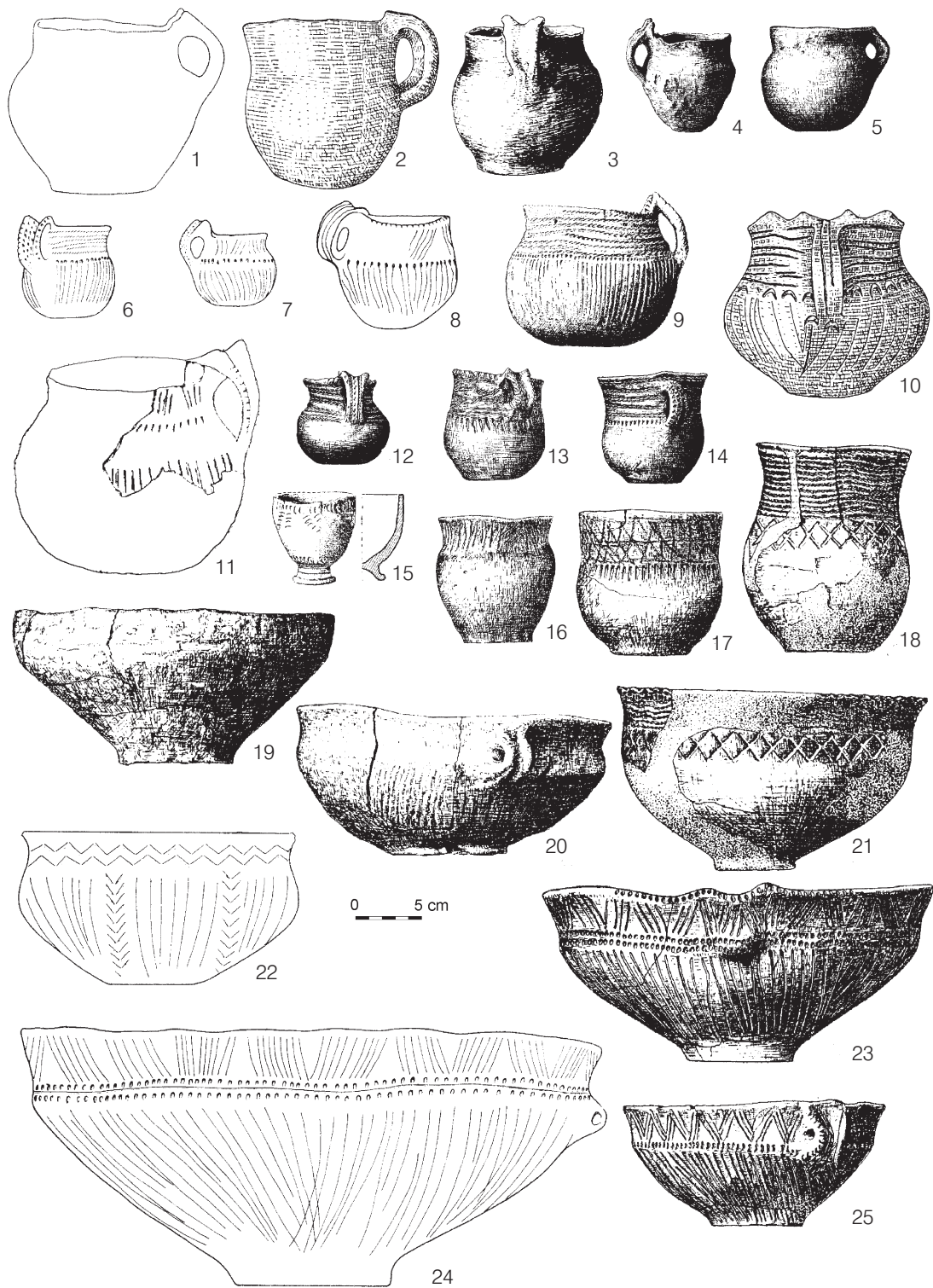


Fig. 5. Forms of "Baden" vessels in the Złota-type inventories: mugs, beakers and bowls. 1, 3, 6, 12, 14–16, 18, 20–21, 24–25: Złota-Nad Wawrem (1 localisation unknown; 3 grave No. 14; 6 grave No. II; 12 feature No. 161; 14 grave No. 296; 15 grave No. [21]; 16 grave No. 233; 18 grave No. 4; 20 feature No. 6; 21 grave No. 4; 24 grave No. 14; 25 grave No. 10); 2, 10: Samborzec, grave No. 2; 4–5, 7–9, 13, 17, 19, 22–23: Złota-Grodzisko I (4 grave No. 1/141; 5 grave No. 43/355; 7 grave No. 55/448; 8 grave No. 8/160; 9 grave No. 6/60; 13 grave No. 33/325; 17 grave No. 47/376; 19 grave No. 6/60; 22 localisation unknown; 23 grave No. 10/169); 11: Kamień Plebański, grave No. 2. (after ANTONIEWICZ 1925; KOWALCZYK 1947; RAUHUT 1953; MARCINIAK 1960; KRZAK 1961 b, 1970 a, 1976; MACHNIK 1979).

and a “baggy”-form vessel decorated with finger-tip impressions from grave No. 3 at Złota-Nad Wawrem (KRZAK 1970 a, Fig. 12 d, 13 b), an S-shaped beaker decorated with “chequer” designs from grave No. 4 at Złota-Nad Wawrem (Fig. 5: 18)<sup>8</sup>, a “baggy”-form vessel from grave No. 196 at Złota-Nad Wawrem (Fig. 4, 7; see also KRZAK 1970 a, Fig. 98 d), an S-shaped, ray-ornamented beaker (Fig. 5, 16), a “baggy”-form vessel with finger-tip impressions from grave No. 233 at Złota-Nad Wawrem (KRZAK 1970 a, Fig. 104 c, 105 b) and an “ansa lunata” mug (fragmentarily preserved) from grave No. 2 at Kamień Plebański (Fig. 5, 11; see also KOWALCZYK 1947, Fig. 5). All of these vessels form the basis of further analysis.

Even though the “Baden” characteristics are readily distinguished, a few artefacts are situated at the boundary between several taxonomic units, and it is difficult to classify them unequivocally. Among these are two amphorae (one from grave No. 5 at Złota-Nad Wawrem and another from grave No. 57/436 at Złota-Grodzisko I) connected with – in spite of several doubts – the RPC (SOCHACKI 1980: 173) or considered as belonging to the old CWC (MACHNIK 1979, 384). Another amphora (from grave No. 42/354 at Złota-Grodzisko I) has been linked to the RPC (BUCHVALDEK 1973, 52) or to the GAC or CWC (SOCHACKI 1980, 174). The affiliation of a decorated pedestalled beaker (from grave No. 10/169 at Złota-Grodzisko I) is also controversial: Its connections with the RPC were proposed by BUCHVALDEK (1973, 53) and refuted by SOCHACKI (1980, 175).

Allowing for all of the above reservations, the group of 48 vessels should be considered as “Baden” ones. They come from sites at Kamień Plebański, Samborzec I, Złota –Grodzisko I and Złota-Nad Wawrem (all in the Sandomierz district,

Świętokrzyskie voivodship). “Baden” elements, therefore, are present at very few sites (at only four of more than 40 sites of the Złota culture known until now)<sup>9</sup>. All four sites are situated at the border between the upland and the Vistula River valley; they form a distinct linear concentration at the south-east fringe of the Sandomierz Upland, in an area of about 10–12 km.

Only sporadically have “Baden” vessels been found among the settlement remains<sup>10</sup>; most of them were associated with grave assemblages (Tab. 1)<sup>11</sup>. Forty-two vessels of “Baden” character are present in grave assemblages of the Złota Culture, comprising about one-fifth of all the pottery. Further three vessels are known from household features at Złota-Nad Wawrem (features No. 6, 16<sup>12</sup> and 161). The contexts of another three pots from Złota are unknown.

Mugs were the dominant type of vessel (20 of them with “ansa lunata” handles), while amphorae, bowls, beakers and “baggy” forms were less numerous; other types are represented by only very few examples. Amphorae and bowls were connected with these assemblages, in which the total number of vessels was relatively high (from 5 to 14 pieces), whereas mugs came from rather smaller assemblages (1–7 pieces). Several pots are considered as imported from the area of the Baden circle, for example, the bowl from grave No. 10/169 at Złota-Grodzisko I or the handled bowl from feature No. 6 at Złota-Nad Wawrem (SOCHACKI 1980: 173)<sup>13</sup>. Other pots are faithful imitations of Baden vessels or specific forms using only few Baden motifs, sometimes transformed (for example, a mug from grave No. 296, an S-shaped beaker from grave No. 233 and an “ansa lunata” mug from pit No. 161, all from Złota-Nad Wawrem, and mugs from graves No. 2/74 and 9/161 at Złota-Grodzisko I).

<sup>8</sup> Its stylistic characteristics are identical to those of the bowl considered by Z. SOCHACKI (SOCHACKI 1980, 174; see also KRZAK 1970 a, Fig. 17f)

<sup>9</sup> KRZAK 1973, 124; 1976, 19; KOWALEWSKA-MARSZAŁEK 1992. Recently investigated sites: Sandomierz-Salve Regina (BUKO 1993; ŚCIBIOR 1993) and Książnice, Pacanów district (pers. com. from S. Wilk; see also WILK 2007) and Wilczyce, Sandomierz district (FLOREK/ZAKOŚCIELNA 2005)

<sup>10</sup> The settlement material has not been fully processed and published yet. We can mention: a vessel from pit No. 16 and bowls from pits No. 6 and 161 at Złota-Nad Wawrem (KRZAK 1968, 102; 1976, 197) as well as fragments of pottery belonging to pit No. 10 at Złota-Grodzisko I (J.K. KOZŁOWSKI 1973, 185).

<sup>11</sup> The specific character of several graves belonging to the Złota Culture – collective burials, probably used more than once and over a long period of time – as well as the complex arrangement of the interred individuals and the grave goods have created several problems as to their interpretation. In

any case, it is rather difficult to establish the relative chronology of the burials and the individual attribution of grave goods, even though several attempts of this kind should be mentioned (i.e. KRZAK 1961, 39; 1973, 125). In such cases, the “assemblages” of the Złota Culture cannot always be considered as homogeneous and closed assemblages *sensu stricto*. So, the term “assemblage” used in the present paper should be considered only as conventional, signifying a certain unit: the finds as a whole connected with a given grave structure (synonym of “inventory”).

<sup>12</sup> The domestic character of these features is, however, not certain. For example, structure No. 16 at Złota-Nad Wawrem was initially interpreted by its excavator, Z. SZMIT, as the feature of another type: “Few animal bones and jaws and numerous goods speak rather in advocacy of the ritual (sacrificial) character of that pit” (Z. SZMIT, Diary of excavation, 7 June 1927; after J. ZUROWSKI 1933, 165).

<sup>13</sup> According to M. GODŁOWSKA (1979, 316) these vessels are imitations of Baden pots.



Tab. 1. Number of “Baden” vessels found in different contexts.

	Złota-Grodzisko I		Złota-„Nad Wawrem”		Złota n.o.	Samborzec site I	Kamień Plebański	Total	
	Graves	?	Graves	Pits	.	Graves	Graves	Graves	Others
Amphorae	3	.	4	.	.	.	.	7	.
Mugs	10	.	6	1	2	2	1	19	3
Beakers	1	.	3	.	.	.	.	4	.
Bowls	2	.	3	1	.	.	.	5	2
„Baggy”-form vessels	.	.	5	.	.	.	.	5	.
S-shaped vessels	1	.	.	.	.	.	.	1	.
Other vessels	1	.	.	1	.	.	.	1	1
Total	18	1	21	3	2	2	1	42	6

From the technological point of view, the “Baden” vessels are not uniform: They differ in the kind of clay used for their production, the kind and size of temper, the care given in finishing the surface or the conditions of firing. Their technology is usually similar to that of other vessels in the inventory, to which they belong. A relatively high uniformity among the decoration (motifs and techniques) can be observed: There are typical radial ornaments,

corded and stamped impressions as well as applied strips with incisions or finger imprints.

Comparing both of the sites at Złota, the “Baden” vessels are more frequent at the “Nad Wawrem” site. Several differences can also be observed in the structure of both assemblages (for example, mugs predominate at Grodzisko I, whereas the proportions of all types of vessels seem more equal at Złota-Nad Wawrem).

#### Assemblages with “Baden” Elements<sup>14</sup>

In the terms of this paper, the only criterion used to distinguish “Baden” assemblages is the presence of at least one “Baden” element, in our case – of the “Baden” vessel. This is, of course, a great simplification, particularly when the homogeneity of several assemblages cannot be proven (for example, in the case of several collective burials).

“Baden” vessels have been found in 28 out of 111 (that is, about one quarter) of all Złota-type grave assemblages in the four sites mentioned above (Tab. 2). The following assemblages should be included here: from grave No. 2 at Kamień Plebański (KOWALCZYK 1947, 255ff.) and from grave No. 2 at Samborzec (MARCINIAK 1960, table I), from graves No. 1/141, 6/60, 8/160, 10/169, 16/307, 17/I, 43/355, 55/448, 56/446, 57/436 and probably from graves No. 2/74, 9/161, 33/325, 47/376 at Złota-Grodzisko I (ANTONIEWICZ 1925: 202ff.; RAUHUT 1953; KRZAK 1961 b, 1976), from graves No. [1], [21], II, 3, 10, 14, 75, 196, 233 and – with a few reservations – from graves No. 4, 5 and 296 at Złota-Nad Wawrem (ANTONIEWICZ 1925, 192ff.; ŻUROWSKI 1930, 155ff.;

KRZAK 1970 a, 1976). “Baden” assemblages are relatively more frequent in this last case.

Grave goods of the “Baden” type usually represent only a small part of the whole inventory; besides these there are finds that belong to the GAC or the CWC (for example, graves No. 10/169, 33/325, 43/355 at Złota-Grodzisko I, graves No. II, 3, 10, 14 at Złota-Nad Wawrem, grave No. 2 at Samborzec) as well as those of the Złota-type itself. No assemblage of exclusively “Baden” stylistic characteristics has been found there (KRZAK 1976, 214).

Assemblages with “Baden” elements are rather different from each other, with regard both to their structure as well as to the character of the burials. A relatively higher uniformity can be observed, however, in the details of construction and orientation of graves. “Baden” assemblages are connected mostly with collective burials (2–5 individuals); only one-third of them were individual burials. The contracted position on the left or right side was the most common. The niche-type of graves predominated<sup>15</sup> slightly. Stone pavements were found in almost half of the grave pits.

<sup>14</sup> Only grave assemblages have been taken into consideration here.

Tab. 2. Number of “Baden” vessels found in Złota-type grave assemblages.

Site	Number of assemblages with „Baden” elements	Number of other assemblages of the Złota-type	Total number	References
Kamień Plebański	1	2	3	KOWALCZYK 1947
Samorzec site I	1	2	3	MARCINIAK 1960; KAMIEŃSKA 1965; BURCHARD 1970
Złota-Grodzisko I	14	44	58	ANTONIEWICZ 1925; RAUHUT 1953; KRZAK 1961 b; 1976
Złota-„Nad Wawrem”	12	35	47	ANTONIEWICZ 1925; ŻUROWSKI 1930; KRZAK 1970 a, 1976
Total	28	83	111	

Vessels are the main component of these assemblages, their total number ranging from 1 to 15 (Złota-Nad Wawrem) or from 1 to 16 pieces (Złota-Grodzisko I). Among them, the “Baden” vessels are not numerous (Fig. 6): usually one vessel per grave, with an increase in this number to 3–4 pieces only in a few cases (graves No. 14, 196 and 233 at Złota-Nad Wawrem; grave No. 6/60 at Złota-Grodzisko I). They were usually deposited together with other types of pottery; there is, however, one case in which a mug with an “ansa lunata” handle is the sole grave good (grave No. 1/141 at Złota-Grodzisko I). The presence of other grave goods should also be considered as a standard attribute of such graves. They comprise flint axes, arrowheads and small tools made of different kinds of flint (for example, scrapers and “knives”), stone axes, needles and other tools made of bone, clay spindle whorls, personal adornments made of amber, pendants made of shell, stone and animal teeth or bone, as well as animal bones, shells or flint blanks. It is worth underlining that the number and variety of grave goods were usually greater in graves with “Baden” elements (see below).

As the main characteristics of the “Baden” graves should be mentioned:

- The high frequency of collective burials as compared with individual ones;
- The high frequency of graves in the niche-type of construction;
- The high frequency of amphorae and bowls as well as “baggy”-form vessel;
- The very high frequency of mugs;
- The high frequency of arrowheads and flint blanks;
- The high frequency of amber artefacts and

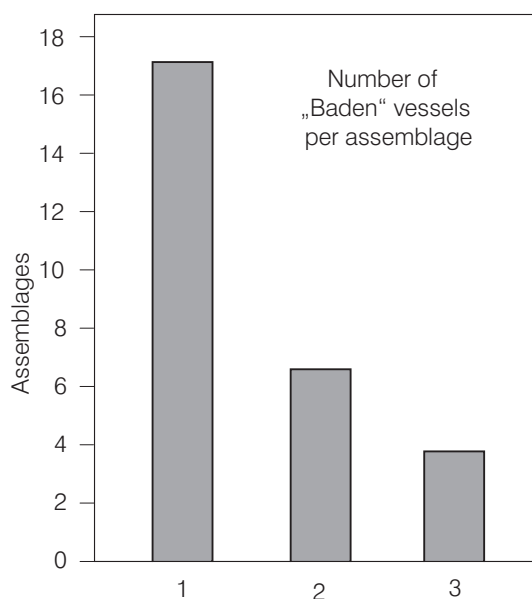


Fig. 6. The frequency of “Baden” vessels.

- pendants made of animal bones and teeth as well as of shell;
- The high coefficient of “wealth”.

When comparing the “Baden” assemblages in both the sites at Złota, we can observe that – in spite of their general similarity – they differ in several aspects, the first being the structure of the assemblages. Accordingly, the frequency of “Baden” vessels is slightly higher at Złota-Nad Wawrem; the overall number of vessels per inventory is also higher at this site. Beakers are more numerous there, in contrast to mugs; lids are completely absent. The frequency of amphorae and bowls is slightly higher there than at

<sup>15</sup> It is not certain whether the construction of graves was determined properly in every case, because of the considerable degree of erosion of the sites. The niche-type of construc-

tion, even though confirmed without any doubt in only a few cases, seems very probable as the original type of construction of many of the other graves (KRZAK 1976, 160 n.).

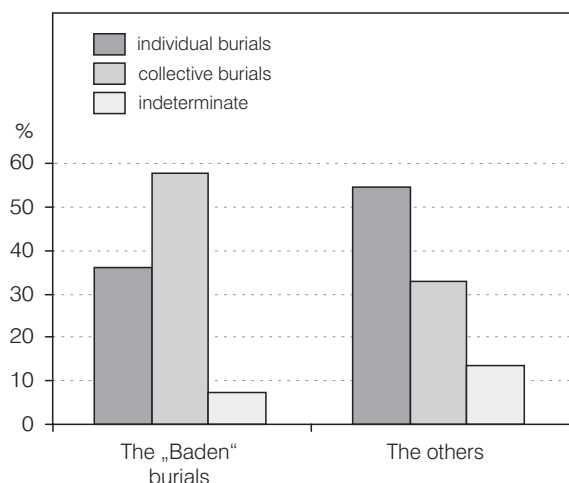


Fig. 7. Individual and collective burials: “Baden” and “non-Baden” features.

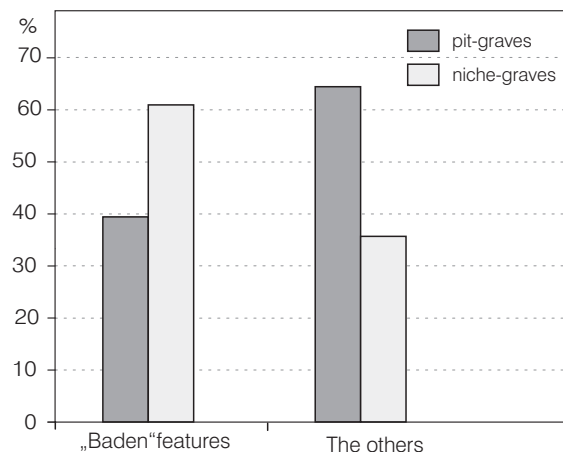


Fig. 8. The main types of grave construction in “Baden” and “non-Baden” features.

Złota-Grodzisko I, as is that of “baggy”-form vessels. As to Złota-Grodzisko I, the number of assemblages with flint implements is greater there (but not the number of artefacts in particular inventories) as well as the number of assemblages with amber adornments; on the contrary, the frequency of pendants made of animal bones and teeth and the frequency of shell beads are less. Spindle whorls were found only at Złota-Grodzisko I (grave No. 42/534) as well as the only stone axes (graves No. 17/I, 42/354, 43/355). Awls of bone were less numerous at this site.

The differences between these two sites also pertain to the type of burial: Although collective graves predominated at both sites, a slightly higher proportion is visible at Złota-Nad Wawrem (4 individual burials) compared to Złota-Grodzisko I (5 individual burials). As to the details of construction, the proportion of niche-type graves is greater at Złota-Nad Wawrem; stone pavements were also more frequent there.

It is interesting to compare the “Baden” with “non-Baden” graves. Whereas the collective burials and the niche-type construction seem typical of the first group, individual burials and pit graves predominate in the second group (Fig. 7-8), in which the presence of a red dye (ochre) and few traces of cremation have been observed as well (Grodzisko I).

The “Baden” inventories reveal a higher frequency of vessels in general (Fig. 9) and that of amphorae, bowls, mugs and “bag”-forms in particular. A similar tendency is visible in the case of other categories of grave goods, namely arrowheads and small flint implements, flint blanks, personal adornments of shell and of animal teeth as well as amber artefacts. In turn, lids are more frequent in the “non-Baden” assemblages and metal artefacts are associated exclusively with those inventories.

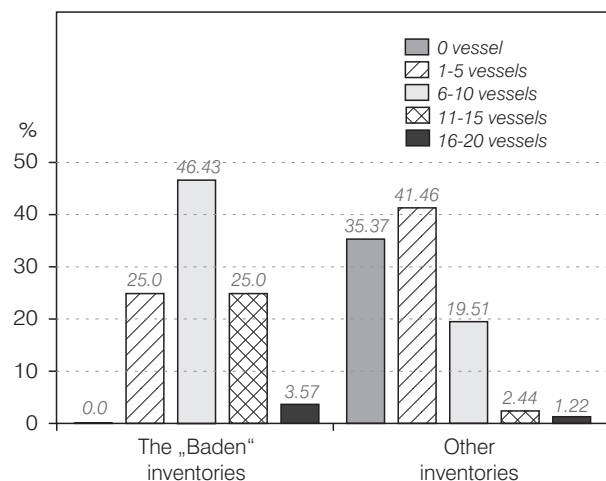


Fig. 9. The frequency of vessels per assemblage in “Baden” and “non-Baden” inventories.

Several differences between both sites at Złota, mentioned above with reference to the “Baden” assemblages, seem to be repeated in the case of “non-Baden” inventories. This statement applies to the more common presence of collective burials and stone-paved grave pits at Złota-Nad Wawrem. Amphorae, bowls, awls and pendants of animal bones and teeth are also more frequent at this site, whereas mugs and amber adornments predominate at Złota-Grodzisko I. As to other elements in grave inventories, the discrepancies are visible in both the groups of assemblages.

It is very interesting to compare the “wealth” of the graves. Comparisons were made for the purpose of this paper, using the system of ‘point scale’ proposed by several authors (KADROW/MACHNIKOWIE 1992, 66ff.; WŁODARCZAK 2006, 143). The results demon-

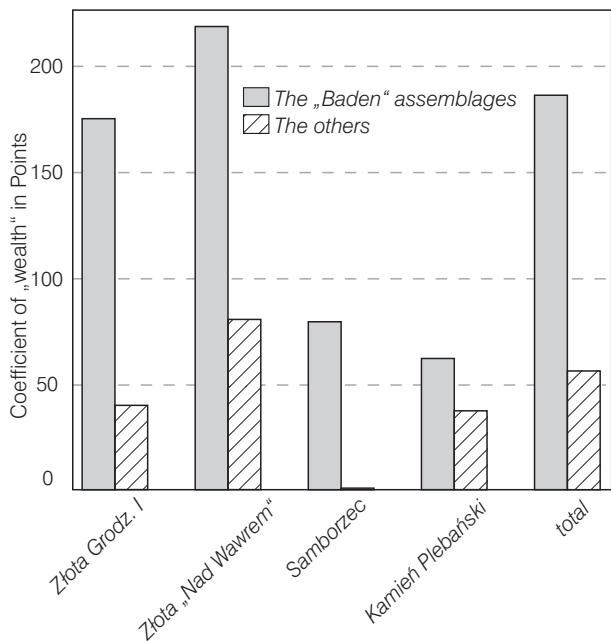


Fig. 10. Coefficient of “wealth” in “Baden” and “non-Baden” graves at different sites of the Złota Culture.

stated that the most “wealthy” burials were the “Baden” ones at Złota-Nad Wawrem, with the average index of “wealth” = 231.4 points, while this index for the “Baden” graves at Złota-Grodzisko I is 185.4 points. For “non-Baden” burials these indexes are 84.9 and 41.8 points, respectively (Fig. 10). So, the differences between both the groups of graves are more distinctly pronounced at Złota-

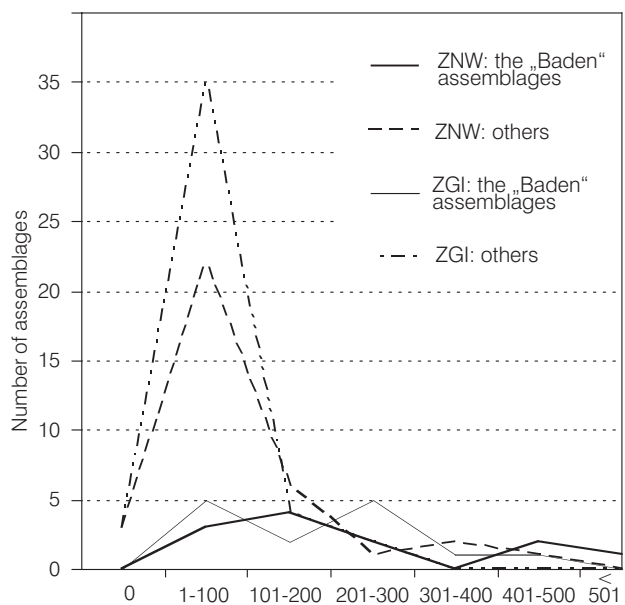


Fig. 11. Classes of “wealth” in “Baden” and “non-Baden” graves.

Grodzisko I. However, the “Baden” graves are much more “wealthy” than the “non-Baden” ones at both sites (Fig. 11). It is also possible to conclude that the “Baden” assemblages from both sites at Złota are more similar to each other than to “non-Baden” ones. This statement seems to be valuable in general for all traits analysed.

### The Spatial Arrangement of the “Baden” Elements

Analyses of distribution plans of graves from both of the sites at Złota have demonstrated that the “Baden” graves are dispersed over almost the whole area of these cemeteries, except for the north-eastern part in Złota-Grodzisko I (Fig. 12). The inequality of distribution is noticeable: They form several distinct concentrations; a few graves were located separately.

The linear arrangement of graves at Złota-Grodzisko I is clearly visible: They form a row oriented southwest-northeast in the southern part of the site. The “Baden” and “non-Baden” features do not seem to form separate enclaves, but are situated within the same concentrations.

Grouping all of the features together by the method of the “nearest neighbourhood” allows us to distinguish fifteen small, relatively compact concentrations of 2–7 items at Złota-Grodzisko I. “Baden” graves are located in seven of these (one to three graves). The most important agglomera-

tion is visible in the southwest and central-eastern parts of this site: there “Baden” graves were situated within three concentrations. Other graves were located between these zones, with rather regular gaps of about 55 m from each other. It is interesting that the “Baden” graves seem to be connected mainly with the largest concentrations of features. In four cases they seem to occupy a central place within a concentration. Of course, it is not possible to state, whether such an arrangement is the result of the chronological differences of the graves in question, or whether it was a deliberate attempt to express the hierarchical position of these graves.

The situation is rather similar at Złota-Nad Wawrem, where the “Baden” graves also formed three concentrations together with those of “non-Baden” features. However, their connection with the largest units is less visible.

Although the distances between the nearest “Baden” graves at Złota-Grodzisko I were double that of Złota-Nad Wawrem, the coefficients of dispersion<sup>16</sup> were similar for both sites (R = 0.47;

R = 0.50), with a slightly higher value for Złota-Grodzisko I. Thus, there we can observe a highly agglomerated pattern in the spatial distribution of “Baden” graves.

### Conclusions

“Baden” elements were considerably concentrated in very few sites that occupied a scattered area in the southeastern part of the Sandomierz Upland, at the southeastern boundary of the Złota Culture. Between this region and the region of regular Baden settlement (to the west of the Nida River) there is an “empty” area without any traces of the Baden Culture. Hence, the sites with “Baden” elements formed a kind of enclave, small but very well delineated.

Although not uniform, the “Baden” assemblages form an outstanding group with several common traits and are more similar to each other than to “non-Baden” ones. They distinguish themselves in terms of quality and quantity as well.

“Baden” elements were not, however, isolated from the outside world: They commonly appear with other cultural items, within the same assemblages or groups of features.

All of the facts described above – the very compact character of “Baden” elements, numerous common traits and their limited spatial range – allow us to suppose that these elements were not the result of simple influences. From the evidence cited above, it now seems that the relationships between the RPC and the ZC seem to be slightly different than hitherto presumed. “Baden” elements, which in many cases could be well distinguished from other grave goods, apparently played a specific role and also held a very special function. Perhaps as determinants of prestige? Or perhaps they served as a determinant of cultural identity? Or of social position? Several factors seem to point to such a possibility: the presence of imported vessels, the repetition of morphological characteristics and details of ornamentation, the relatively slight degree in their variability, and the connection with graves with several common characteristics (for example, “wealth”, location).

It seems that the connections between the RPC and the ZC were of “special value”: They seem to have been direct ones, fixed by several types of grave goods and corresponding with non-material, well-established cultural contents. There were, however, no widespread “influences” from the RPC to the ZC. Evidence for this could be the “empty” zone between the Baden Culture boundary and

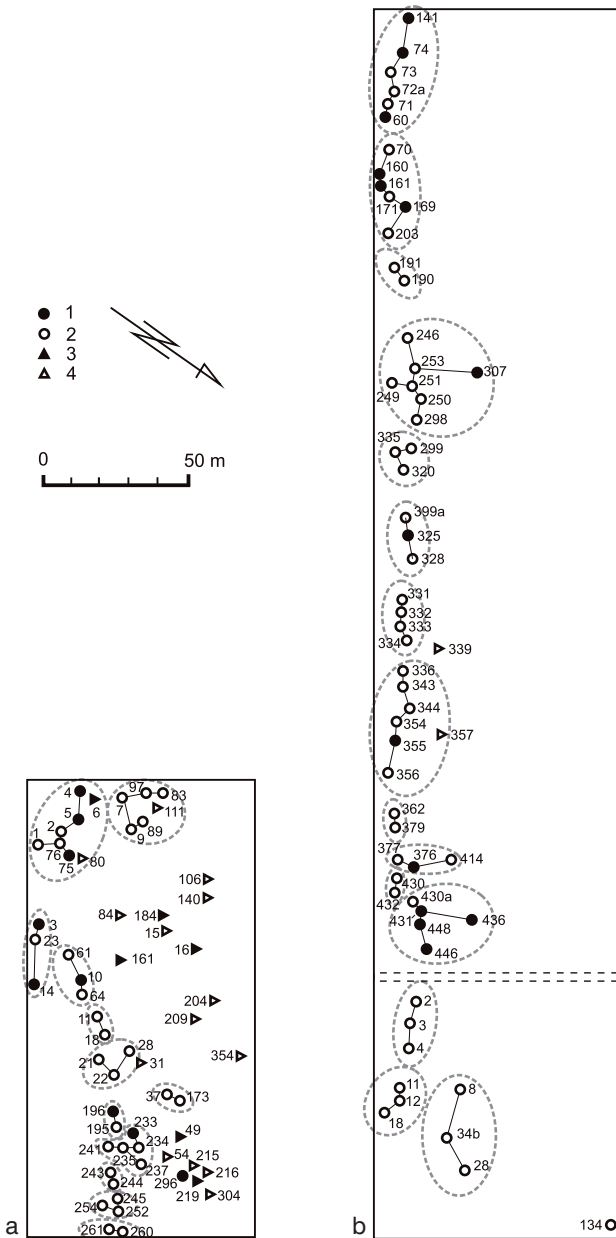


Fig. 12. Złota-Grodzisko I (a) and Złota-Nad Wawrem (b): plan of distribution of graves and pits belonging to the Złota Culture. 1 “Baden” graves; 2 “non-Baden” graves; 3 “Baden” pits; 4 “non-Baden” pits (after KRZAK 1976).

<sup>16</sup> Using Clark and Evans’ test (HODDER/ORTON 1976: 38ff.).

the southeastern part of the Sandomierz Upland. Such a scenario would be relatively conformable with SOCHACKI's earlier opinion about the one-way character of the relationships between both cultures: the RPC on the ZC, without reciprocation (SOCHACKI 1980, 175). Indeed, according to SOCHACKI, the problem consists in the inability to identify the influences of the ZC in the face of "specific complex character of the ZC" (SOCHACKI 1980, 175), but another hypothesis – concerning the lack of such influences – is also admissible.

The RPC was considered as "typical culture

periphery" of the Baden complex (SOCHACKI 1968, 33). In such a case, the area of the Złota Culture seems to constitute the most distant outskirts of this complex.

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### Abstract

This paper focuses on a re-examination of "Baden" elements in assemblages of the Złota Culture. Although mentioned in academic literature, these elements have never been treated as a whole. An attempt has been made here to analyse them in detail, with special attention paid to their contexts and the spatial relationships among them. Forty-eight vessels were selected and identified as "Baden" ones. They come from four sites situated on the Sandomierz Upland: Kamień Plebański, Samborzec,

Złota-Grodzisko I and Złota-Nad Wawrem (all in the Sandomierz district, Świętokrzyskie voivodship) and were connected mainly with grave assemblages. While analysing these assemblages, several common traits could be observed. We can also conclude that the "Baden" assemblages from both sites at Złota are more similar to each other than to "non-Baden" ones. Thus, a hypothesis about the special role of "Baden" elements in the Złota Culture should be proposed.

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## Corded Ware and Baden Cultures Outline of Chronological and Genetic Relations based on the Finds from Western Little Poland

*By Piotr Włodarczak*

### Introduction

In recent years studies on the chronology of the Corded Ware Culture (CWC)<sup>1</sup> in southeastern Poland were conducted mainly on the basis of new radiocarbon dates (MACHNIK 1999; WŁODARCZAK 1998; 2001; 2006; JAROSZ/WŁODARCZAK 2007). A number of new datings was also obtained for a local group of CWC burial finds in western Little Poland (“the Kraków–Sandomierz group”; Fig. 1). Yet, at the same time, no new information about the absolute chronology of the Baden Culture was provided. Thus, the question of the mutual chronological relations between the two cultures in the territo-

ry of Little Poland remains unresolved. The reconstruction presented below is a proposal, which differs slightly from the frequently proposed schemes that assume a long-standing co-existence of the CWC, Baden and the “TRB-Baden group” (for example, MACHNIK 1966; MILISAUSKAS/KRUK 1989; KRUK/MILISAUSKAS 1999). This proposal was formulated after the interpretation of the radiocarbon dates, taking the relative chronology into consideration. Thereby, it was also necessary to refer to chronological findings from other territories in Central Europe.

### The Absolute Chronology of the Beginnings of Corded Ware Culture Settlement

Radiocarbon dates clearly determine the age of the oldest dated CWC finds in Little Poland to the first half of the 3<sup>rd</sup> millennium BC. Today, however, a more detailed specification of the chronology is a very difficult task and is actually an attempt at an interpretation rather than a presentation of the established facts. The difficulty, first and foremost, is caused by the precision of the radiocarbon dating method itself and also by the character of the calibration curve. The oldest dated finds go back to 4200–4100 BP (apart from some exceptions, which will be discussed below); that age clearly falls on the “plateau” of the calibration curve: the years c. 2880–2580 BC (for example, MÜLLER 1999, 32; RAETZEL-FABIAN 2001, 15, 16). One can refer single datings either to the initial or final dates within this range, and the degree of probability will be equally high. Settlements dated by dendrochronology in Switzerland show that the CWC appeared in that territory during the last quarter of the 28<sup>th</sup> century (HAFFNER

2002). But this can only serve as an indication of the approximate dating (later than 2800 BC) of stylistically analogous CWC finds from other territories. This interpretation is taken into consideration in the chronological scheme presented here.

A separate problem is the lack of consistency in the results of radiocarbon datings for the CWC achieved in individual laboratories in southeastern Poland. There is a clearly older group of datings made in the laboratory in Kiev. In two symptomatic cases of dating samples taken from the same graves and analysed in two different laboratories, two significantly different results were obtained (Zielona, grave 3 and Miernów, barrow 2, grave 2; WŁODARCZAK 2006 a, 125, 126). Therefore, the few results obtained for chamber graves in Little Poland, referring to the very beginning of the 3<sup>rd</sup> millennium BC, must be treated with caution. Such an early date for these finds does not conform with the analogies observed in other finds of the Kraków-

<sup>1</sup> Abbreviations used in the article: CWC – Corded Ware culture, TRB – Funnel Beaker culture, GAC – Globular

Amphorae culture.



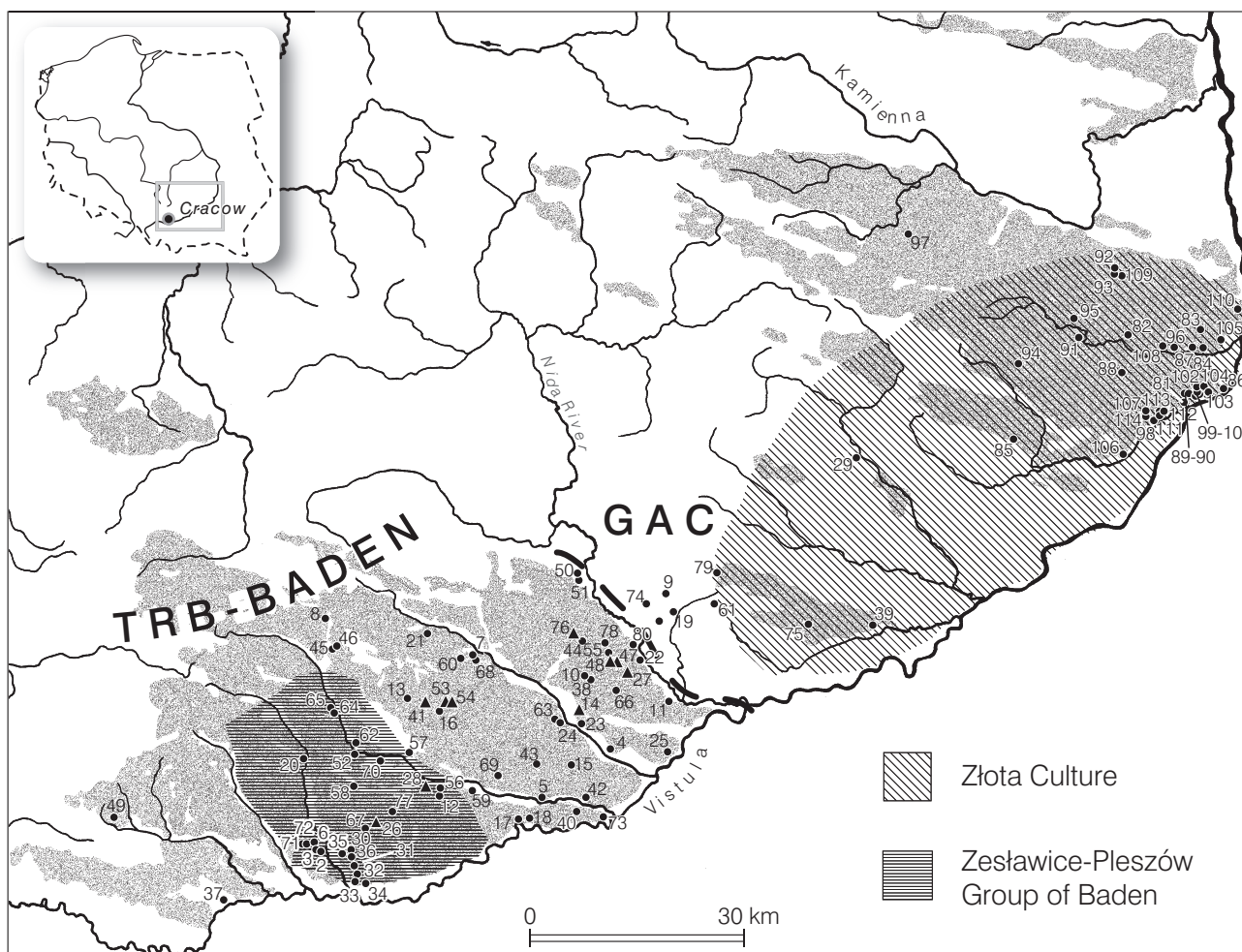


Fig. 1. Corded Ware Culture burial sites in western Little Poland (dots – flat cemeteries, triangles – barrows). Dotted area shows the loess soils. The interrupted line marks the southern frontier of Globular Amphora Culture settlement.

Sandomierz group, whose older phase is dated to c. 2700–2500 BC (another proposal: FURHOLT 2003; 2004). Today the beginning of CWC settlement on the Little Poland Upland can be dated – with a great degree of probability – no earlier than the middle of the 28<sup>th</sup> century BC.

Such an absolute chronology of the beginnings of CWC settlement in the Little Poland Upland is also based on the belief that its first phase preceded the age of the oldest finds of the Kraków-Sandomierz group. The finds from phase I consist foremost of the material found in the central barrow graves (MACHNIK 1979; WŁODARCZAK 2006 a), of which there are only a few (from western Little Poland, a maximum of six barrows and a few chance finds). The fact that the materials are chronologically different is supported both by their typology (the occurrence of amphorae that stylistically resemble the Thuringian [“A”] amphorae and of long blade knives) as well as by the type of sepulchral constructions (large, rectangular pits, oriented on a west-east axis). These ele-

ments display only a few similarities with the finds of the Kraków-Sandomierz group of the CWC. However, today it is very difficult to establish how the finds from phase I (which are connected with the definition of the pan-European horizon by J. MACHNIK (1966) are chronologically related to phase II (the chamber graves of the Kraków-Sandomierz group). In four cases (Gabułtów, Kocmyrzów, Kolosy, Koniusza), the chamber graves of the Kraków-Sandomierz group were dug into the mounds of the barrows with rectangular sepulchral constructions (associated with phase I). One <sup>14</sup>C-dating of the central grave of phase I from Gabułtów (Poz-9451: 4115±30BP) can – with the greatest degree of probability – be referred to the years c. 2860–2610 BC. Some close datings for the oldest chamber graves of the Kraków-Sandomierz group are also known (WŁODARCZAK 2006 a; JAROSZ/WŁODARCZAK 2007). It is, therefore, not possible to establish the distance in time (if any) that separates the beginnings of phase I and II of the CWC.

## The Absolute Chronology of the Zesławice-Pleszów Group of the Baden Culture and the Settlement in Bronocice

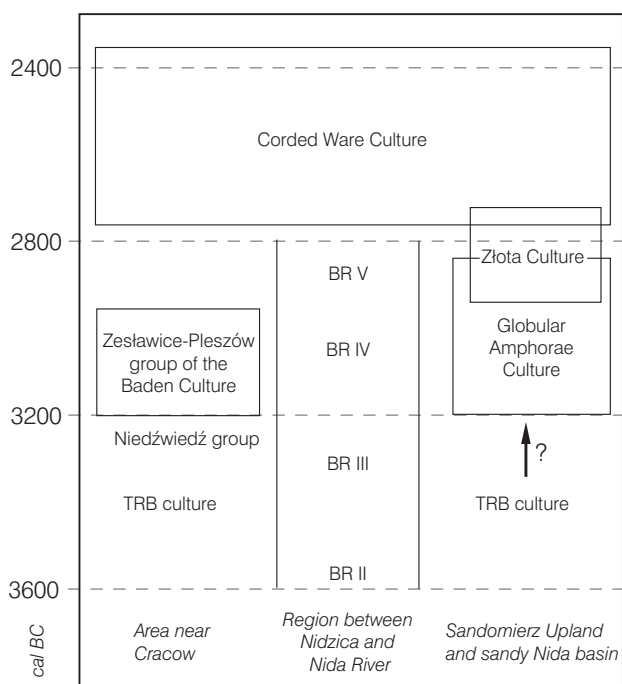


Fig. 2. Chronology of cultural phenomena in Little Poland during the 4<sup>th</sup> and 3<sup>rd</sup> millennia BC (c. 3600–2350 BC).

Thus far only four datings for the absolute chronology for the Zesławice-Pleszów group of the Baden Culture have been published (two are from site 17 in Kraków Pleszów and two are from Iwanowice, distr. Kraków). The finds from Kraków Pleszów are dated to 3330–2940 BC. They resemble classical finds of the Baden Culture (GODŁOWSKA 1986, 53, 54; 1989, 253). The finds from Iwanowice still remain unpublished. Two datings from that site, containing a considerable error, (KRUK 1980, 26) can be dated to 3350–2600 and 3020–2570 BC. Therefore, it is difficult today to outline the chronological borderlines for the settlement of the Zesławice-Pleszów group. Referring to the more numerous datings for the “southern” territories (Stadler et al. 2001) and the parallels between the finds from the vicinity of Kraków and Baden phases III–IV, after V. NĚMEJCOVÁ-PAVÚKOVÁ (1981), we can establish these borderlines as being within the range of 3350–2870 BC. The Baden Culture finds from the vicinity of Kraków have parallels with regional groups of Classical and late Classical Baden in Hungary and Slovakia, so they can most certainly be dated to the range quoted above. Following the observations above, it can be concluded that there is no basis for a synchronisation (even partial) of the settlement of the Pleszów-

Zesławice group with the CWC on the Little Poland Upland. There must be a clear chronological gap here (Fig. 2).

For more than a quarter of a century, the schemes based on radiocarbon dating concerning the Middle and Late Neolithic period in Little Poland have been constructed on the basis of the data from excavations in Bronocice, distr. Pińczów (for example, KRUK/MILISAUSKAS 1983; 1990). Five settlement phases were distinguished there, connected with the TRB (phases BR I–BR III), the “TRB-Baden group” (phases BR IV–BR V) and the phase connected with the Lublin-Volhynia Painted Pottery Culture. The absolute chronology of the particular phases is based upon a series of 28 radiocarbon dates. For the purpose of our discussion, phases BR IV and BR V are particularly interesting. According to the researchers working on the site, these phases date to 3100–2690/2510 BC (KRUK/MILISAUSKAS 1999, 174). Such a late dating of the final period of settlement in Bronocice (almost the middle of the 3<sup>rd</sup> millennium BC) is surprising in light of the periodisation of cultures belonging to the Baden cultural circle. However, it must be emphasized that – as in the case of the older phase of the CWC previously discussed – establishing such an exact date for the final period of settlement in Bronocice is a question of interpretation, and this goes beyond what the method of radiocarbon dating allows. All of the youngest <sup>14</sup>C-dates from Bronocice can – with an equal degree of probability – be referred to the 29<sup>th</sup> century BC or, for that matter, to the 27<sup>th</sup> century BC (WŁODARCZAK 2006 b). Due to stylistic links between the finds from phases BR IV and BR V, it is more correct – bearing the current state of knowledge in mind – to interpret the age of the younger phase to be approximately 2900–2800 BC. In light of the synchronisation with the “southern” finds, which will be discussed below, this is still a very late dating. In a similar way, the chronology of finds from pit 29/IX in Szarbia, distr. Kazimierza Wielka (Fig. 3; BACZYŃSKA 2001), should be determined. These finds are dated by means of a single <sup>14</sup>C-dating to c. 2920–2670 BC.

Accepting the results of radiocarbon dating of the TRB-Baden finds, we claim that they are a little younger than the finds of the Zesławice-Pleszów group. The final period of the latter group coincides (in the interpretation presented in this article) with the beginning of the CWC settlement. The number and quality of the available data are, however, insufficient to construct a reliable chronological scheme.

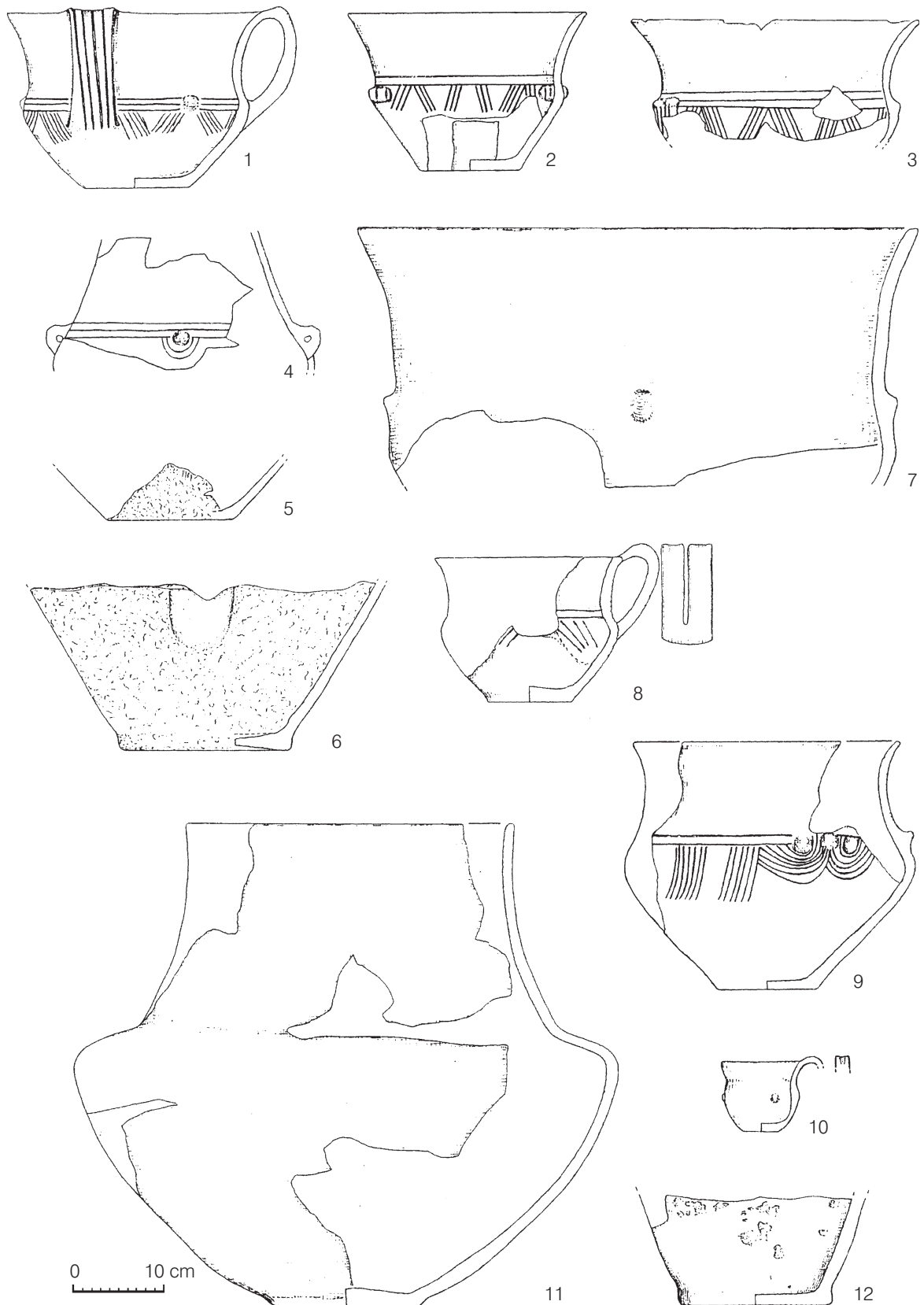


Fig. 3. Inventory of pit 29/IX from Szarbia (BACZYŃSKA 2001).

## The so-called “TRB-Baden” Group

The origin of the “TRB-Baden group” has long been a matter of controversy. Formerly, either its autochthonous roots (the TRB Culture) or its links with the Baden world were emphasized. Researchers working on excavations in Bronocice emphasized in various publications either the continuity of settlement (KRUK/MILISAUSKAS 1981; 1983, 272) or the fact that the finds from phases BR IV–V belong to the Baden Culture (MILISAUSKAS/KRUK 1989), finally deciding to distinguish the “TRB-Baden period” for the loess-covered uplands of western Little Poland (KRUK/MILISAUSKAS 1999). Summarizing, they claimed that “the basic cultural characteristics of that period (analyzed on the basis of the pottery ornamentation and manufacturing process) were influenced by the Baden cultural circle, more precisely, by its pre-Classical phase (the so-called “Boleráz”) and Classical phase. The assimilation and adaptation of these influences occurred in the context of a strong local tradition of the TRB Culture” (KRUK/MILISAUSKAS 1999, 174). On the other hand, the fact that the finds in Bronocice differ from those of the Zesławice-Pleszów group of the Baden Culture has never been questioned. It has always been clear that the origin of these two groups was caused by different mechanisms. The relative chronology of the finds from Bronocice does not, however, fully correspond with the results of the radiocarbon datings, and there is even a greater discrepancy between that chronology and the interpretation of the calibration of those datings discussed above – determining the length of the BR V phase until almost the middle of the 3<sup>rd</sup> millennium BC. To explain that (and this is the only feasible explanation), it must be assumed that the characteristics of the pre-Classical Baden Culture horizon “were continuing” for a long period of time on the loess-covered uplands in western Little Poland, in contrast to the situation observed in the Zesławice-Pleszów group (for example, ZASTAWNY 1999, 31). Stylistic analogies for the final phases in Bronocice (BR III–BR V) have been found within phases IA–IVA in the development of the Baden Culture (KRUK/MILISAUSKAS 1983, 272–274). As far as the style of the finds from that site is concerned, the prevailing characteristics are linked with the early and early classical horizon

of the Baden Culture. It is, therefore, difficult to resolve the problem of dating of the discussed finds to the first century of the 3<sup>rd</sup> millennium, which is suggested by the obtained radiocarbon dates.

Particularly notable is the relationship between the published finds from Bronocice and the late Neolithic finds from Moravia: the TRB and Jevišovice Cultures (with the frequently distinguished pre-Jevišovice phase). The basic analogy is the occurrence of Boleráz elements in the autochthonous environment of the TRB Culture. This process is not exclusively connected with Moravian territories, but also encompasses the territory of central Germany as well as Upper Silesia and Little Poland (BURCHARD 1973). A new style of pottery appears. It is exemplified by the recently discussed bowls of the Schöninger type (RAETZEL-FABIAN/FURHOLT 2006), to which a find from feature 5-B5 in Bronocice (KRUK/MILISAUSKAS 1983, 307, Fig. 22: 15) bears close resemblance. Such forms, as well as other similar bowls, replace older wide-mouthed funnel beakers. This tendency can be observed in the finds included in phase BR III in Bronocice. A number of other distinguishing characteristics of early Baden stylistics has already been presented in literature on the subject (KRUK/MILISAUSKAS 1983, 272 ff). To the beginning of the second half of the 4<sup>th</sup> millennium BC, side by side with the finds from phase BR III, we should date such finds as those from Niedźwiedź (BURCHARD 1973). Their appearance seems to indicate the close of the classical phase of the TRB Culture. They are only known from a very few sites in the territory of the loess-covered areas of western Little Poland<sup>2</sup>. The development of the Niedźwiedź group’s settlement in the territories in the vicinity of Kraków was disturbed by the appearance of a society belonging to the Baden Culture’s Classical phase (Zesławice-Pleszów group). However, in other territories we can observe a further evolution of the former group (phases BR IV–V), defined now as the “TRB-Baden group”.

Finds of Bronocice IV–V type have some analogies among those of the older phases of the Jevišovice Culture, represented by the finds from sites in Jevišovice (layer C; MEDUNOVÁ-BENEŠOVÁ 1981) and

<sup>2</sup> I also include the material from Kraków Wyciąże i Książnice Wielkie in the finds of Niedźwiedź type, although they are sometimes treated separately. The “Lengyel” and “Polgar” characteristics, which are a distinguishing criterion of the latter finds, cannot testify in favour of the hypothesis of a different origin of the Wyciąże-Książnice group and Niedźwiedź group (for an oppo-

sing view, see ZASTAWNY 1999). There is no evidence that would allow us to date the presence of the Wyciąże-Złotniki group’s settlement as far as the second half of the 4<sup>th</sup> millennium BC. The presence as such of the elements of Danubian cultures in the Boleráz horizon is justified by the dating of the beginning of the Proto-Boleráz horizon in the Carpathian Basin.

Grešlove Mýto (MEDUNOVÁ-BENEŠOVÁ 1973; 1977, 61ff), and phase Wachberg in Austria (RUTTKAY 2001). Nevertheless, both in the typology of forms and ornamentation there are clearly observable differences, including the lack of decorative motifs such as the “stab and drag” ornament (Furchenstich) and cord impressions. Instead, there are frequently occurring motifs in the form of grooves or jabs. The style of vessels from Little Poland, therefore, differs from the motifs belonging to the late phase of the Jevišovice Culture and also from those of the Bošáca group. Instead, it alludes to the material of the classical phase of the Baden Culture in Slovakia and Hungary.

A sepulchral feature recently discovered in Malżyce, distr. Kazimierza Wielka – a site located between the Nidzica nad Nida rivers, relatively close to Bronocice (TUNIA/WŁODARCZAK in print) – testifies to the existing links with the territory of Moravia. Most probably, it was a barrow with a central grave (Fig. 4). Later, graves of the Corded Ware and Mierzanowice cultures were dug into its mound (a dozen or so metres in diameter, completely eroded) and in its closest vicinity. The burial pit, approximately rectangular (3.25 x 1.45 m), was oriented on a west-east axis. There were no traces of a burial found in it, but only two vessels (Fig. 4: 1-2) and a flint trapezium. The vessels, whose handles (with a flat cross-section) rise above the rim, do not have any close analogies among TRB finds in Little Poland. Corresponding vessels are known from Moravia, for example, among the finds from layers C2–C1 in the settlement of Jevišovice (MEDUNOVÁ-BENEŠOVÁ 1981; their characteristic handles, however, do not rise markedly above the vessel rim), in the Drahanovice and Ohrozim phases of Moravian tombs (ŠMID 2003) and also in Hlinsko (PAVELČIK 1995, p. 135, Fig. 4). It can, therefore, be concluded that a round form of a barrow with a single grave occurred in Little Poland before the CWC society appeared. A new burial ritual appears in place of the megalithic rite that is characteristic of the TRB Culture. Unfortunately, today we still do not have a great amount of data about the chronology for the graves of the latter culture. The distinctive characteristics of particular megalithic burial grounds can be due to their chronological differences. It cannot be excluded that the later period in the development of the classical TRB phase can be linked with the graves with special stone constructions (for example, those from Kichary Nowe; KOWALEWSKA-MARSZAŁEK ET AL. 2006;

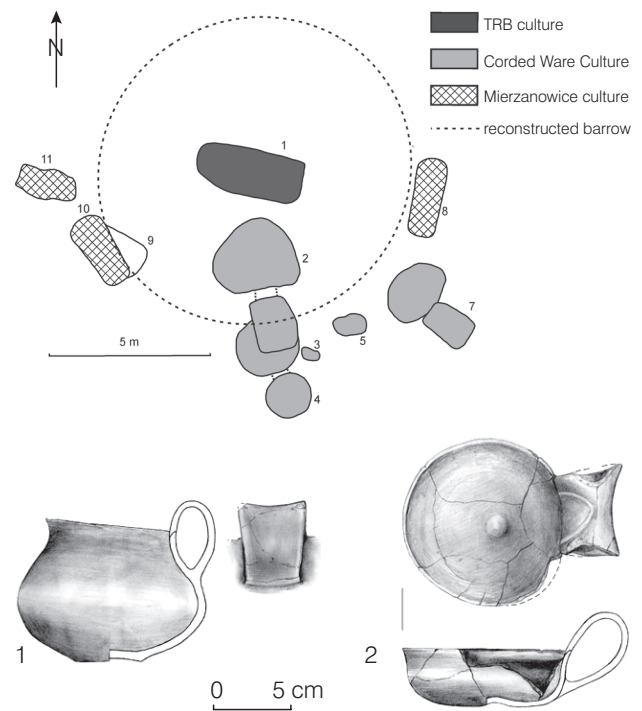


Fig. 4. Barrow 1 from Malżyce and the furnishings in grave 1 (TUNIA/WŁODARCZAK in print).

WŁODARCZAK 2006 b), which have some analogies in sites in Moravia. However, the data on the burial ritual of the late phase of the TRB Culture in Little Poland is still very sparse and does not allow us to draw any valid conclusions.

On the basis of the observations presented above, it can be concluded that the “TRB-Baden group” in Little Poland should be granted the status of a distinctive cultural group, corresponding with the Salz-münde, Bernburg, Jevišovice and Řivnač cultures (irrespective of the chronological differences existing between these cultures). It is, however, difficult to provide any definitions, due to the fact that not all of the finds from the late phases in Bronocice have been published, and that there are poor inventories from other, not very numerous sites. In recent years the number of the latter sites has been growing, one good example being the recently discovered sites in Kraków Ruszcza (BOBER 2004), Smroków (site 17) and Zakrzowiec (site 7). The majority of those finds, however, is connected more with the older phase in the development of the group in question (4<sup>th</sup> millennium BC). Finds dated to the first century of the 3<sup>rd</sup> millennium BC are still not numerous and difficult to distinguish.

<sup>3</sup> The author’s unpublished research.

<sup>4</sup> Unpublished research by the Krakovian Research Team

for Investigations of Motorways, under the supervision of T. Rodak.

## The Problem of Stylistic Links between the Corded Ware and Baden Finds

Attention has frequently been drawn to the stylistic similarities in pottery of the Kraków-Sandomierz group of the CWC and pottery of the Baden and TRB Cultures (for example, MACHNIK 1964; 1966; WŁODARCZAK 2006a; ZASTAWNY 2001). Even a special group of vessels has been distinguished – the “Książnice Wielkie” type, including forms decorated with raised incised cordons (MACHNIK 1964; 1966; ZASTAWNY 2001). Although in the case of the latter vessels, attention was drawn notably to the environment of the local TRB Culture, there were also analogies discovered in the layers of the settlement in Jevišovice (MACHNIK 1966, 123). Also, the ornamentation and technology of vessels from the areas located on the loess uplands in the vicinity of Kraków were linked to the complex of Baden cultures (MACHNIK 1966; WŁODARCZAK 2006a). In view of the chronological findings presented above, not even a very short concurrence of the Kraków-Sandomierz group of the CWC and Zesławice-Pleszów group of the Baden Culture seems possible. On the other hand, the chronological correlation between the CWC finds and those of the Bronocice type (BR IV-V) Szarbia remains unclear. In light of the available data, a short period of co-existence between the two groups is possible (c. 2850–2700 BC), although not very likely. The interpretation of radiocarbon dating is confirmed by the typology of the finds: In the final phases of the Bronocice finds we cannot see any influences of CWC stylistics, nor can we see any elements characteristic of the final period of the Baden cultural circle.

The Kraków-Sandomierz group of the CWC has a specificity of its own, which distinguishes it from other neighbouring groups with regard to the characteristics of its burial ritual and pottery (WŁODARCZAK 2006a). Within that group we can distinguish local subgroups, with a clearly observable distinction between the finds from the Sandomierz Upland and the loess uplands of western Little Poland. In the pottery of the latter areas, there are observable elements of the “southern” cultures, which are the focus of our interest. These elements can be distinguished both in the Batowice subgroup, that is, in the vicinity of Kraków (where they are a dominating component), as well as in the subgroups of Proszowice and Żerniki, situated farther north (where they accompany other components). Among the most important of these elements are:

- Specific forms of amphorae, beakers and jugs with a clearly distinguished funnel-shaped neck and an egg-shaped double-coned or pear-shaped belly (Fig. 5). They resemble jugs and pot-like vessels known from cultures, like Jevišovice and Makó-Kosihy-Čaka.
- Characteristic corded decoration of vessels, using motifs of triangles, zigzags, cross-hatching and herringbone (Fig. 5: 1, 3, 4, 7, 8). The motifs of “suspended triangles” occur on finds from the loess uplands in western Little Poland, but not on the Sandomierz Upland.
- Likewise, raised incised cordons occur exclusively on the loess uplands of western Little Poland (on amphorae, jugs and beakers; Fig. 5: 2, 5, 6, 10). They are only infrequent motifs in the southeastern group of the TRB Culture or in the Zesławice-Pleszów group of the Baden Culture. As far as the published finds from Bronocice are concerned, we only know that there were some decorations resembling those discussed above. In each of the groups distinguished here, different types of applied decoration were used. However, analogous cordons are also very frequent in the Cham–Jevišovice–Vučedol horizon. We can also find them in the Baden Culture south of the Carpathian Mountains and in the Ezero Culture (see, for example, NĚMEJCOVÁ-PAVÚKOVÁ 1981, 270–272).
- The appearance of vessels with textile impressions on the belly (mostly in the lower part). We know of c. 20 such cases on the Little Poland Upland, exclusively from the sites in the loess uplands of western Little Poland (Fig. 5: 2, 7, 10, 11). Textile impressions also occur on vessels of the Jevišovice Culture (that is, the younger phase, represented by layer B in the settlement in Jevišovice), Bošáca, Rívnač, Makó-Kosihy-Čaka, Kostolac, Cham, Goldberg III and Wartberg (for example, RUTTKAY 2001, 79; SCHALK/BÁTORA 1997, 189–191; SCHLICHTERLE 1999, 39; VOKOLEK/ZÁPOTOCKÝ 1990, 36; Fig. 6: 15, 16). They also occur in many later cultural groups, but they are not known in the preceding earlier Late Neolithic cultures on the Little Poland Upland (in GAC, Baden Culture and TRB).
- Among the vessels mentioned in (1), we can occasionally observe the custom of producing carefully finished vessels with a highly polished exterior, especially in the case of beakers and jugs (Fig. 6). This tendency can be traced to the Carpathian Basin and the Balkans, where some types of vessels are also carefully finished, probably in imitation of metal forms. The vessels involved in those regions are mostly jugs and bowls. Some outstandingly executed forms are found, amongst others, at sites of the Vučedol and Ljubljana cultures as well as the Makó-Kosihy-Čaka Culture. Such vessels

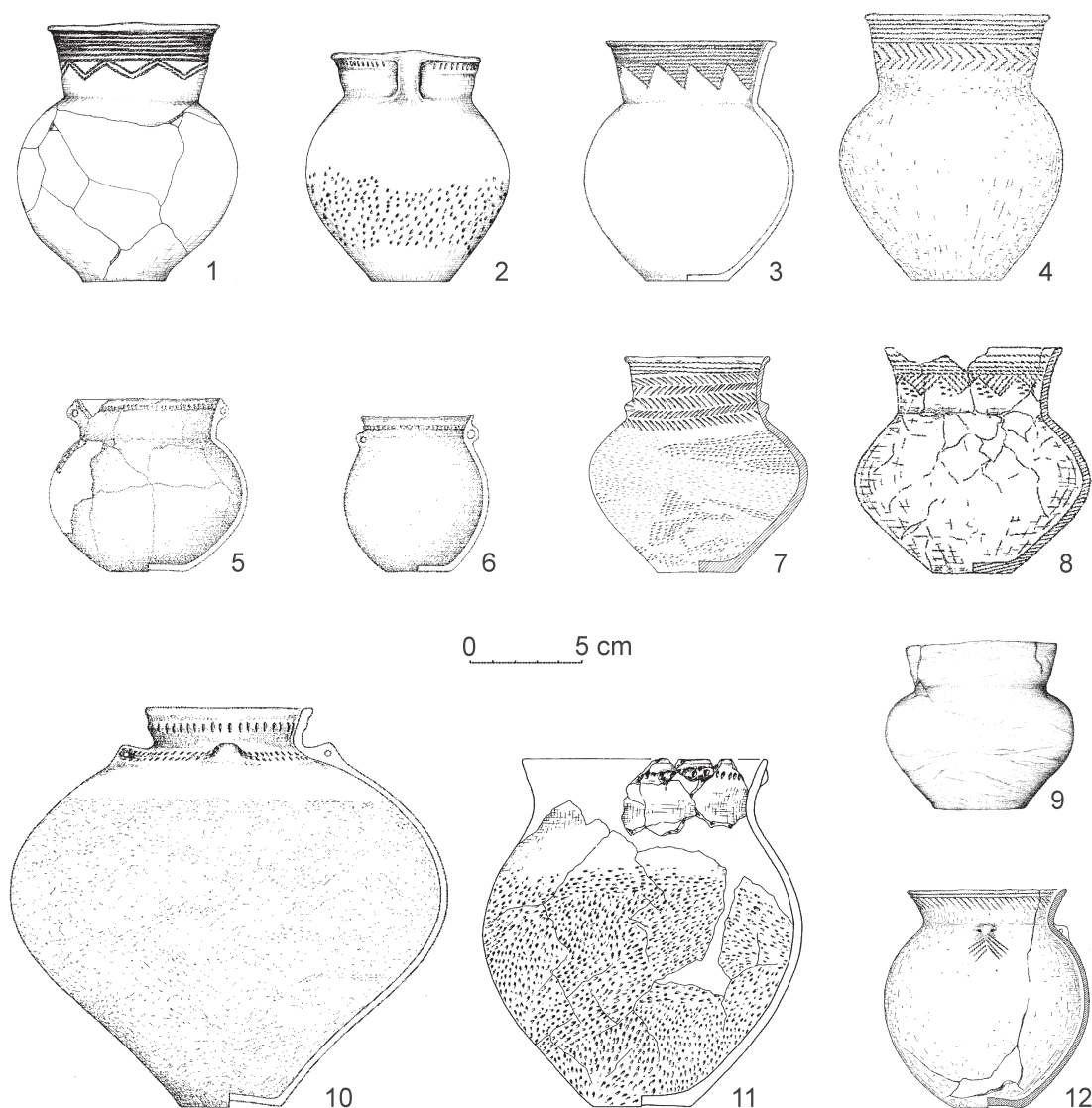


Fig. 5. Selected vessels of the Kraków-Sandomierz group of the Corded Ware Culture in the loess uplands of western Little Poland.

also occur in burial inventories, for example, in a barrow from Neusiedl am See (RUTTKAY 2002, 166, Fig. 4: 1–3). Greek and Anatolian forms must have served as remote prototypes for the jugs in those regions: the so-called *tankards*, known from the first half of the 3<sup>rd</sup> millennium (for example, MELLINK 1986, 144, Pl. 16 and p. 145) and later imitated in the early Bronze Age in Central Europe.

- The same direction of influences can possibly be linked with the presence in the Kraków-Sandomierz group of the CWC of the ornamentation consisting of specific cord impressions (Fig. 6). Such a decorative technique can be observed in the case of some of the artefacts, most from the

loess uplands in western Little Poland, in other words: from the southern part of the Little Poland Upland, settled by the Baden Culture. In these territories, impressions of right-handedly twisted cord impressions prevail (their negatives on a vessel show the converse: left-handedly twisted cord impressions). A different situation can be observed in the CWC in other areas of the territory in question as well as in the Złota Culture, where left-handedly twisted cord impressions clearly prevail (WŁODARCZAK 2006a, 83, Tab. 31). An additional distinctive characteristic is the presence in the loess uplands of western Little Poland of vessels decorated with the impressions of a very fine, tightly twisted cord (1–1.5 mm thick) (Fig. 6). Some vessels of the Złota Culture (particularly



Fig. 6. Beaker from a grave of the Corded Ware Culture in Bronocice. Photo by E. Włodarczak.

bowls and small beakers) are similarly decorated. This decorative technique has an analogy in the “stab and drag” technique (*Furchenstich*) and in examples of using a fine cord for decorating in the Carpathian Basin.

Therefore, it can be supposed that the society of the Kraków-Sandomierz group of the CWC found itself close to the northern frontier of influences from the south European cultural environments. CWC groups in Bohemia and in Central Germany seem to have occupied an analogous position, as similar changes in the style, ornamentation and technology of their artefacts can also be observed. While that process exerted an even greater influence upon the characteristics of pottery in the Moravian group of the CWC, the most important culture-creating environments seem to be the late Baden and post-Baden groups (in the chronological horizon of *Jevišovice B–Vučedol–Cham*). However, it must be emphasized that the elements mentioned above do not prevail in the stylistics of the vessels of the Kraków-Sandomierz group, and they occur only sporadically in the territory of the Sandomierz Upland. Nevertheless, it is due to those elements that the finds from the vicinity of Kraków are distinct from other finds belonging to that cultural group. Neither are those

elements reflected in any differences in the burial ritual nor in the specificity of non-pottery artefacts anywhere.

Typological analogies show that it is necessary to link the elements of the Kraków-Sandomierz group of the CWC not with the environment of the Baden Culture, but instead with other “post-Baden” cultural groups. The presence of the latter cultural groups has not been confirmed in the territory of the Little Poland Upland thus far (the youngest stage is limited to the finds like *Bronocice IV–V*). Therefore, contact of the CWC society with the territories of Moravia as well as Slovakia must have played a significant role.

The stylistic links in the CWC mentioned above concern the finds included in the Kraków-Sandomierz group. Only a few finds from phase I are vessels with stylistics related to the so-called Thuringian amphorae. However, they have a specific, and in the context of our discussion, very interesting ornamentation (Fig. 7). It consists of bands filled with all kinds of lattice or ladder motifs, sometimes with additional motifs of triangles, zigzags, incisions and jabs. This kind of ornamentation is also present on some vessels of the *Złota Culture* (for example, KRZAK 1970, 36, Fig. 24b), but it is not found in the case of earlier Neolithic finds from Little Poland. Such ornamentation occurs at the turn of the 4<sup>th</sup>



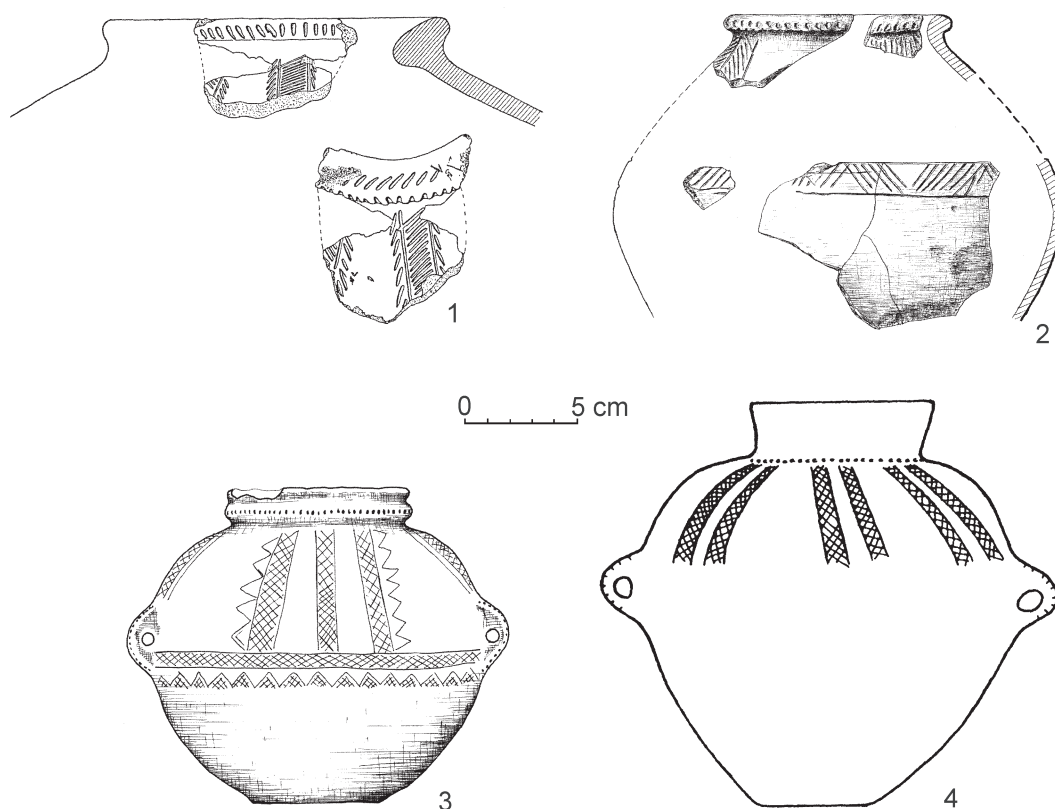


Fig. 7. Amphorae from central barrow graves of the Corded Ware Culture.

to the 3<sup>rd</sup> millennium in the Carpathian Basin (for example, NIKOLOVA 1999, 223, Fig. 9.6) and also among finds of the Baden and Jevišovice cultures (for example, MEDUNOVÁ-BENEŠOVÁ 1972, Taf. 61 ff). In the 3<sup>rd</sup> millennium BC a number of examples

is provided by material of the Jigodin type in Transylvania (BERTEMES 1998, 196, Abb. 2). It is possible that the appearance of such ornamentation in the CWC also testifies to links of the Little Poland CWC with southern territories.

#### The Złota Culture in the Context of the Links of Little Poland with Southern Territories

In the context outlined above, the phenomenon of the Złota Culture is particularly notable. Its finds come from the northern and central part of the Little Poland Upland. Researchers have often emphasized its “syncretic character”, and among the cultural environments that influenced its formation they have also mentioned the Baden Culture (for example, BUCHVALDEK 1973, 51; KRZAK 1961, 155; 1976). At present, the southern frontier of the Złota Culture is specified by the cemetery in Książnice, distr. Pacanów. It is located only a short distance from the sites in Bronocice, Szarbia and Książnice Wielkie (to the northeast). The series of radiocarbon dates obtained for the Złota sites (KRZAK 1989; ŚCIBIOR 1993) determines their chronology in the first half of the 3<sup>rd</sup> millennium BC (WŁODARCZAK 2001, 106; 2006, 129). Already at the very beginning, the conclusion can be drawn that the finds of that culture are either somewhat older than or

contemporary with the oldest CWC finds. A greater number of Baden elements observed in their pottery style constitutes one of the differences between the Złota and CWC Cultures in the Little Poland Upland. Among other major distinguishing characteristics of the Złota Culture are: a specific burial ritual, prevailing links to the GAC in the pottery stylistics, differences in the availability of raw materials and technologies for flint working as compared to CWC, and different characteristics of non-pottery finds occurring in burial inventories (a high frequency of amber artefacts is particularly notable). A new characteristic in burial rituals in Little Poland is the chamber construction in graves, differing in details from the typical construction of the graves belonging to the Kraków-Sandomierz group of the CWC. There is a prevalence of collective graves, although occasional single graves occur as well. This characteristic is connected, on the one hand, with



Fig. 8. Baden or Baden-like vessels from graves of the Złota Culture.

the dominant role of the GAC in the origin of the Złota Culture, and, on the other, it could be a syndrome of the period of time preceding the appearance of the CWC. Collective graves are also present in various parts of the Baden Culture complex as well as in Little Poland (such a feature is known from Bronocice; KRUK/MILISAUSKAS 1981, 79). They occur only sporadically in the CWC (here excluding the more frequent “twin graves”). Thus, it can be concluded that the burial ritual of the Złota Culture crystallized before the period of domination by the CWC burial characteristics in Central and Northern Europe. It must, therefore, have been the late period of settlement of the Baden cultural circle in the Little Poland Upland. Contacts between the Złota Culture and southern territories are confirmed by the characteristics of its pottery (Fig. 8). Firstly, the decorative motif of grooved lines should be men-

tioned, which are characteristic of the Baden circle. It occurs primarily on amphorae, jugs and cups belonging to the Złota Culture. Radiating grooved lines are often copied by means of cord impressions (Fig. 8: 1). A typical element of the Baden Culture are “roller-like” handles with transverse or horizontal incisions or grooves, protruding in the form of a characteristic thickening above the rim. They are an intercultural element, occurring throughout the vast territory of the Carpathian Basin, and they are widespread in the Baden Culture as well (NĚMEJCOVÁ-PAVÚKOVÁ 1981, 274; 1991, 72). Another frequent characteristic is the occurrence of groups of small knobs on the edge of the rim, often observed on Złota bowls (Fig. 8: 2). This element is also known in the Classical phase of the Baden Culture. A very probable link to the latter culture is also the presence of footed beakers (Fig. 8: 4; BUCHVALDEK 1973,

52), known in sites in Hungary (BANNER 1956, 151, Taf. CXIV: 1–7).

Further, the technological distinctiveness of the Złota Culture pottery in comparison with the CWC pottery is worth drawing attention to. It is seen in the frequent use of large amounts of sand and crushed stone inclusions and a greater differentiation in the wall thickness of vessels (with the occurrence of thin-walled examples, less than 5 mm in thickness). These characteristics have their analogies foremost among the GAC finds. However, the occurrence of crushed stone is also characteristic of pottery from the Baden circle (KRUK/MILISAUSKAS 1983). The use of this kind of temper, therefore, precedes the appearance of the CWC finds in the entire region of the Little Poland Upland.

The first researcher who drew attention to a considerable number of the Baden characteristics in the finds from Złota was M. BUCHVALDEK (1973). He referred to a previously formulated opinion of Z. KRZAK (1961, 155), which granted only marginal significance to contacts with the Baden Culture in the emergence of the Złota Culture. Particularly noteworthy is the distinctiveness of “Baden” characteristics in the Złota Culture from “southern” elements, as found in the case of the Kraków-Sandomierz group of the CWC. They seem to have an older chronology, synchronised with the late phase of the Baden Culture. This is due to the fact that the stylistic characteristics of the Złota pottery have analogies in finds of the phases Baden III and IV in Slovakia and Hungary. It can, therefore, be assumed that the Złota Culture has an older chronology than the finds of the CWC in the Little Poland Upland. Radiocarbon dating further confirms the above reconstruction. By means of <sup>14</sup>C dating, it is possible to estimate the age of Złota graves at approximately 2900–2700 BC. The younger period in the development of the Złota Culture would then be contemporary with the older phase of the CWC in the Little Poland Upland. This is a very interesting interpretation indeed. As a result, we gain an image of gradual changes in the GAC environment, leading to the origin of the Kraków-Sandomierz group of the CWC. The first stage of that transformation

proceeded while there was contact of communities of the GAC in Little Poland with the Baden Culture. It cannot be excluded that during the period of development of the Złota Culture, Baden settlement still continued – contemporaneously – in the loess areas of western Little Poland (for example, finds such as Bronocice IV–V and possibly also the Ześlawice-Pleszów group). This would be the easiest explanation for the presence of Baden elements in the Złota Culture. Moreover, another question becomes important: How did the characteristics of the CWC, as they are observed in the pottery of the Złota Culture, emerge before the appearance of the CWC in Little Poland? There are two possible answers: (1) the CWC settlement had already existed in neighbouring territories, or (2) those characteristics came, together with Baden elements, from the “southern” territories. Owing to its early chronology, the origin of the Złota Culture is an interesting problem in the perspective of studies on the origin of the CWC complex in Europe. The appearance of the CWC characteristics in the GAC in the Little Poland Upland could have derived from its contact with the Baden circle. Namely, the presence of the new characteristics in the Baden Culture would have been caused by the growing role of the Pit Grave Culture and the appearance of new cultural groups in the Carpathian Basin. It would be worth the while to test this hypothesis.

M. BUCHVALDEK presented the elements occurring in the ceramic finds of the CWC of Central Europe that were clearly of the “southern” origin (BUCHVALDEK 1997). According to him, it is possible to distinguish the phases in which they appear consecutively in the CWC, TRB and Early Bronze Age cultures. Further, these influences appeared as early as the fully formed CWC. Their older phase seems to correspond with the process of the appearance of “southern” elements in the Kraków-Sandomierz group as presented in this article. The process of origin of the Złota Culture has an older chronology. Thus, the so-called “southern influences” must have been present in the oldest phase of the CWC on the Little Poland Upland as well.

## Conclusions

In the light of the observations made above, it must be assumed that the finds belonging to the Kraków-Sandomierz group of the CWC and to the Ześlawice-Pleszów group of the Baden Culture are not contemporaneous. The chronology of the complexes such as Bronocice IV–V remains a difficult question to resolve. In the case of those complexes, the stylistic analysis of the finds is not confirmed by

radiocarbon dating, as the dates are younger. Even if the results of the radiocarbon dating were to be accepted, the period of co-existence of the societies belonging to the CWC and “TRB-Baden group” must have been very short.

Yet, the stylistics of the CWC finds from the vicinity of Kraków was influenced by the “post-Baden” environment, in other words, by the cultural groups

contemporary with the development of the classical phase of the Vučedol Culture. As far as the territory is concerned, the closest to the Little Poland complexes is the Jevišovice Culture. Still, there are no finds that could be linked to the classical stage of its development (Jevišovice B) have been discovered in southeastern Poland so far. However, the increasing intensity of contacts fostering cultural development with the territory of Moravia can be observed from the beginning of the mid 4<sup>th</sup> millennium BC (Boleraž) through similar cultural changes in the TRB.

The presence of the characteristics shared with the groups belonging to the Vučedol–Řivnac–Jevišovice horizon is a factor that determines the distinctiveness of the southeastern part of the complex of cultures with corded ware. Thanks to that, the elements characteristic of the Early Bronze Age societies in the Carpathian Basin and the Balkans begin to appear in that territory.

When analyzing the burial ritual of the Late Neolithic societies in the Little Poland Upland, it can be stated that many characteristics of the CWC burial

ritual appeared in the course of the two preceding periods: The first is linked with the phase of “Badenisation” of the TRB society; the second, with the Złota Culture and with a scarcely known late phase in the development of the Baden circle in the Little Poland Upland. It seems that a new interpretation of the Złota finds will play a great role in creating a model of the origin of the CWC in the Little Poland Upland. New characteristics of the burial ritual (including the elements resembling the CWC burial ritual) as well as the “Baden” characteristics of the pottery probably have a chronology that precedes the oldest CWC horizon in the Little Poland Upland.

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#### Abstract

The question of the mutual chronological relations between Corded Ware and Baden Cultures in the territory of Little Poland remains unresolved. In the light of radiocarbon dates and typological observations, it must be proposed that the finds belonging to the Kraków-Sandomierz group of the Corded Ware Culture and to the Zesławice-Pleszów group of the Baden Culture are not contemporaneous. The style of ceramic finds of the Corded Ware Culture found in the vicinity of Kraków was influenced by “post-Baden” cultural groups contemporary with the development of the classical phase of the Vučedol Culture. The presence of characteristics shared with the groups be-

longing to the Vučedol–Řivnac –Jevišovice horizon is a factor determining the distinctiveness of the southeastern part of the complex of cultures with Corded Ware. It can be stated that many characteristics of the Corded Ware Culture’s burial ritual appeared in the course of the two preceding periods: the first is linked to the phase of “Badenisation” of the Funnel Beaker Culture; the second to the Złota Culture. The cemeteries of the Złota Culture contain new characteristics in burial ritual as well as “Baden” characteristics in the pottery, thus presenting a chronology potentially preceding the oldest horizon of the Corded Ware Culture in the Little Poland Upland.

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# The Earthen Long-Barrow of Džbán, Moravia, Czech Republic and its Implications for the Interaction Between the Nordic Funnel Beaker and the Southern Baden Culture

By Maximilian O. Baldia, Matthew T. Boulanger, Douglas S. Frink

## Introduction

Burial mounds throughout the world often seem to exhibit similarities leading to theories of diffusion, however, scrutiny reveals considerable variance. Indeed, individual cultures have a variety of burial practices and associated forms of architecture. It follows that even in the same culture burial mounds are not necessarily designed as predetermined uniform units of architecture (cf. DEHN ET AL. 1992; 1995; 2000; JØRGENSEN 1988; ZICH 1992; 1994; 1995). This is especially the case in Neolithic or Copper Age societies. Unfortunately, much of the archaeological research has failed to address this complexity and individual architectural uniqueness by trying to lo-

cate spectacular artifacts, concentrating on pottery, and showing merely occasional concern with only the most obvious architectural features.

To determine if a complex construction history exists in the area of TRB/Baden-Boleráz overlap (BALDIA ET AL. this volume), we developed and implemented a problem oriented research design for Long-mound 1, in the Džbán burial mound cluster of Náměšť na Hané, Olomouc County, Moravia, Czech Republic. The results illustrate the uniqueness of the long-mound, while indicating architectural and ritual similarities and differences when compared to other tombs within Moravia and beyond.

## Excavation/Research Design

In 2000 the burial mound cluster at Náměšť na Hané- Džbán was discovered by Dr. MIROSLAV ŠMÍD, head of the Moravian Cultural Heritage Office in Prostějov. This cluster is located near several other tomb groups and about 2 km northeast of the oldest known Central European Neolithic/Copper Age stone-walled hilltop earthwork of Rmíz u Laškov (BALDIA ET AL. this volume, Fig. 3). In 2001 the Czech-American Research Program (CARPRO) was under the impression that the organization was going to excavate the largest long-mound (ca. 50 m or longer), located on the south side of the tomb cluster (ŠMÍD 2004b, Fig. 2)<sup>1</sup>. However, ŠMÍD eventually began to express uncertainty about this feature's antiquity. Without full knowledge of the excavation's target mound, we developed a research design in autumn of 2001 (BALDIA ET AL. 2002). We decided the American contribution must complement traditional Czech research and excavation

methods. Since sufficient excavation data was available to understand the relative chronology and major features of Moravian TRB mound construction, the main objective had to be the delineation of the construction and degradation history (taphonomy) within and around the mound.

Since mounds are primarily composed of soil, the approach necessitated an emphasis on soil science, such as the one originally tested at Watson Break, a 5400–5000 year old US mound complex (SAUNDERS ET AL. 1997; FRINK/DORN 2002). In addition aerial photographs, GIS and GPS technology, along with a walking survey needed to be applied to ascertain the relationship of the mound to numerous other TRB burial grounds, hilltop wall and ditch earthworks, and lowland “open air” sites without earthworks.

In developing the research design we also made use of the architectural and spatial analysis of nearly 5000 tombs from the TRB and Wartberg Cultures

<sup>1</sup> We have left the mound in question out of the plan (BALDIA ET AL. this volume, Fig. 10).





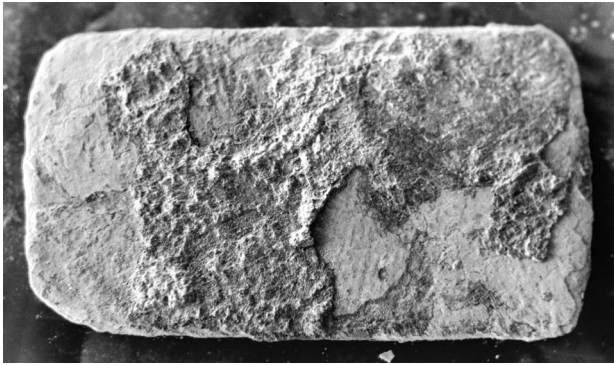


Fig. 2. The copper celt with textile pseudomorph (photo: Baldia).

portunity to scientifically sample this pseudomorph to determine whether the textile was wool or flax and if it retained dye molecules from textile colorants was lost. We emphasize this, because the tragic loss could have been prevented if archaeologists would be more familiar with the material analysis methods described by JAKES AND HOWARD (1986) over 20 years ago.

In accordance with our plan, the number and location of the additional 1 m<sup>2</sup> excavation units were opened in accordance with the need to clarify the stratigraphy and features encountered. This and the use of trowels, brushes, dental tools, water sprayers and careful screening of all soils led to additional discoveries in the field and the laboratory.

During the excavation, nine features were initially thought to be possible burials and recorded as such, but laboratory examination indicates that we can only be certain of two. One of those was completely destroyed, resulting in the identification in the field of “Burials 1, 7, and 8”). The other was the expected “central” or “primary” burial (Burial 9), discovered, unearthed and documented on the last day of the excavation by BOULANGER (Fig. 3, 1–3). It was located within an unusual mound- or chamber-like feature that also housed the other burial (Burial 8). However, unlike known mounds or chambers, the feature consisted of packed carbonate enriched clay, suggesting a rather unique, water-, looter-, and weathering-proof construction. The material and construction method may be related to clay packing associated with some megalithic chambers - an idea that needs further investigation. Within this clay feature, a ritually “killed” cremation urn and other burial goods were found.

The pottery (Fig. 3, 4, 6) of the burial is assigned to ŠMÍD’s TRB IIA, i.e. the Drahanovice Mound Building Phase, which is also considered part of the Baden-Boleráz Phase (Boleráz Ia–b) (BALDIA ET AL., this volume). The urn is an undecorated funnel beaker with arc- or n-shaped grips similar to the recon-

structed pot from the “central grave” of Luděrov-Užlíbku (ibid.). Later laboratory analysis of the soil matrix from within the urn by BOULANGER yielded a negative textile impression of which a positive latex copy is shown (Fig. 3.5).

Near the edge of the mound, a low stone enclosure or “stone knee wall” could be observed during the excavation. Close to the mound’s proximal end the senior author observed two large stones protruding from the rubble, which are deemed to the eastern end of the enclosure. The long-sides of the enclosure were in part defined by large sub-megalithic stones encountered in several excavation units, but they were not traced for their entire length. The western or distal end of the enclosure is not clearly definable, but the maximum extent may be indicated by several small stones. Consequently, one cannot state with certainty that the enclosure was rectangular or trapezoidal. One can assume a rectangle of 8 x 4 m (ŠMÍD 2004, 96, 107), or more conservatively, a rectilinear enclosure with a length of ca. 11–13 m and a width between 5–6 m. Furthermore, Excavation Unit N103/E99 exhibits a slight outward curve in the northern long-side, which is due to down-slope slump (Fig. 1).

Some of the enclosure’s large stones were placed upright, but overall the impression is that the stones remotely resemble drywall construction similar to the horizontally placed stones between megalithic uprights of megalithic chambers, megalithic mound enclosures, and “masonry” chambers found in other regions of the TRB. No evidence of a binding material between the rocks could be demonstrated, although such material has been observed between the “drywall” stonework that was carefully prepared to fill the gaps between the megalithic uprights of TRB tombs. Nonetheless, our excavation methods resulted in one more insight related to the prehistoric wall construction. A probable gravel wall footing turned up underneath the enclosure’s stones. This feature is remarkably similar to modern construction methods for stone walls.

There were two other unexpected discoveries. One was the cast of a reptilian or amphibian eggshell, which may have been part of the burial goods. Of course, it could simply have been added later by a burrowing animal, but Šmíd was not aware of any modern species in the regions that would lay such a large egg. The second was a pink sponge-like substance. Analysis at the Ohio State University Research Laboratory by CHRISTEL BALDIA showed it to be an organic object that was not otherwise identified.

From the mound and an additional test pit beyond came several worked lithic artifacts, including an obsidian blade and a fragment of another. Obsidian is thought to have been a trade or exchange item since the closest known obsidian sources occurred in Slovakia or Hungary.

## Construction History (Taphonomy)

The research and excavation results provided sufficient stratigraphic and related soil data to outline the construction history of the tomb and its subsequent degradation. OCR Carbon Dating for the construction and use of Džbán Mound 1 is presented in Table 1. Accordingly, Long-mound 1 was built about 5250 years ago (FRINK in print). Prior to mound construction, the area was utilized for domestic activities. Characteristic Lengyel and TRB ceramics and lithic debitage (ŠMÍD 2004b, Fig. 7), as well as calcined animal bone, were incorporated into the mound during construction. The post mold identified in the sub floor (Unit N99/E99) likely shares this historic context.

The landform prior to mound construction (Fig. 4, 1) is followed by the first stage of mound construction, consisting of leveling the naturally stepped and sloping terrain. Soil was removed along the southern side of the present mound and incorporated as fill to the north (Fig. 4, 2). Following leveling operations, a prepared floor consisting of river-run sand and gravel was spread over the center of the leveled area. Then a shallow circular

pit for Burial 9 was dug into the center of the prepared area, followed by the placement of the burial urn and associated grave goods (Fig. 4, 3). Thereafter, the pottery was covered and packed with carbonate-enriched clay and perhaps allowed to sun dry and harden. Upon completion of this chamber-like clay feature, a mix of A and B horizon soil (including artifacts from the earlier occupations) was scraped up from adjacent areas to cover the feature and form the long-mound (Fig. 4, 4). The enclosure may have been constructed at this time, defining the sacred space. Of course, it could have been added earlier, but it would have been more practical to build the enclosure concurrently with the mound and after the chamber-like clay feature was finished.

Two stages of mound erosion and deflation were identifiable. The first, consisting of the erosion of exposed fill sediments to rain and wind, occurred immediately after construction (Fig. 4, 5). The second occurred as a series of climatic, faunal, floral, and human perturbations up to the present (Fig. 4, 6). The soil analysis (FRINK 2003) reveals numer-

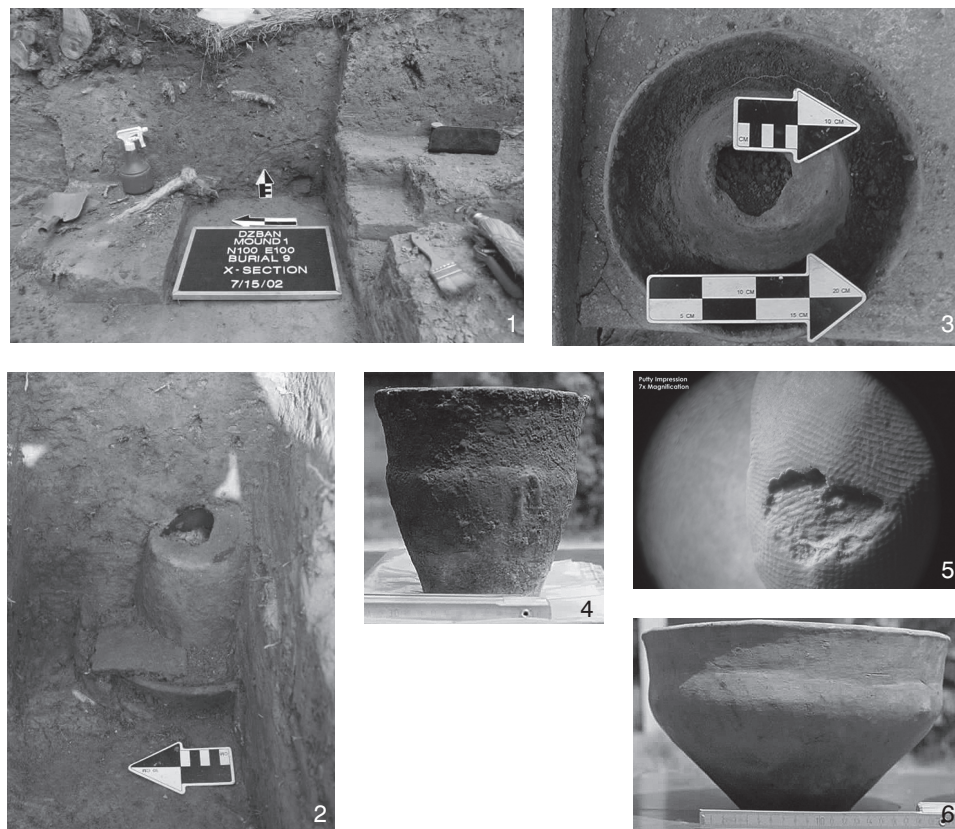


Fig. 3. TRB II/Boleráz “Central” burial (Burial 9): 1. Discovery of the burial, 2. In situ view of funnel beaker placed upside down into the bowl. 3. Top view after soil is mostly cleared away 4. Cleaned funnel beaker revealing n-shaped grip, 5. Textile impression discovered in soil found between the pots, 6. Bowl (photos: Boulanger).

ous tree tip or tree fall perturbations of trees blown over during storms on and beyond the mound. They correspond to climatic events: The Wolf Minimum, Medieval Minimum, the 536 Event (GUNN 2000), Grecian Minimum, and the Homeric Minimum. Concentrated “soil features”, containing the copper celt, ceramics and bone are attributable to these tree

throw events. Presently, Mound 1 is heavily eroded and spread out, covering a greater area than its original construction (Fig. 4, 7). This is typical for many mounds throughout the TRB and means that measurements of mounds without definable border, such as ditches or enclosures hardly represent the original dimensions.

### Central Moravian Burial Mounds

The excavation of a single tomb by itself does little to enhance our understanding of its significance within the local prehistoric context. Therefore, using the comparative method, aided by indirect dating, GIS, GPS, aerial photographs and conventional ground surveys must be applied. This allows us to evaluate the excavated tomb in relation to the prehistoric community and integrate it into the prehistoric landscape (BALDIA ET AL. this volume, Fig. 1 and 10). The results show that Džbán Mound 1 is part of a larger series of burial mound clusters, which in turn are to some extent associated with unwallled sites and walled hilltop earthworks.

The analysis indicates that the seventeen to eighteen burial mound clusters are largely within 1–2 km of the earthworks (BALDIA ET AL. 2001, Fig. 1; BOULANGER 2003; ŠMÍD 2003, Plate 1). The clusters vary in the number of mounds, reaching 58 at Křemela I near the earthwork of Rmíz (BALDIA ET AL. this volume, Fig. 10). The total number must be over 350 mounds. The local tomb typology separates them into three chronologically successive architectural types (ŠMÍD 1983), although there appears to be a fair amount of overlap in architecture and pottery style (BALDIA ET AL. this volume).

Tab. 1. OCR-dates for the construction of Džbán Mound 1.

Excavation Unit	OCR-Date BC	Description
N99 E92	3305	Initial colluvium from mound
N99 E92	3173	Initial colluvium from mound
N101 E101	3256	mound construction
N101 E101	3196	mound construction
N99 E99	3286	mound construction
N99 E99	3148	mound construction
N99 E100	3238	mound construction
Primary Grave	3256	„primary“ grave (Burial 9)
Mean	3232.25	.
STD	55.1174	.
Maximum	3305	.
Minimum	3148	.
Count	8	.

Typologically, Džbán Mound 1 belongs to Mound Type 2, i.e. the Drahanovice Phase (TRB IIA/Boleráz Ia–b). These mounds are generally characterized by stone frame-like enclosures. The dimension of the fourteen Moravian stone enclosures, which were previously excavated (ŠMÍD 2003, 125) are listed in Table 2 along with a descriptive statistical analysis. If the enclosure of Džbán Mound 1 measures 8x4 m it covers 32 m<sup>2</sup>. This would be only slightly above the mean dimensions for the other enclosures. However, if we assume a size of 13x5 m, yielding an area of 65 m<sup>2</sup>, the enclosure would be among the largest.

The type site for the Drahanovice mound building phase is Mound 10 in the 22 tomb cluster of Drahanovice-Lusthóz (ŠMÍD 2003, Plate 26–28), which is ca. 5 km south southeast of Džbán.

Tab. 2. Dimensions of stone enclosures in Moravian long-mounds.

	Length	Width	Area
	14.7	4	58.8
	10.2	4	40.8
	10	4	40
	10	3.8	38
	9	4	6
	8	3.5	28
	7	3.5	24.5
	6.5	3.8	24.7
	6	4	24
	6	4	24
	6	3	18
	6	3	18
	4	2.5	10
	4	2.5	10
Mean	7.67	3.54	28.2
Median	6.75	3.8	24.6
Maximum	14.7	4	58.8
Minimum	4	2.5	10
Count	14	14	14

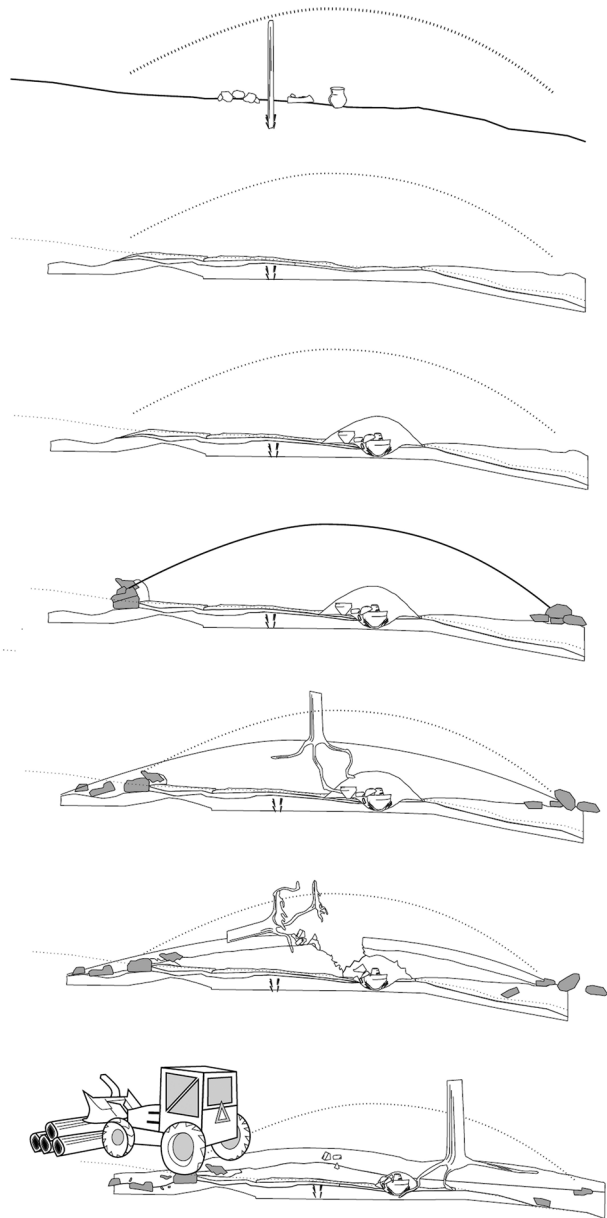


Fig. 4. Mound construction phases (see text).

Mound 10 appears to have a rectangular stone enclosure and a single burial under a small stone cover. Among other things, the grave contained sherds of a funnel beaker-like pot with chevron- or ^-shaped grips, the neck of a collared flask and two bowls.

The Náměšť na Hané-Dlouhá niva mound cluster (BALDIA ET AL. this volume, Fig. 10) with Drahanovice type mounds is just beyond a ravine, ca. 500 m to the south of Džbán (ŠMÍD 2004b, Fig. 1). It consists of fourteen mounds. Dlouhá niva Mound 1 has a strongly trapezoidal enclosure, externally measuring ca. 7 by 4–2 m (35 m<sup>2</sup>). It contains four graves of which three were near the edge of the wider or distal end at least partly under the rubble. The “primary” grave (Grave 1) is located about 2 m from the proximal end of the enclosure along its central axis (ibid., Plate 42-46). Among the five recovered pots from this grave are a stubby collared flask (ŠMÍD 1998, 122, Fig. 4, No. 5.) and a funnel beaker (ibid., 122, Fig. 4, No. 1, Plate 1). The beaker exhibits n-shaped grips, similar to the pots from Džbán Mound 1, Burial 9 and Luděřov-U žlábku, Mound 1, Grave 1.

Luděřov-U žlábku, Mound 1 (BALDIA ET AL. this volume) is less than 2 km south of Džbán. ŠMÍD considered the enclosure rectangular and measured the inside as ca. 9 by 4 m (BALDIA ET AL. 2001, 49), yielding 36 m<sup>2</sup>. The west end of this enclosure must be reconstructed based on only a few small stones. The mound contains four separate urn burials, traditionally termed graves. Grave 1 is near the eastern end of the enclosure. The destroyed Grave 2 is closer to the middle. It is deemed to be the “central” or “primary” grave. It consists of four potsherds from which two pots are reconstructed (BALDIA ET AL. this volume, Fig. 6, 4–5). One of the two fragmentary pots is a funnel beaker with n-shaped grips. The other two graves are nearly aligned on the same axis as the first two, but they are successively closer to the proximal end. They too contain related Drahanovice pottery.

This brief comparison implies that Džbán Mound 1 does not fully fit the idealized architectural Drahanovice Phase (TRB IIA/Boleráz Ia–b) mound classification as identified at Drahanovice-Lusthóz tomb cluster. Even Luděřov-U žlábku, Mound 1 and nearby Dlouhá niva Mound 1 show differences in mound shape, dimensions, construction features, and the location of the burials. The same is true of the burial goods, which exhibit differences in the pottery combinations. Generally, only individual pots seem to have stylistically close counterparts in the graves of nearby tombs. Thus, one is forced to conclude that similar mortuary practices existed in Central Moravia, but each tomb exhibits its own individual characteristic.

#### Interregional Correlations

No detailed interregional correlations of the Moravian tomb architecture exist. Furthermore, comparison of Moravian long-mounds with immediately adjacent regions is hampered by a lack of recognized

mounds in those areas. Comparison with more distant regions to the north and northwest is facilitated through research by BALDIA (1995), MIDGLEY (1985; 1992) and to some extent BAKKER (1992). Yet, the

Baden type-site is located ca. 200 km south southwest of Džbán in Austria and the Baden culture is often thought to “originate” further southeast. Therefore, we will first briefly examine the burial data and pottery from Austria. This is followed by a short outline of the burial practices in adjacent Slovakia and Hungary. Thereafter, we turn to the data from Poland, Central and East Germany. We end with a comparison of long-mounds and pottery from the Lower Elbe River Drainage in Germany.

### Austria, Slovakia and Hungary

The TRB South Group continues south of Moravia into Lower Austria. The continuum is illustrated by round bellied funnel beakers, with ^-shaped grips (RUTTKAY and MAYER 1995, Fig. 9), which is classified as a Baalberge pot. Yet, long-mounds are not known from this or subsequent TRB phases, even though graves with inhumations and evidence of cremation in an urn are attributed to the Boleráz Phase (ibid., 1995, 148–149). Two cremation graves covered by stones from Gars-Thunau, ca. 145 km south of Džbán belong to the Mödling-Zöbing-Group of the Jevišovice Culture. The culture typologically follows Boleráz in Moravia and Lower Austria (ibid., 186–187, 197, Fig. 32, 8–12). The graves could have been covered by a single mound and thus may be reminiscent of the TRB long-mounds in Moravia (ibid., 202; ŠMÍD 2004a, 53, 62). On the other hand, they seem more akin to TRB stone-packing graves found throughout much of the TRB.

In Hungary and the Slovak Republic, the Boleráz Phase burial practices are thought to be characterized by cremation burials. However, cremations seem to last through Baden III, while inhumation is seen as becoming more prominent as time goes on. Actually both kinds of burials can occur side by side. For example, ca. 270 km southeast of Džbán is the huge burial ground of Budakalász, Budapest that also produced the famous wagon models made of pottery. At this site ca. 17% of the burials consist of cremations.

The Baden burial architecture includes wooden structures, ranging from coffin-like features to chambers. Stone “covering” or mantels are known for two mass graves in Slovakia. Nonetheless, the burial mounds of Central Moravia presently seem unique in the Baden Culture. The lack of solid ev-

idence for Boleráz long-mounds in Austria, Slovakia and Hungary suggests that Moravian mounds could be more closely associated with mounds from the TRB. This view is further strengthened by the notion that the Moravian Drahanovice Phase burial mounds are typologically preceded by a few long-mounds and stone cists with TRB IB2 (Baalberge) pottery (e.g. ŠMÍD 2003, 2004a). By definition, this would imply cultural continuity in the burial architecture. Therefore, comparison must focus on the TRB.

### Poland

According to ZASTAWNY (1999, Fig. 1–2), the Baden Culture (radial decorated pottery) in Poland concentrates on the western tributaries of the Upper Vistula Basin and a small portion of the Upper Oder River. In a straight line, the distance from Džbán to the Polish border is about 70 km in a northeasterly direction. Therefore, it is not surprising that similar pottery is for example found at Pietrowice, Racibórz. Artifacts include a collared flask, Džbán-related bowls, evidence of a crescent-shaped grip, and channeled decorations (BUKOWSKA-GEDIGOWA 1980).

Related pottery is also found about 150 km north northwest of Džbán at Strachów. The site is near the Upper Oder Drainage, in the Sudeten Mountains. Excavation at the site produced numerous pits with TRB/Baden-Boleráz pottery (KULCZYCKA-LECIEJEWICZOWA 1997, 74–106). Some of them are <sup>14</sup>C-dated<sup>2</sup>.

Pit 152 (SL 3) contains sherds of a likely Baalberge/TRB IB2 (Rmíz Phase) amphora (KULCZYCKA-LECIEJEWICZOWA 1997, 87, Fig. 79, 16), while most of the rest of the pottery is more akin to the Drahanovice Phase. The <sup>14</sup>C-date (Gd-6274) from Pit 152 predates the Džbán OCR dates. The pottery from Pit 155 (SL 3) is also comparable to that of the Drahanovice Phase and its <sup>14</sup>C date is most probably a little older than the OCR dates. However, the <sup>14</sup>C-date from Pit 166 (SL 4) yields a most likely range of (3334 (41.8%) 3210 BC). This overlaps nicely with the early <sup>OCR</sup>-dates from Džbán. The half-moon and ^-shaped grips on funnel beakers/bowls and other pots, as well as collared flasks, seem to suggest at least a partial correlation with the Drahanovice Phase. In fact, the undecorated bowl depicted by KULCZYCKA-LECIEJEWICZOWA (1997, 87, Fig. 96,

<sup>2</sup> Strachów SL 3, Pit 152, Gd-6274: 4800±90BP, 68.2% probability = 3660 (57.1%) 3510 BC, 3425 (11.1%) 3382 BC; 95.4% probability = 3761 (2.8%) 3724 BC, 3714 (92.6%) 3369 BC. SL 3, Pit 155, Bln-1794: 4695±60 bp = 68.2% probability = 3626 (11.0%) 3597 BC, 3525 (14.9%) 3491 BC, 3469 (42.3%)

3373 BC, 95.4% probability = 3634 (24.5%) 3552 BC, 3540 (70.9%) 3364 BC. SL 4-pit 166, Bln-3850: 4480±50 bp, 68.2% probability = 3334 (41.8%) 3210 BC, 3191 (12.4%) 3152 BC, 3136 (14.0%) 3092 BC; 95.4% probability = 3359 (95.4%) 3012 BC.

41.) is rather similar to the bowl from the “primary grave” of Džbán Mound 1.

Turning to the more distant Krakow region, Boleráz-like pottery appears during the Bronocice III Phase (BURCHARD ET AL. 1991, 98–99, Fig. 2–3). The authors date this period to 2700–2500 bc, i.e. perhaps 3500/3450–3250 BC, which partly overlaps with the <sup>OCR</sup>-dates of the Drahanovice Phase. Our own evaluation of one Bronocice II/III <sup>14</sup>C date and seven Bronocice III dates (KRUK ET AL. 1996) implies that the period may date to 3600/3400–3200/3100 BC. Precision is hampered by the large standard deviations of the <sup>14</sup>C-dates and strong atmospheric radiation oscillations between ca. 3700/3600–3500/3400 BC (BALDIA ET AL. this volume). Furthermore, there is little difference between many of the Bronocice II and III dates, when calibrated. Assuming a non-overlapping succession, one could place Bronocice III between ca. 3400–3150 BC for the sake of argument.

At Bronocice itself, a slender funnel beaker with *n*-shaped grip is assigned to Bronocice III Phase (KRUK/MILISAUSKAS 1981, Fig. 7). The pot is practically identical to the slender funnel beakers assigned to the Baalberge Phase in Central and East Germany (see below). The Bronocice pedestal bowls are related to a similar one from Laškov-Na kuse (ŠMÍD 2003, Fig. 49, D 5). The famous bowl with wagon motive (MILISAUSKAS 2002, Fig. 7.4) has a profile that is only slightly sharper than similar squat pots from the Drahanovice Phase (ibid. Fig. 48–49) and it is not drastically different from the undecorated cremation bowl of Džbán Mound 1 (Fig. 3.6; ŠMÍD 2004b, Fig. 5, 3–4).

Given the similarity of some of the Bronocice and Drahanovice pottery and the above discussion of the <sup>14</sup>C-dates, Džbán Long-mound 1 may be synchronized with Bronocice Phase III. However, the long-mounds in the Kraków region are seen as part of the Bronocice Phase II dated to ca. 2900–2700 bc (BURCHARD ET AL. 1991, Fig. 2–3), i.e. roughly 3640–3500/3450 BC. Our estimation of four Bronocice Phase II and one Phase II/III <sup>14</sup>C date yields a range of 3650/3600–3500/3380 BC, which coincides closely with statistical determination for Boleráz <sup>14</sup>C-dates by some researchers (cf. BALDIA ET AL. this volume).

The Kraków long-mounds are about 160 km north-east of Džbán and are usually placed into the TRB South Group. At Zagaje Stradowskie (Stradów) two timber-enclosed long mounds are registered. The dimensions of trapezoidal Long-mound 1 (20x7x4 m or 110 m<sup>2</sup>) are somewhat larger than those of the Moravian Drahanovice Phase mounds and Long-mound 2 (ca. 40x7x4 m) covers an area of 220 m<sup>2</sup> (BURCHARD 1998, Fig. 2), far exceeding the known Moravian enclosure dimensions. The grave goods comprise a collared flask and a cup with a winged

handle (ibid., Fig. 3; BURCHARD ET AL. 1991, Fig. 3). If one ignores the winged handle, the cup’s form is similar to cups or jugs from the Drahanovice Phase mounds (ŠMÍD 2003, Fig. 108, 4), while the collared flask provides an additional marker for a general relationship.

Similar to the Stradów mounds, the nearby mounds of Słonowice, Kazimierza Wielka, show considerable variation in size. Słonowice has seven timber-framed mounds and an adjacent rectangular enclosure (TUNIA 2006 a, 2006 b), similar to the rectangular feature of the Baalberge site of Makotřasy, Bohemia. Some of the mounds contain extended burials laid to rest on rectilinear pavements with reconstructed sidewalls. All seem to be made of angular stones. Three pots from one of these stone structures belong to the TRB Southeast Group. The squat cup with high winged-handle is not part to the presently known Moravian mound inventory. Another wing-handled cup is similar to the one from Stradów, but without the *n*-shaped decoration and fringes at the bottom. As noted, the shape may be compared to the Drahanovice Phase cups/jugs (ŠMÍD 2003, Fig. 48, No 4). A larger pot with narrow base, low and wide belly, and a slender and short more or less funnel-shaped neck is remotely similar to various kinds of pots of the Drahanovice Phase (ŠMÍD 2003, Fig. 48, 5, 8, 12, Fig. 49, A 1, A 4, B 1, D 2). In spite of these similarities and the complexities in <sup>14</sup>C-dating, the Kraków area mounds are traditionally thought to be much older than the Drahanovice Phase mounds.

The so-called Kujavian “earthen long-barrows” are located northwest of the Kraków region. Their distribution includes not only Kujavia, but also Chełmno Land (JANKOWSKA 1999, 222, Fig. 5). The Kujavian mounds are considered a unique type due to some of the earliest <sup>14</sup>C-dates in the TRB, the frequent occurrence of wooden chambers, various internal sub-megalithic features, and the purported triangular shape. However, several of these unique features deserve a second look, starting with the triangular shape of the mounds.

The supposedly unique triangular shape of the Kujavian (and some West Pomeranian) long-mounds appears to be an artifact of our archaeological legacy. This is not surprising since early descriptions of long-mounds throughout the TRB were impressionistic and included such terms as oblong to describe the shape’s often deteriorated outline. The 1848 description of the Kujavian long-mounds at Radzieów as triangular (MIDGLEY 1985, 285) probably falls into the same category.

Since 1848, the (nine) long-mounds at Sarnowo have become the prototypical “triangular” Kujavian-type mounds. Yet, the site’s “poor state of preservation”, with mounds that suffered a “complete absence” of megalithic (and sub-megalithic) enclosure

stones and the “rather hasty excavation of ... six long barrows in the early 1950’s” (ibid., 140) sheds a different light on their preeminent status and the perception that they are triangular. Personal inspection of the site by M. BALDIA indicates that the (reconstructed) mounds are built of a sandy matrix that is easily trampled out of shape, especially by domesticated herd animals. This and other evidence suggests that it is entirely possible that many, if not all, Kujavian mounds had a more or less trapezoidal shape and are thus part of the TRB’s burial architectural continuum. Thus, the assumption of a triangular shape not only creates the unwarranted impression that Kujavian long-mounds are somehow different from those in the rest of the TRB, it also reduces the amount of square meters covered by these often very large mounds. This makes size comparisons with trapezoidal and rectangular enclosures somewhat less precise. In spite of this observation, the triangular measurements compiled by MIDGLEY (1985) are used in the descriptive statistics of the Kujavian tomb dimensions in Table 3.

That Kujavian mounds form part of the TRB continuum is underlined by the use of collared flasks, usually seen as a ritual object. One such flask stems from Sarnowo Mound 1, Grave 1 (CHMIELEWSKI 1952, 50–51, 56, Fig. 17, 18, 23). It is roughly comparable to a Moravian Drahanovice Phase flask (ŠMÍD 2003, Fig. 48), but collared flasks appear to have a long existence. Still, one wonders if there is really a 1000 year difference between the Kujavian and Moravian mounds as indicated by <sup>14</sup>C dates from Sarnowo Mound 8 (GrN-5035), Wietrzychowice Mound 1 (Lod-60) and Łącko 6A “Mound 1” (CZERNIAK ET AL. 1991 [Gd-6019]).

Certainly the earliest date from Łącko Mound 1 (Gd-6019) is now thought to be from a post attributed to an earlier, stratigraphically lower Sarnowo Phase village and the construction of Mound 1 has been reassigned to the subsequent Wiórek Phase (DOMAŃSKA/RZEPECKI 2004). A new <sup>14</sup>C-date from Mound 2 is suggested to date its construction to 3800/3700 BC (ibid)<sup>3</sup>. This places it squarely into the Baalberge Phase elsewhere in the TRB and explains the observable pottery similarities at the Bohemian Baalberge Phase site of Makotřasy (see below). The Baalberge synchronization is further underlined by the fourteen available Wiórek <sup>14</sup>C-dates (with large standard deviations), of which the <sup>14</sup>C-date from Łącko Mound 2 is the earliest. Our evaluation of these dates yields an estimate range of 3800/3700–3500/3400 BC, which is closer to the probable age of the Baalberge’s Rmíz Mound Con-

struction Phase postulated by ŠMÍD (e.g. 2003, 114) on typological grounds.

Łącko Mound 1 is trapezoidal and measures ca. 23 x 11 x 9 m (230 m<sup>2</sup>). Mound 2 is similar in size and shape. It covers a ca. 2 m long burial pit. The dimensions and shape of the mounds, as well as the burial pit are similar to those in other regions. Nonetheless, such short mounds appear to be the exception among Kujavian long-mounds. MIDGLEY (1985, Tab. 2 a) could only report two other Kujavian-type mounds less than 25 m in length. One of them is Mound 1 at Iłowo, Nieszawa (ibid. 226f, KUJ-8/1), but its megalithic enclosure is incomplete, so that the length can only be given as 18 m or more. The width of its proximal end is 8 m, but the width of the distal end can obviously not be ascertained. Nonetheless, MIDGLEY (ibid., 226) clearly states that the mound “could be trapezoidal”; making it a theoretically atypical Kujavian type mound, if one assumes that Kujavian mounds are triangular. In spite of its larger dimensions, the likely trapezoidal enclosure could be a link with the Drahanovice enclosures, of which at least one is clearly trapezoidal (Tab. 2). The fact that this mound covers three graves with extended skeletons, including a child, makes it also distantly analogous to the Moravian burial customs, even though it is not reported to contain cremations.

The other short Kujavian mound is located in Świerczynek (BAKKER 1992, 75; CHMIELEWSKI 1952, 46–49, (MIDGLEY 1985, 241, KUJ-40/1). It has a double megalithic enclosure, found in various areas of the TRB (BALDIA 1995); its length is 17 m or more. The preserved proximal width is 10 m, but the distal end appears to be incomplete. The relatively frequent occurrence of a missing or incomplete distal end in many areas of the TRB, including Džbán and Luděrov in Moravia, makes one wonder if it is truly the result of poor preservation, or an actual TRB design feature. At any rate, KUJ-40/1 could have been trapezoidal.

MIDGLEY (ibid, 241) lists the tomb as a Kujavian type mound, but notes that it is difficult to interpret. This is not because of its incomplete length, but because it contains a “cist” that looks very much like a megalithic TRB chamber with a passage on one of its long sides, i.e. a T-shaped passage-grave (BAKKER 1992). By definition, Polish long-mounds with similar stone chambers are thought to have been built by the Globular Amphora Culture (JANKOWSKA 1999; WIŚLAŃSKI 1966; CHMIELEWSKI 1952, 46–49). However, based on the shape of the chamber and the extended human interment found within, BAKKER

<sup>3</sup> Łącko Mound 2, 5010±70BP: 68.2% probability = 3937 (26.1%) 3870BC, 3810 (42.1%) 3708 BC; 95.4% probability =

3955 (95.4%) 3660 BC. The laboratory identification number is not given (cf. DOMAŃSKA and RZEPECKI 2004, 420).



Tab. 3. Descriptive statistics of long-mounds in Kujavia, West Pomerania, Central and East Germany, and the Lower Elbe Region.

Enclosure	Length	Width 1	Width 2	$\mu$ Width	Area
<b>Kujavia</b>					
Mean	68.11	10.3	0.26	5.14	320.36
Median	69	10	0	5	320
Maximum	170	15	9	10	656.25
Minimum	17	6	0	3	85
Count	36	35	35	35	30
<b>West Pomerania</b>					
Mean	30.49	6.38	4.15	4.54	219.3
Median	26	6.5	3	4.5	195.75
Maximum	150	12	11	11	715
Minimum	2.4	1.2	0	1.1	3.36
Count	43	39	31	32	30
<b>Moravia</b>					
Mean	7.67	3.54			28.2
Median	6.75	3.8			24.6
Maximum	14.7	4			58.8
Minimum	4	2.5			10
Count	14	14			14
<b>Central &amp; East Germany</b>					
Mean	28.53			6.6	199.65
Median	23.65			6.58	151.76
Maximum	121			12	144
Minimum	6.52			2.04	35.9
Count	127			121	120
<b>Lower Elbe River</b>					
Mean	13.83			6.27	223.18
Median	33.7			6	202.24
Maximum	149			11	616
Minimum	12			3	48
Count	101			88	88

(1992, 75) attributes the mound to the TRB.

Given the questions surrounding the Świerczynek tomb and the lack of reported evidence of Globular Amphora pottery in Drahanovice Phase mounds, it is necessary to consider the role of the Globular Amphora culture more directly. The culture is traditionally dated earlier in Poland than Germany, but the applicability of some of the earliest Polish <sup>14</sup>C-dates is questioned (MÜLLER 2001). Nevertheless, even MÜLLER (ibid., Fig. 140–142) argues for TRB/Globular Amphora culture coexistence and starts the Globular Amphora culture at 3300 BC in Central Germany.

Our own estimate, based on 81 <sup>14</sup>C-dates for the Globular Amphora Culture yields a range of

3300/3100–2850/2750 BC. This could perhaps make the beginning of the Globular Amphora pottery synchronous with the Džbán <sup>OCR</sup>-dates. However many of the Globular Amphora Culture <sup>14</sup>C-dates, were apparently found in a context that included TRB pottery. Thus, one can either argue for coexistence or a succession of the two pottery styles. If one prefers the latter, the Globular Amphora Culture could arguably have started closer to 3100 BC. This is supported by archaeological observations in East Germany (NAGEL 1985, 1991), which suggest that the tombs with megalithic chambers were built by the TRB, but cleared out and reused, if not refurbished, during the last TRB phase in East Germany by “TRB people” using Globular Amphora pottery.

In Poland, NAGEL's (1985; 1991) observations may be confirmed by two <sup>14</sup>C-dates from a tomb at Kierzkowo, Bydgoszcz (BAKKER 1992, 73). Its <sup>14</sup>C-dates fall indeed into the last period of the TRB, yielding a date after 3000 BC<sup>4</sup>. Therefore, one could argue that at least some of the Polish long-mounds with stone chambers were built during the TRB. If so, they must have been built during the Late Wiórek or Early Luboń Phase and later reused by the (same?) people producing Globular Amphora Culture pottery. We currently estimate the transition from TRB's Wiórek to the Luboń Phase to date around 3600/3400 and place the end of Luboń around 3300/3200 BC. This is precisely the timeframe during which most of the TRB's long-mounds were built in Germany, Netherland, and Scandinavia. However, we only have access to twelve <sup>14</sup>C-dates and some of them stem from sites which also contain Late Wiórek or Globular Amphora Culture pottery. This implies that the precise context of the dates may not always have been easily ascertainable.

Among the few other tombs attributed to the Globular Amphora Culture is the trapezoidal Long-mound 3 with megalithic enclosure of Strzelce, Bydgoszcz (WIŚLAŃSKI 1961, Fig. 21). Strzelce is ca. 250 km north northwest of Džbán. The enclosure measures ca. 27–25 m in length, the proximal end is 8–7 m and the distal end is 3.5–2.5 m wide (ca. 137 m<sup>2</sup>)<sup>5</sup>. These dimensions are larger than those of the Drahanovice Phase enclosures. The mound contains two megalithic TRB-like passage-graves, which are also not known in Moravia, even though Globular Amphora pottery sites exist near the Central Moravian tomb clusters (BALDIA ET AL. this volume). Additionally, the Globular Amphora pottery from Strzelce Mound 2 and 3 (WIŚLAŃSKI 1966, Fig. 20 and 22) bears no obvious resemblance to that of the Drahanovice Phase pottery as illustrated by ŠMÍD (2003, Fig. 47–49). Still, the high handled cup with round bottom from Strzelce (WIŚLAŃSKI 1966, Fig. 22, 3) raises questions about a possible relationship with TRB or Baden pottery in Poland. Similarly, the Strzelce tomb contains burned human bones among unburned ones (BAKKER 1992, 75), implying the (occasional?) use of cremation.

The cremation evidence at Strzelce is not alone in the district of Bydgoszcz. Evidence also comes from grave-pits at Łagiewniki, Bydgoszcz. Here the pottery

is linked directly to the TRB's Luboń and Baden's "Classical Channel Ware" Phase (WIŚLAŃSKI 1989, 148). Pottery from the site is classified as Koško's Phase III B/C (CZERNIAK ET AL. 1991, Fig. 2), i.e. Late Wiórek/Early Luboń. It is associated with a <sup>14</sup>C-date yielding 3510 (48.5%) 3420 BC to 3390 (19.7%) 3340 BC (ibid.). Typologically later pottery is classified as Koško's Phase IV, i.e. Luboń. It is associated with a <sup>14</sup>C-date yielding 3490 (56.0%) 3470 BC and 3372 (12.2%) 3369 BC (ibid.)<sup>6</sup>. Unfortunately, the radio-carbon dates from this and other sites do not readily confirm a sequential development for Phases III B to IV B, but they could suggest a timeframe similar to the Drahanovice Phase as given by various <sup>14</sup>C-dates (BALDIA ET AL. this volume).

Łagiewniki 1, Pit 45 contains a bowl, a cup, and two decorated sherds (WIŚLAŃSKI 1989 Fig 3, 1–4). The shape of the bowl is relatively close to the bowl from Džbán Mound 1. The cup is similar to one from a settlement pit of Laškov-Na kuse (ŠMÍD 2003, Fig. 49, C4). The decoration on one of the sherds (WIŚLAŃSKI 1989 Fig 3, 2) may be from an amphora and appears identical to the design of a cup from the Moravian Drahanovice Phase (ŠMÍD 2003, Fig. 48, 6).

Most importantly, Łagiewniki Pit 955 seems to be a cremation burial, which contains an amphora with double nn-shaped grip (WIŚLAŃSKI 1989, Fig. 3, 8). The shape is reminiscent of the Drahanovice pottery shapes and distantly related double nn-shaped grips can be found on the TRB II pottery of Moravia, but the rest of the pottery (ibid., Fig. 3, 5–7) has no obvious equivalents in the Drahanovice Phase. However, the amphora is practically identical to one from Janówek, Lower Silesia, where crescent-shaped and horizontal bar-shaped grips occur on funnel-necked bowls (WOJCIECHOWSKI 1991, Fig. 1). Since Janówek pottery is part of the Moravian-Silesian TRB continuum (cf. WIŚLAŃSKI 1989 Fig 3–4; WOJCIECHOWSKI 1991, Fig. 1; ŠMÍD 2003, Fig. 46–49) and some pots from the site provide a direct link to pottery from village sites and long-mounds of the Drahanovice Phase, a relationship can be established. Thus, one can agree with WIŚLAŃSKI, who sees the information from Łagiewniki as evidence of a link with the south.

West of Bydgoszcz, the numerous long-mounds of the Chełmno Group serve to enhance the above

<sup>4</sup> Kierzkowo, GrN-15412: 4270±45 bp, 68.2% probability = 2930 (60.9%) 2870 BC, 2810 (7.3%) 2770 BC; 95.4% probability = 3020 (77.6%) 2850 BC, 2810 (14.6%) 2740 BC, 2730 (3.2%) 2690 BC. GrN-15411: 4135±40 bp, 68.2% probability 2870 (19.1%) 2800 BC, 2760 (49.1%) 2620 BC.

<sup>5</sup> Dimensions are estimated from the published plan (WIŚLAŃSKI, 1961 Fig. 21).

<sup>6</sup> Łagiewniki 3/29, Gd-1276: 4620±50 bp, 68.2% probability = 3510 (48.5%) 3425 BC, 3382 (19.7%) 3347 BC; 95.4% probability = 3626 (2.3%) 3597 BC, 3525 (83.5%) 3324 BC, 3232 (5.3%) 3172 BC, 3160 BC (4.3%) 3117 BC. Łagiewniki 3/40, Gd-814: 4635 bp, 68.2% probability = 3490 (56.0%) 3470 BC, 3372 (12.2%) 3369 BC; 95.4% probability = 3495 (74.9%) 3460 BC, 3376 BC (20.5%) 3366 BC.

conclusions and illustrate the variability of the Kujavian long-mound architecture. For example, at Nawra, Toruń (MIDGLEY 1985, 231 Kuj-21, Kuj-22) two long-mounds are reported to measure 60–68 m in length with a proximal width of 10 m each. At first glance this architecture seems far removed from the diminutive tombs of the Drahanovice Phase in Moravia. However, Kuj-21 is described as having an enclosure of “smallish stones” (ibid.), perhaps suggesting that the size of the stones or even the material is less important than the act of building an enclosure. From this perspective, the construction material of the Moravian enclosures seems less alien.

The second long-mound (Kuj-22) is also of interest, because it has a circular stone structure near its distal end. This is probably evidence that the Kujavian mounds reached their size through successive lengthening and reuse over time. Such a tendency can be observed in many other areas of the TRB (BALDIA 1995). By contrast our excavation at Džbán did not provide evidence of such an expansion, although the wooden pole that appeared not to protrude through the mound’s floor could theoretically be evidence of an earlier burial structure.

As noted, the length of the mounds at Džbán and other Moravian mound clusters varies considerably. The same is true of Kujavian long-mounds. This is best illustrated at Trzebcz, Chełmno, where four long-mounds are reported ranging in length between 8–60 m (ibid., 242 Kuj-41). The fact that an 8 m long mound occurs among the Kujavian type tombs implies that such small long-mounds may have been more frequent in Kujavia than expressed in Table 3. Field surveys teach us that such diminutive structures are easily overlooked and readily destroyed. Therefore, the small size of the excavated Drahanovice type enclosures merely represents one end of the architectural mound building spectrum and should perhaps not be considered a specific regional or even chronological phenomenon.

The TRB pottery of the Chełmno Group exhibits similarities with the Moravian pottery. Typologically, the pottery at the site of Brąchnówko 1, Toruń, is synchronized with Koško’s TRB IIIA/IIIB (Wiórek) in Kujavia. This is equated with the end of Bronocice I and the entire Bronocice II Phase, the late Baalberge Phase in Bohemia and Jevišovice Layer C2

Moravia by WAWRZYKOWSKA (1991). Indeed, similarities with the Drahanovice Long-mound Phase of Moravia can be isolated. This includes a collared flask (ibid., Fig. 2, 8) comparable to the Drahanovice Phase (ŠMÍD 2003, Fig. 48, 9) and the chevron or ^-shaped grips on an undecorated round-bellied funnel Beaker (WAWRZYKOWSKA 1991, Fig. 2, 4). The ^-shaped grips are analogous to the grip depicted by ŠMÍD (2003, Fig. 48, 10). Furthermore, the shape of the body of a cup with broken handle (WAWRZYKOVA 1991, Fig. 3, 22) is reminiscent of one from Laškov-Nakuse (ibid., Fig. 49, C5). Finally, there are two <sup>14</sup>C-dates from the site (WAWRZYKOWSKA 1991, 128)<sup>7</sup>. The earlier one coincides with TRB’s Baalberge Phase. The second is attributed to Late Wiórek/Early Luboń and coincides with Boleráz <sup>14</sup>C-dates (BALDIA ET AL. this volume), although it precedes the <sup>OCR</sup> -dates from Džbán.

Farther north beyond Kujavia, near the Baltic Sea is West Pomerania. There a large number of mounds is found between the Lower Vistula and the Lower Oder (BALDIA 1995, JANKOWSKA 1980, 1999, Fig. 5, MIDGLEY 1985, Fig. 6-7, SPROCKHOFF 1967). The Łupawa region has received particular attention in the literature, because extremely early <sup>14</sup>C-dates seemed to make the tombs of this area as old or older than the Sarnowo tombs. However, HOIKA (1990, 204) dismisses the early Łupawa dates outright<sup>8</sup>. Instead he equates the Łupawa tombs with the later part of the Wiórek Phase. Chronologically he synchronizes Łupawa with Jevišovice-Stary Zamek Layer C2 and the “Pre-Boleráz” Phase of Moravia. The Łupawa Group’s pottery commonly exhibits “half-moon-shaped” grips (SCHIRREN 1997, 184, WIŚLAŃSKI 1979, Fig. 101, 2.13; 102, 5.10), a feature shared with various TRB Groups including the Drahanovice Phase.

WIERZBICKI (1992) also dismisses the early Łupawa <sup>14</sup>C-dates for mound construction and notes that the tombs can only be dated through pottery classification. He suggests that Long-mound 1 at Site 2 of Łupawa, Słupsk, should be Koško’s III A, for which CZERNIAK ET AL. (1991, Fig. 1) cite the <sup>14</sup>C-date from the long-mound of Wietrzychowice<sup>9</sup>. It yields a range of 4180 BC (62.8%) 3780 BC. If one accepts the date at all, one may have to argue that the tomb was built after 3800 BC, placing it at the

<sup>7</sup> Brąchnówko, Gd-4024: 4860±110 bp, 68.2% probability = 3776 (44.4%) 3617 BC, 3612 (23.8%) 3520 BC; 95.4% probability = 3941 (7.2%) 3856 BC, 3820 (77.4%) 3489 BC, 3470 (10.8%) 3372 BC. Gd-2521: 4770±90 bp, 68.2% probability = 3643 (53.4%) 3506 BC, 3427 BC (14.8%) 3380 BC; 95.4% probability = 3710 (95.4%) 3358 BC.

<sup>8</sup> For a more recent evaluation of Sarnowo and Łupawa Group <sup>14</sup>C dates see Lanting and van der Plicht (2000: 31). The conflicting <sup>14</sup>C assays of the Łupawa Group are Łupawa

18 (25/29), Bln-1814: 6060±80 bp = 68.2% probability: 5192 (2.4%) 5181 BC, 5058 BC (65.8%) 4842 BC; 95.4% probability: 5211 (95.4%) 4789 BC. Łupawa 18 (25/28), Bln-1593: 5730±45 bp = 68.2% probability: 4652 (5.7%) 4639 BC, 4617 (62.5%) 4503 BC; 95.4% probability: 4689 (95.4%) 4462 BC.

<sup>9</sup> Wietrzychowice 1, Gd-60: 5170±185bp, 68.2% probability = 4230 (5.4%) 4190 BC, 4180 BC (62.8%) 3780 BC; 95.4% probability = 4400 BC (95.4%) 3500 BC.

same time as the Baalberge Phase of the TRB.

The construction of Long-mound 5 at Site 2 in Łupawa, Słupsk, (e.g. JANKOWSKA 1999, 216–217, Fig. 1) is seen to mark the end of Łupawa Phase II. Thus, the mound is placed at the beginning of Łupawa Phase III, which WIERZBICKI (1992, 69) equates with KOŚKO's Phase III C. CZERNIAK ET AL. (1991, Fig. 1) date KOŚKO's Phase III C to ca. 2675–2500 bc (perhaps 3490–3250 BC). Typologically this is more or less the Fuchsberg Phase of southern Denmark and northern Germany according to WIERZBICKI. The mound is trapezoidal (ca. 20x7x4 m, 110 m<sup>2</sup>) and contains a pair of small parallel cists, reminiscent of the primeval dolmen (small megalithic chambers) of the Uckermark in nearby East Germany, the TRB North Group and some Baalberge cists in Central Germany and Bohemia.

Next to one of the Łupawa mound clusters is the village site of Poganice Site 4, Słupsk (WIERZBICKI 1991). Sherds of two funnel beakers with vertical grooves on the belly came from TRB pits (JANKOWSKA 1997, Fig. 1). They are somewhat more slender and have a slightly larger funnel neck than the Drahanovice Phase beakers from Džbán and Laškov-Nakuse. Three precision <sup>14</sup>C dates on cereal grain from storage pits yield an estimated range of ca. 3630–3370 BC<sup>10</sup>. This is essentially identical with <sup>14</sup>C-dates for Baden-Boleráz (BALDIA ET AL., this volume) and it is only minutely earlier than the early OCR-dates from Džbán Mound 1. Furthermore, the funnel beakers, bowls and collared flask from Poganice, (e.g. WIERZBICKI 1991, Fig. 3–5) may be linked to the Moltzow style near the upper Oder River, discussed below. The latter are perhaps even more similar to those from the Drahanovice Burial Mound Phase in Moravia.

Most importantly, within Long-mound 1, 2, 4 and 5 of Łupawa Site 2, there is evidence of one to six cremations. Most were found on the old surface, two occurred in pits. In all, 18 instances of burnt bone suggesting cremations are recorded (ibid., 1992). However, a cultural or chronological distinction between cremations and skeletal inhumation seems unwarranted, because cremations occur together with inhumations (JANKOWSKA 1999).

Evidence of cremation in West Pomerania extends west of Łupawa area. In Tomb 1 (SPROCKHOFF 1967,

No. 581) at Barkowo by Sławno, Koszalin, a cremation was found in a 4.5 x 1.5 m passage-grave-like chamber, in which pottery of the TRB or Globular Amphora Culture was found (BAKKER 1992, 74). No evidence of a mound is reported, but the chamber is in the vicinity of two long-mounds and several tumuli (SPROCKHOFF 1967, Fig. 18). At Zgórky, Słupsk, Koszalin a 3.2 m long passage-grave-like chamber (ibid., 1967, Franzen No. 580) also contains human cremations in a pot (urn?) ascribed to the Globular Amphora Culture.

Cremation burials do not only occur in long-mounds, but also in various other forms of burial architecture attributable to the TRB and Globular Amphora Culture of Poland (HOIKA 1999, 197 with references). Although precise forms of cremations seem to vary, they are in many ways comparable to the Drahanovice Phase cremations in Moravia.

Comparing the dimensions of the Kujavian and the Western Pomeranian long-mounds (Table 3) shows that the Kujavian mounds are larger. However, the number of Kujavian mounds is too small to insure a solid comparative sample. We also suspect that many of the smaller, less spectacular mounds have been destroyed or overlooked. Furthermore, ŠMÍD (2004 a, 47–48, Fig. 14A, B) notes that two long-mounds from Slatinky-Nad Ostichovcem are ca. 45 m long and two from Luděrov-Užlábku measure ca. 85 and 120 m in length. However, the 120 m long-mound was shovel-tested by ŠMÍD during our excavation of Luděrov-Užlábku and did not yield any artifacts. Therefore, it was concluded that it was perhaps not a manmade structure (BALDIA ET AL., this volume). The ca. 50 m or longer mound at the southern edge of the Džbán mound cluster may or may not have been a manmade structure dating to the TRB, as mentioned above. Only a careful excavation will provide clarity.

Thus, it is at the very least likely that Moravian mounds vary not much more drastically in size than Kujavian and other TRB mounds. This may not be surprising, since mound size is not necessarily an indicator of a particular TRB phase (BALDIA 1995). At this point in time, one can only observe that the Drahanovice mound enclosures so far excavated are considerably shorter than those in the Kraków region, Kujavia, or even Western Pomerania.

<sup>10</sup> Calibration at 68.2% probability: Poganice 4, pit 1004: 4790±25 bp = 3637 (8.6%) 3630 BC, 3579 (59.6%) 3534 BC, Poganice 4, pit 1005: 4755±25 bp = 3632 (9.5%) 3621 BC, 3607 (44.2%) 3557 BC, 3538 BC (14.5%) 3521 BC; Poganice 4, 1006: 4655±25 bp = 3499 (15.4%) 3482 BC, 3476 (44.6%) 3430 BC, 3379 (8.1%) 3370 BC (Jankowska, 1997 Table 1).

nia, while their average width is closer to the tombs from Western Pomerania than to Kujavian mounds (Table 2–3). The pottery does imply a closer relationship with Poland and the occasional evidence of cremation as far away as Western Pomerania suggests communication that seems to become somewhat less pronounced in time and space.

## Bohemia

Comparison between Moravia and Bohemia is problematic. ZÁPOTOCKÝ (2000, Fig. 1) synchronizes Bohemian TRB III with the sites of Siřem and Makotřasy and the subsequent TRB IV with Boleráz (Baden Ia/Ib). ŠMÍD (2003, 114, 2004, 39, 43) synchronizes his Moravian TRB IB2 (Baalberge-Rmíz Phase) with the Bohemian TRB IV (Siřem Phase) of (ZÁPOTOCKÝ/ZÁPOTOCKÝ 2001) and equates his TRB IIA (Jeviřovice Layer C2) and TRB IIB (Jeviřovice Layer C1) with the Bohemian TRB IV/Baden-Boleráz Phase. Bohemian Boleráz is not subdivided as it is in Moravia. A closer look at the sites reveals additional difficulties.

The Bohemian Baalberge site of Makotřasy is some 210 km northwest of Džbán. It is characterized by earthworks, burial and other pits. The pottery includes collared flasks, funnel beakers with ^-shaped grips, jugs and amphorae. Some pottery is rather similar to the Drahanovice phase. Decorations, such as zigzag and “Arkadenrand” designs occur in both.

Based on the pottery typology, three construction stages were originally stipulated (PLESLOVÁ-ŠTIKOVÁ 1985). Stage I was seen as exhibiting local Baalberge and possible Polish TRB's Wiórek Phase pottery. Stage II was associated with pottery of local Baalberge, Hungarian Bodrogkeresztúr, Mondsee from Lower Austria, the Altheim Culture of eastern Bavaria and western Bohemia, Jeviřovice Layer C2, and Wiórek pottery. Stage III was characterized by the same pottery affinities as Stage II, but Bodrogkeresztúr pottery was not observable. Of the five <sup>14</sup>C- dates, GrN-7102 was seen as directly attributable to Stage I and another (GrN-6929) to Stage II and III (PLESLOVÁ-ŠTIKOVÁ 1985, 120–123, 183–184)<sup>11</sup>. Overall, the five dates are difficult to interpret, since they cover essentially the same time

<sup>11</sup> Makotřasy Stage I, GrN-7102: 4870±60 bp; 68.2% probability = 3711 (58.5%) 3631 BC, 3560BC (9.7%) 3536 BC; 95.4% probability = 3788 (74.7%) 3620 BC, 3607 (20.7%) 3521BC. Stages II and III, GrN-6929: 4715±60 bp; 68.2% probability = 3629 (20.2%) 3581 BC, 3532 (14.8%) 3497 BC, 3456 (33.2%) 3377 BC; 95.4% probability = 3635 (54.4%) 3484 BC, 3474 (41.0%) 3370 BC.

frame of the <sup>14</sup>C-dates for Boleráz. Nonetheless, one date completely overlaps with the Džbán <sup>OCR</sup>-dates, but it has a large standard deviation.

Sites with pottery attributed to Boleráz are found in a relatively confined area between Kuntá-Hora and Prague. They are largely located on the southwest side of the Elbe River (ZÁPOTOCKÝ/ZÁPOTOCKÝ 1997, Fig. 1). The pottery includes forms similar to the Drahanovice phase and covers funnel neck bowls with crescent shaped and straight grips (ibid., Fig. 5). There is also evidence of pottery with pedestals, reminiscent of the Drahanovice Phase site of Laškov-Na kuse (ŠMÍD 2003, Fig. 59, D5). Yet, funnel beakers are apparently absent and we are currently not aware of pertinent burial information from this region. However, at Velké Žernoseky, Litoměřice, northern Bohemia, (240 km northwest of Džbán) there are eleven tombs. They are assigned to the Baalberge Phase and described as stone cists (PREUSS 1966, 35). At least one of them seems to be associated with a mound.

Farther west two long-mounds are known at Brežno, Louny. They are about 250 km northwest of Džbán, near the Ohře River, which drains east into the Elbe (Labe) River. Long-mound 62 is 143 m long. The adjacent 24 m Long-mound 86 appears to be only partly preserved. The mounds are between 4–5 m wide. The width is akin to the stone enclosures of the Drahanovice Phase mounds and the length may be the result of expansions as new graves were added. Unfortunately, both the indirect and <sup>14</sup>C-dating are problematic. Long-mound 62 is associated with the earliest Baalberge <sup>14</sup>C-date anywhere. Long-mound 62 most likely dates between 3877 (46.0%) 3803 BC, but neighboring Long-mound 86 probably dates to 2813 (54.4%) 2677 BC<sup>12</sup>. In other words, one of them dates to the beginning of the TRB's Baalberge Phase and the other post-dates the TRB South Group as defined in the Czech Republic.

The above provides the only solid evidence for mounds. Since most long-mound clusters in Moravia are in the vicinity of earthworks the dearth of such mounds near Makotřasy, Čáslav-Hradek, Kutná Hora-Cimburk and Kutná Hora-Denmark (PLESLOVÁ-ŠTIKOVÁ 1985; ZÁPOTOCKÝ/ZÁPOTOCKÝ 1997; 2001) begs for an explanation. However, the traditional claim that the custom of burial mound construction was introduced into Moravia by people who

<sup>12</sup> Brežno Long-mound 62, GrN-8803: 5090±45 bp = 68.2% probability: 3958 (19.0%) 3926 BC, 3920 (3.2%) 3913 BC, 3877 (46.0%) 3803 BC; 95.4% probability: 3975 (95.4%) 3780 BC. Long-mound 86, GrN-8802: 4165±45 bp = 68.2% probability: 2875 (13.8%) 2839 BC, 2813 (54.4%) 2677 BC; 95.4% probability = 2887 (95.4%) 2620 BC.

presumably moved directly from the Baalberge region of Central Germany to Central Moravia is questionable, because the pottery in Bohemia and southern Poland is related to that in Moravia, suggesting a continuous distribution.

### Central and East Germany

In spite of the distance, the relationship of Moravia and Central Germany is readily demonstrated when one compares jugs and especially the funnel beakers. Among the pottery assigned to Baalberge in Central Germany are funnel beakers with  $\eta$ -,  $\wedge$ - and crescent-shaped grips. These include the pots from Schraplau, ca. 270 km and Halberstadt (PREUSS 1966, Plate 36, 1-3), ca. 300 km, and a pitcher and a slender funnel beaker with  $\eta$ -shape from Pirkau, Hohenmolsen, ca. 240 km northwest of Džbán (ibid., Plate 49, 2-3). However, the Baalberge beakers are often more slender than those of the Drahanovice Phase. On the other hand, a beaker from Ziethnitz, Salzwedel (PREUSS 1980, Plate 1, No. 37), some 340 km from Džbán, has a vaguely comparable shape to the Drahanovice Phase funnel beakers. In place of “Channeled Ware”-like vertical grooves it has vertical lines executed in Tiefstich design, perhaps implying that the Boleráz channeling is interchangeable with symbols executed in various other techniques

BEIER (1991, Map 10) provides a map of these tombs west of the Oder-Neisse line and attempts to isolate various geographical groups throughout Central and East Germany. The Central German tombs include a variety of monumental burial structures, including megalithic, sub-megalithic, and wooden, as categorized by BEIER (1991). Baalberge burial architecture alone is very diverse and includes numerous trapezoidal burial structures among them (MÜLLER 2001, Fig. 313).

The first burial mounds and graves with stone cover are attributed to the Later Baalberge phase (PREUSS 1980, 23), which can presumably be equated with the TRB III (Siřem Phase in Bohemia and the TRB IB2 (Rmíz Phase) in Moravia (ŠMÍD 2003, 114). Ten Baalberge stone chambers (two made of true megaliths) occur west of the lower half of the Saale River according to BEIER (1991, Map 4). Among them is the chamber in the multiphase tumulus near the town of Baalberge, which gives the pottery style its name. This chamber is similar to megalithic primeval dolmen of the TRB North Group and connects the area with dolmen along the Lower Elbe River. These megalithic chambers are traditionally contrasted with the mounds containing sub- and non-megalithic structures.

The “central” Baalberge grave in the Pohlsberg long-mound is a sub-megalithic stone cist (Latdorf

3a). It is built below the level of a trapezoidal enclosure. Only its capstones and additional stone cover reach slightly above the bottom of the enclosure stones. The 40 x 18 m mound is a complicated multiphase structure, 5 m high. In addition to the Baalberge cist, it harbors diverse burial structures at different levels (e.g. BEIER 1991, Plate 3). The huge mound goes far beyond the trapezoidal enclosure.

Some cists and graves within the mound are below, some in, and some above the buried enclosure. Several cists are even in front of the enclosure’s preserved 7 m wide proximal end. Its distal end has no (preserved) stones and the southern long-side is incomplete. The northern long-side measures ca. 25 m. If one assumes that this side is complete, one can reconstruct an enclosure of ca. 25.2 x 7x3 m (126 m<sup>2</sup>). This is bigger than the Drahanovice enclosures, but the lack of a definitive distal end is not unusual in Moravia or even Poland, as mentioned above.

Just as in Moravia, tombs can occur in the vicinity of earthworks. Among them is the hilltop earthwork of Halle-Döläuer Heide, which is close to the Elbe River. From within its confines come funnel beakers, similar to the one from Džbán Mound 1, but without  $\eta$ -shaped grip. One specimen comes from the soil used to create Mound 6 (BEHRENS/SCHRÖTER 1980, Fig. 7q). The mound fill contained two copper pieces (ibid., 29-30). Another relatively squat beaker with a sharper profile is also reported (ibid., Fig. 7i). The beakers are rather similar to the ones from the Drahanovice phase. It should be noted that copper objects also were found in the enclosed hilltop site of Rmíz u Laškov and in several long-mounds, while copper production occurred immediately below Rmíz at the site of Laškov (M. BALDIA 2004).

Just as at Džbán, the soil of Mound 6 was scraped up from the surroundings and contained materials from the underlying Baalberge/Salzmünde Phase settlement. Below the mound was a post built timber structure interpreted as an unusually large trapezoidal house (BEHRENS/SCHRÖTER 1980, 21–23, Fig. 6). It is defined by a somewhat irregular 21 m long convex row of posts on the east side and straight 17 m long western side. The northern (proximal) end is 8 m and the distal end measures 6.5 m, yielding an average area of 137.75 m<sup>2</sup>.

The dimensions of the longhouse are remarkably close to the median dimensions of the Central and East German long-mounds. The structure contains a burnt area with stones near the proximal end, which is interpreted as a hearth. In the northeast corner of the structure about three meters distant from the burnt area is Grave 11. Its burial pit contains a flexed skeleton on top of a cattle bone, but no other artifacts. It is partly surrounded by up to ca. 30 cm large stones partly stacked on top of each other. The pit is

thought to be older than the house, because one of the posts, considered to be part of a house, touched the edge of the burial pit (*ibid.*, 1980, 77, Fig. 6). Yet, the post seems to be slightly out of alignment, as if to respect the burial. Since numerous supposed TRB longhouses have been reinterpreted as long-mounds, it is perhaps useful to consider such a hypothesis for this structure as well. If so, the convex eastern side would be similar to a number of similarly shaped long-mounds. The Džbán enclosure also had an apparently convex section the enclosure's north side (Fig. 2, Unit N103/99), although in this case it may be attributable to an accidental post-construction down-slope soil slump.

Overlying the longhouse was the trapezoidal mound. It was built in stages and contains numerous graves, starting with two Salzmünde graves (*ibid.*, 68–78). The largest dimensions are ca. 27 x 21 x 8.5 m (412.00 m) as measured of the plan (*ibid.*, Fig. 37). The final mound construction stage is associated with an atypical megalithic chamber, attributed to the Corded Ware Culture (*ibid.*, Fig. 37 and 42). ŠMÍD (2004a, Fig. 16) illustrates the mound as a comparative example to the Moravian mounds and dates it to ca. 3000 BC.

Additional Džbán-like funnel beakers come from other areas of the earthwork. One stems from a TRB-Bernburg settlement Pit 257 (BEHRENS/SCHRÖTER 1980, 27–28, Fig. 11o). The authors deem it a Baalberge pot, but the knob near the rim caused them considerable consternation. Yet, such knobs are common on similar Drahanovice Phase pots, such as the one from Luděrov-U žlábku, Long-mound 1 (BALDIA ET AL., this volume). The pot from Halle-Döläuer Heide and a similar one without knobs from the site of Egelin (MÜLLER 2001, Plate 8, No. 3-4) appear to have been used as part of the chronological analysis for the Central Elbe-Saale Region by MÜLLER. He seems to attribute the first pot to the Baalberge/Hutberg Phase (ca. 3800–3500 BC) and the second to the Salzmünde Phase of ca. 3500–3100 BC (*ibid.*, Fig. 39).

A funnel beaker with double crescent (short, joined  $\cap\cap$ -grip) comes from Mound 2, Grave 1 (BEHRENS/SCHRÖTER 1980, 61–64, Fig. 32a–b) and is associated with a contracted Baalberge skeleton in a grave with stone walls. Related joined  $\cap\cap$ -grips occur in Poland (see above) and in Moravian long-mounds.

Near Mound 3, three Baalberge grave-pits were observed. In Grave 1 the location of teeth are thought to indicate a contracted skeleton, but burnt material throughout much of the grave and in some of the seven Baalberge pots (*ibid.*, 67–68, Fig. 35a, 36a–e)

may suggest a cremation similar to those in the Drahanovice Phase long-mounds. The Džbán-like funnel beaker strengthens this view. Grave 2 (*ibid.*, 68, Fig. 35a No. II, b–m) exhibits human teeth, a pseudomorph of a flexed body and nine pots, including a Džbán-type funnel beaker.

MÜLLER (2001, Fig. 85) lists two megalithic tombs attributable to the Baalberge Phase (ca. 3500 BC or earlier), four with Salzmünde A or Tiefstich-Düsedau pottery (3500–3300 BC) and three containing later Salzmünde B, Tiefstich-Haldensleben and Walternienburg pottery (3300–3100 BC) for the Central Elbe-Saale region. Following PREUSS (1970), it may be assumed that a large number of the megalithic tombs contain highly decorated Tiefstich pottery. The pottery is related to the Danish-German Hassel<sup>13</sup>-Wolkenwehe-Fuchsberg style found in mounds with and without megalithic chambers, starting around the Lower Elbe River. In North Germany and Scandinavia Fuchsberg has been dated between ca. 3500–3300 BC.

In addition to megalithic tombs, the TRB also built sub-megalithic or pseudo-megalithic chambers, including masonry chambers and mixed forms as is illustrated by BEIER (1991, Map 7). MÜLLER (2001) assigns the masonry chambers to his Walternienburg 2, Haldensleben and Salzmünde B type pottery (3300–3100 BC). BEIER (1991, 104–105) lists 47 masonry chambers and eight related tombs for East/Central Germany. He adds 18 sub-megalithic and other structures with drywall construction. Most occur in the Middle Elbe Drainage Basin of Central Germany. The distinction between masonry chambers and timber-built chambers is fluid. Masonry chambers often show evidence of wooden posts. Similar structures are also called huts or houses of the dead, cult houses and temples in Germany and Denmark.

Masonry chambers, such as the TRB-Walternienburg Group chamber of Nordhausen (BEHRENS 1973, Fig. 95) are reconstructed as A-frame timber structure with a single or double set of poles supporting a timber roof with a rectilinear drywall, although solid evidence is not well preserved (e.g. BERTHOLD 2005, Fig. 14). The bottom of the A-frame roof is thought to be anchored into the low outer stone wall, which is placed near the outer edge of the construction pit. This drywall construction does not exceed the depth of the pit. In tombs with a single set of upright posts, the timbers support the roof along the central axis of the building. The double-post construction places the posts some distance from the outer stone wall. The closely placed timbers for the roof

<sup>13</sup> Hassel may also be spelled Haaßel in the literature.

are thought to have been covered by smaller stones and then capped with a mound of soil.

On the other hand, the mortuary chamber of Benzingerode (BERTHOLD 2005) has been reconstructed as a wooden box-like structure by WERNER (2008) with an antechamber-like extension. In addition to the upright posts, a wooden frame is set on top of the drywall. The roof and walls are made of planks or round timbers. Such a structure more closely resembles a megalithic dolmen with antechamber.

Regardless of one's reconstruction preferences, the masonry and similar chambers offer a profitable analogy to the architecture of Džbán Mound 1. This includes the existence of a mound and the use of stone layers in the sense of a (partial) mantel etc. The chamber had a prepared floor consisting of a stone pavement covered with wood. The roughly rectangular tomb's dimensions are given as ca. 9 x 3.6 m (BERTHOLD 2005, 69), resulting in an area of 32.40 m<sup>2</sup>. The length of similar chambers is given as 3–12 m and the width as 2–5 m (BERTHOLD 2005, 69). Such dimensions are comparable to the Drahanovice Phase mound enclosures (Tab. 2,3).

The Benzingerode tomb contains remains of some 40 skeletons. While this is presently not comparable to the number of identifiable human remains in Moravian tombs, the chamber also has evidence of several small areas of fire, possibly confined to individual interments. This could imply a distant relationship with Moravian cremations. Also, roughly 50% of the individuals at Benzingerode are children or young adults. The burial urns of the Drahanovice phase also suggest a high incidence of sub-adults (ŠMÍD 2003, 69–75). However, the Benzingerode tomb is associated with typical Bernburg pottery, estimated to date 3100–2700 BC. This corresponds with our estimate of 3200/3100–2800/2700 BC and implies that Bernburg is largely later than the OCR dates from Džbán. Therefore, synchronization with the earlier TRB-Walternienburg pottery is more likely. Keeping in mind that Walternienburg <sup>14</sup>C dates are few and some may be associated with contexts that also contained Salzmünde or Bernburg pottery, our current estimate for Walternienburg is 3500/3400–3100/3070 BC. This is roughly comparable to MÜLLER's estimate of 3300–3100 BC and can be synchronized with the Džbán <sup>OCR</sup>-dates.

North of Central Germany, the megalithic tombs in "Mecklenburg" were analyzed by BEIER (1991) and SCHULDT (1972). Following SCHULDT (1972, Map 14) Mecklenburg reaches from Central Germany to the Baltic Sea, stops just short of the Elbe River in the west, and borders on Western Pomer-

ania, Poland, in the east. We refer to this area as East Germany.

The East German TRB tombs with collared flasks, funnel beakers, and other pottery provide a link to the TRB North Group in North Germany and Southern Scandinavia, as well as the East Group in Poland. This is exemplified by a collared flask with relatively sharp profile from the stone slab cists of Altensien, Sellin, on the island of Rügen (SPROCKHOFF 1938, Plate 35, 5). The Altensien flask is reminiscent of a Moltzow style suspension flask found in a similar stone slab cist at Zarrenthin by Grimmen (KNÖLL 1976, Plate 7, 2d). PREUSS (1966, Plate 1, 3) illustrates the Altensien pottery in his study of the Baalberge Group, while MIDGLEY (1992, 90–91, Fig. 24) likens the pottery from the tombs of Altensien and Zarrenthin to the Pikutkovo Phase in Kujavia. The Moltzow style also exhibits similarities to the Fuchsberg style found near the Lower Elbe River in Germany and southern Denmark. Twenty Danish dates for the Fuchsberg style yield a range of ca. 3600/3400–3300/3100 BC. The early part of this range is again equivalent to the <sup>14</sup>C-dates for Baden-Boleráz. The later part matches the <sup>OCR</sup>-dates from Džbán.

It is unfortunate that we have no direct <sup>14</sup>C dates for the Moltzow style, because the Altensien collared flask is distantly reminiscent of the Drahanovice Phase flask (ŠMÍD 2003, Fig. 48, 9). Better yet, the funnel beaker with n-shaped grips from Moltzow by Waren (SPROCKHOFF 1938, Plate 41, 4) is virtually identical to the Džbán beaker. There are only minute differences. The Moltzow beaker's grips cross the boundary between the belly and the funnel-shaped neck of the pot<sup>14</sup>, while the Džbán beaker's grips start just below that boundary. Similarly, the channeling of the Moltzow beaker is finer and its bottom is narrower than those of the Moravian Channel Ware (Boleráz) funnel beakers. The Moltzow beaker was accompanied by an amphora with perforated suspension lugs instead of a collar (*ibid.*, Plate 48, 3), but such flasks seem to be interchangeable in the burial ritual.

The distance between Moltzow and Džbán is ca. 450 km and the fact that the pottery from Moltzow stems from a 60 x 6 m (360 m<sup>2</sup>) long-mound with upright megalithic enclosure and four stone cists (*ibid.*, 55) would seem fortuitous. However, similar chambers are reported from a smaller (23 x 7 x 4 m, 126.5 m<sup>2</sup>) mound with trapezoidal megalithic enclosure (*ibid.*, 55, Plate 15) at Wollschow, Uckermark, near the Polish border. This long-mound is considerably shorter and comes closer to the Drahanovice phase enclosure sizes.

<sup>14</sup> The design shows four incisions above the grip, which differs from MIDGLEY's (1992 Fig. 25, 4) drawing.



The proximal end of the Wollschow long-mound harbored a chamber constructed of red sandstone slabs 1.9–1.7 m long and 1.5–1.2 m high. Near the distal end was a much smaller chamber (0.85 x 0.5 m and 0.5 m high), covered with a single stone slab. It once contained three children. Two faced each other in a flexed position. They were six to eight years old. Infants and juveniles are frequently reported from Moravian burials (ŠMÍD 2003, 71–75). Similar to the larger tomb clusters in Moravia, the Wollschow tomb cluster has ca. 40 cists and primeval dolmen. However, only one other chamber is covered by a long-mound. The rest seem to have been covered by low tumuli. This may suggest that the shape of the mound is of secondary order in the burial ritual.

Due to the lack of a megalithic chamber, the ca. 125 x 3.5 x 1.5 m (330.75 m<sup>2</sup>) long-mound of Strahlendorf serves as a perhaps even better analog to Drahanovice Phase mounds. It is often compared to Kujavian long-mounds (e.g. MIDGLEY 1985; SCHULDT 1965), which is underlined by its length. In fact, it is the longest mound in the region, although it may actually consist of two separate mounds. If so, the shorter one would still have measured 38 m.

The Strahlendorf long-mound contained six to eight graves. Grave 4 has two funnel beakers. The smaller one is reminiscent of Moltzow-style channeling and was found on the bottom of the grave-pit, which was sunk deeply into the “original soil” (SCHULDT 1965, Fig. 11 a). The bigger pot has wide grooves, resulting in a ribbed surface (ibid., Fig. 11 b). Deep grooves can leave rib-like edges between them and may have led to the widely spaced pronounced ribbing on some Nordic collared flasks (KNÖLL 1976), including the Fuchsberg style. Grave 1 contains a Tiefstich decorated pitcher that sports roughly the same design as the Moltzow flask, together with a simple bowl (ibid., Fig. 8). An amphora with three perforated suspension lugs was located higher up in this grave’s fill (ibid., Fig. 16). The amphora’s shape is similar to the shape of a TRB IIA pot without decoration from one of the Drahanovice Phase settlement pits at Laškov-Na Kuse (ŠMÍD 2003, Fig. 49, D2). Thus, the pottery, the width of the enclosure and the number of graves do suggest a distant connection with the Drahanovice Phase burial practices.

A related “earthen long-barrow” with megalithic enclosure is the ca. 15 x 7 m (105 m<sup>2</sup>) long-mound at Rothenmmoor, (ibid., 1969, 1972). The mound seems to have a stone mantel. It contains a bathtub-shaped ca. 3x5 m pit lined with four courses of head-sized fieldstones with a single interment. The pit was lined with clay, into which the stones were set. This “primary” grave is associated with an undecorated funnel beaker and an “amphora” (ibid.,

1969, 20, Fig. 10). The beaker’s form is very similar to the one from Džbán, although its shoulder is slightly more pronounced. Higher up in the Rothenmmoor grave’s fill was a funnel-necked bowl with perforated suspension lugs (ibid., Fig. 11). It is decorated with hanging semicircular or radial arcs, linking it to the Fuchsberg Phase. The small size of the mound, the lack of a chamber and the pottery provide another analogy to the Drahanovice Phase tombs.

The Rothenmmoor tomb is practically identical to the even smaller “chamber-less” long-mound of Gnewitz, near Rostock. The narrow mildly trapezoidal enclosure measures ca. 12.5 x 4.1 x 3.7 m (48.75 m<sup>2</sup>). This mound also has a loose stone mantle that covers a bathtub-shaped grave made of coursed field-stones. The tomb contains an undecorated funnel beaker and a decorated flask-like pot with conical neck and perforated suspension lugs just above the shoulder (ibid., 1967, Fig. 11). The wide-mouthed beaker seems distantly related to the Džbán beaker.

The Rothenmmoor enclosure’s dimensions are within the range of the Drahanovice Phase ones (Table 2-3). The Gnewitz enclosure’s length also falls into this range, although the width exceeds it. The opposite is true in Strahlendorf, where the width falls into the Drahanovice Phase enclosure range, while the length far exceeds that of the excavated Moravian enclosures. The peculiar configuration of the Strahlendorf tomb may suggest that it is another example of a tomb, which was expanded over time (BALDIA 1995).

Overall, the tomb dimensions in Central and East Germany have larger dimensions (Table. 3). As a result, we can only conclude that some of the mounds and some of the TRB pottery of Central and East Germany bear some resemblance to the Drahanovice Phase in Moravia. No direct connection based on population movement can be demonstrated unless one employs archaeologically unverifiable legacy assumptions.

#### The Lower Elbe River Drainage

In the Lower Elbe River Valley the TRB West Group overlaps with TRB North Group (BALDIA ET AL. this volume, Fig. 1). The former extends west of the Elbe River into Northwest Germany and Netherlands. The latter extends north across the Elbe into Schleswig-Holstein and southern Denmark as well as east into East Germany. West of Schwerin, East Germany, the distribution of the long-mounds without megalithic chambers follows a line, leading roughly west into the Lower Elbe drainage (SCHULDT 1972, Map 7). This line meets with the similar mounds on the west side of the river near Lüneburg, Lower Saxony. A plot of the megalithic tomb distribution from

all parts of the TRB north of the Czech Republic suggests that east/west communication lines crossed in this region with north/south lines (BALDIA 1995). Even though Lüneburg is about 600 km in a straight northwest line from Džbán, it seems possible that the Baden Interaction Sphere was in communication with this region of the TRB in spite of the distance (BALDIA ET AL., this volume, Fig. 1).

Although Baalberge-like pottery is found to the north, beyond the Lower Elbe Drainage, the earliest tombs within it contain Fuchsberg type pottery, which is to some extent akin to the typologically later Tiefstich pottery to the south in Central Germany. If one follows the tomb classification and distribution maps by PREUSS (1980, Map 2-4), the Lower Elbe tombs are merely an extension of the ones from the Middle Elbe. The Middle Elbe tombs start at the Elbe-Saale confluence, where they overlap with tombs containing Salzmünde pottery. Thus, one may argue for a chronological and spatial continuity in the Elbe Drainage.

On the west side of the Lower Elbe, the typologically earliest tombs center in the Lüneburg Heath, where at least ten long-mounds without megalithic chambers are recorded (LAUX 1990, Fig. 3). These tombs include a mound with wooden chamber among the cluster of megalithic tombs at Oldendorf-Totenstadt, Lüneburg. Some 25 km east of Oldendorf is the long-mound of Tostergloppe, Lüneburg, which also has a wooden chamber. Its megalithic enclosure measures ca. 82x6x2.5 m (ca. 348 m<sup>2</sup>). The collared flask from this tomb is not particularly similar to those from the Drahanovice Phase. However, it is associated with a (reconstructed) funnel beaker with vertical grooves on the belly. This beaker has a profile that is reminiscent of the Džbán beaker and the profile of a lugged bowl with radial designs on the rim and upper belly from Tostergloppe is also analogous (ibid., 1991, Fig. 4 No. 1 and 3). On the other hand, the jug from Tostergloppe (LAUX 1991, Fig. 4, 2) has a design similar to the pottery from the Strahlendorf long-mound.

The Tostergloppe pottery is similar to that from the nearby long-mounds with small megalithic chambers at Haaßel I and II (SCHIRREN 1997, 165-166) and those to the north across the Elbe in the Sachsenwald long-mound tomb cluster, west of Hamburg (ibid., 117-124, 165-166). Most significantly, the long-mounds from the Sachsenwald seem to include a cremation grave (SPROCKHOFF 1952, 1954), which demonstrates how widespread the custom was.

Also north across the Elbe, near an old ford, is the site of Schnakenbek, Lauenburg. Among the pottery from this site are the sherds of two shouldered vessels, one with a crescent shaped grip and one with a knob-like lug (SCHIRREN 1997, Plate 54 No. 28-29). Similar features are found on the Dra-

hanovice Phase pottery. Furthermore, the spindle whorl fragment from the same area is interpreted as direct contact with Walternienburger-Bernburger phase (SCHIRREN 1997, 193, Plate 53, 12). Spindle whorls are exceedingly rare in the TRB North and West Groups, but occur commonly in Baalberge and TRB/Boleráz settlement context (BALDIA ET AL. this volume). In fact, spindle whorl fragments were recovered from Džbán.

Even farther north is the site of Oldesloe-Wolkenwehe (LA 154), Stormarn. The pottery from the site ultimately helped define the Fuchsberg style. The fragment of a collared flask, a funnel beaker with grooves and an amphora (ibid., Fig. 51), also exhibit similarities with the Drahanovice Phase. The flask-like amphora has lugs just above the belly, crossing over to the bottom of the long slightly convex neck. The belly is decorated with a repeating design of nine or so vertical grooves, followed by two vertical rows of incised dots, which are separated by an undecorated vertical field. A similar pot occurs at Baczynska, Poland and may provide a link to a pot with slightly shorter concave neck from the Drahanovice Phase in Moravia (ŠMÍD 2003, Fig. 49 No. 1). A related pot with missing upper rim comes from the Náměšť na Hané-Dlouhá niya Mound 1, Grave 3 (ŠMÍD 2003, Plate 46 No. 10). ŠMÍD (2003, 2004a) relates such designs to the parallel perforations of a decorative item termed a "diadem", which was recovered from the content of the Džbán cremation urn (e.g. ŠMÍD 2004b, Fig. 6, 1).

The pattern of the Wolkenwehe amphora is also found on a round-bellied funnel beaker from the Fuchsberg site, and probably on sherds from one of the Haaßel mounds. It also occurs on the jug with long conical to mildly convex neck from Riseby-Norby (HOIKA 1994, Plate 2, No. 3.). This jug's extremely long neck may even provide a link to the long-necked Salzmünde pottery of Central Germany.

To summarize, the evidence of probable cremation in the Lower Elbe long-mounds together with the fact that the pottery has reasonably close counterparts throughout many parts of the TRB, as far as Moravia, suggests a common spectrum of burial practices. Even the sizes of the mound enclosures in the Lower Elbe Drainage are so small that they are suggestive of a distant relationship (Table 2-3). Although we generally frown on the "telesynchronization" used by archaeologists to prove distant relationships, it appears that one may speak of a far flung communication system in the present case, because specific pottery items, certain aspects of the burial ritual, including cremation, the construction of long-mounds with stone enclosures, and parts of the tomb distribution itself hint at such a network during the time the first wheeled vehicles were in use (BALDIA 1995).

## Summary and Conclusion

Mound 1 is one of 34 mounds in the Náměšť na Hané-Džbán tomb cluster. The research design employed in the excavation of the small mound allowed the delineation of the taphonomic processes or “special life story” of this unique monument. Good results were achieved with the painstakingly slow trowel excavations and screening of all the soil from the excavated squares. In addition, a very large number of soil samples were collected for analysis. The ongoing laboratory work, including thin-section analysis of the pottery, SEM and EDX microscopy of various materials etc., is yielding information on the clay and temper used in the pottery as well as other micro botanical analyses.

Regarding the mound’s taphonomy (Fig. 4), at least one post mold (Fig. 1) indicates a likely wooden structure that probably existed before the mound construction area was leveled and covered by a prepared floor. At least two cremation burials sealed in clay were recovered. A drywall, in which some of the larger stones were set on edge, was built around the time of the tomb’s construction. The entire construction was covered by soil scraped up from the surrounding area and partially covered by a stone mantel. The degeneration of the mound could also be delineated.

The artifacts recovered from the mounds include several unusual objects and discoveries, including a small copper celt, covered by a textile pseudomorph. Evidence of additional textiles used in the burial ritual stems from an imprint in the soil matrix between the pottery containing the cremation remains. These textile discoveries link the burial practices to Long-mound 2 of the nearby Křemela 1 mound cluster (BALDIA ET AL. this volume). The only other textiles from TRB mounds are known from the tombs of Latdorf-Spitzes Hoch and Ditzfurt-Kreienkopp, Quedlinburg, in Central Germany (ibid., C. BALDIA 2004). Latdorf is ca. 450 km and Ditzfurt-Kreienkopp is ca. 480 km northwest of Džbán. The textiles of both of these sites are thought to have been associated with the Bernburg Phase of the TRB. However, the OCR dates from Džbán as well as the pottery synchronization would suggest that Džbán Mound 1 was built somewhat earlier.

Typologically the pottery from Džbán is classified as TRB IIA, which equates with the Drahanovice Mound Building Phase. This phase is seen as exhibiting initial Boleráz characteristics. A comparison of the Moravian mounds indicates that different mounds of the same phase exhibit different pottery combinations, including collared flasks, funnel neck beakers, bowls, cups, amphorae, etc. The pottery may exhibit perforated lugs and knob-like lugs without perforations. There is also a variety

of grips, ranging from straight to crescent-,  $\eta$ - and  $\wedge$ -shape. Some pots are decorated on the rim with an “Arkadenrand” pattern. Other decorations, including grooves or channel patterns appear to be relatively rare.

Attempts to compare and contrast Drahanovice type mounds with other regions is disadvantaged by a lack of research or failure to recognize Moravian forms of burial architecture in immediately adjacent regions. Even where long-mounds are in evidence an unsystematic approach to monumental architecture and burial practices, including an ill defined nomenclature, varying practices in the measurement of tomb dimensions, non-standardized practices of excavation and publication, as well as a lack of solid chronological control create uncertainty. Nonetheless, the interregional comparison in the TRB Culture area at least up to the Lower Elbe River Drainage indicates a similar practice of using different combinations of pots in the burial ritual of a particular tomb. The occurrence of collared flasks in TRB long-mounds provides one criterion that suggests a close connection to TRB burial practices. Pots similar to the Džbán’s funnel beaker (with or without grips) also occur in Poland, Bohemia, and Germany. In the last, curvilinear grips are associated with the Baalberge/Salzmünde (PREUSS 1966) and Walternienburg-Bernburg pottery (SCHIRREN 1997). Other decorative patterns can be related to the Fuchsberg Phase.

It is tempting to attribute the Moravian use of cremation starting in the Drahanovice phase as evidence of culture change, resulting from Boleráz “influence”. However, cremation is not entirely alien to TRB burial practices, as frequent evidence of fire, scorched bone and even cremation in pottery implies. Cremations appear throughout the existence of the TRB, even if the largest number of well documented cremations occurs in the pit graves of the TRB West Group and exhibit late  $^{14}\text{C}$ -dates. Furthermore, even in the Baden areas to the south and east the evidence for cremation does not seem to overwhelm the practice of skeletal interments. Thus, cremation alone does not imply a cultural or ethnic affinity.

Moravian TRB IIA/Drahanovice Phase burial mounds could be classified as “earthen long-barrows”, but this term has not been delineated in a manner useful to scientific examination. Their only criterion is that they do not contain a megalithic chamber (ASHBEE 1970). Thus, long-mounds, with stone enclosure, but without megalithic chambers occur throughout the TRB and are not an indication of temporal or ethnic affiliation with Kujavia.

If one takes the data of the long-mounds in Ku-

java (Table 3) at face value, it would seem Drahanovice type mounds have little in common with them. However, the problems with early <sup>14</sup>C dates and the possibility of one or more 8 m long mounds do raise questions about the dataset used to explain the preeminence of Kujavian mounds. Similar questions must be raised about the triangular form of Kujavian tombs as a distinctive characteristic. Certainly the tombs from the Kraków region have a variety of lengths and widths and their shape is trapezoidal, while their enclosures are made from wooden poles. In many regions long, short, trapezoidal and round mound enclosures can occur side by side, and even within the same mound (BALDIA 1995). Therefore, we cannot conclude that the Moravian mounds are fundamentally different from other TRB mounds, especially when larger unexcavated mounds exist in the Džbán and other mound clusters. However, the dimensions of the TRB's mounds with rectilinear and round enclosures from all areas of the TRB, except Moravia, yield a mean length of 33.20 m and a median of 25.42 m (BALDIA 1995, 313–322). The mean averaged width is 7.44 m and the median average width is 6.75 m. Even if one takes the smaller dimensions of the enclosures from the West Pomerania, central Germany and the Lower Elbe region into consideration, the Drahanovice type mound enclosures are smaller.

The diminutive size of the Drahanovice-type enclosures is more akin to the “masonry” chambers of Central Germany and related structures, often exhibiting wooden chambers with a low drywall enclosure. Such structures are found in most regions of the TRB. In Denmark some take the form of mortuary or cult houses (FABRICIUS/BECKER 1996, Fig. B46, 3, 7–9, KJÆRUM 1955, 1967) and occur amidst TRB mound clusters and graves.

Whether we consider Džbán Mound 1 a small “earthen long-barrow” or something more akin to a masonry chamber, we must recognize that there is variability in architecture and ritual during the TRB. The range of interments in the TRB covers flexed and extended skeletons and various ill defined forms of cremation. In Moravia flexed burials are attributed to Baalberge interments, but a few extended burials are also known (ŠMÍD 2004a, Fig. 15). Similarly the placement of the pottery and the combination vary. Some of this variability is no doubt attributable to chronological factors. Concomitantly it seems to be the result of a society, in which life and death is mitigated by the interdiction of shaman-like functionaries. Such religious figures use various omens

to determine the specific mortuary practices within a larger realm of shared customs and traditions, as exemplified in Madagascar (KUS/RAHARIJAONA 1999). This interregional variability does not lend itself to the traditional archaeological notions of diffusion. Instead it suggests that the Moravian long-mounds are part of a larger European ideological sphere expressed through local architectural and ritual practices. Among other things, this would explain the occurrence of the observable mosaic of grave goods and architectural features that go far beyond Central Moravia.

We are pleased to conclude that our excavation results are beginning to provide a modern, comparative base for regional and interregional analysis. However, the approach needs to be standardized among archaeologists to permit truly comparative data analysis. Unfortunately, our excavation methodology is time consuming compared to the use of shevels, picks, and heavy earthmoving machinery. It also necessitates the use of difficult to find specialists, with thorough training in soil science and an experienced eye for microstratigraphy.

Sadly, we are forced to note that the often well-preserved Moravian archaeological sites are under siege. They are looted by pothunters and threatened by economic expansion and technological modernization. Meanwhile a lack of appropriate funding and limited, costly scientific facilities handicap archaeologists in the race against time.

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## Abstract

At the southern fringes of the Funnel Beaker Culture (TRB) burial architecture consist largely of “earthen long-barrows”. Such long-mounds are thought to be typical for most of the TRB, although they are relatively rare in nearly all places. The burial practices of the TRB in Moravia change from inhumation in tiny stone slab chambers in the Baalberge phase to cremation in pottery urns. This pottery exhibit designs related to the Boleráz phase of the Baden Culture located largely to the south and east of the TRB. We explore the relationship between these two cultures through the preliminary analysis from the excavation results of Long-mound 1 in the Džbán tomb clus-

ter near Náměšť na Hané. Specifically, we analyze the mound’s construction history, which is determined through strategic, very detailed, and painstakingly slow sampling of the mound and its surroundings with special attention to soil analysis. This method succeeded in delineating the original surface before mound construction, the architectural features and their building sequences during construction, and the post-construction history of this ca. 5250-year old monument and its surroundings. The recovered artifacts included a copper celt and evidence of rare textiles. The results are compared with the burial practices within Moravia and beyond.

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## Baden Culture Influence to the East of the Carpathian Mountains

By Mikhailo Videiko

### Introduction

Cultural transformations to the east of the Carpathian Mountains after 3600–3500 BC resulted in the dissemination of the traditions of the Baden–Kostolac–Černavoda III cultural sphere. The Cucuteni-Trypillya cultural unit appeared and spread into this territory at a much earlier time. Close to 3600 BC, the unit included several local types (or cultures) that extended from the Carpathians to the Dnieper River (Fig. 1).

In our opinion, the appearance of northern types of the Trypillya Culture in phase CII was determined by the influence of the Baden Culture, the Funnel Beaker Culture and the Globular Amphora Culture, with the involvement of a Trypillya cultural component. It is conceivable that in part of this area the “pure” Trypillya tradition was interrupted. Thereby, the role of so-called “steppe” cultures in this process at that time was rather more modest than hitherto thought. Hence, more archaeological documentation that relates to this topic should now be provided. Accordingly, it is important to present the distribution of features of the Baden Culture that are found to the east of the Carpathians.

The question of interaction between the Baden and Trypillya cultures has been investigated and discussed several times. For example, in 1937 OLEH KANDYBA synchronized the Trypillya and Cucuteni B cultures with the Baden Culture (KANDYBA 1937; 2004, 126). Further steps in investigation have been taken since 1995 (KADROW ET AL. 1995, 200–213;

KADROW 2003, 24–28; KOŠKO/VIDEIKO 1995, 105–117; VIDEIKO 2000, 13–68; 2004, 355–368, and others). This was stimulated to a great degree by the “Baltic-Pontic Studies”, a periodical started in 1993. The third volume in this series includes the publication of cemeteries of the Sofivka group (VIDEIKO 1995, 15–134), in which several features of interaction between the Trypillya and the Baden cultures are manifested.

The late Trypillya Culture (phases CI and CII) represents the period of transformation and disintegration of this East European early agricultural unit. During this period the situation in the territory occupied by the Trypillya Culture changed radically. First of all, a number of cultural groups with painted pottery disappeared, and rituals that were associated with burnt houses (*ploshchadki*) changed. Exceptions to these transformations are found in regions on the middle Dniester River and eastwards as well as in a small enclave of the Kosenivka group located between the Southern Bug and Dnieper rivers. Five other groups (or types): Horodiștea-Erbiceni, Gordinești, Kasperivtsi, Troyaniv-Gorodsk and Sofivka (Fig. 1), clearly demonstrate contacts with other cultural traditions, such as Baden, Funnel Beaker and Globular Amphora as well as others.

The above-mentioned phases of the Trypillya Culture are dated as follows: phase CI – from 3600 to 3200 BC, and phase CII – from 3200 to 2750/2650 BC (VIDEIKO 1999; 2003).

### The Horodiștea-Erbiceni Cultural Group

The Horodiștea-Erbiceni cultural group is widespread in the Carpathian foothills in Romania, extending to the Prut River (Fig.1). This is not far from the territory of the Baden Culture in the Tisza river valley, which is separated only by the Carpathians. Trade routes and migration routes appeared there before the Neolithic period. Thus, it is not surprising

that many traditions and imports of the Baden Culture (and not only Baden) can be observed at Horodiștea-Erbiceni sites (DUMITROAIA 2000, Fig.10–34). <sup>14</sup>C-dates from the Horodiștea site range between 3300/3100 and 2900/2700 BC (DUMITROAIA 2000, 68). It appears that Horodiștea-Erbiceni transmitted Baden traditions to the west of the Carpathians.

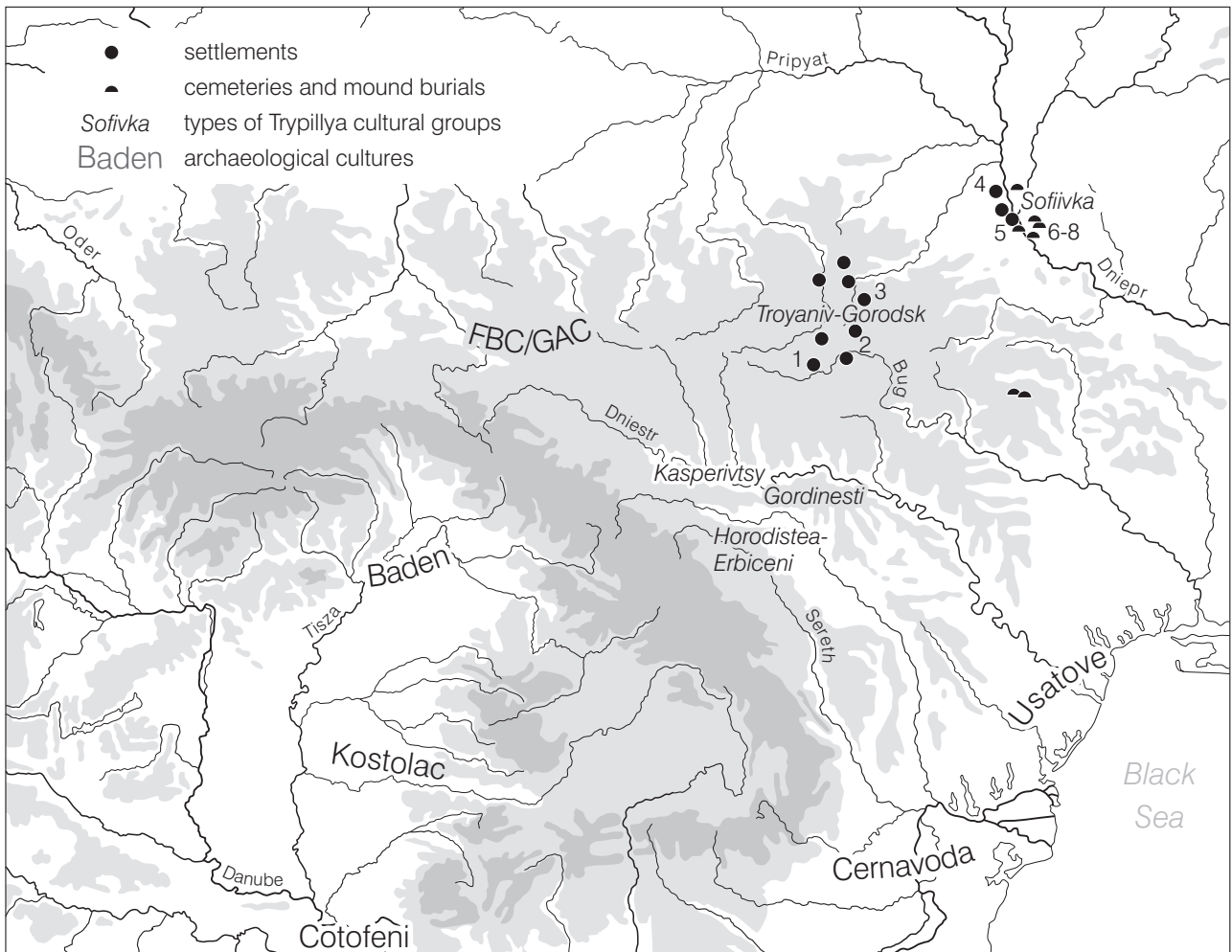


Fig. 1. Trypillia cultural groups and other archaeological cultures: Sites: 1 Sandraky, 2 Troyaniv, 3 Gorodsk, 4 Kazarovichi, 5 Kyrilivs'ka, 6–8 cemeteries of Sofivka type; 9 Kolodyste.

### The Gordinești Group

The Gordinești group in Moldova, found primarily between the Prut and Dniester rivers, is closely connected with Horodișteea-Erbiceni. This group also displays features of the Baden Culture in its pottery stylistics (DERGAČEV 1980, Fig. 31). It seems that in this case Horodișteea-Erbiceni was the main mediator. According to V. A. DERGAČEV, the Gordinești cultural group evolved as a result of interaction between the late Trypillia and the late Lengyel cultures (DERGAČEV/MANZURA 1991,

13). However, the Lengyel Culture disappeared long before the beginning of Trypillia phase CII. During the second half of the third millennium (conv. bc date), a group of the Baden Culture existed in the Carpathian Mountains, with which the creation of a number of features of the material culture of the Gordinești group should be correlated. This concerns kitchen ceramics, ceramics decorated with incised lines as well as pottery forms and decorative motifs (DERGAČEV 1980, Fig. 31).

### The Kasperivtsi Group

To the north of the Horodișteea-Erbiceni and Gordinești groups we can observe the settlements of the Kasperivtsi group (MOVSHA 1985, 237–238, Fig. 64), which was one of the latest Trypillia cultural

groups. Available  $^{14}\text{C}$ -dates for this assemblage range from 3100/3000 to 2800/2650 BC (KADROW et al. 2003, 121; VIDEIKO 1999, 36, 43). According to S. KADROW, this group was greatly influenced by the

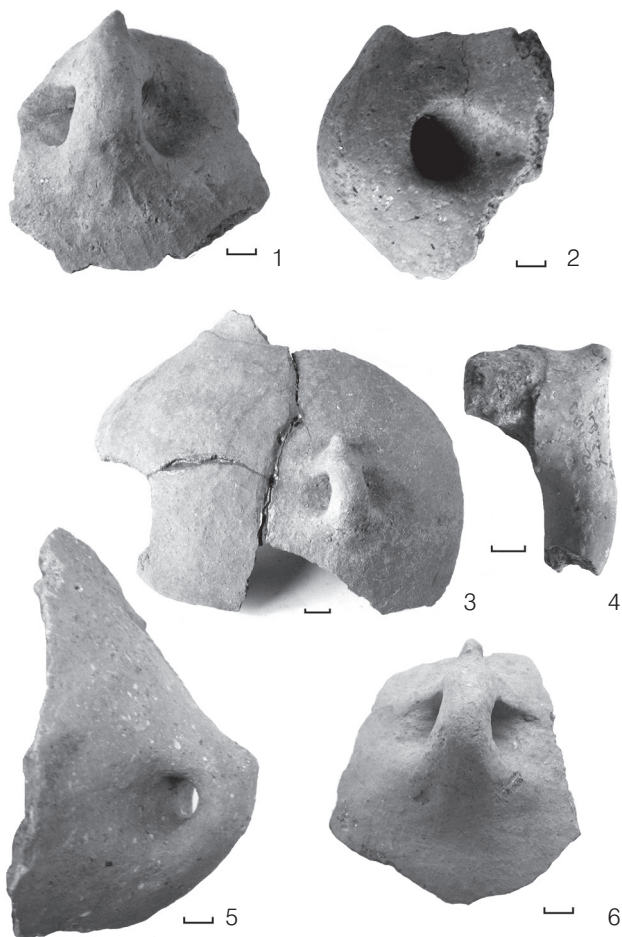


Fig. 2. Pottery of the Trypillya Culture (phase CII): 1–3, 5,6 – Troyaniv; 4 – Sandraky.

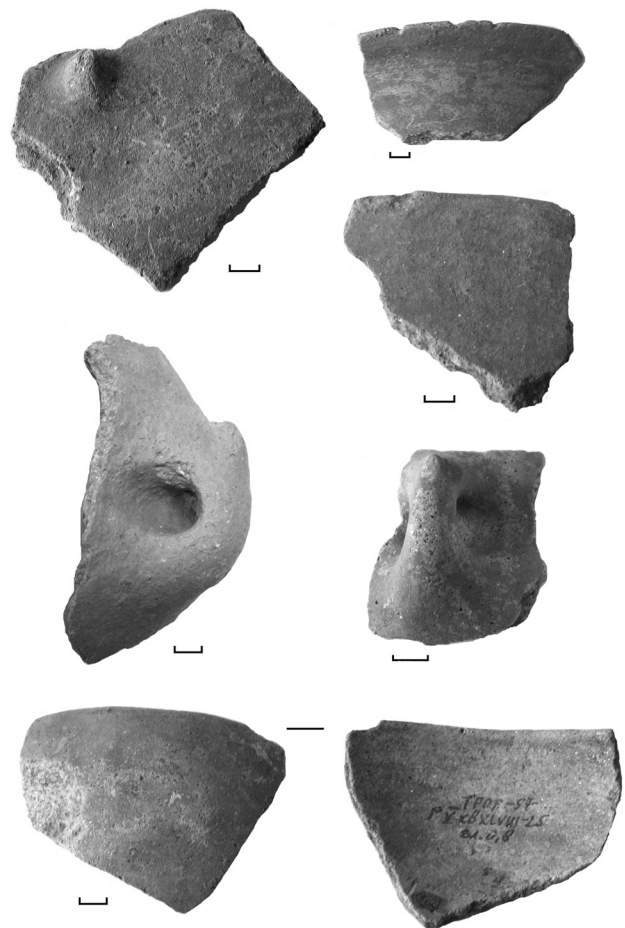


Fig. 3. Pottery of the Trypillya Culture (phase CII): Nova Chartorya.

Sitagroi Va–Radomir I–II–Yunacite XIII–IX traditions (KADROW 2005, Fig. 17–18). However, many examples illustrated here can be found at sites of the Horodiștea–Erbiceni (DUMITROAIA 2000, Fig. 7; 9; 19; 21 etc) and Gordinești groups (DERGAČEV 1980, Fig. 24; 31).

Nevertheless, it seems that initial contact with the Baden Culture at the Dniester River occurred some time before phase CII of the Trypillya Culture. Indicative features of the Baden Culture are discernible in the material of the Koshylivtsi type (late phase CI), (VIDEIKO 2004, Fig 2: 2–7). These include vessel forms, namely beakers with loop handles. Ornamental motifs that are likewise typical of the Baden Culture are represented on painted pottery (VIDEIKO 2004, Fig. 2: 3–6). Beakers of the Koshylivtsi group are decorated with the motif of an oblique grid. In the Baden Culture this kind of decoration was made with incised lines. In the same culture there are further analogies in compositions of fillets consisting of oblique lines that run at an angle. In

Koshylivtsi some fragments of so-called “kitchen” ceramics were found that show similarities with Baden pottery (VIDEIKO 2004, Fig. 2: 2). One fragment belongs to a small goblet of roundish form. It is decorated with lines, three in number, that converge at an angle (VIDEIKO 2004, Fig. 2: 7). Similar goblets as well as vessels with knobbed handles were found at Bilche Zolote (the Vertebea cave), another site of the Koshylivtsi type. Similar types of pottery and ornamental motifs are characteristic of the Baden Culture, starting with phase 1b (NĚMEJCOVÁ-PAVÚKOVÁ 1981, Fig. 11, B2; Fig. 12, O a.c.d; P a.c.d etc.). This corresponds well with the dates for the Koshylivtsi group site at Bilshivtsi: 3620–3520 BC (TKACHUK 2005, 48).

Sites of the Gordinești group are scarce in the territory of the Ukraine. Among them, the settlements at Sandraki and Nova Chartorya (Fig.1; 2; 3; 4), located in the drainage area of the Southern Bug River (Fig. 1: 1), have been investigated best. Numerous features of the Baden Culture can be

noted in the ceramic assemblage there. In the following a list of these features is presented:

- (1) Profiled handles attached to the shoulders (VIDEIKO 2004, Fig. 2: 1–11). The same type of handles is recorded in the late Baden Culture in the Carpathian Basin. Profiled handles with developed contours attached to the shoulders were recorded in the material from Sandraky and Nova Chartorya.
- (2) Decorations along the border of the upper edge and external lower edge of the zones (VIDEIKO 2004, Fig. 4: 8–11). Such decorations were found at the settlements of the Gordinești type in Moldova (DERGAČEV 1980, Fig. 31) and in the Ukraine at Sandraki and Nova Chartorya.
- (3) Decorations on the belly, rather more on the shoulder, most often in the form of horizontal lines (less often in the form of more complicated patterns). They were impressed with a pointed object or “die” (VIDEIKO 2004, Fig. 4: 6.12). This kind of decoration was recorded in the late Baden Culture in the Carpathian Basin and in the Kostolac and Coțofeni cultures. Decorations of this type are encountered at the Gordinești settlements, Sandraki and Nova Chartorya.
- (4) Belly decorations, mainly on the shoulders, in the form of “dots”, “bars” or “line sections”, and round knobs as well as conical, elongated and corrugated knobs, etc (VIDEIKO 2004, Fig. 4: 1.3–5.7.9). This kind of decoration was also recorded in the late Baden Culture in the Carpathian Basin and in

the Kostolac and Coțofeni cultures. It was found in unusual abundance at sites of the Coțofeni Culture. Knobs such as these appear on pottery from the cemetery in Sofiivka (KADROW/KOŠKO/VIDEIKO 1995, Fig. 2: 10–13) and in the Gordinești and Troyaniv-Gorodsk groups.

All the above-mentioned elements (1–4) also occur quite frequently in the settlement at Černavoda of the Černavoda II Culture (BERCIU/MORINTZ/ROMAN 1973).

- (5) Pottery covered by a red engobe or red painting (Fig. 3). A similar process of finishing the surface of vessels is characteristic of the Baden Culture.

Similar vessels have been found in large amounts in the settlements of the Gordinești and Troyaniv-Gorodsk groups: Sandraki, Gorodsk, Lozy, Nova Chartorya, and others. With regard to vessel forms, conical and hemispherical bowls predominate. There are fragments of large vessels with everted rims as well as bowls, amphorae and pots. The fragment of a dish was also found. Poorly executed channels can be noted on some large vessels. The pottery forms mentioned are close to those known in the Baden Culture, phases I–II and later (NĚMEJCOVÁ-PAVÚKOVÁ 1981, Fig. 11 h.j.n.o; Fig. 12 g.h.o; Fig. 33 g.n).

It is apparent that the above-mentioned analogies are indicative of links of the late Trypolye Gordinești group to a broad Balkan-Carpathian cultural sphere rather than to narrow connections with the Baden-Kostolac-Coțofeni and Černavoda II horizon. Thus, it is possible to voice the probability of a number of traditions of an earlier, namely Polgar, cultural sphere.

### The Troyaniv-Gorodsk Group

Other sites that exhibit Baden traits in pottery stylistics belong to the Troyaniv-Gorodsk group, located far from the Dniester River, in the drainage area of the Dnieper River (Fig. 1). There a few settlements have been investigated (for example, Troyaniv and Gorodsk, cp. SHMAGLIJ 1966 and 1971; Pavoloch, cp. MAKAREVICH 1952), which yielded very interesting collections of pottery (Fig. 5: 1–3.5.6). Dates for the Troyaniv-Gorodsk group range from 3300/3200 to 2900 BC (VIDEIKO 1999, 41, 48). This group is widespread in eastern Volhynia, on the upper reaches of the rivers Rostavitsya, Teteriv, Sluch and Goryn. On the whole, about 40 settlements are known. The majority are located in high, naturally protected places. This is also the case with the settlements in Troyaniv, Pavoloch and other places. The features of their topography and arrangement are described in detail by M. M. SHMAGLIJ (1960). This

topographical location is characteristic of sites of the Baden Culture (Točík 1987, 5–29).

The presence of solely floor remains of dwellings in the settlements is quite remarkable. These floors are from 6 up to 9–15 meters in length and 2–4 meters in width. Similar constructions were investigated by SHMAGLIJ in Troyaniv (SHMAGLIJ 1966). The dwellings had open hearths. Such features are typical of Baden settlements in Slovakia.

Pottery from settlements of the Troyaniv group display Baden features. All of the aforementioned traits, 1–5, are encountered on pottery ascribed to the Gordinești group. A large number of knobbed handles were found. A large amphora with two such handles and decoration on the body was discovered in one dwelling (VIDEIKO 2004, Fig. 2–11). Similar vessels, but without handles and with truncated rims, are known from excavations of early Baden

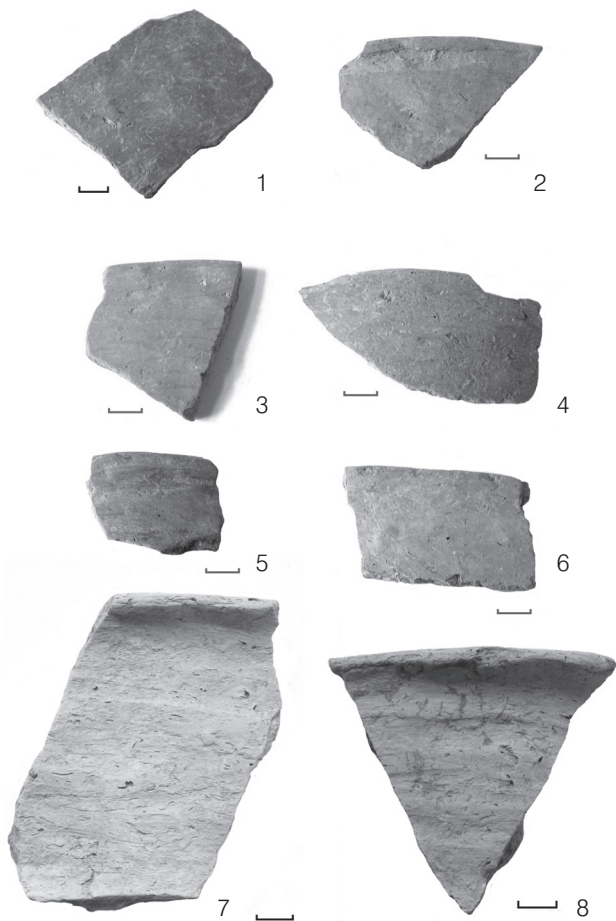


Fig. 4. Pottery of the Trypillya Culture (phase CII): Pottery with red painting from Sandraky.

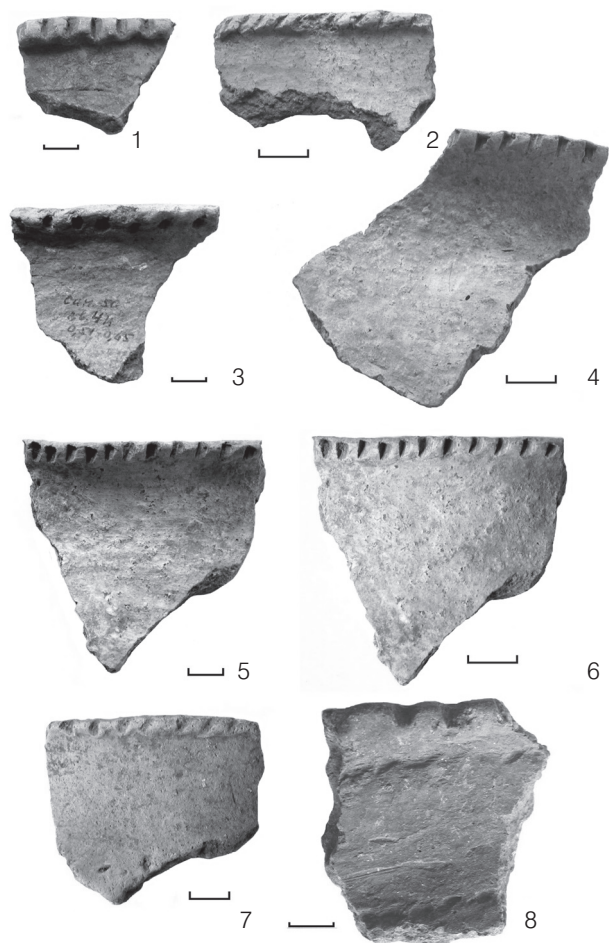


Fig. 5. Pottery of the Trypillya Culture (phase CII): Pottery with red painting from Troyaniv.

settlements (NĚMEJCOVÁ-PAVÚKOVÁ 1981, Fig. 11 n.o; Fig. 12 o; Fig. 33 n.o).

A biconical vessel was recovered in one site of the Troyaniv group with decorations on the belly that resemble Baden examples (VIDEIKO 2004, Fig. 2: 12). Decoration in the form of triple conical

knobs (Fig. 3: 1), which are characteristic on Baden pottery, was found as well. A great number of ceramics displays a red engobe or painting. Also noteworthy are finds of typical Baden bowls with handles resembling a closed loop (VIDEIKO 2004, Fig. 4: 2).

### The Sofivka Group

The Sofivka group is located in the middle Dnieper region. Here it is of significance that in phase C I of the Trypillya Culture, finds of vessels with profiled handles (VIDEIKO 2004, Fig. 2: 1) are known in settlements of the Kolomyishchina type. Handles such as these are typical of vessels of the early phase (Boleráz) of the Baden Culture in Slovakia (NĚMEJCOVÁ-PAVÚKOVÁ 1981, Fig. 12 B–G, c,d,e). During the period under consideration, sites of the Sofivka group (Fig. 1: 1) were widespread along the Dnieper River. In the opinion of experts, the Sofivka group evolved under the influence of the Gordinești and Troyaniv-Gorodsk

groups (DERGAČEV 1980, 141–142, Fig. 26; 43), which explains the presence of practically all units characteristic of the Baden Culture in pottery assemblages, as found in western territories. This concerns features nos. 1–4 described above (shoulder-attached and profiled handles, decorations along the border of the upper edge and external lower edge of zones, belly and/or shoulder decorations that are mostly horizontal lines incised with a pointed object, body decorations mainly on shoulders in the form of “dots”, “bars” or “sections of lines” and other ornaments; Fig. 6). These materials were considered with reference

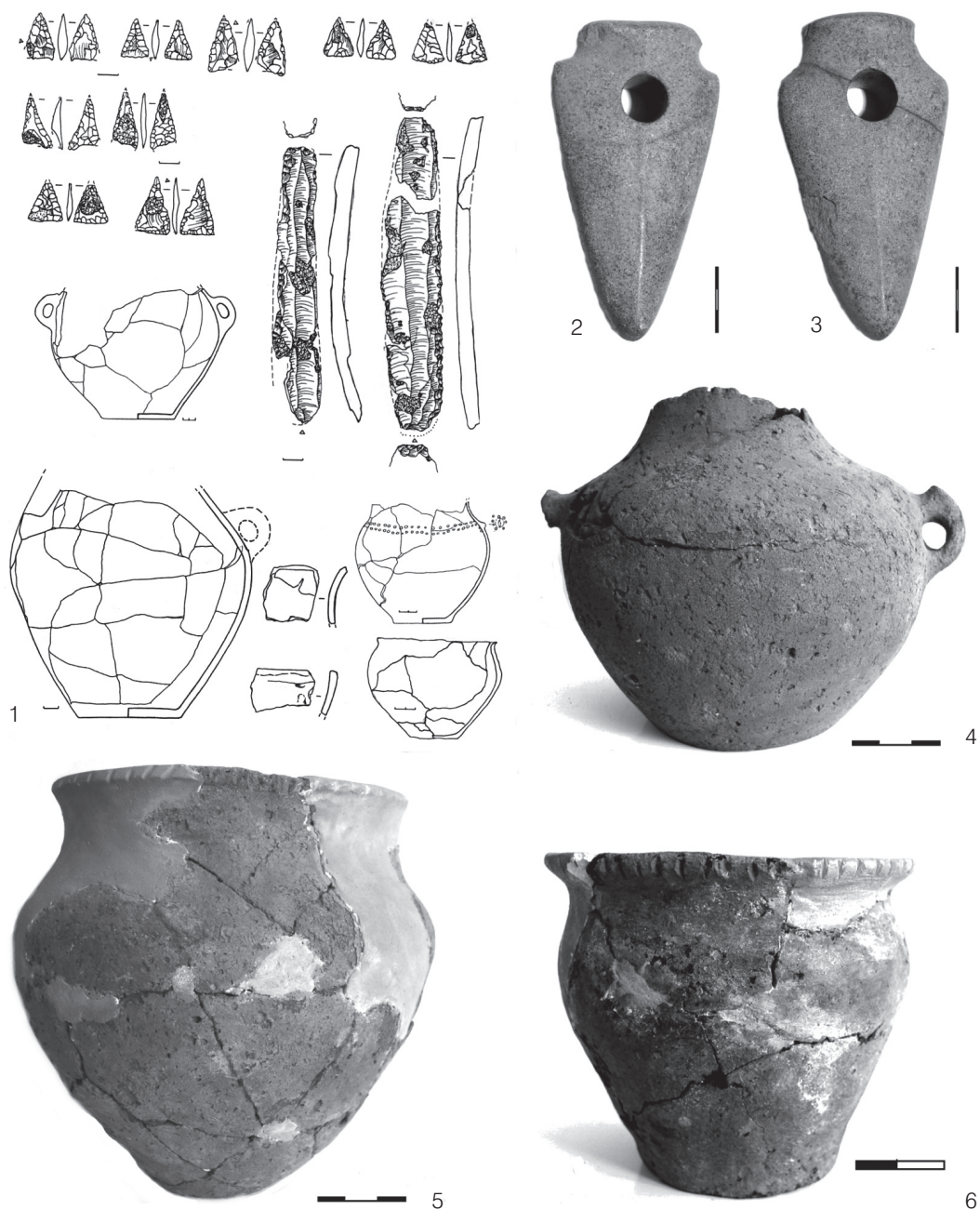


Fig. 6. Sofivka group cemeteries (Trypillya Culture, phase CII): 1 reconstruction of inventory from a grave in the Chernyn cemetery; 2–3 hammer axes; 4–6 pottery with Baden traits.

to cemeteries of the Sofivka group in their publication in 1995 in “Baltic-Pontic Studies” (KADROW ET AL. 1995). It should be noted that similar material is known from excavations of settlements of the Sofivka group (KRUTS 1977, Fig. 54: 1.3–4.13.14; Fig. 55: 11–12.16; VOVK 1899, Fig. 12: 14).

Apart from parallels in pottery, the closeness in the types of weapons and in the character of funerary customs (see KOŠKO 1995), in the types of fortifications (round ditches, for example in Kazarovich) and dwellings (structures partially sunken into the

ground with open hearths) should also be noted. Cemeteries with cremations of the Sofivka group (Fig. 6; 7) are not typical of local traditions.

The chronology of the Sofivka group after 3000 BC is later than that of the Troyaniv-Gorodsk group. However, the available isotope dates indicate a chronological gap between the features of the Sofivka type and those of the earlier local Lukashi group. This situation attests a complete change, or nearly so, of the Trypillya population along the middle Dnieper River during phase CII. According

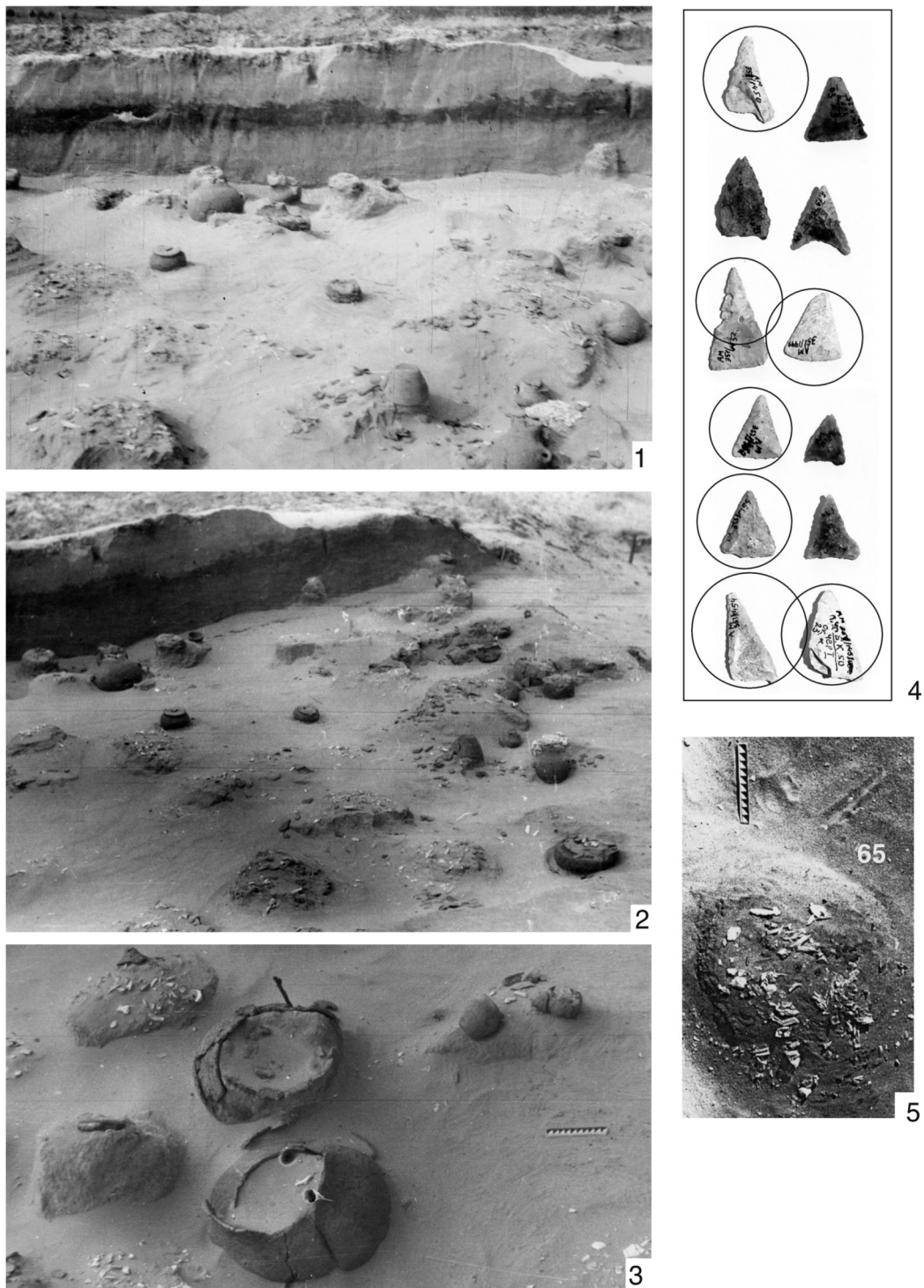


Fig. 7. Sofivka group cemeteries (Trypillya Culture, phase CII): 1–3, 5 cremations; 4 arrowheads from graves.

to the calculation made by DERGAČEV, pottery forms that are characteristic of the Troyaniv-Gorodsk account for up to 50% of all pottery in complexes of the Sofivka type (DERGAČEV 1980, 142). Thus, the Sofivka type as found at the Dnieper River can be considered an example of a secondary derivation

with the traits of the Baden cultural sphere.

A further example such as this is provided by two burial mounds near Kolodyste (Fig. 1; 8), which were explored at the beginning of the 20<sup>th</sup> century by A. SPITSIN (1904, 119–126; Dergačev/Manzura 1991, 130–132). SPITSIN found two graves in mound VIII,



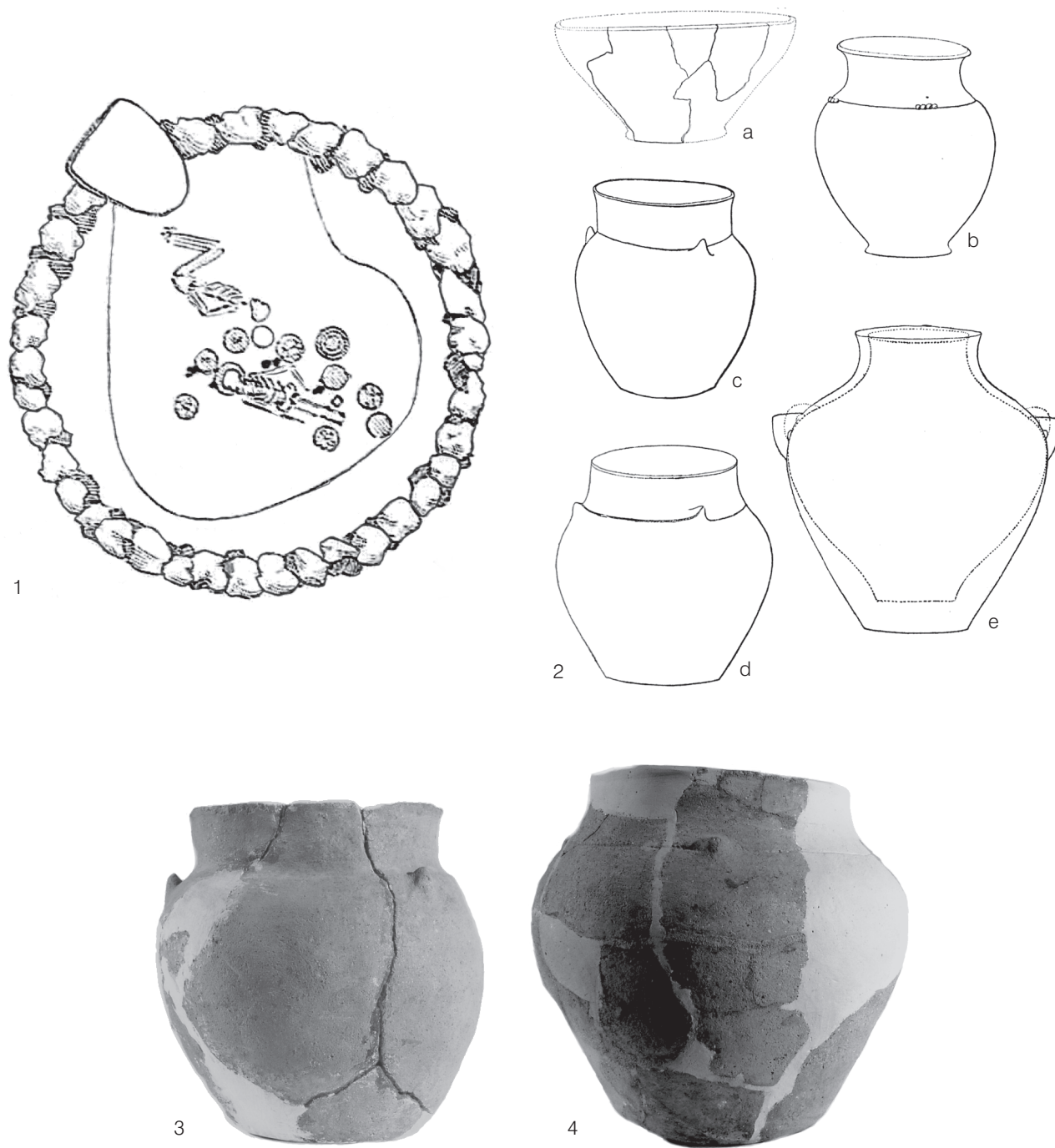


Fig. 8. Trypillya Culture (phase CII) – Kolodyste cemetery: 1 plan of burial mound VIII; 2 pottery from graves (1–2 after A. A. SPITSIN 1904); 3–4 pottery from graves at mound VIII.

surrounded by a stone circle that was ten meters in diameter (Fig. 8: 1). The deceased were covered with a red pigment. Six pots (Fig. 8: 2–4) that resemble pottery of the Troyaniv-Gorodsk and Sofiivka groups also came to light; one pot contained burnt bones. Two graves were found in mound IX as well as two piles of burnt bones, similar to those found in ceme-

teries of the Sofiivka group. Thus, at Kolodyste we can see the parallel occurrence of burial mounds, stone constructions, cremations and inhumations, as so well described by C. SACHSSE with regard to original Baden material at the meeting of the European Association of Archaeologists in Krakow (SACHSSE 2006, 230).

## Conclusion

It is interesting that there are several late Trypillya settlements in the area between the Southern Bug and Dnieper rivers (RYZHOV 2003, 187–195). There a significant amount of pottery can be noted with features of the Baden Culture, which is similar to the ceramics widespread among the Troyaniv-Gorodsk and Sofivka groups (RYZHOV 2003, Fig. 4; 5). Dergačev writes that some of these sites are related to the Gordinești group (DERGAČEV 1980, 120,193), while others relate them to the Serezliivka type (DERGAČEV/MANZURA 1991, 130–132). T. G. Movsha drew them together with the Gorodsk type (Movsha 1985, 237–239). S. Ryzhov supposes that they had appeared under the influence of the Sofivka group, which has similar pottery and cremation burials (RYZHOV 2003, 193–195). At the same time, the presence of the Baden traits mentioned above enables the supposition that direct relations existed between this region and the Horodiștea-Erbiceni group.

On the whole, it is apparent that the history of the dissemination of traditions of the Baden Culture to the east of the Carpathians started in 3600 BC and continued for a long time. These traditions are

reflected in the kinds of settlements, habitation, funeral rites, technology and pottery types as well as other aspects. It is not necessary to trace the traditions of the Sofivka group to the Černavodă Culture (KADROW 2005, Fig. 15). It seems that the transition of cultural traditions from the Baden Culture was oriented in another direction, namely from west to east, from the Carpathian Basin across the Carpathians, then from the upper Dniester River and Carpathian foothills in Romania and Moldova to Volhynia and the middle Dnieper River. This route is marked by related materials from different groups of the Trypillya Culture: Koshylivtsi (CI phase), Horodiștea-Erbiceni, Gordinești and Gorodsk-Troyaniv (phase CII).

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## Abstract

Cultural transformations in the area east of the Carpathian Mountains at the beginning of the Copper Age (according to the periodization adopted in Central Europe) resulted in the dissemination of “Baden–Kostolac–Černavodă III” cultural sphere, starting about the middle of the 4<sup>th</sup> millennium BC and onwards. Already in its initial stage the mediators of these cultures maintained close contacts with eastern territories. The time of the late Trypillya (Tripolye) Culture became a period of transformation and disintegration of this East European early agricultural unit. It can be confirmed that in a number of territories with “pure” Trypillya Culture, the tradition was interrupted. In our opinion the appearance of northern types of phase CII of the Trypillya Culture was determined by the

influence of the Baden Culture, the Funnel Beaker Culture and the Globular Amphora Culture, also including a Trypillya cultural component. The interaction between the Trypillya Culture and cultures of Central Europe played the main role in the creation of new cultural types in the East during the Late Copper Age. Thereby, the role of the so-called “steppe” cultures in this process was more modest during this period than hitherto thought. The stage of “Badenisation” included phase CII of the Trypillya Culture. Cultural groups like Gordinești, Troyaniv and Gorodsk appeared, perhaps as an outcome of migration, mainly from the Carpathian Basin. Their subsequent move to the East resulted in the appearance of the Sofivka group.

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