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Social Differentiation in the Late Copper Age and the Early Bronze Age in South Moravia (Czech Republic)

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THE FLORIDA STATE UNIVERSITY
COLLEGE OF ARTS AND SCIENCES

SOCIAL DIFFERENTIATION IN THE LATE COPPER AGE AND THE EARLY
BRONZE AGE IN SOUTH MORAVIA (CZECH REPUBLIC)

By

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To my parents. All three of them.

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ABSTRACT

In this dissertation, I evaluate the socio-political and economic changes during the transition from the Late Copper Age to the Early Bronze Age in South Moravia (Czech Republic). This part of prehistory has been envisioned as a period of intensification of the metal economy and long-distance exchange that led to a rise of social inequality and the centralization of power. To assess this model, I explore two main processes: 1) changes in vertical social differences; and 2) changes in gender relations.

I approach the two processes primarily from the perspective of mortuary analysis and formulate three main research hypotheses: 1) vertical social differences became more institutionalized over time; 2) institutionalization of vertical social differences primarily followed the “big man strategy”; and 3) gender inequality decreased over time. For each of the three hypotheses I specify series of expectations for patterns in the archaeological record.

This research is designed to take advantage of multiple lines of evidence that can be divided into four main tiers. First, I investigate two large Late Copper Age and two large Early Bronze Age cemeteries in detail. Second, I compare the general Late Copper Age and Early Bronze Age samples, which consist of a total of 429 burials. Third, I investigate the differences between Early Bronze Age burials in settlement pits (n=70) and cemeteries (n=125). Fourth, I explore the distribution of hoards and hilltop settlements and the size of all the settlements to evaluate population parameters.

The institutionalization of vertical social differences was limited because only a few lines of evidence support the hypothesis. On one hand, the mortuary treatment of children and individuals who were buried in settlement pits supports the institutionalization of vertical social differences. On the other hand, spatial distribution of burials, differences among females and among males, secondary mortuary practices, individuality of leaders, and the nature of features in settlements do not support this hypothesis.

The strategies of ambitious individuals tended towards the big man model rather than the great man model. The presence of large quantities of metal in burials and hoards suggests that the manipulation of exchange, rather than spiritual activities and warfare provided the means for aggrandizers to raise above others.

Gender inequality decreased over time. Male-specific forms of body treatment, artifacts, and grave characteristics diminished over time, while female funerals became

elaborate. I argue that the elaboration of female burials in the Early Bronze Age is unlikely to reflect their husbands' status only but is an indicator of the status of females themselves.

CHAPTER 1

INTRODUCTION

One of the most significant and controversial points in the history of social sciences was Karl Marx's claim that the economic base was the primary sphere that shaped human society. Childe (1930) applied this theoretical framework to the European Bronze Age and argued that the economic changes at the beginning of the Bronze Age significantly changed societies in Europe. Production of bronze commodities resulted in craft specialization and the emergence of marked social inequality. Today, several decades after the formulation of Childe's visionary ideas, major questions remain: Was intensification of the metal economy responsible for the substantial restructuring of society at the beginning of the Bronze Age? Is there evidence for the emergence of institutionalized social inequality and the chiefdom level of organization? Did economic changes significantly influence the relationship between females and males?

Answering these questions requires using a research framework that traces long-term processes that extend far beyond individual human actions and short-term cycles of economic fluctuation. Braudel (1980[1969]) called this the *long durée* to provide a framework for tracing historical processes that extending beyond the imagination of the majority of his contemporaries. I believe that tracing such long-term processes is one of the main strengths of archaeology (cf. Parkinson 2002:10). Given this perspective, this study attempts to shed light on socio-political and economic change during a period of approximately 800 years in the part of Central Europe called South Moravia. This time frame encompasses the transition from the Late Phase of the Late Copper Age to the Early Bronze Age (ca. 2500-1700 B.C.).

In the early 1990s, Stephen Shennan (1993) published a highly stimulating article about social changes in Copper Age and Early Bronze Age Central Europe that remains the best synthesis available. In contrast to previous interpretations, Shennan downplayed the crucial role of metallurgy and its social impact. Instead, he built a complex model of diachronic change that incorporated population dynamics, structure of ritual action, ideology, and technological change. Shennan depicted the transition to the Early Bronze Age as a shift from a society that was dominated by ideology of strict gender differences to a society that

that was dominated by ranking. Since he has relied heavily on evidence from Switzerland and Slovakia, I have been tempted to test this model in a smaller regional scale embodied by South Moravia (Czech Republic).

Another important point that emerged in Shennan's (1993) discussion as well as in Podborský et al.'s (1993:233) synthesis of prehistoric Moravia was the notion of clear continuity from the Late Copper Age to the Early Bronze Age. It has been suggested that the transition to the Early Bronze Age was a gradual process rather than an abrupt change. In that model, the beginning of the Bronze Age was defined arbitrarily based on increasing importance of metal rather than by a qualitative change. However, Shennan (1993:152) argued that the Late Phase of the Early Bronze Age yielded evidence of simple chiefdoms. Since this argument was proposed primarily on the basis of settlement and mortuary evidence from Slovakia, it remained questionable if neighboring regions, which did not have the same sources of copper ore, underwent the same trajectory.

In this dissertation, I test three main hypotheses that focus on the institutionalization of vertical social differences, the different strategies that might have led to the institutionalization of vertical social differences, and changes in gender relations during the transition from the Late Copper Age to the Early Bronze Age. The first hypothesis focuses on the institutionalization of rank grading in society over time. This hypothesis, inspired primarily by Wiessner's (2002) ethnohistoric study of the Enga in New Guinea, focuses on the process that leads to the establishment of social rules that result in more formal social differences. I investigate whether economic changes in the Early Bronze Age resulted in the increasing institutionalization of vertical social differences.

This dissertation models different strategies of individuals and groups that lead to institutionalized vertical social differences. The pathways to institutionalized vertical social differences have received little attention in Central European archaeological discourse. This is in strong contrast to ethnographic and archaeological research in other regions that have produced immense amount of information about the rise of vertical social differences (e.g., Godelier and Strathern 1991; Price and Feinman 1995; Wiessner 2002). In this study I have been inspired by Godelier's (1986) original model of the "great men" and "big men" societies that are based on different kinds of internal logic. The former is based on leadership embedded primarily in hereditary social positions associated with ritual action, combat, or

hunting and equivalent forms of exchange (see Chapter 2 for more details). The “big men” concept is based primarily on leadership achieved through entrepreneurial qualities of aggrandizers and nonequivalent exchange. Godelier suggested that prominent individuals in the two types of societies apply alternative strategies to seek individual merit. I apply this model to the past to address which of the alternative strategies of leaders fits Late Copper Age and Early Bronze Age societies in South Moravia better.

I focus also on the expression of gender identity in the mortuary archaeological record to test possible changes in gender relations. As Shennan (1993) argued, an ideology of strict gender distinctions gave way to an ideology of ranking. In other words, vertical social differences began to dominate horizontal social differences, including gender, at the beginning of the Bronze Age. This change, however, does not seem to reflect actual activities of females and males. Recent bioarchaeological research on manipulative activities of upper limbs and mobility in Central Europe has demonstrated that there were no significant changes in the activities of females and males during the transition from the Late Copper Age to the Early Bronze Age (Sládek et al. 2006a, 2006b; Sládek et al. in press). This puzzling evidence creates a contrast between perceived gender identities and actual gender-specific activities.

This dissertation critically evaluates gender inequality in the Late Copper Age and the Early Bronze Age. Previous studies of gender relations in the Late Copper Age and the Early Bronze Age have favored the model of male dominance. In this model, males pursue prestige through activities performed in the public sphere, such as subsistence labor, exchange of commodities, or warfare (see Bátorá 1991; Furmánek et al. 1991; Neugebauer 1994; Neustupný 1967, 1978). This model of male dominance implicitly assumes greater abilities of males rooted in human biology and depicts females as individuals with limited agency who passively accept the dominance of males. Since gender archaeology has provided critical evaluation of gender mythology in academia (Arnold and Wicker 2001; Conkey and Spector 1984; Gilchrist 1999; Nelson 1997; Nelson and Rosen-Ayalon 2002), I have decided to critically evaluate gender inequality in the Late Copper Age and the Early Bronze Age. Being a male, I attempt to approach this issue with as little bias as possible and to identify markers of male dominance and their change over time.

This dissertation bridges general syntheses of European prehistory and local small-scale studies. I believe that this is the kind of research that has been overlooked. On one hand, synthetic studies tend to simplify regional diversity in the archaeological record in pursuit of broad general arguments (see Kristiansen 1998; Kristiansen and Larsson 2005). Harding (2000:xv-xvi) has admitted this problem honestly in his synthesis of the European Bronze Age. Indeed, there is regional variability. Regions such as West Slovakia, Central Moravia, or East Bohemia yield different archaeological evidence reflecting different geomorphology, sources of metal ores, or strategic positions in Central Europe. The differences among these regions are sometimes underestimated in synthetic studies. On the other hand, small-scale local studies rarely generalize and project the results of excellent meticulous analyses beyond the level of a site or region or to view the results in a broader theoretical framework. Moreover, detailed catalogues of archaeological finds, features, or sites are not always sufficiently exploited. Although those publications are essential for archaeology and I personally benefited greatly from such publications (see Dvořák 1992; Dvořák and Hájek 1990; Dvořák et al. 1996; Horáková-Enderová and Štrof 2000; Ondráček et al. 2005; Stuchlík 1969), they cannot be viewed as a goal of archaeological enquiry by themselves.

This dissertation represents problem-oriented research. I state explicit research hypotheses and generate expectations for patterns in the archaeological record based on ethnographic accounts. I believe that this is the most fruitful approach to the investigation of the past (cf. Binford 1962; 1967). Moreover, I present evidence for my arguments and apply a probabilistic approach in the analyses to distinguish significant patterns and differences in the data from those that are not significant. Although tests for significance are not a cure for everything, formal testing strengthens the reliability of results. I attempt to use formal testing whenever the nature of the questions and the data allow me to do so. Also, this study takes advantage of the close collaboration with bioarchaeologists Patrik Galeta and Vladimír Sládek who provided me with the estimations of essential biological parameters of skeletons. We formed a research team that is supposed to combine archaeological and anthropological approaches to address questions about past societies.

I have divided this dissertation into nine chapters. In this chapter, I provide a brief outline of the main topics of interest and the three central hypotheses of my thesis. Also, I

have outlined the general research scope and methodology. Chapters 2 and 3 extend this introduction. In Chapter 2, I present the main conceptual and theoretical framework for the dissertation. I describe various aspects of social differences, their change over time, and the theoretical basis for the exploration of social differences in the mortuary archaeological record. Chapter 3 provides an introduction to the geomorphology of South Moravia and an overview of the archaeological cultures in the region, giving special attention to the Late Copper Age and the Early Bronze Age.

Chapter 4 builds upon the previous two chapters and presents the three main hypotheses of this study. A series of expectations for each research hypothesis is presented along with the archaeological correlates. Therefore, this chapter provides the necessary link between theory and characteristics that can be traced in the archaeological record.

In Chapter 5, I describe the methods that I use to test the research hypotheses. The first section describes the procedures for data collection. The second section discusses the methods for the analysis of intra-cemetery mortuary variability including its spatial aspects and mortuary variability between the sites and time periods. A small section is devoted to the description of methods for the analysis of non-mortuary data.

Chapter 6 discusses the archaeological sites that are subject to analyses in this dissertation. I pay special attention to four main cemeteries that are analyzed in detail. The description of each cemetery includes a brief history of the research, available materials for study, and a discussion of chronology and data evaluation including the procedures for data rectification. Finally, I discuss the general samples of burials from the Late Copper Age and the Bronze Age, including burials from settlement pits and non-mortuary sites.

Chapter 7 presents the results of the analyses. The first section of this chapter describes the results of the analyses of the four major cemeteries. The second section focuses on the analysis of Early Bronze Age burials in settlement pits. The third section describes the comparison of two general samples of Late Copper Age and Early Bronze Age burials. The last section presents the results of analyses of settlements and hoards.

Chapter 8 provides the discussion of the results obtained in the previous chapter. It is organized according to the three main research hypotheses and discusses expectations for each research hypothesis as specified in Chapter Four. The final part of this chapter discusses the problem of burial disturbances in the Early Bronze Age.

Chapter 9 concludes the main findings of this study. I attempt to present the model of changes that occurred during the transition from the Late Copper Age to the Early Bronze Age and place the results into archaeology's wider anthropological context.

Appendices are divided into sections A and B. Section A presents the data tables. Section B presents figures of Late Copper Age and Early Bronze Age artifacts, a drawing of a disturbed burial, and forms that were used for data collection.

CHAPTER 2

THEORETICAL CONSIDERATIONS

Introduction

This chapter provides the theoretical background for social differentiation and mortuary studies that attempt to shed light on such differentiation in past societies. I begin with a description of the two main axes of social differentiation – horizontal and vertical – and their relevance for the diachronic study of social differences. This includes a review of anthropological concepts and theories that relate to both horizontal and vertical aspects of social differences. The chapter continues with a discussion of the theories that attempt to explain the diachronic change of vertical social differences and gender relations. Finally, I review the development of theory in archaeological mortuary studies to show the potential of this kind of enquiry.

I argue that the mortuary archaeological record provides an invaluable source of information that can be used for modeling long-term changes in vertical social differences and gender relations. The potential of the record is increased when the data about both material culture and the human body are analyzed.

Social Differentiation

Humans in all societies differentiate each other on the basis of multiple criteria; age, gender, clan or sodality membership, property, skills, hereditary office, or prestige constitute the identities that are assembled during everyday interaction into particular sets that Goodenough (1969) once called social personae. The focus on social differences in this study stems from the idea that “difference” is a neutral category that is general enough to embrace the entire spectrum of relationships among individuals. It is based on the simple assumption that two or more entities differ from each other. It does not implicitly assume the nature, degree, or the significance of difference. Since the implicit notion of hierarchy often has penetrated studies of social complexity and gender relations (Moore 1993; Rowlands 1989), social differentiation seems to be the appropriate framework for the analysis of

archaeological materials. It distinguishes differences without the implicit tendency to give them value immediately.

One straightforward and common way to conceptualize social differences is the distinction between their vertical and horizontal aspects. Inspired by Blau's (1970) formal theory of differentiation, Tainter has defined vertical and horizontal dimensions of social differentiation in the following manner:

The former [i.e., vertical] clearly refers to the structure of rank grading in a society. The horizontal dimension, on the other hand, encompasses structural components that are equivalent on identical hierarchical levels and between which there are no major, institutionalized differences in rank. Examples of such horizontally differentiated components might include sodalities, individual descent units of segmentary descent systems, task groups, territorial bands, and the like. (Tainter 1977:331)

Although Tainter does not mention age and sex explicitly, these two categories are usually treated as horizontal social differences (see O'Shea 1984, 1996). This binary model of two main axes of social differentiation has become an essential conceptual tool for mortuary studies.

The binary distinction between the horizontal and vertical dimension of social differentiation has a drawback. It assumes that horizontally differentiated groups are on equivalent hierarchical positions in society. In fact, any category of social differentiation has a potential to produce hierarchical relationships in various situations (Crumley 1995:3). By hierarchy, I mean "...the principle by which the elements of a whole are ranked in relation to the whole, ..." (Dumont 1980:66). Although hierarchy may be manifested in various ways, it frequently results in inequalities among differentially ranked segments of the whole (Diehl 2000:1-2; Flanagan 1989:248; Chapman 2003a:7,71).

Age and gender often carry an element of inequality. For example, the constitution of personhood may be age dependent; small children do not have to be considered full persons (Conklin and Morgan 1996). Moreover, gender inequality can be constructed among men and women (Kelly 1993; Ortner 1996; Rosaldo 1974). Similarly, membership in different descent groups may carry prestige, potential for being selected for a social position, or access to spiritual powers and material objects (Godelier 1986). From this perspective, the horizontal/vertical division is an oversimplified model of differences that exist in society.

Any discussion about the adequacy of concepts should reflect the purpose for which they are created. Categorization of social differences into horizontal and vertical dimensions is a heuristic device that simplifies the complex reality, which would be otherwise difficult to grasp. If we agree with the view that science is a systematic production of knowledge (Bernard 2000:4), the creation of special categories and their operational definition is essential for this production. Naturally, social differences are not necessarily perceived the same way in different societies and archaeologists should acknowledge the anthropological critique of Western categorization (see Csordas 1993; Dumont 1980; Strathern 1988; Wagner 1991). These critical voices challenge the simplified models of social differentiation used in archaeology by attacking the categories used by archaeologists. The model of vertical and horizontal social differences certainly is a product of Western thought imposed on archaeological evidence in mortuary studies. I decided to use this model for pragmatic purposes associated with communication in academia. I use the concept of vertical social differences to describe hierarchical relationships among individuals and groups that are not primarily dependent on age and gender.

Individuals and groups, as a basis for social differentiation, are not straightforward categories. Anthropologists interested in the study of personhood suggest that the individual in the Western sense has been created and perpetuated mainly in written philosophical traditions (Sokefeld 1999:418). Ethnographic studies show evidence of alternative perceptions of personhood. The most prominent proponent of this school of thought, Marcel Mauss (1985), applied the term *personnage* (person) to describe the relational nature of personhood. In this sense, a person is more than an individual human body. Certain positions in society such as “seats” or “names” are filled with individuals who carry identities associated with these positions and through their relationship to others represent a collectivity. While individuals, as biological entities, come and go, persons may survive as they are recreated by other individuals. In other words, a person, in this relational sense, is socially constituted in the process of production and reproduction of a social system through the web of social ties to a collectivity (Gillespie 2001b:84).

Some authors challenge the universality of the opposition of individual and society (Strathern 1988, 1991; Wagner 1991). Wagner (1991) introduces the concept of the fractal person who embodies neither individual nor collectivity but an entity whose existence is

relational. Therefore, relations – not physical beings – are crucial social features of interest.

In the description of Melanesian exchange, Wagner says:

Anyone who has ever tried to determine the definitive *locus* of 'individual' and 'corporate group' in the planning and making of these competitive exchanges, fairly soon realizes that individual and group are false alternatives, doubly so implicated because each implies the other. (Wagner 1991:161-162)

Since there has been a debate about the autonomous and egocentric perception of the individual in the West (Holland and Kipnis 1994), some scholars (see Gillespie 2001b) call for the application of the relational concept of persons to mortuary archaeology.

The application of the relational notion of personhood to archaeology represents a significant challenge. The shift from physical entities to relations questions archaeological methodology that primarily deals with physical objects. As Houston and McAnany (2003) argue, the archaeological inspiration in ethnographic critique should take into account the specific nature of the archaeological record that consists of past societies' physical remains. Therefore, the conceptual and theoretical framework in archaeology is inevitably limited by the potential of the archaeological record itself and should consist of the "tools" that are most pertinent to it. I suggest that the application of the concept of individual is not necessarily detrimental to mortuary studies that deal with the physical remains of humans. It is appropriate to start the analysis with the investigation of differences between physical remains of individuals and their archaeological context and move beyond these categories later to shed light on the relations among individuals.

Archaeological exploration of social differences in the past should reflect the nature of the archaeological record and analytical tools available. One of the most effective starting points for mortuary analysis is the investigation of the relationship between material culture and age and sex (Arnold 2002b:244; O'Shea 1996:23). Although it is possible to start mortuary analysis without a reference to individuals and their biological characteristics, it would be counterproductive to ignore available biological data that provide one line of archaeological evidence. Considering the challenges of mortuary analysis Bettina Arnold says:

The first task of the archaeologist should be to identify patterned correlations between morphologically identifiable sex and the material

culture expression of gender within a specific prehistoric mortuary context before attempting to define the range of possible social categories. (Arnold 2002b:224)

The emphasis on biological characteristics of individuals enables the archaeologist to identify patterns in the archaeological record that may be associated with age and sex, and therefore, reduce the unknown portion of mortuary variability. The next step is the analysis of overlaps between categories and the identification of irregularities that do not fit the observed patterns of association. Therefore, the archaeologist can start unraveling the intricate relationship between biological parameters and gender, socially defined age, other horizontal social differences, vertical social differences, and special distinctions. The special distinctions are infrequent and mostly reflect unusual circumstances of death (O'Shea 1996:18).

Differences among individuals may form the basis of inequality. That is to say that the differences among individuals are given meaning of superiority and inferiority (Béteille 1996:304). Inequality has many dimensions. Political, economic, and ideological inequalities are the main dimensions discussed in anthropology. Although these categories clearly are the inventions of the Western tradition and do not necessarily fit indigenous categories, they are useful tools for etic exploration of inequalities in different societies. They have proved to be particularly useful in the search for the relationships among different kinds of inequalities. As Price and Feinman (1995:4) state, various forms of inequalities are not coterminous. This finding is essential for archaeology where different dimensions of inequality are often lumped.

Ethnographically, different dimensions of inequality do not always go hand in hand. Political leadership and prestige do not have to result in the accumulation of wealth as examples of hard working but poor head men or rich juniors with low status and poor but influential seniors from various places show (Harris 1975:365-368; Kelly 1993:9). Also, the ideological level of inequality does not have to be associated with better well being. Gender inequality is an example that documents possible contradictions between different spheres of inequality. In some societies men can have exclusive access to spiritual powers but women do better in material terms (Kelly 1993).

Vertical Social Differences

The elevation of a limited number of individuals among others played an important role in Service's (1971[1962]) classification of societies. While bands and tribes are relatively similar in this respect, chiefdoms represent a different form of vertical social difference. The lack of powerful positions of political leadership in bands and tribes is replaced by permanent offices and the hereditary transmission of social status in chiefdoms. The power of chiefs becomes centralized and covers the entire region under control. This primarily political dimension of differences is, according to Service, accompanied on the economic level by the existence of redistribution organized by chiefs. States extend the power of a few through bureaucracy and the institutions focused on repression through the use of force (Service 1971[1962]).

One of the points that was criticized in Service's classification was the association of chiefdoms with redistribution. Earle (1987b) has demonstrated that Service's example of redistribution in Polynesia was unusual and local communities were largely economically self-sufficient. Therefore, redistribution could not be the primary feature responsible for chiefly power and can hardly be considered an essential feature of chiefdoms (Earle 1987b; Chapman 2003a:44).

A classification based on unequal distribution of prestige, authority, and power was developed by Fried (1967) who divided societies into egalitarian, rank, stratified, and states. The main distinction between egalitarian and rank societies is in the restricted nature of positions of valued status that are limited in rank societies. Also, leadership in egalitarian societies is based on authority and is situational rather than permanent. In rank societies the positions of valued status are permanent and limited but still lack coercive power and preferential access to resources. In contrast, stratified societies show differential access to basic resources that are necessary for life. Therefore, status differences are closely tied to the economic sphere. State society extends the differences known in stratified society. It is more complex and disregards the role of kinship (Fried 1967).

The criticism of both Fried's and Service's models emphasizes that social inequality is not restricted only to those societies that are usually labeled complex but appears in every human society (Clark and Blake 1994; Flanagan 1989; Josephides 1985; Price and Feinman 1995). Even egalitarian societies form inequalities based on age, gender, or individual talents

(Flanagan 1989; McKinnon 2000). Although Fried (1967) is often criticized for creating the egalitarian and non-egalitarian ideal types in Anglo-American anthropological discourse (see Flanagan 1989; Hayden 1995), this critique is not entirely fair. When Fried discusses social differences in egalitarian societies he says:

Because there can be no such thing as a society composed of exactly equal members, one may wonder that we use the term 'egalitarian society'. Two justifications are offered. First, the term may be understood as an ellipsis, the missing word being 'relatively'. Societies so designated lack formal ranking and stratification as defined later and therefore approach, although they certainly do not attain, true equality. Second, the term itself is usually somewhat programmatic and is encountered in political slogans. Though most of the words chosen in a scholarly or scientific context are valued, at least in theory, for their political neutrality, the political coloration of 'egalitarian' fits our purpose rather well. (Fried 1967:28)

I doubt that the creation of hybrids such as transegalitarian societies (see Clark and Blake 1994:18) is significantly better. It just creates a new category that makes the comparison among societies more complicated.

Another critical point is raised by Feinman and Neitzel (1984) who explored the variability of pre-state sedentary societies in the Americas. They demonstrated that the attributes commonly used for categorizing societies – including status differentiation, the roles of leaders, number of decision making levels, and form of economic organization – indicate continuous distribution. They challenge grouping of societies into types because:

No single value for any attribute characterized each case nor could the state of a particular variable be used to predict the values of all other attributes. (Feinman and Neitzel 1984:78)

Based on their findings, Feinman and Neitzel suggest lumping all pre-state sedentary societies into the category middle-range societies.

Vertical social differences that create a hierarchical structure are seen as context-dependent by some authors. Crumley (1987; 1995) has argued that hierarchy cannot be viewed as a general entity that encompasses all dimensions of society. She introduces the concept of heterarchy, which reflects relationships where "... each element possesses the potential of being unranked or ranked in a number of different ways, ..." (Crumley 1979:144). Crumley's heterarchy attempts to capture the complicated relationships between

individuals, groups, and institutions in society. It is clear that there are hierarchies within hierarchies and that the elements of the system simultaneously participate in several forms of relationships. The elements may be superior in one aspect of relationships and inferior in another.

Flanagan (1989) has argued in a similar way to emphasize the dynamics of hierarchy. He suggests that the exploration of inequality should abandon the static view because there are only egalitarian contexts and situations, not societies. Indeed, inequalities may temporarily emerge or become more prominent in times of warfare and then fade out again (see Fowles 2002). Even in cases where the structure of the hierarchy remains relatively stable, there may be mechanisms that prevent uncontrollable appropriation of power by individuals. For example, among the Melanesian Mekeo, there are peace and war chiefs and sorcerers who alternate with each other during the times of peace and war (Mosko 1991).

Other anthropologists challenged the dichotomous model of hierarchical versus nonhierarchical societies to argue that there are just different types of hierarchy. Johnson (1982) introduces the distinction between simultaneous and sequential hierarchies. While the former describes the classic notion of hierarchy, the latter describes relatively egalitarian societies that can mobilize large groups of people for ceremonial activities and where positions of leadership are not permanent (Johnson 1982:405). Almost a decade earlier, a similar line of reasoning appeared in Renfrew's (1974) model of group-oriented versus individualizing chiefdoms that represent two forms of society with differential emphasis on individual rank. While individualizing chiefdoms are characterized by prominent high-ranked individuals, group-oriented chiefdoms do not have them and mobilize labor for large projects without centralized leadership.

A more recent model introduces two different political strategies: corporate and network (Blanton et al. 1996; Feinman 2000; Feinman et al. 2000). Feinman et al. follow Crumley's essential point that hierarchy and equality always coexist. The network strategy emphasizes individuals and their personal networks to consolidate power and wealth. The corporate strategy is based on group membership and relatively equal distribution of power and wealth. The main idea behind the model proposed by Feinman et al. does not seem to be substantially different from those specified by Renfrew (1974) and Johnson (1982). However, it goes one step further. A focus on strategies rather than types *per se* suggests that

anthropologists should explore the constitution of certain sociopolitical formations rather than the features of these formations.

The criticism of the classification of societies certainly has identified some important points. Particularly, the existence of inequalities in egalitarian societies and noncoterminous relationships among variables used for the classification of societies indicate that these classifications should be considered with caution. However, Service's and Fried's typologies are meant to be just tools for an approximate classification of societies: they are heuristic devices (cf. Chapman 2003a:41). They are ideal types in Weber's terms:

... we do not create the term 'urban production' as the average of all production principles that really exist in all urban areas observed. On the contrary we create an ideal type as the gradation of one or several phenomena and merge a number of individual diffuse and discrete phenomena that appear sometimes more, sometimes less, or even not at all and that along with single-oriented views merge into the internally coherent picture. In its conceptual cleanliness *the picture does not exist anywhere in reality*. It is Utopia. Historical studies are obligated to shed light on the degree to which particular examples resemble the ideal type and to what degree the economic nature of a particular urban area can be conceptually designated as 'urbanproductive.' (Weber 1998[1904-1920]:44; translation mine, emphasis mine)

The assignment of a society to type A or B is not the goal of anthropological research, which instead should focus on the investigation of specific variables and processes. Nevertheless, some kind of typology seems necessary for cross-cultural comparisons where the selection of an appropriate sample is guided by types, and for effective communication among scholars where the description of multiple variables for each society is simply untenable (Earle 1987a; Parkinson 2002b; Wright 1984). Even the approaches focused on strategies and processes (cf. Feinman 2000) cannot entirely escape categorization and the creation of types.

The critique of rigid hierarchies is certainly useful for synchronic studies but less relevant for the study of long-term process. The emphasis on the dynamics and context of vertical social differences has provided a relevant critique of the simple models of hierarchy. However, the internal short-scale dynamics within the frame of a human life do not prevent general long-term changes in the scale of hundreds or thousands of years. Such a view of different forms of change is reminiscent of specific vs. general evolutionary models that

depict both dimensions as complementary, not competing (cf. Sahlins 1960). Since the current study is interested primarily in changes in social differentiation during hundreds of years, it is relevant to assume that general changes in vertical social differences can be traced despite the small-scale fluctuations and context of the differences in daily praxis.

Vertical social differences in pre-state societies may be embodied in the concepts “big man,” “great man,” and “chief” (see Godelier and Strathern 1991). Great men are charismatic leaders who gain their positions of prestige through warfare or spiritual practices. They are the great warriors, hunters, masters of initiation, or shamans (Godelier 1986). Thus, according to Godelier, economic production and exchange are not the primary spheres that would give rise to great men. In addition, exchange that takes place in great men societies is equivalent as material objects are exchanged for material objects and women are exchanged for women (Godelier 1986). Another important aspect of great men status is its fragmentation. The positions of great warriors, hunters, masters of initiation, and shamans are not acquired by the same individual but are divided (Liep 1991:31). In Strathern’s (1991:199) terms, great men – in contrast to big men – cannot be reduced to a single form.

Big men, as originally defined by Sahlins (1963), are highly competitive, charismatic leaders who pursue prestige through the manipulation of social relationships. Sahlins describes the emergence of big men in the following way:

Big-men do not come to office; they do not succeed to, nor are they installed in, existing positions of leadership over political groups. The attainment of big-man status is rather the outcome of a series of acts which elevate a person above the common herd and attract about him a coterie of loyal, lesser men (Sahlins 1963:289).

The skills of big men are applied during large-scale ceremonial exchanges that can be considered the basic institution of big man society (Lemonnier 1991:16). Big men organize gift giving to manipulate the flow of wealth. According to Godelier (1986), there are two main features that are responsible for the emergence of big men: the first is the penetration of wealth into kinship relations in the form of exchange of women for wealth; the second is the penetration of wealth into the constitution and continuation of inter-tribal relations. Warfare, which also is common in big men societies, provides an important arena for big men to elevate their status but not only during the immediate conflicts. They may organize compensation payments, reception of refugees, or marriages (Lemonnier 1991).

Chiefs represent the most institutionalized positions of leadership. Their position becomes an office that has to be filled with a successor after the chief's death. Since the office carries more power than the person, the superior position may be less personalized than in big men or great men societies (cf. Sahlins 1963:295). Although chiefly status can come from different sources including the control over means of production, extension of alliances related to warfare, and ideology, it seems that a crucial factor is the ability to control these sources of power (Earle 1991:8). Chiefs simply have to exclude others from access to the sources of power. Therefore, chiefs primarily follow their own self-interest, not necessarily the common good (Gilman 1991:147). Although various authors emphasize one or another source of power in different regions where chiefs have taken over, I assume that the chiefly status differs from those of great and big men in the tendency to merge diverse sources of power. In other words, the very nature of chiefly status is associated with the trend to establish control over economy, population, and ideological means to legitimize power in one locus: the chiefly office. Although there might be cases of chiefs who do not control all three sources, it is clear that the most effective strategy for domination depends on the combined control of these sources (Earle 1991:9).

Age and Gender

Age and gender identities are the essential dimensions of social differentiation. Although the link of age and gender to biology is far from being straightforward, the extreme constructionist view that age and gender do not have anything to do with biology is unwarranted. The fact that age and gender are filtered through, or constructed in, a particular cultural context does not eliminate the very basis upon which these constructs are built.

A focus on gender was introduced to anthropology in the 1970s to provide a conceptual framework for understanding the diversity of roles and identities associated with sex. Originally, it was meant to be a concept that was meaningful in a specific cultural context and opposed to culture-free biological predispositions (Sørensen 2000:42). However, this binary view is problematic. First, biological sex is a hierarchical system. Minimally, there are genetic, chromosomal, gonadal, genital, and somatic dimensions of sex (cf. Herdt 1994; Novotný 1997). These levels do not have to be always in agreement as various

syndromes such as Klinefelter's and Turner's syndromes show. However, the proportion of these variants in a given population is small. Second, the constructionists claim that sex itself is a social construct (Butler 1990; Laqueur 1990). Although it may sound radical, this critique has a valid point. The binary model of sex has been created by humans from the variable nature of human biology (Gilchrist 1999:56). Taking this one step further, all categories recognized and used by humans have been created. However, only some categories have been defined operationally and can be estimated on the basis of valid and reliable methods. This is the case of the biological categories female vs. male. For example, even the methods for skeletal sex estimation reach highly reliable results. Bruzek (2002) reports only 2% error on well preserved material.

Both sex and gender are constructed. Nevertheless, there is a fundamental difference in the form of construction. In the model that I am proposing here, sex is constructed independently from the experience of research subjects (humans represented by skeletons) and does not even attempt to reflect any perspective of these subjects. It might be called an *etic* perspective in Harris' (1979) terms. On the contrary, gender attempts to capture the perception of femaleness and maleness of the research subjects, alive or dead. It is *emic* because it reflects what people think or thought about themselves. In this study I use the terms sex and gender as distinct concepts: sex as a biological category estimated on the basis of skeletal material by bioarchaeological methods, and gender as a category that attempts to reflect the perception of femaleness and maleness by those who are studied. Such a separation of both terms is necessary (cf. Arnold 2002b:239; Walker and Cook 1998). Although there are other ways to understand the sex vs. gender difference (Sørensen 2000:48), I believe that the distinction presented here is the most appropriate for mortuary analyses presented in this study.

Gender is not only constructed but it is also flexible. As Sørensen says:

Gender, therefore, is not static; it needs to be continuously renegotiated, confirmed and maintained. All its forms and meanings can be transformed and may be considered transitional. This means that gender is dynamic, and it gives rise to gender identity, roles, relations, ideology and politics (Sørensen 2000:52).

The fluidity of gender is part of human experience. Thus, a person can be virtually genderless in childhood, become a woman, and in case of need become for example a "male

daughter.” The ethnographic record from West Africa and Europe shows that females may be transformed into gendered males when no male heir is available (Amadiume 1995; Grémaux 1994). Similarly, the phenomenon of North American berdaches shows that the external dimension of their gender identity (*sensu* Jenkins 1994 for the distinction between internal vs. external dimension of identity) was attained during life and sometimes even publicly confirmed (Callender and Kochens 1983:451). Although these are extreme examples they clearly demonstrate that gender is not static. In mortuary studies it implies that gender of the dead may be influenced by a particular gendered context of a mortuary ritual.

The dynamic nature of gender has lead some scholars to merge it with age. Sofaer-Derevenski (1997) argues that age and gender are inseparable entities because they create an interwoven system of meaning. According to her view, a person goes through various stages of gender during life. This idea is interesting but does not deny that age and gender can be considered as two analytical categories.

Gender identity is tied closely to human activities. Several cross-cultural studies have pointed out that some activities tend to be associated with males or females (Ember and Ember 2003; Low 1990; Murdock and Provost 1973). The performance of different activities is often loaded with meaning that establishes inequality between females and males. Although gender inequality is constructed and reconstructed primarily through praxis (*cf.* Bourdieu 1977; Moore 2000), various schools of thought have searched for the very source of inequality in different spheres.

Several authors have long argued that gender inequality stems from the access to the means of production. For example, Godelier (1986) insists that the lower social status of women among the Baruya in New Guinea primarily derives from their inability to inherit land, participate in the exchange of goods, hunt, and produce the majority of tools. A similar view has been suggested by Rosaldo (1974) who argued that gender inequality stems primarily from the association of women with the domestic sphere and men with the public sphere, which offer different potential for building alliances.

Other authors emphasize the symbolic dimension of gender inequality. Ortner (1974) argued that female subordination stems from the symbolic association of males with culture and females with nature. Despite the symbolic dimension of this model, the link between females and nature inevitably points toward reproduction as a natural process. On a less

general scale, Kelly (1993) demonstrated that gender inequality among Strickland-Bosavi tribes in New Guinea is embedded in cosmology. Economic production and exchange do provide the background for inequality but it is the association of men's labor with supernatural forces that gives meaning to economic relations of production and distribution (Kelly 1993:9-11).

The global models of female subordination were challenged from various positions. The point that has to be emphasized is that there are diverse sources of power for women and men. The power of women can stem from the ritual performance (Levy 1995) or the transformation of the raw materials produced by men into useful and socially significant products (Joyce 1992; Uzendoski 2004). Moreover, it was demonstrated that gender relations in some societies are organized on the principle of complementarity rather than domination (Bodernhorn 1993:198; Mosko 1991:113; Weiner 1976:228). The dichotomies of private vs. public and culture vs. nature were also challenged because they often did not exist in non-Western societies (Gilchrist 1999; MacCormack and Strathern 1980).

Strathern (1988) went one step further to argue that even the fact that men participate in public exchange and attempt to require a reputation does not create male domination because men are not the only owners of their own persons. They only represent the unitary identity in the public sphere, which originates through the transformation of multiple identities in the domestic sphere (Strathern 1988:160). In other words, this situation represents an alternative conceptualization of personhood where husband and wife perceive themselves as a whole. Strathern demonstrates that in societies with gift-exchange, producers are never separated – alienated in Gregory's (1982:43) terms – from their gifts. Therefore, women remain linked to the objects that flow in the public sphere despite the superficial impression that men are the proprietors of those objects (Strathern 1988:163).

Age has at least three dimensions relevant for mortuary studies. There are calendrical, biological, and social ages. The first one is a standardized linear measurement that describes the time difference between birth and a specific point of life; for example age at death. The second kind of age reflects the actual state of the body. Two individuals with the same calendrical age do not necessarily have bodies that show the same degree of age-related changes (Buckberry and Chamberlain 2002:236). Their bodies reflect different diets, activities, endocrinological functions, and other conditions of their lives. Moreover, different

parts of the same body may show different degrees of age-related changes. This has crucial methodological implications for the age estimation of human skeletons (Buckberry and Chamberlain 2002; Scheuer 2002). The third dimension is the internal perspective of age in a particular socio-cultural context. Rather than considering individuals through the prism of their individual age, many societies classify individuals into age sets. Initiation rituals often serve as a mechanism that binds individuals of similar age together through shared liminal experiences (Turner 1967). Such ties may remain active for the rest of the individuals' lives. Moreover, human life can be divided into age grades through which an individual passes. In some cases, initiation to a new status may happen multiple times during life with full adulthood reached in the late thirties (Barth 2002:4).

Age structures the activities that individuals perform. The elderly often serve as organizers who can apply experience and judgment while younger adults perform activities that are more physically demanding. Even children are responsible for labor. Indeed, the activities of children are often essential for the functioning of small-scale societies (Herskovits 1952:133; Whiting and Edwards 1988:164). Children often are responsible for taking care of their younger siblings, animals, or cultivation. In societies with intensive agriculture, a large number of children is viewed as an advantage to satisfy high labor requirements (Ember 1983:294).

Age may be a source of inequality. In some societies, infants are not considered full humans because they are in the process of "being made" (Conklin and Morgan 1996:672) or they are unable to survive without external help (Scheper-Hughes 2002). Inequality among age grades is associated with various taboos on food consumption, tool production, and participation in rituals (Flanagan 1989:257-258). Although these restrictions are related to activities, another powerful mechanism for age inequality maintenance is the control of knowledge (Flanagan 1989:257). As Barth (2002:4) demonstrated, ritual knowledge may be subject to long-term prohibition when initiates have to go through multiple stages to obtain the knowledge in their late adulthood.

Institutionalization of Vertical Social Differences

Social differences may become more formal over time via the process of institutionalization. Institutions can be understood as "the rules of the game in a society or

more formally, the humanly devised constraints that shape human interaction” (North 1990:235). Institutions reduce transaction costs when individuals interact. In other words, they are the tools that provide agents with a range of opportunities for action without wasting energy that would have to be used for signaling much more information if institutions were lacking. The paradox of institutions is that they are not necessarily signs of socio-political complexity or “progress.” Transaction costs also can be reduced through egalitarian institutions (Wiessner 2002:235). Institutionalization, then, is the process that leads to the establishment of the new rules of the game. It happens through agency that operates in the background of structure. In the case of vertical social differences new institutions are established when a limited number of individuals successfully protect the rules that allow them to dominate – economically, politically, or ideologically – the others for an unlimited period of time.

There are two contrasting models that describe the institutionalization of vertical social differences and inequality. I will call these models “the stress model” and “the abundance model.” The stress model is based on the assumption that various kinds of stress such as resource shortage or population pressure are necessary preconditions for the development of social inequality (Arnold 1992; Bogucki 1999:215; Halstead and O’Shea 1989; Johnson and Earle 2000:14). In this model, stress causes an intensive mobilization of labor to avert the forthcoming crisis. Since the effectiveness of labor grows with the degree of organization, these situations create the potential for active individuals to organize the labor of others for their own benefits (Arnold 1992:62). The development of social inequality under the conditions of stress can have a different tempo. While some explanations depict the rise of inequality as a gradual, long-term process (Bogucki 1999:212-216), others emphasize the ‘punctuated’ nature of this process that reflects the short-term fluctuations in resource accessibility (Arnold 1992:62).

The abundance model is based on the assumption that there has to be a potential for the elevation of some individuals over others. This potential is the abundance of resources (Clark and Blake 1994; Hayden 1995). When resources are available, they can be accumulated and later used by ambitious and competitive individuals or aggrandizers (Clark and Blake 1994:17). Aggrandizers, who exist in every human society, seek to attract followers through the distribution of previously accumulated surplus. The most successful

strategy for attracting followers seems to be competitive public feasting that makes distribution of the surplus among the followers possible (Hayden 1995:25). Over time, successful aggrandizers may establish rules for inheritance and marriage arrangements that eventually lead toward an institutionalized form of inequality between the aggrandizers and the rest of the community.

These two models that look contradictory at first become complementary when one views them from the perspective of the theory of dissipative structures. With this theory, which was originally developed in chemistry, Prigogine (1984) attempts to describe the behavior of complex systems. He introduces the fundamental idea that many complex systems that fluctuate outside of equilibrium may experience radical changes that result in the emergence of order from chaos. The farther a system lies from the state of equilibrium, the smaller the change that can restructure the system. This theory is very useful for understanding the institutionalization of vertical social differences. The conditions of stress and abundance characterize opposite ends of the hypothetical states a society (system) can attain. The conditions of stress and abundance cause disequilibrium. Since disequilibrium is very sensitive to any stimulus, human agency has a great potential to restructure the entire system.

Although this example from chemistry may appear crude for the understanding of complicated process in the social world of humans, I believe that this inspiration is useful. In spite of the difference between the physico-chemical and social systems, they both have to react to conditions of disequilibrium. In fact, Prigogine's (1984) ideas go beyond the world of molecules and forces to suggest that the underlying logic also works in social systems. Indeed, there are examples of the application of Prigogine's thinking in archaeology (Spencer-Wood 2000). This theory creates a bridge between the two seemingly contradictory models for explaining the rise of social inequality.

In reality, the difference between the abundance and stress models is less extreme. For example, Wiesner's (2002) ethnohistoric study of the Enga clearly shows a close relationship between stress and abundance. Population increase and environmental circumscription among the Enga resulted in conflicts among clans. The consequences of these conflicts were solved through compensatory payments. The Tee cycle – the system of exchange – was used to fund both Great Wars and war reparations. Therefore, conflicts went

hand in hand with the intensive accumulation and distribution of wealth by managers, and this allowed the managers to rise above others and reinforce their position (Wiessner 2002).

Despite the different causes of the institutionalization of vertical social differences, “the stress” and “the abundance” models share an emphasis on human agency. Ambitious and active persons who take advantage of either critical situations or conditions of abundance are the essential elements in both models. Therefore, agents appear to be more important than the structure in which they are embedded. This view is very different from Bourdieu’s (1977) theory of practice and Giddens’s (1979) theory of structuration that often serve as theoretical inspirations for the models of agency in archaeology (see Dobres and Robb 2000; Hayden 1995; Hodder 2000). Both these theories emphasize the interplay between agents and structure. As Wiessner (2002:248) demonstrated with the example of the Enga, agents – managers, aggrandizers, or leaders – allow their fellow clansmen to shape agents’ decisions and actions. Therefore, the concern of collective welfare and ideals provide the essential structural basis upon which ambitious agents build.

The paths to institutionalized vertical social differences are not uniform. In contrast to simple linear models, there are multiple ways to get to the same point. One strategy may lead through the control of labor, surplus production, and exchange. Another strategy may lead through the manipulation of population size and density. Yet another strategy may lead through the organization of ritual activities or mastery in combat. Each of these strategies enables a portion of society to manipulate the flow of goods, people, or words to gain an advantage. This advantage can be used then to obtain knowledge, wealth, more offspring, or attract followers. These various advantages can be understood as forms of capital that are mutually convertible (cf. Bourdieu 1983). In order to explore different strategies that lead towards institutionalized inequality, it is useful to operationalize them for three different types of leaders: great men, big men, and chiefs.

The strategies of big men and great men are different. They can be roughly divided along the following axis: the first trajectory follows the accumulation of wealth through the system of competitive exchange and achieved leadership, while the second follows the ritual reproduction of society and ascribed leadership. These two opposing logics may lead, nonetheless, to the same point: the chiefly office. The best way to conceptualize the relationship among the three forms of leadership and associated strategies has been presented

by Liep (1991:33). He demonstrates that one cannot put the three types into a linear evolutionary sequence. Instead, one can organize them in a triangular schema that challenges the unidirectional process (Figure 2.1). This finding is crucial for the investigation of the process of institutionalization of social inequality in the past. It indicates that we should not assume that there is a single pathway that would go from egalitarian tribes to chiefdoms with complex and formalized hierarchical structure.

The first difference between the strategies of these three ideal types of leaders is in the trans-generational transmission of status positions. Big men acquire positions superior to others mostly through their own agency, chiefs and some great men acquire their position through genealogy and inheritance of social status (Godelier 1986:163; Sahlins 1963:289). However, this achieved vs. ascribed distinction is not absolute. Masters of ritual among the Baruya, a great man society, inherit their position while the candidates for the position of the great warrior and the shaman are selected (Liep 1991:32). The most striking finding from this brief overview is that the transmission of social status does not follow the assumed evolutionary trajectory from great men to big men to chiefs (cf. Lemonnier 1991). It seems that there are two different strategies that produce powerful chiefs: emphasis on individual skills and the inheritance of ritual power. This conclusion is also in agreement with the cross-cultural study of the sedentary pre-state societies that show great variability in the degree of inheritance of social status (Feinman and Neitzel 1984).

The next difference between the strategies of the three types of leaders refers to the control of production. Great men have moderate control over the cultivation of plants and raising animals because these activities are performed mostly by women and the need of products for exchange is limited. In contrast, big men need to have control over production because the subsistence products can be used for competitive exchange. As the importance of wealth accumulation necessary for the exchange transactions rises, big men tend to control and appropriate the work of women more efficiently (Godelier 1991:295). Chiefs reach the highest level of regulation over production that can be controlled even with the use of coercion.

Figure 2.1. Relationships among great man, big man, and chief. Modified after Liep 1991, fig. 2.1

Another difference in the strategies of the three types of leaders stems from the nature of exchange. Great men organize only limited direct exchange of equivalent objects while big men may engage in complex exchange systems of non-equivalent objects that allow them to influence the flow of wealth (Liep 1991:32). The equivalence means that women are exchanged for women, death is compensated by death, and the exchanged quantities are the same (Godelier 1991:279). Chiefs engage in the non-equivalent form of exchange but have better control over the accumulation of wealth because the exchange is centralized (Liep 1991:33). Also, exchange in great men societies tends to be less competitive than in big men societies and chiefdoms (Lemonnier 1991:16-17).

These three categories of leaders are just heuristic devices for thinking about different forms of leadership. Godelier describes the relationship between societies with great and big men as follows:

Next, it had seemed to me that the logic of power in these societies [i.e., great men societies] contrasted in many ways with that of big-men societies, but that these two contrasting logics seemed, by their very opposition, to form two poles of a vast system of structural transformations, and that, consequently, there must exist examples of societies which fell between the two extremes, combining certain features of both. (Godelier 1991:276)

As noted before, these types are just ideal categories and various tribal societies are more similar to either the first or the latter.

The special case that deserves attention is “the graded society.” Following Blackwood, we can describe a graded society as follows:

A hierarchically ordered series of named status grades, entry to which is achieved by the purchase of various insignia and the sacrifice of a prescribed number and quality of animals. In most cases, but not always, pigs provide this currency of rank accession being used both for the payment of the grade symbols and in the culminating ritual of slaughter. (Blackwood 1981:35)

The logic of rank that operates in graded societies combines great men and big men strategies. On one hand, rank is achieved through the ritual sacrifice of animals when a ritual leader is the highest ranking man (Jolly 1991:56). On the other hand, rank is achieved also through the purchase of insignia and exchange of animals (Jolly 1991:59). Therefore, one can hardly draw a line between the strategy to achieve higher rank through ritual activities and the strategy to achieve higher rank through the accumulation of wealth and its distribution. In fact, the ritual killing of animals requires production of a large number of animals in the first place. The graded society is an exemplary case that proves what substantivists have been claiming for a long time (see Polanyi 1957; Sahlins 1976). The strategies to reach higher rank may combine economic and spiritual aspects. Thus, they are mutually encompassing. The intermediary position of the graded society between great men and big men societies demonstrates the limits of a typological approach. Nevertheless, it points out that certain

forms of leadership and social organization can result from devolution rather than evolution. Graded societies can be understood as an example of collapsed chiefdoms (Jolly 1991:77).

Collapse and devolution have to be considered as part of the evolutionary process. Anthropologists and archaeologists have shown that technology and knowledge can disappear over time (Atran et al. 2004; Henrich 2004) and states and chiefdoms can collapse (Anderson 1990; Schwartz and Nichols 2006; Yoffee and Cowgill 1988). Similarly, one cannot eliminate the possibility that chiefdoms can collapse into great men or big men societies as some scholars suggest (Jolly 1991:77; Liep 1991:45). Therefore, models of changes in vertical social differences should include not only progress but also retrogression.

The lesson learned from these ethnographic and ethnological studies calls for attention to the theories formulated long ago. Steward (1955) was the first scholar who pointed out the multilineal nature of the evolutionary process. In his view, the rise of complexity does not follow one specific trajectory, but societies – or cultures in Steward's terminology – follow their specific trajectories. An elaborate version of this model specified by Sahlins (1960) distinguishes between the general and specific evolution; the former produces higher levels of complexity and the latter produces diversity. There can be little doubt that there was a general evolutionary change from the emergence of farming to the formation of states. Nonetheless, more interesting questions tackle the problem of fluctuations in this general process, sometimes conceptualized as cycles (Anderson 1990; Kristiansen 1982, 1991; Parkinson 2002a) and the diversity of ways to reach a similar general evolutionary form. Moreover, one also has to consider the possibility of the reversed process. Collapse and disintegration are inevitably part of the general evolutionary process and have to be taken into account in models of social evolution.

Changes in Gender Relations

Changes in gender relations have been studied in the context of economic and demographic changes. It has been demonstrated that the participation of women in agriculture decreases with increasing intensification of production (Boserup 1970; Martin and Voorhies 1975). This decrease of female participation was initially explained as a result of incompatibility between plowing and childcare (Brown 1970), reduction of weeding by

women because of plowing (Boserup 1970), or the differential physical abilities of men and women for plowing (Murdock and Provost 1973). Ember (1983) focused on several aspects of intensification to explain the decline of female participation with increasing agricultural intensification. She adopts, although more implicitly than explicitly, Rosaldo's (1974) division of domestic vs. public spheres to explore the participation of women inside and outside the home. Ember argues that there are two different processes involved in the decline of female participation in agriculture. The first one is the increased female participation at home and the second is the increased male participation outside the home. Moreover, Ember identifies three main causes for increasing work for women in the domestic sphere: more time spent on processing cereal crops, taking care of children, and various tasks such as obtaining water, fuel, and animal care (Ember 1983).

Burton and White (1984) included multiple variables to explain the decrease of female participation in societies with intensive agriculture in their comparative analysis. They focused on population density, seasonal time pressure on agriculture, presence of plough and cereal crop cultivation, and dependence on domesticated animals. Their analysis showed that population density had an insignificant effect on the female extradomestic agricultural labor. Yet, the best predictor was seasonal time pressure. In other words, in environments with long dry seasons women tend to participate less in agricultural activities because these activities require fast mobilization of large amounts of heavy labor. Burton and White suggest that such conditions favor men. This suggests that the long-term changes of climate may affect division of labor according to gender. High dependence on domesticated animals, the presence of plowing and cereal crop processing also decrease the participation of women in agriculture but less significantly (Burton and White 1984).

The results of cross-cultural analyses of gender relations identify two points that deserve attention. First, it seems that long-term climatic warming that results in a longer dry season may restrict the activities of females in the fields. Second, various factors which increase the amount of domestic labor affect females more than males. Therefore, increasing emphasis on activities such as the care of animals, children, or cereal crop processing may result in an increase of female domestic labor and a decrease of female agricultural participation in the fields.

The most important implication of these results is the relationship between the low degree of female activities in the fields and their social status. As various authors suggested, the lack of opportunities for women to enter the public sphere and perform subsistence activities there may restrict their ability to build social capital (Ember 1983:301; Rosaldo 1974). This can result in lower social status and gender inequality. This view, however, has been challenged. Many feminist anthropologists argue that the duality of public vs. domestic is irrelevant because domestic relationships and activities are an inseparable part of political life (Gilchrist 1999; Guyer 1984:372). Others argue that women do not need to operate in the public sphere because they can build social capital and prestige through men (Strathern 1988). Moreover, several ethnographic studies of particular societies have pointed out the intricacies of gender relations, which are dissolved in cross-cultural generalizations (Guyer 1988; Hakansson 1994; Stone et al. 1995). Despite the relevant criticism that emphasizes the particularity of historical processes, the critique does not devalue the potential and results of cross-cultural generalizations. Such research may be coarse-grained and may simplify the complexities of daily life but it enables the anthropologist to operationalize basic variables and search for general trends. The results of the comparative research are fruitful for archaeology because the discoveries of general patterns and relationships are crucial for the construction of archaeological models of gender relations.

Historical studies have produced some insights to the dynamics of gender relations in the relationship to demographic and population changes. On one hand, an increasing number of children may result in higher demand for labor among women and decreasing status of women. Conversely, stratification or ranking may reverse the pattern. For example, Gräslund (2001) argues that in the Early Medieval times status of elite women increased during the times of demographic and economic crisis. When royal courts faced a crisis, the reproductive potential of elite women was a great resource for their status. Therefore, elite women became very powerful (Gräslund 2001:83). The relationship between fertility and social status has been also demonstrated ethnographically (Feldman-Savelsberg 1999).

Long-term changes in gender relations can be traced also at the symbolic level. Hodder (1990) envisions the change in Neolithic societies as an interplay between two basic principles: *domus* and *agrios*. *Domus* was symbolically associated with the control of wilderness by women and the domestic sphere. On the contrary, *agrios* reflected the world of

men associated with untamed wilderness. Hodder depicts the Neolithic as a period shaped by a changing emphasis on either *domus* or *agrios*. Yet he describes a process of change from *domus*, dominant at the beginning of the Neolithic, to *agrios*, which gradually became the central principle of Late Neolithic societies. *Agrios* is reflected in an increasing emphasis on males, weapons, warfare, hunting, wild resources, and settlement dispersal in the Late Neolithic.

Hodder's model of *domus* and *agrios* appears to be too general. It attempts to cover such a long period of time and large geographic area that it inevitably fails to acknowledge regional and temporal variability. In addition, intellectually stimulating ideas about symbolic oppositions *à la* Lévi-Strauss are tied very weakly to praxis. The core of the argument is based on the explanation of the duration of structures (Hodder 1990:280). It is not clear how the symbolic structure relates to what females and males actually did in their everyday lives. To be fair, this problem has been recently approached through the incorporation of practice theory (see Bourdieu 1977) to explain everyday production and reproduction of the symbolic opposition between *domus* and *agrios* (Hodder and Cessford 2004). However, it has been done at a much smaller scale at Çatalhöyük. Moreover, Hodder's methodology has been significantly challenged (O'Shea 1992).

Theoretical Basis of Mortuary Studies

Mortuary studies are inevitably inter-disciplinary by their very nature. Current anthropological approaches to death and mortuary ritual reflect close ties among cultural anthropology, archaeology, and biological anthropology (Gillespie and Nichols 2003; Chesson 2001b; Metcalf and Huntington 1991; Rakita et al. 2005). If any anthropological enquiry demonstrates the utility of Boasian ideas, it is the sphere of mortuary studies. Ethnographers and ethnologists produce data and theories about death in particular cultural settings and construct cross-cultural generalizations. It is hardly imaginable to construct archaeological questions, hypotheses, and models without these resources. Archaeologists have great potential to project assumptions produced by synchronic studies onto the past and produce models of the long-term dynamics of mortuary practices and associated social changes. Biological anthropologists, or bioarchaeologists, contribute to mortuary studies

substantially through the analysis of the body itself. Therefore, they can provide crucial information for the understanding of everyday activities and bodily experience that might contrast with the meanings imposed on the dead during mortuary ritual.

Archaeological mortuary evidence yields information about social differences in the past. However, the relationship between archaeological evidence and social differences is not necessarily direct, as several authors pointed out (Gillespie 2001a; Hodder 1980; Metcalf and Huntington 1991; Pader 1982; Parker Pearson 1982, 2000). This does not mean that social differentiation in the past is inaccessible through the study of the mortuary archaeological record (Arnold 2002a; Arnold and Wicker 2001; Brown 1995; Earle 2004; McHugh 1999; O'Shea 1996). As Arnold (2006) has recently pointed out, the post-processual critique provided great critical feedback for mortuary studies. This critique, however, does not mean that mortuary studies are unable to grasp the nature of social differences in the past societies. On the contrary, the scientific rigor of processual archaeology accompanied by ethnographically informed models is still the most powerful tool for the elucidation of social differences in the past.

The study of mortuary remains offers a series of benefits to archaeology that stems from the unique combination of material culture with skeletal remains of humans. I will discuss both the positive and negative aspects of exploring social differentiation to demonstrate the potential of mortuary studies.

Benefits and Problems of Mortuary Studies

The archaeological data from mortuary contexts yield direct information about humans in the past (O'Shea 1996). Humans are not overshadowed by ceramic typology or architecture of palaces; they are, in a majority of cases, physically present in the archaeological record. Although the meaning of the mortuary treatment may be difficult to infer, mortuary archaeological data yield physical remains of humans associated with material culture and its context. This unique combination of information allows the archaeologist to create a link between biological information that characterizes each individual and the individual's treatment after death. The patterning of this relationship within disposal areas and across larger spatial units, such as regions, yields information about

essential structuring principles in society (Beck 1995; Binford 1971; Goldstein 1976; Chapman et al. 1981; Morris 1987; Pullen 1994; Saxe 1970).

The archaeological data from mortuary contexts reflect mortuary rituals. The individuals who are engaged in various types of relationships aggregate and reinforce their identity and social order through acceptance of common values during the performance of mortuary rituals (Bloch and Parry 1982a; Hertz 1960[1907]; Chesson 2001b; Metcalf and Huntington 1991). Although the burial itself is often a small part of the funerary ritual that may include a long period of preparation and subsequent mourning, it is a viable source of information about ritual behavior. It is ironic that funerals are performed more for the living than the dead (Gillespie 2001a; Parker Pearson 1982).

Relationships among the living leave a signature in the form of the mortuary treatment of the dead in the archaeological record. This signature reflects various kinds of relationships. Social personae (see Goodenough 1969) of the dead may include various identities such as gender, age, membership in a family, lineage, clan, moiety, sodality, social class, and occupation. Mortuary archaeological remains potentially carry information about all of these characteristics, although the link between the social identities of an individual and their representation in the mortuary treatment is not necessarily direct (Gillespie 2001a; Hodder 1982; Meskell 2001; Parker Pearson 1982).

Archaeological mortuary data are particularly relevant for tracing long-term social processes. As Morris (1987) demonstrated in his study of the rise of the Greek city-state, funerary practices reflect structural changes in society. Similarly, Charles' (1995) archaeological study of the lower Illinois Valley and the American Bottom of the Mississippi river from the Early Archaic to the Mississippian period demonstrated that the analysis of mortuary variability contributed to the understanding of social and cultural change. Kuijt (2001) showed how changes in mortuary practices during the Pre-Pottery Neolithic in the Levant relate to social arrangements on various social scales including individuals, households, and communities. In a similar manner, Chesson (1999; 2001a) traced temporal changes in mortuary practices in the Early Bronze Age in the Levant to shed light on social processes. She demonstrated nicely the shift from shaft tombs to charnel houses that reflected increasing sedentism and urbanization of society.

The most crucial theoretical discussion in mortuary archaeology has focused on the link between social structure or organization and mortuary practices. “New Archaeology” studies in 1970s and 1980s provided strong statements about the relationship between social organization and its representation in the mortuary treatment of the dead (Binford 1971; Goldstein 1976; Chapman et al. 1981; Saxe 1970; Tainter 1978). Two major figures of these mortuary studies, Binford (1971) and Saxe (1970), reached the conclusion that the social identities of an individual are reflected in an individual’s treatment after death. They based their theoretical framework on a polished version of Linton’s (1936) role theory as specified by Goodenough (1969), and argued that the rights and duties of the living to the dead determine mortuary treatment (Binford 1971; Saxe 1970). Saxe (1970) found support, although not absolutely, only for two of the hypotheses generated by his cross-cultural sample. First, he found that individuals of lower social significance tend to manifest fewer forms of differentiation in egalitarian societies; the same pattern holds only within the individual stratum in stratified societies (Saxe 1970:227). Second, he found a general support for the hypothesis, known as Hypothesis 8, that corporate groups tend to legitimize their access to resources through maintenance of formal disposal areas (Saxe 1970:234).

Goldstein (1976) decided to test further Saxe’s Hypothesis 8 on a broader ethnographic sample that consisted of 30 societies. She concluded that Saxe’s hypothesis generally holds, but not all corporate groups legitimize their access to crucial resources through maintenance of formal disposal areas because there are other forms of ritualized activities that lead to the same goal (Goldstein 1976:57-61). Goldstein’s hypothesis was challenged by Hodder (1980), but a thorough review by Morris (1991) demonstrated that the Saxe/Goldstein Hypothesis 8 generally works.

Tainter (1975), another proponent of the New Archaeology mortuary studies, explored cross-cultural variability of mortuary treatment to test the hypothesis that increased levels of energy expenditure in mortuary treatment covary with ranking. Tainter did find that high levels of energy expenditure are associated with high ranking but the problem is that he uncritically applied this conclusion to archaeology (see Tainter 1977, 1978). Tainter assumes that the level of energy expenditure is manifested directly in the archaeological record and vertical differentiation reflects all social complexity. As his critiques pointed out, ethnographic descriptions of mortuary rituals show that not all energy invested in the

mortuary rituals will be archaeologically visible (O'Shea 1984:17). In addition, Tainter's measure of social complexity accounts only for the vertical dimension of social differentiation. It ignores horizontal dimensions of differentiation such as age, gender, or group membership (Braun 1981:399).

These studies were preceded by Ucko's (1969) critical study of ethnographic cross-cultural mortuary variability that represents the inspiration for later post-processual critiques. Ucko pointed out that the causal factors responsible for the death structure mortuary practices and have to be taken into consideration. Although Ucko confirmed that social status of the deceased played an important role in their mortuary treatment, he also noticed several ethnographic examples that undermined assumptions of the New Archaeologists. For example, individuals who were killed by lightning, various types of diseases, drowned, were murdered, or committed suicide received different treatment than the rest of society (Ucko 1969:271).

The post-processual movement in archaeology highlighted several problems in the archaeological analysis of mortuary remains. Critics of the New Archaeology argued that status of the deceased might have been manipulated during the mortuary rituals (Gillespie 2001a; Hodder 1980, 1982; Parker Pearson 1982, 1993, 2000). Ideology became the central point of post-processual interest and various authors demonstrated how beliefs in pollution, tastefulness, or interests of dominant groups may obscure the "imprint" of social organization in the archaeological record (Hodder 1980; Metcalf and Huntington 1991:35-44; Parker Pearson 1982, 2000). Some scholars inspired by the seminal works of Giddens (1979) and Bourdieu (1977) also argued that role theory is not the best tool for understanding the social structures of past societies reflected in mortuary remains (Gillespie 2001a:81; Parker Pearson 2000:83). However, this approach is more an issue of preference. When one focuses on social differences among the dead, role theory is still a useful framework to conceptualize and especially analyze the differences among individuals. It enables the analyst to focus on the relationships of rights and duties among individuals in the static archaeological record. Theories of action and praxis are stronger when one focuses on the dynamics of relationships among individuals and between individuals and the "structure."

The post-processual critique pointed out the main problem of processual mortuary analyses. It demonstrated that social organization cannot be mechanically "translated" from

the patterning of the archaeological mortuary remains. Mortuary rituals may serve, and they often do, as an arena for negotiating social positions of the living. Several ethnographic studies document what Bloch and Parry (1982b) have suggested: mortuary practices not only reproduce society as Hertz (1960[1907]) envisioned, they are engaged in the very process of the production of society. Ethnographic studies suggest that the creative potential of mortuary practices cannot be underestimated (Kan 1989; Metcalf and Huntington 1991; Weiner 1976). The contemporary focus on identities and memories associated with death views mortuary practices as a creative process (Durham 2002; Chesson 2001b; Lohmann 2005). However, the awareness of the creative potential of mortuary practice does not deny the fact that it operates on the framework of existing social differences. Therefore, analyses of social differences in the past based on mortuary evidence are still viable and successfully performed in various regions (Arnold 2002a; Arnold and Wicker 2001; Arnold and Green 2002; Byrd and Monahan 1995; Gamble et al. 2001; Chapman 2003a; Chesson 1999, 2001a; Kuijt 1996, 2001; O'Shea 1996; Yao 2005).

In defense of the potential of mortuary studies to shed light on social differentiation and complexity O'Shea noted:

That this active manipulation of symbols occurs is indisputable and ultimately is the reason that social analysis is even possible using funerary evidence. It is decisions made by the living, reflecting their own motives and interests, the wishes of the dead, and the norms of the community, that produce the consciously structured remains observed by the archaeologists. ... On the other hand, differences that are marked in the funerary treatment obviously *were* recognized. Differences of this kind that we can observe and that cannot be attributed to noncultural depositional or postdepositional factors are indicative of differences that were recognized and actively produced by the past society (O'Shea 1996:13).

Thus, even if social differences are symbolically reversed in the funerals, as Parker Pearson (1982) has demonstrated, the presence of differences in mortuary treatment indicates that there were differences among living individuals.

Formation of the archaeological record is another problem for the study of mortuary archaeological remains. O'Shea (1981:40) pointed out that the link between the organization of a living society and its representation in the mortuary treatment of the dead is only one side of the coin. The role of postdepositional processes has to be taken into account because

they significantly influence the preservation of evidence available for archaeological modeling. O'Shea demonstrated that markers of horizontal social differentiation such as gender, age, membership in a secret society, moiety, or clan tend to be perishable and their preservation in the archaeological record is often limited (O'Shea 1981). Moreover, in societies where secondary manipulation with the dead takes place, the archaeological record has to be approached carefully to identify possible sources of bias (Heyd and Bartelheim 2001; Sprengler 1999).

The last substantial problem in mortuary studies is good chronological control. As Chapman (2003b:111; 2005) noted, temporal differences among individuals has been significantly underestimated in mortuary studies. In his 2005 paper, he describes examples of the analyses of large cemeteries that did not pay enough attention to temporal dimensions of analysis. Nonetheless, this problem appears to be true especially for Anglo-American archaeological discourse. The German tradition of mortuary studies, which has been largely ignored in the Anglophone world (see Harke 2000), never entirely abandoned the culture-historical paradigm that puts heavy emphasis on chronology. Therefore, some analyses of cemeteries conducted by German scholars provide a very detailed analysis of chronology (see Bartelheim 1998, 2004) that appears less frequently in Anglo-American studies. Attention to temporal data can shed light even on the mortuary ritual process (see Parker Pearson 2005).

Archaeology and the Body

The body has received a high degree of attention in anthropological archaeology during the last 20 years (see Joyce 2005 for a review). There are two main approaches that can be called the phenomenological and the bioarchaeological. The phenomenological approach focuses on the embodiment and lived experience of the body. Although this field is diverse and even the designation phenomenological is problematic, the interest in meaning is crucial. The earliest inspirations for this approach can be traced in the works of the *L'Année sociologique* school, especially in the works of Hertz (1960[1907]) and Mauss (1934). Both of them explored the qualities of human body beyond the biological level. These authors inspired a multitude of scholars who elaborated on the concept of the body in anthropology

(Bourdieu 1977; Douglas 1978; Dumont 1980; Turner 1967). Current approaches focus on the critique of the well established dualities of the mind vs. the body and the biological vs. the social (Csordas 1990, 1993; Wolputte 2004) as well as on the dynamic aspect of bodily activities (Farnell 1999). Archaeological applications extend to the study of ornamentation of the body, gestures, categorization, and iconography (Joyce 2005). In my opinion, the most promising perspective for these mortuary studies appears to be the study of the practices that shaped the body in particular ways because it may approximate more closely biologically oriented types of research. For example, culturally-prescribed ways of moving and doing may affect the skeleton that consequently can be analyzed from the perspective of biomechanics.

The bioarchaeological approach takes advantage of the material remains of the dead themselves to shed light on the way of life in the past. Bioarchaeologists have challenged the static nature of interpretations in biological anthropology focused on archaeological human skeletons (Buikstra 1977; Buikstra and Beck 2006; Humphreys and King 1981; Larsen 1987, 1997, 2002). Inspired by Washburn (1951), who called for greater emphasis on the behavioral aspect in physical anthropology, bioarchaeologists have unified archaeology with the human biological component in the archaeological record. Such a bioarchaeological approach provides a significant contribution to the understanding of social differentiation in the past.

Bioarchaeological approaches (see Larsen 1997) analyze the body from various angles that can contribute to our understanding of horizontal and vertical social differences. Studies of stress and deprivation focused on stature (Teschler-Nicola 1987), dental development (Goodman and Rose 1990), and various pathologies (Ortner and Aufderheide 1991) indicate that the human skeleton carries information about variations in living conditions for past populations. Moreover, bioarchaeology offers tools for the exploration of mobility in the past through limb cross-sectional analysis (Ruff 2001; Ruff et al. 2006; Sládek et al. 2006) and stable isotope analysis (Bentley et al. 2004; Price et al. 1994; Price et al. 2004). Food resources in the past can be explored via the analysis of stable isotopes (Ambrose 1993). As several recent studies have demonstrated, analyses of carbon and nitrogen stable isotopes can detect social inequality reflected in dietary differences among individuals (Ambrose et al. 2003;

Honch et al. 2006; Jay and Richards 2006; Privat et al. 2002; Schutkowski et al. 1999). Moreover, bioarchaeological analyses may shed light on biological relationships between individuals and the pattern of postmarital residence (Buikstra et al. 1990; Konigsberg 1990; Schillaci and Stojanowski 2002; Stojanowski 2005). All these bioarchaeological techniques complement traditional mortuary analyses that are focused primarily on non-skeletal kinds of archaeological data.

The phenomenological and bioarchaeological approaches do not intersect often. Although paleopathology with its emphasis on individual health approaches the sphere of individual life experience, bioarchaeological studies focus frequently on the population level. This is understandable in the context of the development of anthropology as a discipline. The scholars oriented to phenomenology or bioarchaeology represent two different epistemological positions: one attempts to understand (*verstehen*) and the other attempts to explain (*erklären*) (cf. Schweizer 1998). However, I would like to suggest that these two approaches can engage in a fruitful way. I see a potential cross-influence between these two approaches. Bioarchaeological praxis embedded in rigorous positivistic methodology can identify, among others, the effects of human action inscribed in the body. Since action is shaped by knowledge, beliefs, and other properties of the structure (sensu Giddens 1979) that operate through the body, any analysis of biological properties of bodily remains has the potential to shed light not only on biology but also the structure. Parker-Pearson et al.'s (2005) study of mummification based on multiple analyses of the biological properties of the bodies demonstrates the potential of bioarchaeology for understanding the ritual process.

The inspiration can flow in the opposite direction as well. Despite the practical success of Larsen's (1997; 2002) vision of bioarchaeology, the theory seems to be underdeveloped. "Traditional" bioarchaeology suffers from the ambiguous explanation of the relationship between the biological sphere and the rest of human condition. Lifeways and behavior are presented as bridges to culture. However, social scientists have been long theorizing about the difference between behavior and meaningful action, cultural information included unconsciously in every movement of the body, and unintended consequences of action. This needs to be developed in bioarchaeology. There are scholars who have already moved in this direction (Hamilakis et al. 2002; Rautman 2000) but still there seems to be room for the further development of Larsen's synthesis. On the more practical level, studies

of the manipulation of human body parts during and after funerals need a better theoretical framework to link the archaeological record to human action. The discussion of the different archaeological signatures of looting vs. post-mortem ritual treatment of the dead (Heyd and Bartelheim 2001; Sosna et al. 2006) represents the area that would benefit from both the phenomenological and bioarchaeological approaches.

Summary

Age, gender, and vertical social differences are the most crucial social differences analyzed in mortuary studies of past societies. I argue that an appropriate conceptual and theoretical framework for mortuary analysis initially builds upon the concept of the individual and takes advantage of the biological characteristics of skeletons. This approach is suited for archaeology that deals with material remains of past societies. Once the patterns in the archaeological record are uncovered on the basis of these essential categories, it is possible to go beyond the level of individuals and explore the categories and relations that may differ from established Western ideas about social differentiation.

The current trend in understanding changes in vertical social differences focuses on the strategies of aggrandizing individuals that result in institutionalized forms of inequality. I suggest that it is possible to follow two basic strategies: the first one is based on individual skills and control over exchange; the second one is based on ascribed status and control over ritual activities. These strategies are perceived through the prism of three ideal types of leadership embodied in great men, big men, and chiefs. Changes in gender relations can be understood in relationship to intensification of subsistence economy, population dynamics, and also through differential access to social interaction that enables individuals to build social capital. Finally, I defend the potential of mortuary studies for the elucidation of long-term changes in social differentiation and suggest that mortuary studies benefit from the development of anthropological studies of the body and bioarchaeology.

CHAPTER 3

THE ARCHAEOLOGICAL AND GEOGRAPHIC SETTING

Introduction

This chapter provides the background to the geographical and archaeological contexts of South Moravia. I begin with a description of the geological history of South Moravia and the geomorphologic nature of its landscape. The chapter continues with a discussion of environmental conditions that influenced human occupation during the Late Copper Age and the Early Bronze Age. Then, I provide a period-by-period overview of South Moravia from the Lower Paleolithic to the end of the Early Bronze Age. This overview concludes with the discussion of the main economic, social, and political trends in the Late Copper Age and the Early Bronze Age. The final part of this chapter focuses on absolute and relative regional chronologies.

The Geomorphological Setting

Geological History of South Moravia

South Moravia is geologically diverse. It falls into two major geologic units: the Czech Massif and the West Carpathians. The Czech Massif is considerably older. Buckling in the earth's crust began forming hills and valleys in the Czech Massif during the younger Precambrian era (ca. 900 mya, and referred to as Variske buckling) and continued during the entire Paleozoic era. These movements produced irregularities on the surface of the landscape and rock metamorphosis deep in the lithosphere. South Moravia was flooded from the south during the Miocene epoch. After the sea dried out, the sedimentary basins began to fill with riverine and lacustrine sediments. Otherwise, Tertiary and Quaternary periods were characterized by relatively limited geological changes. The most significant changes were associated with climatic fluctuations in the form of glacials and interglacials during the Quaternary period. During the colder oscillations, massive loess deposits covered the plains and created drifts in the valleys

and at the base of mountains. During the warmer interglacials, soils developed on the surface of loess through the activities of microorganisms and plants (Chlupáč et al. 2002; Ložek 1973).

The formation of the West Carpathians began in the Cretaceous epoch (ca. 100 mya, known as Alpine buckling) and continued during the Tertiary period. Miocene sea flooded the region from the south and after it disappeared, the geological history of the West Carpathians and the Czech Massif followed the same trajectory. Thus, eolian, alluvial, frost erosion, and sedimentation forces shaped the land. In the Holocene, humans became the new agents that started modifying the landscape (Chlupáč et al. 2002; Ložek 1973).

The Geomorphology of South Moravia

South Moravia is formed by several geomorphological features. The central features are two ravines that go from northeast to southwest: the Dyjsko-Svratecký and Dolnomoravský Ravines. Major rivers such as the Dyje, Jihlava, Morava, Svitava, and Svratka Rivers flow in these ravines. These rivers come from the highlands located to the west or north. They continue to the south and join the Morava River, which subsequently flows into present day Slovakia and joins the Danube. Mountains and highlands create the limits of South Moravia to the west, north, and east. In addition, a large part of South Moravia between the two ravines consists of a low-altitude hilly area known as the Central Moravian Carpathians (Czudek 1972) (Figure 3.1).

The Českomoravská Highlands make up the western part of South Moravia. This formation was created primarily during the Paleozoic era and consists of igneous rocks, granite, and crystalline slate (Chlupáč et al. 2002). Creeks and rivers that come from these hills form a floodplain in the Dyjsko-Svratecký Ravine. Most prehistoric finds come from the area in the foot of the highlands and undulating land in the furrow. There are few signs of prehistoric habitation in the western interior of the highlands, possibly because the woodland environment might have been difficult to penetrate.

Figure 3.1. Topographic Map of Moravia. 1 – Českomoravská Highlands, 2 – Boskovická Furrow, 3 – Brněnská Highlands, 4 – Vyškovská Gate, 5 – Central Moravian Carpathians, 6 – Napajedelská gate, 7 – Vizovická Highlands, 8 – White Carpathians, 9 – Dolnomoravský Ravine, 10 – Pavlov Hills, 11 – Dyjsko-Svratecký Ravine. The inset map in the upper right corner shows the position of the region in Europe.

The northern part of South Moravia is composed of the Brněnská Highlands which were created during the Paleozoic and are well known for their carstic limestone bedrock. Limestone caves and rock shelters served as habitation areas during the Middle Paleolithic and were also used temporarily during the Bronze Age. The Brněnská Highlands are separated from the Českomoravská Highlands to the west by the Boskovická Furrow and from the Central Moravian Carpathians to the east by the Vyškovská Gate. The Napajedelská Gate – a narrow valley of the Morava River – represents the third lowland feature that creates a transition to the north. The two gates and the furrow provide natural passages from the South Moravian lowlands to the lowlands in Central Moravia and further north.

The eastern part of South Moravia is clearly defined by the White Carpathians and the Vizovická Highlands. The White Carpathians and the Vizovická Highlands were formed during the Mesozoic and Tertiary, and the bedrock predominantly consists of flysch (Czudek 2005:20). Prehistoric habitation was often close to the tributaries of the Morava River, which flows along the bottom of these hilly formations.

The southern part of South Moravia in the Dolnomoravský and Dyjsko-Svratecký Ravines consists of the floodplains for the Morava and Dyje Rivers. Since the Early Holocene, periodic floods have led to the sedimentation of loam and sand (Czudek 2005:139) and wetlands formed in the vicinity of these rivers. Today, the Dyje River is very different in nature from its form during the Epiatlantic period. A system of dams was built at the junction of the Dyje, Jihlava, and Svatka Rivers to regulate the floods that would come every spring. Construction of these dams led to the discovery of many prehistoric archaeological sites.

The southern floodplains of the Dyje and Morava Rivers are accompanied by a marked geographic feature: the Pavlov Hills. These hills have a complicated geological history. They were formed during the Tertiary period when blocks of Mesozoic limestone were pushed over Tertiary flysch layers (Czudek 1994:14-15). The Pavlov Hills dominate the landscape. Because of their strategic position that provides control over a large portion of the floodplains, their slopes have been inhabited by many prehistoric communities since the Upper Paleolithic.

The geomorphology of the South Moravian landscape provides a strategic advantage for human and animal movement. The Dolnomoravský and Dyjsko-svratecký Ravines create a corridor that connects the valleys in Austria and the plains in Slovakia and Hungary with North Moravia and the plains in Poland that are located further north. Therefore, the region is a passage that runs between the mountains in Slovakia and the Českomoravská Highlands. The potential of this landscape was recognized during the Upper Paleolithic. Gravettian hunter-gatherers settled on the slopes of the Pavlov Hills to control the herds of migratory animals that used the corridor to migrate to the north (Svoboda 1999:157). Similarly, South Moravia was one of the passages used for the spread of farming at the beginning of the Neolithic. South Moravian valleys also

became logical corridors for the development of exchange routes during the Bronze Age and later periods (Podborský et al. 1993:242).

Various prehistoric societies took advantage of the slopes and tops of the hills, river valleys, or creeks depending on their subsistence, susceptibility to incursions, or the need to control strategic passages. Although farmers generally settled in lower elevations than their foraging predecessors, multiple communities recognized the potential of hilltop settlements. Hilltop settlements appeared cyclically from the Copper Age to Medieval times.

Environmental Conditions

The Late Copper Age and the Early Bronze Age fall into the Epiatlantic climatic period (4,000-1,200 B.C.). This period is characterized by a mild, humid climate that finally gave way to a drier climate at the beginning of the Subboreal period. Based on the analysis of malacofauna, it seems that the Epiatlantic period was full of short term fluctuations in temperature and humidity (Chlupáč et al. 2002:388; Ložek 1973:305). The average annual temperature was ca. 1-2 °C higher than today (i.e., 10-11 °C for South Moravia) (Podborský et al. 1993:153). Palynology studies indicate that mixed oak forests dominated the landscape; typical trees were ash, beech, fir, and spruce (Chlupáč et al. 2002:388; Ložek 1973:240).

There is a correlation between soil types and habitation. The Late Copper Age sites were predominantly located on chernozem soils (Rulf 1981:126-127) and this trend did not seem to change during the Early Bronze Age. The sites were distributed primarily along the rivers and tributaries in South Moravia. In comparison to the Neolithic, there is a trend away from brown soil and woodland environment (Rulf 1981:126). Since chernozem is associated with a drier and more open environment, human communities were less attached to woodlands than during the Neolithic. Given the current palaeological and archaeological evidence, it is difficult to say to what degree human activity affected the expansion of open environment. Some authors have no doubt about the human impact on environment based on the low degree of sediment accumulation during floods and the expansion of chernozem (Czudek 2005:140; Ložek

1973:259). However, there is no clear causal relationship between disappearing vegetation and human activity.

The move to chernozem had its pros and cons. On one hand, chernozems have lower resistance to fluctuations in humidity than brown soil does. Therefore, it is less reliable for agricultural production. On the other hand, chernozem is easier to plow (Rulf 1981:127-128). The transition to chernozem might have been associated with the expansion of plow agriculture (cf. Neustupný 1967; Sherratt 1983).

South Moravia was destined to become a good region for habitation for a number of reasons. This region has always had a milder microclimate than the rest of the Czech Republic due to its predominantly lowland nature and southern location. It had already served as a sort of refuge for hominins during the Pleistocene. A large part of South Moravia also has loess subsoils that are ideal for cultivation.

The Archaeological Setting

The Paleolithic and Mesolithic

Various groups have inhabited South Moravia since the Lower Paleolithic. Although evidence of occupation was found at several Lower Paleolithic sites (Musil and Valoch 1968; Valoch 1987), almost nothing is known about the hominins themselves and their behavior. The overall evidence indicates that early hominins inhabited South Moravia since 700-600,000 B.P.

Middle Paleolithic hunter-gatherers are much better understood in South Moravia. They especially took advantage of the limestone rock shelters and caves in the Moravian Karst. Three caves even yielded hominin bones that clearly show affiliation with Neanderthals (Jelínek 1966; Valoch 1988; Vlček 1994:54-55). Current research implies that there was development of Neanderthal behavior during the Middle Paleolithic. As Neruda (2005; 2006) argues, there was a trend towards standardization of artifact production, high-quality raw material, and bone processing over time.

Table 3.1. List of periods in South Moravia. INT – international, CZ – Czech.

Era	Period	Arch. Culture (INT)	Abbrev. (INT)	Arch. Culture (CZ)	Abbrev. (CZ)	Dates ^a
Bronze Age	Early	Věteřov		Věteřov		1700-1500 B.C.
		Nitra		Nitranská		2000-1700 B.C.
		Únětice		Únětická	UK	2200-1700 B.C.
Copper Age	Late	Proto-Únětice		Proto-únětická	PUK	2300-2000 B.C.
		Chloupice-Veselé		Chloupice-Veselé		2100-2000 B.C.
		Bell Beaker	BB	Zvoncovité poháry	KZP	2500-2200 B.C.
		Corded Ware	CW	Šňůrová keramika	KŠK	2900-2400 B.C.
	Middle	Bošácká		Bošácká	BKS	3200-2900 B.C.
		Jevišovice		Jevišovická	JK	3000-2700 B.C.
		Globular Amphora	KAK	Kulovité amfory	KKA	3400-2800 B.C.
		Baden		Kanelovaná keramika	KK	3400-3000 B.C.
	Early	Funnel Beaker	TRB	Nálevkovité poháry	KNP	3900-3400 B.C.
		Retz-Bajč		Retz		3700-3500 B.C.
		Jordanov		Jordanovská	JsK	4200-3900 B.C.
Neolithic	Late	Moravian Painted Ware	MPW	Moravská malovaná keramika	MMK	4700-3700 B.C.
	Middle	Stroke Ware	STK	Vypíchaná keramika	VK	5000-4600 B.C.
	Early	Linear Pottery	LBK	Lineární keramika	LnK	5600-5000 B.C.
Mesolithic						8000-5000 B.C.
Paleolithic	Late	Epimagdalenian		Tišnovien		11,500-10,000 B.P.
				Epimagdalenien		
	Upper	Magdalenian		Magdalénien		14,000-11,500 B.P.
		Epigravettian		Epigravettien		18,000-14,000 B.P.
		Gravettian		Gravettien		29,000-20,000 B.P.
		Aurignacian		Aurignacien		40,000-30,000 B.P.
		Szeletian		Szeletien		40,000-35,000 B.P.
		Bohunician		Bohunicien		43,000-35,000 B.P.
	Middle	Micoquian		Micoquien		60,000-40,000 B.P.
		Mousterian		Moustérien		120,000-40,000 B.P.
		Taubachian		Taubachien		120,000-90,000 B.P.
		Acheulian		Acheuléen		250,000-120,000 B.P.
	Lower	Acheulian		Acheuléen		700,000-250,000 B.P.

^a Dates from Forenbaher 1993, Görsdorf 1993, Neruda, pers. com., Podborský et al. 1993, Svoboda 1994. B.C. – calibrated date.

The Upper Paleolithic was probably one of the most significant periods in South Moravian prehistory. The very beginning of the Upper Paleolithic (ca. 43,000 B.P.) is associated with the Szeletian and Bohunician traditions. These two traditions are usually called transitional because of the nature of the lithic industries, which combine Middle Paleolithic features with innovations (Neruda and Nerudová 2005; Škrdl 2003). Although it is not absolutely clear who were the creators of these traditions, the majority of authors believe that the Szeletian and the Bohunician are products of Anatomically Modern Humans.

The first Upper Paleolithic tradition clearly associated with Anatomically Modern Humans is the Aurignacian. It is typified by an increasing importance of the bone industry that served for hunting and the production of mobile art. The Mladeč Caves yielded one of the earliest skeletal samples of Anatomically Modern Humans in Europe (Wild et al. 2005).

The Gravettian period (ca. 29,000 B.P.), which followed Aurignacian, yielded much more information about the communities of hunter-gatherers. Localities such as Dolní Věstonice, Pavlov, and Předmostí were intensively studied (see Klíma 1963; Oliva 2001; Sládek et al. 2002; Svoboda et al. 1996). Research conducted during the last century has shown that Gravettian hunter-gatherers developed several innovations: ceramic technology, the use of black coal, technology of grinding stones, microlith production, and weaving textiles and baskets (Soffer et al. 1998). Analyses of raw material demonstrated that lithic material was transported from sources that were hundreds of kilometers away (Svoboda 1994:151). This suggests that Gravettian bands were seasonally mobile and probably also maintained long-distance networks with other bands. Some researchers even argue that a seasonal abundance of resources – mammoths, deer, rabbits, and fox – allowed for seasonal aggregations of hunter-gatherers (Soffer et al. 1998).

After the Last Glacial Maximum, the last large Upper Paleolithic tradition in South Moravia was the Magdalenian (ca. 13,000 B.P.). Magdalenian hunter-gatherers took advantage of the caves in the Moravian Karst, but open-air sites were also established. Typical features of the Magdalenian are sophisticated bone tools and elaborate mobile art made of bone and antler (Lázničková-Gonyševová 2002). Hunter-gatherers of this period primarily exploited deer, horses, and small animals such as rabbits and birds, which frequently appear in cave deposits (Svoboda 1994:176). Social organization was probably less integrated than during the Gravettian period as no large sites have been documented.

The Mesolithic is one of the least understood prehistoric periods in South Moravia. After the period of the outstanding Gravettian “mammoth hunters” and Magdalenian “artists,” Mesolithic occupation is almost invisible. A limited number of microliths were found during surface surveys along rivers. Only one site, Smolín, was excavated and yielded a collection of artifacts comparable to the Mesolithic collections from Poland or Germany (Valoch 1978).

The Neolithic

The spread of farming at the beginning of the Neolithic (ca. 5600 B.C.) in South Moravia was a considerable change. The transition to farming was gradual and closely tied to the populations of Mesolithic hunter-gatherers (Lukes and Zvelebil 2004). Demographic models suggest that a massive and rapid immigration of farmers to South Moravia was very unlikely (Bruzek 2003; Galeta and Bruzek 2007; Neustupný 1982). Nonetheless, considering the invisibility of Mesolithic hunter-gatherers, the Neolithic indicates the existence of relatively large sedentary communities in the landscape. These farming communities appear on loess sediments in undulating part of the landscape (Podborský et al. 1993:77, 124).

The Early Neolithic is characterized by the Linear Pottery (LBK) culture that appeared around 5600 B.C. in South Moravia. Linear Pottery culture represents a wide geographic phenomenon that spread throughout Central and Western Europe. Communication over long distances is also supported by the finds of *Spondylus* ornaments that were transported from the Mediterranean (Podborský 2002b). Linear Pottery culture is represented by open-air settlements with wattle and daub long houses, but caves in the Moravian Karst were used too (Podborský et al. 1993:81). Long houses were probably inhabited by a smaller social unit, such as a family and its livestock, because the sections of the long houses were functionally different (Neustupný 1996). Some of the settlements were clearly enclosed by a ditch and palisade (Berkovec 2004). There are both formal cemeteries (see Podborský 2002a) and burials in settlement features in the South Moravian Linear Pottery culture. Mortuary analyses suggest that an emphasis on the burials of elder males reflects strong age and gender differentiation (Kvěťina 2004). Although there is discussion regarding the chiefly status of some males, settlement data do not support this interpretation.

Some communities certainly lived in large settlements with complex social structure, but there is no evidence of political centralization on the regional level.

The next Neolithic culture is Stroke Ware (STK) culture, which appears in South Moravia ca. 5000 B.C. This archaeological culture is characterized by a new style of ceramic decoration but many socio-economic features are reminiscent of the previous Linear Pottery culture (Geislerová and Rakovský 1987). Mortuary evidence is relatively rare. In addition to inhumations, cremations appear. Since *Spondylus* ornaments do not appear in burials as in the previous Linear Pottery period, it suggests that long-distance contacts decreased in importance or there was a shift in the use of ornaments.

The Late Neolithic in South Moravia is characterized by the Moravian Painted Ware (MPW) culture, which is part of the Lengyel complex. Moravian Painted Ware appears in South Moravia ca. 4700 B.C. It received its name from elaborate colored decoration on the surface of the ceramic vessels. In the Early Moravian Painted Ware period, settlements are comparable to those from the previous Neolithic periods. However, the Late Moravian Painted Ware period yields evidence of hilltop and large fortified settlements that covered up to two hectares. In contrast to the previous periods, houses were much smaller and variable. It also seems that the settlements had a higher population (Podborský et al. 1993:125, 128). The most frequently discussed feature of Moravian Painted Ware culture is a “rondel”: an enclosure with supposedly ritual function. Although there is evidence of enclosed and fortified settlements, rondels with multiple entrances and a lack of house structures inside suggest that they did not serve for habitation. Since rondels yield evidence of many zoomorphic and anthropomorphic figurines and human burials in pits, they were probably used for ritual purposes (Podborský 1988). Moravian Painted Ware culture yielded little mortuary evidence. There are no formal cemeteries and only a limited number of burials have been found in settlement features (Podborský 1988:86; Tihelka 1956).

The Late Neolithic shows the development of large sites and overall economic intensification. In addition to advanced ceramic production and substantial storage pits, there are also hoards that contain ground stones. It is surprising that there is virtually no evidence of a rise of inequality. All these features are reminiscent of a tribal society without a centralized political structure.

The Early and Middle Copper Age

A description of the Copper Age archaeological record in South Moravia must start with terminology. The term Copper Age is commonly used in Anglo-American archaeological discourse, but is rarely used by Central European scholars. Originally, the term Copper Age was suggested by Červinka (1935) who tried to point out the development of metallurgy. Later, the majority of scholars abandoned the term Copper Age in favor of the term Eneolithic (from Latin *aeneus* – copper) to emphasize that the essential innovation of this period in Central Europe was plowing, not metallurgy (Neustupný 1967; 1997:306). Despite the logic that emphasizes one aspect of economy over another, the selection of the term is unfortunate. Both Copper Age and Eneolithic refer to copper. Since I understand these two terms as equivalent, I use the term Copper Age for purely pragmatic reasons. It is used in the academic context in which I was trained.

The Copper Age is a period when humans began to exploit animals in new ways: for plowing, riding, dairying, transport, and wool production. These economic changes were labeled “the secondary products revolution” (Sherratt 1983). The most significant part of this package was probably plowing, which allowed farmers to increase yields and expand to new ecological niches (Neustupný 1967:9). Moreover, as Neustupný emphasizes:

The Eneolithic plow was not a wooden object, a piece of bent and carved wood. If it were just that – as some scholars simply assume – it would be hard to understand why it was not discovered earlier. Woodwork had already been developed in the Neolithic. *The plow is an alliance between the power of nature (cattle) and tools; these tools are qualitatively different from all previous tools* (Neustupný 1967:9; translation mine).

Moreover, metallurgy and mining were slowly developing. However, metal artifacts are relatively rare. Their significance was embedded in the social sphere in the form of prestige, rather than in their utility for subsistence (Neustupný 1974:244).

Despite a clearly innovative way of thinking about the Copper Age, it appears today that the secondary products revolution was less revolutionary. Recent analyses of organic residues in ceramic vessels show that milk had already been used in the 5th millennium in Great Britain (Copley et al. 2005). Moreover, Sherratt’s (1997) idea about the expansion of communities after the secondary product revolution is not supported by archaeological

evidence. Central European evidence shows that this revolution was followed by population decline during the 4th and 3rd millennia (S.J. Shennan 1993:128).

The beginning of the Copper Age in South Moravia is characterized by a diverse cultural environment. After a long period of relative homogeneity during the Late Neolithic, various settlement and mortuary patterns appear in the archaeological record. They suggest not only relatively short lives of distinct archaeological cultures, but also their coexistence. Although scanty evidence of imported copper is known from Moravian Painted Ware sites, communities began to produce copper artifacts locally during the Copper Age.

The Early Copper Age that starts ca. 4000 B.C. is characterized by two small archaeological groups: Jordanov and Retz-Bajc. Both groups are represented by hilltop settlements in South Moravia which were sometimes fortified. Burials were rare and were located in settlement features. Although these groups were supposed to be associated with the spread of metallurgy at the very beginning of the Copper Age, there is little evidence to support this assumption.

We have a better understanding of the Funnel Beaker (TRB) culture. It is a phenomenon that spread over a large part of Europe. It appears that TRB penetrated Moravia from the north, unlike the majority of previous influences that had come to Moravia from the south or southwest. Archaeological evidence primarily comes from the settlements that are located in the valleys and on the hilltops. A few hilltop settlements were clearly fortified; some had multiple ditches and walls (Podborský et al. 1993:171). The TRB period is also the first time when the dead are buried under mounds. The limited number of copper artifacts in settlements and burials suggest that metallurgy was not a substantial part of the economy. Despite the existence of fortified settlements, there is little evidence of changes in social differentiation (Podborský et al. 1993:179).

The diversity of cultural groups decreased during the Middle Copper Age, which began ca. 3400 B.C. Both Baden and Globular Amphora (KAK) expanded throughout large areas of Central, Southeastern, and Eastern Europe. Baden yields evidence of both flat and hilltop settlements. Hilltop settlements were fortified and highly developed (Pavelčík 2001). According to Podborský (1993:190), the existence of two types of settlements and the degree of the development of production in hilltop settlements suggest craft specialization with agricultural production in the flat settlements and craft production in the hilltop settlements.

The Globular Amphora group appears to have been intrusive to South Moravia. It seems that it represents a temporally limited group that was absorbed into other local groups such as Jevisovice in South Moravia (Podborský et al. 1993:191).

The other Middle Copper Age archaeological cultures, the Jevisovice and the Bosacka groups, have yielded little information. Evidence of Jevisovice material culture comes from hilltop settlements, while the material culture of the Bosacka group comes from flat settlements. It seems that the general Copper Age settlement pattern continued during the late phase of the Middle Copper Age.

The Late Copper Age

The Late Copper Age in South Moravia is characterized by the emergence of new settlement and mortuary patterns. In comparison to the previous periods of the Copper Age, there is a radical change in settlement strategy. At the beginning of the Late Copper Age, settlements disappear. This phenomenon is not typical only for South Moravia. Evidence of settlements is very rare even in other parts of Europe. Therefore, the only available evidence comes from mortuary contexts. The absence of settlements, new material culture, and the phenotype of the dead – as seen in cranial morphology – have stimulated intense discussions about the subsistence practices, origin, and ethnic identity of Late Copper Age inhabitants of South Moravia and Central Europe in general.

During the Late Copper Age, there is a general transition to use of chernozem soils that contrasts with Neolithic cultivation of brown soils. Rulf (1981:128) argues that the turn towards drier and more fertile soils reflects a small population size and an intensive form of agriculture based on the use of the plow. Evidence of the decrease in population size in Central Europe is based on a lack of settlements, small cemeteries (for contrary evidence see Buchvaldek and Koutecký 1970), and low level of forest clearance evidenced by the frequency of oak trunks in riverine deposits (S.J. Shennan 1993:127-128).

The Corded Ware Complex

Beginning in ca. 2800 B.C. Eastern, Central, Western, and Northern Europe witnessed the spread of the Corded Ware (CW) complex. In various parts of Europe it is called either Battle-Axe, Corded Ware, or Single-Grave culture. All these regional variants

share similar mortuary practices and material culture: namely, burials of single individuals with battle-axes.

Social Differentiation

Individual burials and cemeteries provide the primary source of information about the Corded Ware complex in South Moravia. Mortuary sites are located up to three hundred meters above sea level and approximately one-third of the burials have been found under mounds (Šebela 1999:7). The number of mounds could be greater because many of them were destroyed in pursuit of agricultural land during historical times.

As Stephen Shennan (1993:143) has suggested, Corded Ware communities emphasized the ideology of gender differences. The position of the body and grave goods are gender specific. The lower limbs of females are turned to the left and the lower limbs of males are turned to the right. Moreover, females are often buried with copper hair spirals, while male burials contain battle-axes.

Vertical social differences are less emphasized. There are a few burials that contain a large quantity of grave goods, including copper ornaments (Šebela 1999:96-97, 173-174), or burials encapsulated in chambers made of wood and sometimes even stone (Čižmář 1985). There are also cremations whose social significance still remains unknown. It is often interpreted as the influence from the Carpathian Basin, namely, The Nagyrev culture (Ondráček 1967:390; Podborský et al. 1993:213).

Economy

Subsistence of Corded Ware communities has been a subject of intense discussions. One group of authors argued that the absence of settlements suggests mobile pastoral subsistence (Gimbutas 1956; Milisauskas and Kruk 1989; Podborský et al. 1993; Vencl 1994). This argument is based on the fact that pastoralists often build only surface house structures or live in wagons, do not use underground storage pits, do not produce a large amount of refuse in one location, do not perform activities that leave substantial archaeological signatures, and produce relatively poorly-decorated ceramics that are difficult to identify (Vencl 1994:13).

This view has been attacked from various positions. Neustupný (1969b) argued that the mere absence of archaeologically visible signatures of habitation is not sufficient evidence to infer a mobile pastoral way of life. Both storage facilities and house structures

might have been built above the ground. In fact, building structures above ground may reflect specific symbolic restrictions for digging rather than a practical reason (Neustupný 1997:317). Moreover, Neustupný (1969b:47-48) has pointed out that severe Central European winters with snow cover that lasts for months would make herding virtually impossible. Herds would have to be large and fed by humans to survive winter. However, there is no evidence of large herds or the technology to obtain a large amount of fodder. This ecological argument has been bolstered by evidence of furrows, agricultural implements, and impressions of grain on ceramics that come from various Corded Ware sites in Europe (Neustupný 1969b, 1997). The last argument against the pastoral strategy based on the use of wagons comes from the topography of terrain. As Turek (1995) has suggested, the hilly nature of the Czech Republic is not the best type of landscape for the use of wagons.

Another critical evaluation of the pastoral hypothesis came from bioarchaeology. Sládek et al. (2006a; 2006b) demonstrated that cross-sectional properties of femora and tibiae of Late Copper Age individuals do not differ significantly from those in the Early Bronze Age. In other words, the biomechanical properties of the lower limbs of Early Bronze Age farmers are comparable to the properties of Late Copper Age individuals. Based on a similar degree of mobility during the Late Copper Age and the Early Bronze Age, Sládek et al. (2006a; 2006b) infer that the subsistence strategies probably were similar.

It is clear that the hypothesis about exclusive pastoralism is untenable. In fact, even authors who emphasize the pastoral element for Corded Ware communities agree that it could not have been the kind of nomadism known ethnographically from the Asian steppe (Vencel 1994:18). Subsistence of Corded Ware communities was a combination of farming with animal husbandry (Neustupný 1997). The major question that remains unanswered is the relative importance of the plant and animal components of subsistence.

Origins

The appearance of Corded Ware groups in Central Europe has often been understood as a result of immigration from the east (Gimbutas 1956). The origin of Corded Ware has been placed between the Vistula and Dniepr rivers in Poland and Ukraine (Šebela 1999:7). Some osteologists noted the marked dolichocephaly of Corded Ware skulls that supported the “foreign” nature of Corded Ware communities in Central Europe (Dacík 1982; Chochol 1964; Jelínek 1964). This typological approach was heavily critiqued from the perspective of

current bioarchaeology, which focuses on the analysis of population variability without respect to types, and views population as a dynamic unit that changes over time (see Armelagos and Van Gerven 2003; Sládek 2005). The inference about immigration based on dolichocephaly stems from racial theory. It underestimates the impact of the environment on human phenotypic variability (cf. Boas 1912; Gravlee et al. 2003a, 2003b). Moreover, the research on craniofacial characteristics that used multiple dimensions and multivariate methods of analysis suggests that there is no clear evidence for massive immigration and replacement during the Corded Ware period in Central Europe (Černý 1999).

The improbability of large-scale migrations during the Late Copper Age has been critiqued from the demographic perspective as well. Neustupný (1981) has shown that large-scale migrations are very unlikely because the size of Late Copper Age communities was stable. There is no evidence of a big population increase that would push people to migrate. Late Copper Age communities were composed only of two or three families (Neustupný 1981:115). Any loss of individuals would result in an imbalance in the original community whose small size was sensitive to fluctuations. If there was a movement of individuals in the Late Copper Age, it was rather a small-scale and long-term process that is known as infiltration (Neustupný 1982). In this kind of migration, the original community splits into segments; the first segment emigrates and the second segment remains in the original place. The migrating segment infiltrates into the already occupied territory, merging with the new community, but still keeping the former ties (Neustupný 1982:287). Therefore, the appearance of Corded Ware communities in South Moravia should not be viewed as result of a rapid and large immigration of a new population. It was rather a slow continuous process of absorbing new social units into preexisting communities.

The Bell Beaker Complex

The Bell Beaker (BB) complex is characterized by a specific set of artifacts that spread throughout Europe and can be found even in North Africa (Harrison 1980). Only Eastern, Southeastern, and Northernmost Europe seem to have been excluded from the expanse of the Bell Beaker complex (Figure 3.2). However, current research suggests that the Bell Beaker phenomenon can be traced farther to Serbia, Albania, and even Greece (Heyd 2004). Between ca. 2700-2000 B.C. Bell Beaker communities in various parts of Europe shared ideology as reflected in the use of prestige artifacts. The prestige

items, such as archery equipment, copper daggers, golden ornaments, and V-perforated buttons, were disposed of during mortuary rituals. Despite the shared emphasis on certain material objects and practices, there is great interregional variability among Bell Beaker settlements (Gallay 2001; Heyd 2001; S.J. Shennan 1976:231; Turek 2006). Therefore, it is more reasonable to talk about the Bell Beaker complex or Interaction Sphere (cf. Caldwell 1964) rather than a single archaeological culture (Gallay 2001:41; S.J. Shennan 1976:232).

Figure 3.2. Distribution of Bell Beaker sites in Europe and Africa (after Benz and van Willigen 1998).

Social Differentiation

Mortuary sites provide the primary source of information about Bell Beaker communities in South Moravia. The dead were buried in formal cemeteries ranging in size from a few burials to large burial grounds with more than a hundred individuals. Several individuals were buried under small mounds that were sometimes even surrounded by a ditch or palisade (Bálek et al. 1999a; Novotný 1958; Perníčka 1961). Although inhumation was the primary form of disposal, about 15% of burials were cremations that usually appear in small numbers in the cemeteries. However, there is also an exceptional cemetery, Holásky, where 89% of the burials are cremations (Dvořák 1991).

Gender differences are clearly reflected in the position and orientation of the body. Females are buried on the right side with their head towards the south, while males are buried on the left side with their head towards the north. In a study investigating the correspondence between biological estimations of sex and aspect and orientation of the body, Müller (2001) demonstrated a 94% degree of agreement. Therefore, gender identity was strongly dependent on biological predispositions. Gender identity is also symbolized by artifacts. Ceramic pitchers, pots, and V-bored buttons appear in female burials while stone darts, wristguards, semilunate buttons, and copper daggers appear in male burials. This binary system of gender differences, however, contains a few exceptional cases where the position of the body does not correspond with the associated artifacts (Turek 2002).

Age differences were marked in mortuary practices. Since very few burials of children have been found, there had to be an alternative form of disposal for them (Turek 2000). Moreover, the identified burials of children were frequently, but not always, furnished with just ceramic vessels. There is currently no detailed study that analyzes age differences among adults because of the lack of available biological estimations.

Vertical social differences are marked by both above- and underground grave constructions mentioned earlier, as well as exotic and elaborate grave goods. Funerals that required the construction of mounds, ditches, and underground wooden chambers show that these funerals were significant social events. Moreover, the combination of these features with uncommon artifacts, such as golden plaquettes in Tvořihráz (see Bálek et al.

1999b), supports this assumption. There are also exceptional child burials. For example, a burial in Lechovice contains a child skeleton associated with a copper dagger, golden ornaments, and amber beads (Medunová and Ondráček 1969).

Evidence of the specialization of some individuals in specific economic tasks seems to be present in the BB archaeological record. Burial A from Prosiměřice includes a set of small stone hammers (Pernička 1961:29) that seem to be tools for metal work (Turek 2003:201). Similarly, a burial in Luděrov in Central Moravia contains a mold for a dagger (Podborský et al. 1993:229). According to Turek (2003) these “production packages” do not reflect full-time craft specialization (*sensu* Costin 1991) but rather symbolic control over non-intensive form of specific production.

Settlements and Economy

The Bell Beaker settlement evidence is markedly different in comparison to Corded Ware complex. There are more than two hundred settlements dispersed in Moravia (Ondráček et al. 2005:8; Turek et al. 2003:184). Such extensive settlement evidence is exceptional in Central Europe because there are very few settlement finds in neighboring regions. Bell Beaker settlements in South Moravia are located on chernozem and brown soils up to approximately 350 meters above sea level (Matějčková 1998:87; Podborský et al. 1993:224). Bell Beaker settlements are small, represented usually by one to three pits. This suggests that only a small number of families settled in one location.

Settlement pits have yielded evidence for the elucidation of Bell Beaker economy. In addition to rather coarse ceramics there is evidence of agricultural production in the form of husks, stone querns, and sickle blades. Therefore, the pastoral adaptive strategy of Bell Beaker communities that was suggested during the early years of Bell Beaker research (Castillo Yurrita 1928) and still persists in some schools (see Kadrow 2001:250; Kristiansen and Larsson 2005:112) is untenable for South Moravia. Animal bones from the settlement pits include domesticated cattle, ovicaprids, and sometimes even dogs and horses while wild animals are rare (Peške 1985; Podborský et al. 1993:225-226). Metallurgy is documented by ground stone axes that are interpreted as tools for chasing (Turek 2003:202-205) and fragments of ingots (Podborský et al. 1993:225).

Origins

The emergence of Bell Beaker in Central Europe has been the subject of debate. There are two main views. The first view favors influence from abroad and contemporaneity of Bell Beaker and Corded Ware communities (Buchvaldek 1967; Dvořák and Šebela 1992). The second view describes Bell Beaker communities primarily as a result of autochthonous development from Corded Ware communities (Neustupný 1972; Turek and Peška 2001). This discussion must reflect two analytical levels: biological populations versus material objects and ideas.

With respect to the population level, demographic models show that large-scale migrations were very unlikely (Neustupný 1982). Moreover, skeletal studies suggest that there is little evidence supporting the hypothesis about the replacement of Corded Ware population with Bell Beaker population (Turek and Černý 2001). Although Bell Beaker skulls are brachycephalic, other metric data do not support a strict difference between Corded Ware and Bell Beaker individuals (Černý 1999). Brachycephaly cannot be considered a population specific feature embedded in the genotype because it could be strongly influenced by the environment. Therefore, there is no clear evidence of the replacement of one population with another. However, stable strontium isotope analyses point out the relatively high degree of immigration (ca. 15-25%) into Bell Beaker communities (Grupe et al. 1997; Price et al. 2004). The interpretation of migrations has to be considered with caution. First, “non-local” isotopic signatures do not necessarily relate to migration, but a more complicated dietary pattern. Second, the penetration of groundwater into skeletons may result in the overestimation of a “non-local” signature (Bentley et al. 2004). In conclusion, available evidence shows that a certain degree of movement probably took place, but it was not a large-scale migration. Neustupný’s (1982) infiltration model seems to be the most realistic model of population dynamics during the Bell Beaker period.

The flow of material objects and ideas is not necessarily coterminous with the population movements. Since both Corded Ware and Bell Beaker were clearly interaction spheres rather than isolated phenomena, ideas and objects could move between distant places. Outside influences could shape local material culture and way of life. Nonetheless, it seems that the exchange of ideas was more important than the exchange of material objects themselves. Although some materials such as amber and copper came to South Moravia from

distant regions, ceramic production was a local phenomenon despite the inter-regional similarities in stylistics of Bell Beaker pottery (Rehman et al. 1992).

There is no need for migration to obtain two different material representations, i.e. Corded Ware and Bell Beaker. It is also possible that there was a partial temporal overlap between Corded Ware and Bell Beaker, which is supported by finds of identical jugs and daggers in both Corded Ware and Bell Beaker sites (Dvořák and Šebela 1992). However, this problem cannot be resolved until a representative set of absolute dates is available.

The Proto-Únětice Archaeological Culture

The Proto-Únětice (PUK) archaeological culture represents the earliest phase of the Únětice archaeological culture. The mainstream view considers Proto-Únětice a Copper Age phenomenon because of general low frequency of metal artifacts and emphasis on stone artifacts well comparable to Corded Ware and Bell Beaker sites (Ondráček 1967:426; Stuchlík 1996:132). Proto-Únětice sites characterize the initial stage of the development of the Únětice culture that coexisted with Bell Beaker sites. In contrast to Corded Ware and Bell Beaker, Proto-Únětice is a local phenomenon restricted to the central part of Central Europe.

Social Differentiation

Since there are no known Proto-Únětice settlements, cemeteries are the primary source of information. Cemeteries are relatively small; they usually contain about twenty individuals (Podborský et al. 1993:242). Burials regularly contain ceramic vessels, sometimes stone and bone tools, and copper or organic ornaments. The majority of burials are inhumations, but cremations also appear (Ondráček 1967:389). Interestingly, there does not seem to be any marked difference between the content of graves with inhumations and graves with cremations. Similarly to previous Late Copper Age cases, cremations are interpreted as the result of the southeastern influence from Nagyrev (Ondráček 1967:390). Although the majority of graves are simple pits, more complex structures also appear. There is evidence of a Proto-Únětice burial from Opatovice u Rajhradu that was enclosed in an underground wooden chamber (Dezort 1964) and a burial from Moravská Nová Ves-Hrušky with a mortuary hut that was erected on the surface (Stuchlík 1996:76).

The orientation of Proto-Únětice bodies is, in comparison to Corded Ware and Bell Beaker patterns, less rigid. Bodies are usually situated on their right side with the head towards the south. However, bodies on their left side with the head towards the north or other forms of orientation also appear. Both Ondráček (1967:389) and Stuchlík (1996:71-75) have suggested that these differences are associated with gender identity. It seems that this binary rule was applied along the easternmost area of Proto-Únětice dispersal where Proto-Únětice communities interacted with the neighboring Chłopice-Veselé group (Stuchlík 1996:62).

The Chłopice-Veselé Group

This is a group that only slightly influenced South Moravia at the very end of the Late Copper Age. Chłopice-Veselé is part of the so-called Epi-Corded Ware complex. Its ties to Corded Ware complex are documented by similar ceramics. However, new types of artifacts such as copper ornaments shaped like willow leaves and typical cups with the impressions of cords appear. Burials of the Chłopice-Veselé group have been found on the left bank of the Morava river. The mainstream view is that Chłopice-Veselé gave rise to the Early Bronze Age Nitra group (Bátora 1991; Stuchlíková and Stuchlík 1989:91).

The Early Bronze Age

Three major processes contributed to the formation of the Bronze Age. First, the process of production and exchange of metal artifacts intensified. Copper artifacts were no longer produced for a limited number of people and purposes, but became widely used (Harding 2000:1). Moreover, from ca. 1900 B.C. bronze was produced and exchanged in Central Europe (Kristiansen and Larsson 2005:116). Second, contacts among distant communities were reinforced and intensified (Harding 2000:1; Kristiansen and Larsson 2005:1). According to Kristiansen and Larsson (2005), traveling and exchange of ideas and material objects were the essential constitutive features of the Bronze Age. Third, the power of individuals became strongly emphasized and expressed through prestige goods (Bertemes 2000; Harding 2000:1).

This general story of progress, however, simplifies the picture of local communities in some parts of Europe such as South Moravia. Bronze artifacts were exchanged and

deposited in burials and hoards. Also, the amount of circulating metal was probably higher than during the Late Copper Age. However, it does not seem that the exchange system would be completely new and qualitatively different. Both ideas and goods were exchanged over long distances before (see Heyd 2001; S.J. Shennan 1986). It was rather the intensity of exchange and the preference of certain objects that changed. In addition, prestige was also expressed in the Copper Age, but through different material media as large quantities of metal were not yet available.

Several lines of evidence indicate that the transition to the Bronze Age was gradual with strong roots in the Late Copper Age. In other words, the Early Bronze Age simply extends the trends that were already started in the Late Copper Age (Podborský et al. 1993:233; S.J. Shennan 1993). There is a marked similarity between the two periods in subsistence strategies (Harding 2000:124-163), settlement pattern (Turek and Peška 2001), and mobility (Sládek et al. 2006a, 2006b). It is important to note that this gradual change was probably accompanied by population increase (Zápotocký 1982), which could have been one of the critical factors for the development of the Bronze Age.

The qualitative change in the Early Bronze Age concerned social differences and ideology. As Stephen Shennan (1993) has suggested, rigid perception of gender differences in the Late Copper Age gave way to individualized ranking. In other words, the emphasis on horizontal social differences gave way to the emphasis on vertical social differences. However, it does not seem that the emphasis on ranking lead to political centralization known from chiefdoms.

The Únětice Archaeological Culture

The Únětice culture (UK) covered the area from Eastern Germany to Western Slovakia and from Southern Poland to Southern Slovakia from ca. 2200 B.C (Figure 3.3). It is characterized by the presence of specific artifacts such as bronze daggers, pins, ring ingots, typical ceramics, similar mortuary practices, and settlement structure. Communities were not interacting within the Únětice sphere only, but were connected to city-states in the Levant as the distribution of Únětice “Cypriot” pins and ring ingots suggests (Gerloff 1993).

Figure 3.3. Distribution of Únětice sites in Europe (after Niederschlag et al. 2003).

Social Differentiation

Únětice mortuary evidence in South Moravia mostly comes from formal cemeteries that contain a maximum of eighty burials. However, skeletons or body parts appear also in settlement pits. Burials in cemeteries generally contain a few ceramic vessels, metal ornaments or tools, and sometimes bone or stone artifacts. Cemeteries also yield evidence of coffins that appear to be a standard part of mortuary treatment (Ondráček 1962). Some Únětice cemeteries are spatially structured into rows (Stuchlík and Stuchlíková 1996), while other cemeteries do not show regular internal structure (Lorencová et al. 1987; Ondráček 1962).

Burials in settlement pits have not been sufficiently explained yet. Some of them contain only one individual, but others contain multiple individuals. Some skeletons are

complete, and others are represented by a few isolated bones only. An extreme example comes from Blučina where fragments – sometimes broken and burned – of eleven children and one adult individual were found in a pit (Salaš 1990:281). These finds were interpreted as the result of ritual sacrifice associated with anthropophagy (Jelínek 1988:14). The variability of burials in settlement features seems to be high. Since relatively little attention has been paid to this issue (but see Salaš 1990), it provides potential for further analysis.

Horizontal social differences are marked weakly in Únětice burials. Body position does not reflect gender differences, although there are exceptions (Stuchlík 1996:134). The bodies are buried predominantly on their right side with the head towards the west or southwest. Only bronze hair rings seem to be associated with females. Age differences are also weakly marked. Burials of children are comparable to the burials of adults. However, children were sometimes buried inside ceramic vessels (*pithoi*) that probably reflect influences from the Mediterranean (Vachůt 2004).

Vertical social differences are reflected in elaborate burials that may include massive stone constructions, coffins, and infrequent or exotic grave goods. Some funerals undoubtedly required investment of a large amount of resources and energy. For example, grave 29 from Mušov was almost four meters long, more than four meters deep, and included limestone blocks totaling twenty tons (Stuchlík 1987:33). Stone constructions appeared in limited numbers in other sites. Some burials were rich in terms of grave goods such as bronze ornaments (Ondráček 1961). There are also some elaborate burials of children that were found inside massive stone constructions or are associated with exceptional grave goods (Ondráček 1962).

Large numbers of burials in UK cemeteries yield evidence of secondary re-opening and manipulation of the burial content. This phenomenon has been interpreted in two different ways. The first group of authors view re-opening as looting focused on bronze artifacts (Ondráček 1962; Stuchlík 1987), while the second group argues for the ritual manipulation of dead bodies (Kruťová and Turek 2004:372; Moucha 1978). In spite of the studies of this phenomenon in various parts of central Europe (Heyd and Bartelheim 2001; Sprengler 1999), a consensus has not been reached yet.

Settlements and Economy

The Únětice settlement pattern is comparable to the previous Bell Beaker pattern (Turek and Peška 2001:415). Settlements are located on fertile soils 200-400 meters above sea level (Podborský et al. 1993:248). Storage and refuse pits are typical settlement features. In comparison to the Late Copper Age, Únětice settlements were often larger. There are settlements that consist of dozens or even more than a hundred pits (Enderová and Štrof 1997; Stuchlík 1969; Stuchlík 1975) and there is evidence of houses. Stuchlík (2000) divided them into four types according to their shape and size: small rectangular huts, long houses, sunken huts, and circular huts (Stuchlík 2000). The most common type is the small rectangular hut (20-40 m²) that probably reflects an individual nuclear or extended family dwelling (Stuchlík 2000:243). Únětice long houses are known only from neighboring Bohemia where they were interpreted also as habitation structures (Krut'ová and Turek 2004:50; Pleinerová 1978). The two remaining types, sunken and circular huts, might be specialized facilities associated with economic production rather than habitation (Stuchlík 2000:238). During the UK period, people also took advantage of caves. However, this kind of occupation was marginal.

Únětice settlements provide information about various aspects of the economy. Quern-stones and sickle blades are quite common finds and there is also evidence of organic remains of grain in settlement pits (Ludikovský 1960). Emmer wheat, einkorn wheat, rye, barley, and oats were cultivated (Kühn 1978). Cattle were probably the most important domesticated animal (Harding 2000:142-143) and were accompanied by ovicaprids, pigs, and dogs (Podborský et al. 1993:257). Infrequent appearance of wild animal bones in settlements suggests that hunting was not a crucial part of the economy. This pattern of subsistence based on farming accompanied by limited animal husbandry is comparable to the Late Copper Age.

Other activities were identified in Únětice settlements. Textile production has been documented by sets of loom weights (Ludikovský 1958). Various tools made of stone or bone were produced locally. It is difficult to estimate what proportion of metal artifacts were produced locally because of the lack of evidence of specialized metallurgical facilities. Some scholars believe that the limited visibility of Moravian metallurgy is due to the technological process. For example, molds could have been made of fired clay that was broken at the end of the production process (Podborský et al. 1993:234). Also, Kristiansen and Larsson

(2005:119) argue that Únětice “Cypriot” pins and ring ingots found in Anatolia came from central Europe and, therefore, provide evidence for long-distance trade. However, this argument needs to be substantiated. Spectral analyses of Moravian metal artifacts indicate that copper most likely came from mines in Slovakia (Págo 1962, 1987). Although the main raw material came from Slovakia, it remains unclear where the final products were prepared.

Hilltop settlements appeared in the late Únětice phase (Stuchlík 1985). Although no clear signs of fortification have been identified, it is likely that people moved to the hills for a reason. Travelers who were crossing the landscape probably embodied a potential threat. These hilltop settlements began a trend that was strongly developed during the subsequent Věteřov period and Middle Bronze Age. However, the lack of specialized structures in hilltop settlements suggests that these settlements cannot be considered centers of the elite controlling the region. Hilltop settlements already existed in the Middle Copper Age and were not associated with the chiefdom level of organization. There is no need to assume that the mere existence of Únětice settlements on the hills provide evidence of political centralization.

The phenomenon of hoard deposition re-emerged in the Únětice period. Hoards usually contained metal artifacts such as ring ingots, but ceramic hoards are also known (Tihelka 1965). The interpretation of hoarding has sparked intensive discussions. Hoards may represent a strategy for dealing with risk and uncertainty as described by Halstead and O’Shea (1989), but some examples of the deposition or destruction of objects suggest the ritual nature of these activities (Harding 2000:326; Levy 1982:17; Salaš 2005:237-238). Although the substantive view of economy encourages us not to separate economy from its context, the standardization of ingots deposited in South Moravian hoards and the location of hoards along the largest rivers in the region suggest that these hoards relate primarily to exchange (cf. Podborský et al. 1993:253).

The Nitra Group

South Moravia was influenced only slightly by the Nitra group that flourished in Slovakia during the Early Bronze Age (Bátora 1991; S.E. Shennan 1978; Točík 1963; Vladár 1973). In Moravia, the Nitra group followed the previous Chłopice-Veselé group mostly in Central Moravia. In South Moravia, sites are located only along the left bank

of the Morava River. The Nitra group was contemporaneous with the Únětice culture that controlled the right bank and eventually spread over the Nitra group's territory.

Since there is very little information about settlements of the Nitra group, cemeteries are the main source of information. It is necessary to mention the Holešov cemetery, although it is located in Central Moravia. The Holešov cemetery is an exceptionally large cemetery that contains more than 400 burials (Ondráček and Šebela 1985; Šmejda 2003). This cemetery has yielded data concerning social differentiation. Gender differences were well marked. Females were buried on their left side with the head towards the east, while males were buried on their right side with the head towards the west. Male burials often contain stone tools and boar tusks, while female burials often include hair spirals and various beads. Although vertical social differences have been not been the focus of much attention in Moravian archaeology, hereditary ranking has been identified in studies of Nitra group cemeteries in Slovakia (Bátora 1991; S.E. Shennan 1975, 1982).

The Věteřov Group

At the very end of the Early Bronze Age, the Věteřov group followed the Únětice in South Moravia but spread also farther to Bohemia and Germany. Věteřov is closely related to the Maďarovce and Otomani archaeological cultures in Slovakia and the Böhleimkirchen group in Austria. Věteřov is assumed to be formed by strong influences from the south and southeast (Podborský et al. 1993:264). Some authors even explain the development of Věteřov through the intensification of interaction with Minoan/Mycenaean centers in the Mediterranean (Kristiansen and Larsson 2005:125-126). Although the degree of interaction is subject to discussion, some decorated bone and antler artifacts show inspiration from Mycenaean designs.

Social Differentiation

Evidence of Věteřov social differentiation is limited because of the rarity of mortuary finds (Stuchlíková 1990a). Burials primarily come from settlement pits. These burials are highly variable. Sometimes there are only fragments of bones or isolated bones in the pits, but there are also complete skeletons. Some pits yield multiple individuals who could have been related through kin ties according to biodistance studies (Alt et al. 1996). There are also burials under mounds that contain inhumations

(Stuchlík 1990). These burials, however, were disturbed and did not yield much information about the burial content.

Settlements and Economy

Settlements are the primary source of information about the Věteřov group. There are two types of settlements: lowland and hilltop settlements. Lowland settlements do not differ significantly from the previous Únětice settlements. They consist of a variable number of pits located usually in undulating terrain. Hilltop settlements continue the trend that started in the Late Únětice phase. In fact, Věteřov hilltop settlements often build upon the Únětice background (Salaš 2000).

There is evidence that Věteřov hilltop and lowland settlements were quite different. There are clear examples of substantial fortification in hilltop settlements (Salaš 1986; Stuchlíková 1990b). In addition, limited evidence of local metallurgy, horse bridle bits, amber, and gold artifacts come from the hilltop contexts. Evidence of a long house with massive construction and a sunken bottom four meters beneath the surface in Budkovice (see Stuchlíková 1990b) suggests that hilltop settlements were local centers. Available evidence suggests that hilltop settlements attracted craft production and probably also elites who controlled the production and exchange of goods. Although it is not entirely clear to what degree the power of these individuals extended outside hilltop settlements, some authors argue that the development of local polities around 1500 B.C. in Europe was characterized by the presence of powerful chiefs (Kristiansen 1991:27).

Věteřov embodies the development of the major Early Bronze Age trends. Exchange with distant areas was common and probably also facilitated by horses. Hilltop settlements attracted craft production and individuals who most likely organized the exchange. Fortification, substantial house structures, and exotic artifacts suggest that wealth in hilltop settlements had to be protected. All these features suggest that Věteřov communities were on the path toward the chiefdom level of organization.

Chronology

Chronological relationships among various Late Copper Age and Early Bronze Age groups are quite complicated (Table 3.2) as we lack a sufficient number of absolute dates to clarify these relationships. Despite the pioneering work of Neustupný (1969a), one of the first European scholars who recognized the potential of radiocarbon dating for archaeology, local archaeological practice still relies heavily on relative chronologies (cf. Podborský et al. 1993:237).

I will focus on the chronology of the transition between the Late Copper Age and the Early Bronze Age. Bell Beaker material remains in South Moravia are divided into four major groups of finds that are implicitly understood as chronological phases, but without explicit arguments that would support this view (see Dvořák 1989:202). This relative chronology has been inspired by chronological studies developed for Bell Beaker materials in the Lower Rhine Basin (see Lanting and Van der Waals 1976).

The understanding of the four groups of finds defined by Dvořák as chronological phases is problematic. For example, Group I is characterized by decorated “maritime” and “epimaritime” beakers, a lack of *Begleitkeramik* (accessory ceramics), and a lack of cremations (Dvořák 1989:202). Then, the frequency of *Begleitkeramik* increases, the frequency of decorated beakers decreases, cremations appear, and the final phase yields evidence of decorated *Begleitkeramik* and burials with wooden chambers and circumscribed by ditches (Dvořák 1989:202-204). This chronology seems to underestimate social differences. For example, evidence of decorated beakers is more likely to have social, rather than chronological meaning (Turek 2002:224). Similarly, the assumption that cremations and burials with ditches and wooden chambers reflect the diachronic dimension of mortuary variability is also unwarranted. Stephen Shennan (1976:233) noted already in the 1970s that the burials designated as “early” also tend to be the richest. Therefore, the current local Bell Beaker chronology is problematic and even the authors admit that there are some flaws (Bálek et al. 1999b: 25). More absolute dates are needed to resolve this issue (Table 3.3).

The chronology of the Únětice archaeological culture is clearer. The conservative view proposes three main phases: the Proto-Únětice, Early Únětice, and

Later Únětice (Červinka 1946:4; Podborský et al. 1993:240; Stuchlík 1987:71). This view lumps phases of the most detailed five-phase system developed by Ondráček (1964). This simple three-stage model is also in agreement with the recent seriation study in Bohemia (Bartelheim 1998, 2004). The Proto-Únětice phase is understood as a Late Copper Age phenomenon, while the Early Únětice and Later Únětice phases correspond to the classic Rainecke phase A1 and A2 respectively. According to Paul Rainecke, phase A1 is characterized by the earliest bronze industries and hoards with bronze artifacts such as flanged axes and metal-hilted daggers while phase A2 is characterized by artifacts such as bronze pins with perforated spherical head and socketed spearheads (Harding 2000:10).

The Proto-Únětice is placed in the Late Copper Age because of the low frequency of metal artifacts and an emphasis on stone artifacts and ceramics comparable to Corded Ware and Bell Beaker finds. The Early Únětice phase is characterized by bronze daggers, ornaments, and ceramic jugs. The Later Únětice phase is characterized by typical Únětice ceramic cups, onion-like vessels, Únětice bronze pins, pins with spherical and spiral heads, ring ingots, and bracelets. At the very end of this phase massive cups, jugs, and lugless amphorae dominate the record. Moreover, settlement ceramics appear in burials (Ondráček 1964:185-212; Stuchlík 1987:71-73). However, there are very few absolute dates that would shed more light on chronology (Table 3.3).

The boundary between the Late Copper Age and the Early Bronze Age is arbitrary because it is based on increasing amounts of bronze in the archaeological record. If other criteria were selected, the border between the periods could have been constructed differently. It is clear today that the transition to the Bronze Age was a gradual process with emphasis on continuity rather than an abrupt change (Figure 3.4, Figure 3.5).

Summary

This chapter has described the environmental and archaeological setting that provides a context for the research. The overview of the environmental nature of South Moravia has

shown the potential of the landscape for human occupation. South Moravia has always been a natural corridor that connects the Carpathian Basin to the plains in Southern Poland and regions farther north and west. The discussion of the features of various communities that settled in South Moravia has revealed the main prehistoric trends including their temporal and spatial dimensions. Finally, the gradual nature of the transition to the Bronze Age embodied in economic intensification, population growth, and social change is described.

Table 3.2. Relative chronology of the Late Copper Age and Early Bronze Age in Central Europe.

B.C. cal	Bohemia & Moravia	Slovakia	Danube Valley	Carpathian Basin
1500	Věteřov (EBA A2) Later Únětice (EBA A2)	Otomani, Maďarovce (EBA A2) Únětice, Maďarovce (EBA A2)	Böheimkirchen (EBA A2) Unterwölbling, Wieselburger, Únětice (EBA A2)	Otomani, Maďarovce (EBA A2)
2000	Early Únětice (EBA A1) Proto-Únětice, Chloupice-Veselé	Nitra, Únětice (EBA A1) Chloupice-Veselé	Unterwölbling, Wieselburger, Únětice (EBA A1)	Kisapostag, Hatvan (EBA A1)
2500	Bell Beaker	Kosihy-Čaka, Bell Beaker	Bell Beaker	Nagyrev
2900	Corded Ware	Kosihy-Čaka, Corded Ware	Corded Ware	Vučedol

After Harding 2000, Neugebauer 1994, Pleiner et al. 1978, Podborský et al. 1993, S.J. Shennan 1993.

Table 3.3. Bell Beaker (BB) and Únětice (UK) radiocarbon dates.

Code	Site	Arch. Culture	Context	Material	¹⁴ C age yr b.p. (uncal)	± 1 σ	95.4% (2 σ) cal age ranges	<i>p</i>	Calibration (OxCal v4beta3, Bronk Ramsey 2006)	Refs
BIn 4497	Tvoříhráz	BB	Grave 2	charcoal	3869	40	2467-2274 2256-2208	0.841 0.113	Reimer et al. 2004	1
BIn 4498	Tvoříhráz	BB	Grave 2	charcoal	3746	52	2307-2015 1998-1979	0.941 0.013	Reimer et al. 2004	1
BIn 4499	Tvoříhráz	BB	Grave 2	charcoal	3771	44	2340-2036 2850-2813	0.954 0.038	Reimer et al. 2004	1
BIn 4500	Tvoříhráz	BB	Grave 2	charcoal	4011	52	2680-2432 2424-2402 2381-2348	0.882 0.014 0.02	Reimer et al. 2004	1
BIn 4501	Tvoříhráz	BB	Grave 2	charcoal	3838	42	2462-2198 2164-2152 2566-2525	0.935 0.19 0.047	Reimer et al. 2004	1
Erl 4718	Pavlov-Horní Pole	BB	Grave 500		3908	54	2497-2273 2257-2207 2835-2817	0.844 0.062 0.015	Reimer et al. 2004	2
Erl 4719	Pavlov-Horní Pole	BB	Grave 501		3990	54	2665-2645 2638-2337	0.012 0.926	Reimer et al. 2004	2
Erl 4720	Pavlov-Horní Pole	BB	Grave 505		3859	57	2473-2196 2172-2146 2857-2811	0.925 0.029 0.05	Reimer et al. 2004	2
Erl 4721	Pavlov-Horní Pole	BB	Grave 516		4007	62	2749-2724 2699-2341	0.016 0.888	Reimer et al. 2004	2

Table 3.3. Continued.

Code	Site	Arch. Culture	Context	Material	14C age yr b.p. (uncal)	$\pm 1 \sigma$	95.4% (2 σ) cal age ranges	p	Calibration (OxCal v4beta3, Bronk Ramsey 2006)	Refs
Erl 4722	Pavlov- Horní Pole	BB	Grave 570 - inhum.		3913	56	2568-2519 2499-2274 2256-2208	0.068 0.828 0.058	Reimer et al. 2004	2
Erl 4723	Pavlov- Horní Pole	BB	Grave 570 - crem.		3808	57	2463-2131 2086-2051	0.916 0.038	Reimer et al. 2004	2
Erl 4724	Pavlov- Horní Pole	BB	Grave 585		3860	57	2474-2196 2172-2146	0.926 0.028	Reimer et al. 2004	2
BIn 2840	Holubice	BB	Settl. feature 1		3660	60	2201-1888	0.954	Reimer et al. 2004	2
BIn 2841	Holubice	BB	Settl. feature 2		3670	50	2199-2161 2153-1921 2561-2536	0.063 0.891 0.014	Reimer et al. 2004	2
BIn 475	Prasklice	UK	Settl. feature	grain	3845	80	2492-2122 2093-2042	0.902 0.038	Reimer et al. 2004	3
BIn 2713	Velké Pavlovice	UK	Settl. feature 25		3570	61	2126-2090 2044-1746	0.036 0.918	Reimer et al. 2004	4
BIn 3754	Cezavy- Blučina	UK	Settl. feature 5	bone	3450	79	1959-1602 1591-1532	0.915 0.039	Reimer et al. 2004	4

References: 1 – Bálek et al. 2003, 2 – Dvořák 2004, 3 – Forenbaher 1993, 4 – Görsdorf 1993.

Figure 3.4. Radiocarbon dates - Bell Beaker. The intervals beneath each distribution designate 68.2% (1 σ) and 95.4% (2 σ) probabilities. Calibrated and plotted in OxCal v4beta3 [(c) Bronk Ramsey 2006].

Figure 3.5. Radiocarbon dates - Únětice. The intervals beneath each distribution designate 68.2% (1σ) and 95.4% (2σ) probabilities. Calibrated and plotted in OxCal v4beta3 [(c) Bronk Ramsey 2006].

CHAPTER 4

RESEARCH HYPOTHESES AND MODELS

Introduction

The purpose of this chapter is to build upon the previous theoretical section and to formulate explicit research hypotheses that can be tested against the archaeological record. I pose three main hypotheses that address the institutionalization of vertical social differences, different strategies of leaders, and gender relations during the transition from the Late Copper Age to the Early Bronze Age. I build models of change that describe which features of society could change and how. For each hypothesis I predict its manifestation in the archaeological record. The expectations are based primarily on ethnographic and ethnohistorical accounts that provide the essential background for this research.

My first hypothesis states that vertical social differences became more institutionalized over time. I expect that this will result in the following features: more marked mortuary differences among females and among males, an increasing emphasis on secondary mortuary practices, the spatial clustering of burials with restricted artifacts and forms of mortuary treatment, more marked differences among child burials, less emphasis on individual identity, and marked differences between Early Bronze Age burials located in cemeteries vs. settlement pits. Furthermore, supplementary settlement evidence should show the emergence of fortified sites, special house structures, craft specialization, substantial accumulations of wealth, and a population increase.

The second hypothesis extends the first hypothesis and states that institutionalization of vertical social differences primarily followed “the big man strategy.” Archaeologically, the big man strategy would result in increasing quantities of valuable objects deposited in burials. Supplementary settlement evidence is expected to show over time the increased accumulation of wealth and large competitive feasting.

The third hypothesis states that gender inequality decreased over time. I expect that this process would result in less restricted access to artifacts, grave features, and forms of body treatment for either males or females over time.

Vertical Social Differences

The first part of this research focuses on the changes in vertical social differences during the transition from the Late Copper Age to the Early Bronze Age. This process has neither been explored sufficiently in South Moravia nor has it been approached via testing of hypotheses that have been generated from ethnographic accounts. The rise of inequality and complexity represents a marginal topic in the local archaeological discourse on the Copper and Bronze Ages. It appears in the form of brief discussions that usually lack an explicit theoretical framework for the interpretation of social change from archaeological evidence (cf. Ondráček 1962:81; Podborský et al. 1993:247; Podborský 1987:117-122; Stuchlík 1985:140; 1996; Tihelka 1953:286). Ethnographic models and data that would provide a basis for the understanding of a range of processes responsible for the archaeological patterns are not sufficiently considered (but see Salaš 2005 for evidence of ethnographic inspiration).

Many questions about the nature of the transition to the Bronze Age remain unanswered. Were Early Bronze Age communities substantially more hierarchical than the Late Copper Age communities? If vertical social differences changed, what was the direction of this change? What strategies did ambitious individuals use to gain, reinforce, and institutionalize their status? How do these strategies relate to the population and economic conditions of these communities? To what degree did ideology play a role in the process of legitimization of social differences? In order to structure the research process, I have formulated hypotheses accompanied by a series of expectations.

Hypothesis 1: Vertical social differences became more institutionalized during the transition from the Late Copper Age to the Early Bronze Age in South Moravia.

This hypothesis focuses on the most general level of diachronic change in vertical social differences. It attempts to refute or not refute the idea that the “rules of the game” which constrain human action – irrespective of age and gender – became more rigid over time. Based on ethnographic studies of this process, we know that institutionalization of vertical social differences usually appears in the context of the development of regional or

supra-regional politics. Small-scale interactions and small populations do not encourage the emergence of leaders who would be able to manage the lives of their peers. Wiessner's (2002) superb ethnohistorical analysis provides one of the best insights into the intricacies of this process. It shows that the leaders may rise when population size and density increases and economic patterns change. Surplus production seems to be one important factor that can provide the potential for aggrandizers (see Hayden 1995:20). Leaders gain influence especially through the ability to channel large amounts of resources to one location at a specific point in time and then use them in a way that generates profit. However, the ability to lead followers into war or manipulate spiritual power through the organization of ancestral cults or initiations provides alternative sources of power. Wiessner (2002:245) demonstrates that institutionalization reaches its peak when these different sources of power merge as in the case of the Tee cycle. In order to test this hypothesis I have developed a series of expectations that can be tested in the archaeological record (Table 4.1). Each of these expectations is described in detail below.

The institutionalization of vertical social differences can be traced in the mortuary archaeological record. Formalized leadership can result in restricted access to certain forms of mortuary treatment. There are multiple ethnographic examples documenting that leaders obtain specific forms of mortuary treatment different from others in pre-state societies. The differences are reflected in the spatial location of burials (Basden 1966:114; Meek 1969:112; Merker 1910:265; Richards 1939:241), general elaboration of burials (Basden 1966:114; Meggitt 1965), the number of valuable artifacts in burials (Lambrecht 1932:363), and the positioning of the body (Meek 1969:122). Although leaders may invest resources in the funerals of their kin rather than in their own funerals (Huntington and Metcalf 1979:139), this paradox does not entirely obscure the reality. It still shows that a limited number of individuals received special treatment. Therefore, the limited number of exceptional burials that obviously received special attention may signal the existence of vertical social differences. Naturally, special burials also may reflect individuals with abnormal identity such as witches or individuals who died in an unusual manner. However, it is still reasonable to assume that burials with artifacts that were imported from far away, or graves that required considerable labor investment, reflect vertical social differences. If institutionalization of vertical social differences took place during the transition from the Late Copper Age to the

Early Bronze Age, we can expect the emergence of more marked differences in grave goods and features within the groups of females and males. These differences, which go beyond age and gender, suggest the existence of individuals who could mobilize and harness resources, such as labor and objects, that were not available to everybody.

The degree of skeletal disarticulation also can shed light on vertical social differences because the disarticulation may reflect secondary mortuary practices. According to Kuijt, secondary mortuary practices can be understood as practices focused on “regular and socially sanctioned movement of all or some parts of the dead individual from the place of temporary disposal to the place of final disposal” (Kuijt 2001:84). Several ethnographic studies indicate that high status individuals were exposed to public display longer than others, and their bodies decayed during this process (Downes 1971:23; Meek 1969:128). In societies that practice selective secondary mortuary rites, low social status is the most critical factor for the denial of the secondary disposal. However, there is not always a direct correlation between social status and secondary disposal. As Metcalf (1981:572) points out, high status individuals sometimes can be buried without delay when resources are abundant and can be used immediately for the funeral feast. However, it still holds that in societies where secondary mortuary treatment is not available to all members, low status individuals are the most likely part of the society that does not receive that treatment. Secondary disposal is often associated with feasting, which requires a substantial investment of resources by the kin of the dead. In other words, when selective secondary mortuary rites are practiced, low status individuals are often disposed of immediately after their death without feasting. This trend generally holds cross-culturally (Sosna in press).

Archaeologically, skeletons with different degrees of disarticulation may suggest the existence of vertical social differences. Nonetheless, one has to be very careful to avoid confusing status differences with different phases of the ritual sequence (cf. Braun 1979; Buikstra 1976). The recognition of this difference is possible through spatial analysis. Cross-cultural research shows that one of the essential features of secondary mortuary rites is the spatial separation between the primary and secondary place of disposal (Sosna in press). Therefore, different degrees of skeletal articulation across the cemetery most likely reflect social differences when individuals with similar degrees of disarticulation constitute spatial clusters. We can expect that if spatial segregation of individuals with similar degrees of

skeletal disarticulation increased during the transition from the Late Copper Age to the Early Bronze Age, it would be consistent with the process of institutionalization of vertical social differences.

The spatial distribution of burials in cemeteries also can shed light on vertical social differences. As Goldstein (1976:57-61) demonstrated in her cross-cultural analysis, the maintenance of formal disposal areas suggests the existence of corporate groups with exclusive access to resources. O'Shea (1996:260-261) has taken this assumption one step further by suggesting that even the spatial segregation of restricted artifacts within a cemetery provides evidence of the hereditary control of social status if the same pattern reappears in several cemeteries in the region. Therefore, increasing emphasis on spatially segregated types of graves, body treatment, or grave goods during the transition from the Late Copper Age to the Early Bronze Age signals that limited number of individuals strove to differentiate themselves from others.

Burials of wealthy children represent another line of evidence for the institutionalization of vertical social differences. Although lavish burials of children traditionally have been used as evidence of the chiefdom level of integration, it has been shown that this phenomenon appears also in societies without chiefs and centralized power (Feinman and Neitzel 1984:61; Mainfort 1985:576; O'Shea 1984:251; Rothschild 1979:671). One possible cause for rich child burials is associated with child growth payments. Hayden (1995:44-45) views child growth payments as a strategy that raises the value of a child in the situation when resources are abundant and can be invested in a child. This logic suggests that it is especially worthwhile to invest resources in young females during their growth because the investment will be repaid in the form of bridewealth and also in the establishment of alliances with powerful partners. The higher the investment in the child, the more wealthy and powerful partners can be attracted. If these "precious" children die prematurely, lavish displays of their value take place in funerals (Hayden 1995:49). Therefore, more institutionalized forms of leadership enable aggrandizers to mobilize wealth necessary for the investment in child growth payments. Archaeologically, we can expect more substantial differences between "regular" and "rich" child burials in the Early Bronze Age than in the Late Copper Age. This should be manifested in terms of restricted grave goods of high value, larger quantities of grave goods, and substantial grave structures. This assumption is based

on the idea that more formal leaders have higher potential to amass resources necessary for such funerals.

The change in personal identity of leaders is another feature that accompanies the process of institutionalization of vertical social differences. Wiessner (2002:247) makes an interesting observation in the analysis of oral histories of the Enga. When formalization of leadership was increasing, personal traits of leaders and the details of their deeds were being replaced by an anonymous cultural idea of “faceless” leaders. Although detailed information about the nature of funerals is not available, the decreasing personal identity of leaders may leave a mark on the material culture. When leaders represent an anonymous position or office, their personal identity should be suppressed in mortuary treatment. Although this expectation is speculative, it is still worthwhile to explore whether the loss of personal traits leaders happened in the Late Copper Age and the Early Bronze Age. The expectation is that if institutionalization of vertical social differences led to forms of mortuary treatment that suppressed the personality of the dead in rich burials, then we should see the personal items of the dead replaced by formal symbols of their position. If so, we would expect also that the exceptional burials in the Late Copper Age would have more personal features of the dead than in the Early Bronze Age burials.

Different locations of disposal may also show evidence of vertical social differences, although the inferences are not so straightforward. In the Early Bronze Age, the dead were buried not only in formal cemeteries but also in settlement pits. There is no evidence of this phenomenon in the Late Copper Age when the dead were buried only in formal cemeteries. The emergence of burials in settlement pits is enigmatic. The most substantial contribution to this issue is Salaš's (1990) detailed comparative study of Moravian and Bohemian burials in settlement pits that refuted the hypothesis about low social status of individuals from the settlement pits (Salaš 1990:290). Salaš argues that the most parsimonious explanation of this phenomenon is associated with the symbolic meaning of the relationship between the storage pits and the dead. In his view, burials in settlement pits most likely reflect ritual sacrifices to secure fertility (Salaš 1990:290). He supports his argument with the observation that the storage pits for cereal were the primary areas for placement of the dead in the settlements and that these frequently contained crop-processing artifacts. Although Salaš's argument sounds convincing and is based on an excellent and meticulous comparative analysis, Salaš does not

explore why some individuals could have been sacrificed while others were not. What made some individuals proper for sacrifice while others were excluded and buried in the cemeteries? It could have been the timing of their death, cause of death, or their different social standing.

In contrast to Salaš, I contend that social status influenced the disposal of some individuals in settlement pits. By looking closely at the criteria of age, sex, body treatment, variability and pervasiveness of associated artifacts, and skeletal stress markers, I will examine whether burials in settlement pits reflect social status. I will build upon Salaš's analysis and include more recent finds and isolated human bones from settlement features that were excluded from his analysis (see Salaš 1990:281). I assume that I will be able to refute the hypothesis about the different status of individuals in settlement features and cemeteries if individuals in settlement features: 1) do not include all age categories, 2) are biased towards either females or males, 3) receive all forms of body treatment and grave goods that appear in cemeteries, and 4) do not show significant difference in the frequency of stress markers on the skeleton. If the hypothesis regarding the impact of vertical social differences on differential location of the disposal of the dead holds, it can be argued that this pattern reflects a more institutionalized form of vertical social differences in comparison to the Late Copper Age where this distinction does not exist.

The last line of evidence for the institutionalization of vertical social differences comes primarily from non-mortuary contexts. Various studies demonstrate that an increase in population size and density is one of the phenomena that accompanies a rise of inequality (Carneiro 1981; Drennan 1987:355; Earle 1991, 2002; Hayden 1995:22; Wiessner 2002:246). However, the causality of this phenomenon is not straightforward. There is evidence of societies with large population size and density that suppressed hierarchy (Feinman 2000; Feinman et al. 2000). While societies with institutionalized vertical differences show large population size and density, not all large and dense populations necessarily have institutionalized vertical social differences. Evidence of population increase is one of multiple parameters that enable us to understand the context of the transition to the Bronze Age. The principle of parsimony suggests that evidence of increasing population size over time would support rather than reject the notion of the institutionalization of vertical social differences. Although some authors suggest that the population increased at the beginning of

the Bronze Age (S.J. Shennan 1993:128), there is no study in South Moravia that supports this argument directly.

Hypothesis 2: Institutionalization of vertical social differences primarily followed “the big man strategy.”

This hypothesis takes into account ethnographic data that cast doubt on the simple linear evolutionary models. As has been outlined in the theoretical section (Chapter 2), there are two primary strategies that enable aggrandizers to reinforce their position. We can call these respective strategies the great man and the big man strategy (Figure 4.1). The first leads through the manipulation of spiritual powers and ritual performance, while the latter leads through control over material resources and economic interactions. Both of these strategies intertwine when aggrandizers institutionalize their position in a chiefly office. An overview of general features of societies with great men, big men, and chiefs is presented in Table 4.2. The hypothesis that I propose is that the control over economy and individual entrepreneurial achievement were the primary factors responsible for institutionalization of vertical social differences in South Moravia. An overview of the expectations can be found in Table 4.3.

The quantity and exotic nature of valuable artifacts in burials provides insight to the nature of vertical social differences. One of the crucial features of big men is their ability to extend their influence over large territories (Hayden 1995:77; Wiessner 2002:247). Sahlins (1963:292), in his initial definition of big men, emphasizes that their activities are crucial for the creation of supra-local organization. This ability to interact and manage the flow of objects over large regions enables big men to channel exotic artifacts to various feasts, including funerals. Through the public display of these artifacts during the performance of mortuary rituals, the exceptional status of the dead and their closest kin is signaled.

Figure 4.1. Two evolutionary pathways represented by big man and great man strategies. This model also suggests the possibility of retrogression.

Moreover, the institutionalization of big men has a quantitative dimension. The ethnohistorical records show that big men were able to assemble and distribute significantly larger amounts of pigs and valuable goods over time. Wiessner noted explicitly:

Enterprising men of the sixth generation before the present who participated in the Tee cycle were able to distribute some 10 pigs; by the second generation some were able to assemble and give away 250 pigs or more together with numerous goods and valuables (Wiessner 2002:247).

If the institutionalization of vertical social differences took place, we can expect the reduction of transaction costs and, therefore, more effective ways of mobilizing large quantities of valuable and exotic goods that can be used during funerals. Therefore, it follows that burials in the Early Bronze Age would yield evidence of significantly larger amounts of

valuable and exotic goods in a limited number of burials as compared to the Late Copper Age.

Another feature that demands attention is large accumulations of wealth in one place. Big men build their status upon the ability to accumulate large quantities of resources that can be redistributed during feasts. This ability requires an extensive network of allies that enables the big man to mobilize resources and channel them into a particular place at a particular point in time. Archaeologically, the existence of this network will be visible through unusually large accumulations of valuable objects, such as metal artifacts, amber, or animals, in one location. Therefore, if the big man strategy was the primary pathway to the institutionalization of vertical social differences, the Early Bronze Age should yield evidence of significantly larger and more frequent hoards, excessive mortuary displays, and accumulation of various forms of wealth in house structures.

Accumulation of wealth is closely tied to feasting. As Hayden (1995:61) argues, feasting is the primary medium that enables big men to redistribute large quantities of resources and attract allies. If the big man strategy was crucial for the institutionalization of vertical social differences, archaeological sites should yield increasing evidence of large feasts. Although feasts are variable they share one crucial aspect: they are communal events based on consumption of food and drink (Dietler and Hayden 2001:3). This can be visible in special feasting facilities such as house structures, cooking structures, prestigious serving vessels, and various food disposal features that contain large amounts of food trash clearly deposited within a short period of time (cf. Hayden 2001:40-41).

Gender Relations

The Late Copper Age frequently is viewed as a period when gender inequality was clearly marked (Neustupný 1967; S.J. Shennan 1993). The emphasis on prestigious male grave goods embodied in stone axes, daggers, and archery equipment, suggests the existence of differences between females and males. The source of inequality can be found in different spheres. Some archaeologists assume that the emergence of the plough was the most critical factor that influenced gender relations (Neustupný 1967). Since cross-cultural research shows a high correlation between men and ploughing

(Murdock and Provost 1973), it is reasonable to infer that it was men who were more closely associated with ploughing in prehistory. This could have led to the rise of the masculine ethos. Other archaeologists view the ability to participate in the exchange of valuable goods as the primary factor for the development of gender inequality in the Late Copper Age (Petrequin and Petrequin 1988:209). Yet another group of scholars view combat and warfare as a source of male prestige (Saraauw 2007). Regardless of which of these factors was more or less important, they all share an emphasis on the extra-domestic sphere. As Stephen Shennan (1993:149) suggests, the importance of domestic sphere was systematically overlooked.

This clear gender distinction seems to have been much less obvious at the beginning of the Bronze Age. Although Shennan (1993:150; 2002:204) argues that the subordination of females continued during the Bronze Age, it definitely is less obvious because the emphasis on male burials diminished. In South Moravia, it is not entirely clear to what degree distinctions between females and males were emphasized. Mortuary treatment of the bodies and associated grave goods do not seem to yield evidence of strict differences. There are many questions that remain unanswered: Were Late Copper Age and Early Bronze Age women subordinate to men? Did gender inequality change over time? Can we see evidence of bridewealth in burials and its change over time? What were the sources of feminine and masculine power? In order to approach this topic I have formulated a hypothesis with a series of expectations. An overview of the expectations is presented in Table 4.4.

Hypothesis 3: Gender inequality decreased during the transition from the Late Copper Age to the Early Bronze Age.

The decrease in gender inequality will be traced through the analysis of mortuary evidence. As I have noted in the theoretical section, mortuary evidence carries great potential for shedding light on gender relations. Both material culture and the human body yield information about the nature of gender relations. Before we start the exploration of expectations for gender inequality, I would like to divide the inequality into two realms. The first one reflects the material well-being of men and women, while the second one stems from the value given to men and women as persons and to the

activities they perform. As Kelly (1993:25) has demonstrated, a perfect correlation is not necessary between material well-being and social prestige perpetuated by ideology. Men, and their activities, can be perceived as superior without their better access to basic resources. Similarly, Linnekin (1990:4) has pointed out that when the general status of women is explored in various dimensions it is difficult to describe the status of women as either low or high. Therefore, we should be aware that gender inequality can be manifested in more than one way.

Symbolic restrictions to certain forms of mortuary treatment and objects are related to gender inequality. Women may be denied some forms of body treatment or grave goods in societies with developed gender inequality (Middleton 1960:200). The extreme cases include the breakage of arms and legs of wives before their placement in the grave with their husband (Brock 1918:253). The unequal access to specific objects for females and males is documented also during their life. For example, among the Baruya, some sacred objects are used only by males who even have to keep their usage in secret and must never reveal this secret to women (Godelier 1999:113-114). Therefore, it is reasonable to expect that if gender inequality decreased during the transition from the Late Copper Age to the Early Bronze Age, restricted access to various forms of body treatment and types of artifacts gave way to more equal access independent of gender. This shift would be visible especially in the access to the objects that had to be imported from far away.

Summary

This chapter discusses formulation of three research hypotheses. These relate to institutionalization of vertical social differences, different strategies of leaders, and gender relations during the transition from the Late Copper Age to the Early Bronze Age. The ethnographic data have allowed me to specify the expectations for social patterns that can be traced archaeologically. Thus, this chapter provides a link between social features and processes such as big man entrepreneurial strategies, development of supra-regional exchange networks, and identity of leaders and the archaeological signatures of these features and processes.

Mortuary evidence is a primary sphere of interest that can provide data necessary for testing the research hypotheses. It includes parameters such as the quality and quantity of grave goods, forms of body treatment, spatial distribution of burials and burial features. All these parameters can be used to shed light on social change. Although non-mortuary evidence has received much less attention in this chapter, some important parameters related to population characteristics and feasting are discussed as well.

The most challenging aspect of these models of social change is equifinality. Although I tried to formulate explicit expectations for patterning in the archaeological record and use as many lines of evidence as available, different processes might have resulted in similar archaeological patterns. For example, exceptional burials may reflect high status individuals as well as witches. The distinction between various forms of social status is challenging. Nevertheless, I believe that the understanding of equifinality increases via the application of different perspectives and lines of evidence. The agreement between independent lines of evidence strengthens the final interpretation.

Table 4.1. Overview of expectations for Hypothesis 1.

Hypothesis 1			
Vertical social differences became more institutionalized over time.			
	Expectations	H1 HOLDS	H1 DOES NOT HOLD
Mortuary Data	Differences in grave goods and features among females and among males became more marked over time.	YES	NO
	Differences in the articulation among the skeletons became more marked over time.	YES	NO
	Burials with restricted grave goods, grave features, and forms of body treatment are more spatially clustered in cemeteries over time.	YES	NO
	Differences among “regular” and “rich” burials of children became more marked over time.	YES	NO
	Supposed leaders in exceptional burials were losing personal traits over time.	YES	NO
	Bodies in settlement pits are not biased toward any sex and age category and they are treated differently than bodies in cemeteries.	YES	NO
	Burials in Únětice cemeteries contain grave goods that do not appear in burials in settlement pits.	YES	NO
Other Data	Population increases over time.	YES	NO
	Fortification of settlements emerges.	YES	NO
	Special house structures emerge.	YES	NO
	Craft specialization emerges.	YES	NO
	Wealth accumulation is more pronounced over time.	YES	NO

Table 4.2. Major features in societies with great men, big men, and chiefs.

Great Man	Big Man	Chief
Multiple positions of leadership in the same rank	Single position of leadership in the same rank	Single position of leadership in the same rank
Lack of coercion	Lack of coercion	Presence of coercion
Inheritance of the prestige position	Lack of inheritance of the prestige position	Inheritance of the prestige position
Personification of leaders	Personification of leaders	Personification of leaders less emphasized (office)
Equivalent exchange	Non-equivalent exchange	Non-equivalent exchange
Small-scale exchange	Large-scale exchange	Large-scale exchange
Limited accumulation of wealth	Accumulation of wealth	Accumulation of wealth
Limited feasting	Substantial feasting	Limited feasting
Frequent warfare	Warfare less emphasized	Frequent warfare
Labor limits production	Land limits production	Land limits production
Exogamy not necessary for getting allies	Exogamy to get allies	Tendency for endogamy
Limited bridewealth	Substantial bridewealth	Limited bridewealth
Lack of settlement hierarchy	Lack of settlement hierarchy	Settlement hierarchy

Table 4.3. Overview of expectations for Hypothesis 2.

Hypothesis 2			
Institutionalization of vertical social differences followed primarily the “big man strategy.”			
	Expectations	H1 HOLDS	H1 DOES NOT HOLD
Mortuary Data	Quantity of valuable and exotic grave goods increased over time.	YES	NO
Other Data	Evidence of the large accumulation of wealth increased over time.	YES	NO
	Evidence of competitive feasting increased over time.	YES	NO

Table 4.4. Overview of expectations for Hypothesis 3.

Hypothesis 3			
Gender inequality decreased over time.			
	Expectations	H1 HOLDS	H1 DOES NOT HOLD
Mortuary Data	Less restricted access to forms of body treatment or artifacts for either males or females developed over time.	YES	NO

Table 4.5. Master table for all three hypotheses and related expectations.

Expectations	Hypothesis 1	Hypothesis 2	Hypothesis 3
Differences in grave goods and features among females and among males became more marked over time.	HOLDS	—	—
Differences in the articulation among the skeletons became more marked over time.	HOLDS	—	—
Burials with restricted grave goods, grave features, and forms of body treatment are more spatially clustered in cemeteries over time.	HOLDS	—	—
Differences among “regular” and “rich” burials of children became more marked over time.	HOLDS	—	—
Supposed leaders in exceptional burials were loosing personal traits over time.	HOLDS	—	—
Bodies in settlement pits are not biased toward any sex and age category and they are treated differently than bodies in cemeteries.	HOLDS	—	—
Burials in Únětice cemeteries contain grave goods that do not appear in burials in settlement pits.	HOLDS	—	—
Quantity of valuable and exotic grave goods increased over time.	HOLDS	HOLDS	—
Evidence of the large accumulations of wealth outside cemeteries increased over time.	HOLDS	HOLDS	—
Evidence of competitive feasting increased over time.	HOLDS	HOLDS	—
Less restricted access to forms of body treatment or artifacts for either males or females developed over time.	—	—	HOLDS
Population increased over time.	HOLDS	—	—
Fortifications of settlements emerged.	HOLDS	—	—
Special house structures emerged.	HOLDS	—	—
Craft specialization emerged.	HOLDS	—	—

CHAPTER 5

RESEARCH METHODOLOGY

Introduction

This chapter provides the tools that are used to test the hypotheses specified in the previous chapter. The content of this chapter is divided into two main parts: data collection and analysis. I primarily discuss the procedures for the collection and analysis of the mortuary data that represent the main sphere of interest, followed by the procedures for the collection and analysis of the data from non-mortuary contexts.

Data Collection

Mortuary Data

The primary data for this research come from burials in formal cemeteries and settlement pits. Four large cemeteries constitute the core for a detailed analysis of mortuary differentiation. These four cemeteries are composed of two Bell Beaker cemeteries and two Únětice cemeteries (see Chapter 6 for details). I intensively studied three of the large cemeteries to obtain detailed data about mortuary variability. The fourth large cemetery, Slavkov u Brna, was studied only on the basis of a detailed catalogue that was recently published without any analysis and interpretation (see Horálková-Enderová and Štrof 2000).

My secondary research extended the primary sample of four cemeteries by including available archaeological evidence from the entire South Moravia. I focused on available published and unpublished literature about Late Copper Age and Early Bronze Age sites in South Moravia. The literature included short reports, journal articles, monographs, conference proceedings, field reports, and field notes when they were available. My purpose was to amass a large sample of mortuary data that I can use for a robust comparison between the Late Copper Age and the Early Bronze Age mortuary practices.

The data collection was organized into three analytical levels: site, burial, and artifact. The most general level of *site* focused on the basic features of the sites (Figure B13). It

included information about the name of the site, its precise topographic name (called *trata* in Czech) and other essential information that helped to unambiguously identify the site. Since several sites have been excavated by multiple archaeologists at different times, I kept individual excavations at the same site as separate entries in the database and combined them later after careful consideration of archaeological features at each site. This strategy was designed to prevent biases caused by publication of the same features by more than one author. Because the concept of a site itself has been criticized (see Kuna 2004:19; Peterson and Drennan 2005), this strategy is appropriate and is also favored by Czech archaeologists who build databases for regional analyses (see Kuna 2004:422).

The recording of site spatial locations followed local standards. The spatial location is usually published in the PIAN system which specifies the location of one point or several points that delimit the polygon of the site. The coordinates specify the distance, in millimeters, from the western and southern edge of topographic maps (usually in ZM10, i.e. 1:10,000). These coordinates can be converted to standard geographic projection systems such as S-JTSK (*Křovák*) or WGS-84 in the special software developed by the Department of Spatial Archaeology at the Institute of Archaeology in Prague (Kuna 2004:422-423). However, the Czech archaeological community is not entirely uniform in adopting this system and not everybody publishes the precise location of sites. Although using GPS units in the field or the publication of precise PIAN coordinates has significantly increased, many older excavations are difficult to locate precisely. This is especially the case for the old excavations whose locations were recorded in relationship to landscape features that do not necessarily exist today. Therefore, I adapted the system used by SAS (*Státní archeologický seznam* – National Archaeological Register) that categorizes spatial location into three levels of precision: 1 – precision to 10 m, 2 – precision to 50 m, 3 – precision to 200 m. Moreover, I added a category 4 that goes beyond 200 m precision for the old excavations that have problematic locations. Although this approach may be viewed as inadequate for the purposes of the management and protection of these sites, it is still useful to plot these sites when one focuses on general spatial patterns on the regional level.

The database of the most famous Bell Beaker, Nitra, Proto-Únětice, and Únětice sites was obtained from the National Archaeological Register (SAS). This database includes the spatial locations of the cemeteries and settlements along with a brief description of their

characteristics. In addition, I added data obtained from literature to this database, as per the procedures specified by Bařtová, et al. (1997:118) and Kuna (2004:423). The map was projected in S-JTSK, which is one of the most appropriate forms for local projection.

The *site* level of data collection included also essential characteristics of mortuary sites such as the number of burials and their specific types, the presence of special grave features, mounds, and the circumscription of the cemetery.

The second level of data collection focused on *burials*. The burial analysis form (Figure B14) included essential information about the site where the burial was uncovered. Other types of data can be categorized into three large groups: the body, the grave, and the artifacts. The data about the body included basic biological estimations when they were available, the orientation and position of the body, and the degree of skeletal articulation. Further details about the skeletons were collected separately by bioarchaeologists who provided me with their data. The data regarding the graves include the dimensions of grave pits, the presence of constructions, coffins, and the presence of grave disturbances traditionally interpreted as looting. The data regarding artifacts include quantities and characteristics of various types of artifacts. The identification numbers of artifacts (Inv. č.), assigned by archaeological institutes, were also recorded.

The third level of data collection focused on *artifacts*. The artifact analysis form (Figure B15) included essential information about the site where the artifacts were found. The upper part of the form described general properties of artifacts such as their type, dimensions for non-ceramic artifacts, material, fragmentation, and if they were drawn or photographed. The lower part of the form described the properties of ceramic vessels, which constitute the most frequent find in Moravian burials. The nature of surface and paste, the shape, the presence of additional features such as lugs, their position, dimensions, and the decorative form was recorded on the form. These details were useful for the evaluation of chronology and social differences within individual cemeteries.

Únětice Burials from Settlement Features

The list of Únětice burials from settlement features was created exclusively from textual sources. Salař's (1990) study provided the main source of references. Additional data were extracted from the articles and monographs published since the 1990s. The process of data recording followed the procedures specified in the previous section.

Samples for General Comparison

The data for the general comparison between Late Copper Age and Early Bronze Age mortuary practices were recorded exclusively from literature. The data are not perfect because of the variable quality of recording and publication of archaeological research, yet this shortcoming is compensated somewhat by the number of cemeteries that makes the comparison between the Late Copper Age and the Early Bronze Age more robust. Further, the cemeteries do not necessarily represent the true distribution in the study area, because the cemeteries were identified through long-term opportunistic activities rather than systematic survey. However, this is simply the current state of knowledge. The lack of large-scale systematic surveys is compensated by the fact that archaeological research in South Moravia has been performed for more than one hundred years (cf. Červinka 1908; Vrbas and Kříž 1899) in a densely inhabited region.

The process of data recording for these two large samples, i.e. Late Copper Age and Early Bronze Age samples followed the procedures specified above.

Non-Mortuary Data

The data from non-mortuary contexts came from settlements and accumulations of artifacts such as hoards. The data served for the estimation of population parameters and intensity of economic interactions. I recorded the data exclusively from literature and entered it on the site analysis form (Figure B13). The data included basic characteristics such as name, period/cultural affiliation, location, number of settlement pits, and their content. In the case of hoards, the quantitative and the qualitative aspects were recorded. Although these data are superficial, they provide an idea about the size of the settlements and hoards, and their distribution in the landscape.

Analysis of Mortuary Data

The analysis of mortuary data can be divided into intra-site and inter-site dimensions. The former explores social differences within the four main cemeteries. The latter explores

the differences among the sites. This includes the investigation of differences among the four main cemeteries, the general Late Copper Age and the Early Bronze Age samples of burials, and burials from Early Bronze Age cemeteries versus burials from settlement features. The comparison between the burials from cemeteries and settlement features is restricted to the Early Bronze Age because burials do not appear in settlement features during the Late Copper Age.

Intra-Site Variability

Neustupný (1997:237) defines two main properties of archaeological evidence: formal and spatial. The former refers to any physical characteristics of objects. The latter refers to the position of objects in space. This distinction between formal and spatial properties was used to structure the analysis of intra-site variability.

Formal Analysis

The analyses of mortuary variability generally followed procedures specified by O'Shea (1984; 1996). The first step that preceded the analysis was coding. Sex was coded as female, male, or indeterminate. Age was coded as infant I, infant II, juvenile, and adult/senile (Table 5.1). Although the low degree of resolution in the adult/senile category may appear too general, it reflects current methodological discussions about aging in biological anthropology. As Igarashi et al. (2005) recently demonstrated, the methods of age estimation are much less reliable than previously assumed. While the age of subadults can be estimated quite reliably, the age estimation of adults whose growth is finished is highly unreliable. In addition to the fine-grain age categorization, a binary distinction between subadults (infants and juveniles up to age 20) and adults was employed in the analyses that required larger datasets for testing. For example, general categories subadult vs. adult were used for comparisons of grave dimensions and number of artifacts in burials within the cemeteries.

The frequency of specific forms of body treatment and grave features within each cemetery was investigated. The Cross-tabulation was applied to elucidate the associations between age and sex categories and orientation of the body and grave characteristics. Fisher's exact test (Fisher 1922) was used to identify significant patterns in the contingency tables. For testing differences in grave and coffin dimensions between females vs. males and

subadults vs. adults, I applied t-tests for normally distributed data and the Mann-Whitney test (Mann and Whitney 1947) for non-normally distributed data. Also, the strength of the linear relationship between coffin length and stature was explored via linear regression analysis (Fisher 1925). Stature was estimated by Patrik Galeta following the procedures specified by Sjøvold (1990:445). The analysis of the linear relationship between coffin length and stature was supposed to discover if coffin size reflected the size of the body, which was placed in it. This analysis can uncover whether bodies were partially decayed and could be placed in relatively small coffins. Stature was estimated by Patrik Galeta following the procedures specified by Sjøvold (1990).

Table 5.1. Age categories and their span.

Age category	Age category	Age span (years)
Subadult	Infant I	0-6
	Infant II	7-14
	Juvenile	15-20
Adult	Adult	21<

The analysis of artifacts started with coding. Artifacts were initially coded into the “Minimum Recognized Units” that reflect the highest meaningful resolution of artifact types (see O'Shea 1996:81-84). Such a categorization was based on raw material, supposed function, stylistics, and supposed origin. The pervasiveness and association of these categories with age and sex were explored to elucidate age and gender specific markers in material culture. After that, the Minimum Recognized Units were lumped into more general categories that were subject to further analyses such as correspondence analysis and differential testing of the quantity of artifacts between burials of females vs. males, subadults vs. adults, and cremations vs. inhumations.

Because ceramic vessels represent the most pervasive form of artifact, they received special attention. The classification of ceramic vessels is a traditional task in archaeology. The types of ceramic vessels are idealized categories that include things that are more similar each other than things in other categories (O'Brien and Lyman 1999:23). I took into account the dimensions of vessels, their shape, and the presence or absence of specific features such

as decorations or lugs. The typology of Bell Beaker vessels primarily followed Dvořák's (1989) model that distinguishes seven major categories of vessels: bell beakers, bowls, mugs, jugs, amphorae, lugless amphorae, and storage jars. The typology of Únětice vessels followed primarily Stuchlík's (1987; 1996) classification, although small vessels with lug were lumped into the mug category: bowls, mugs, lugless mugs, Únětice cups, amphorae, lugless amphorae, beakers, jugs, onion-like vessels (*osudl*), and storage jars.

The analysis of ceramic vessels focused on the quantitative and qualitative traits to evaluate differences between females vs. males and subadults vs. adults and also chronology. The quantitative variables included the major dimensions of vessels such as the vessel height and the diameter of rim. The qualitative traits included the presence and form of decorations, holes, the position of lugs, and the shape of base. The differences in vessel dimensions between females vs. males, and subadults vs. adults were tested by the nonparametric Mann-Whitney test.

Correspondence analysis was performed to explore the relationships between multiple variables (see Bellanger et al. 2006; Bolviken et al. 1982; Madsen 1988; Müller and Zimmermann 1997). Although other multivariate methods such as principal component and cluster analyses are usually favored in mortuary studies (see Hodson 1977; Manly 1996; Neustupný 1973, 1997; O'Shea 1984, 1996; Šmejda 2003), correspondence analysis seems to be best suited for the discrete data that are common in mortuary analyses (S.J. Shennan 1997:308). Correspondence analysis yields measures of association between variables and observations in terms of chi-squared deviations from the average (Baxter 1994:108; S.J. Shennan 1997:318).

Correspondence analysis required an appropriate data matrix. First, presence/absence data were used in this study because I was examining the association among variables in single burials. It is also possible to use an ordinal scale and include counts of specific artifacts in a burial but this strategy was not selected. The goal of the multivariate analysis was to shed light on the relationships among multiple categories of mortuary differentiation, not necessarily quantitative differences among these categories. Differences in quantities of specific artifacts were tested independently by resampling tests (see below). Second, only single burials were used in the correspondence analysis to avoid the confusing in the association of artifacts with individuals. This requirement reduced the number of available

burials, but it was necessary. Third, only variables (i.e., artifacts, grave features etc.) that appeared in at least five percent of burials were included in the analysis. The selection of a threshold for multivariate analyses is common (cf. McHugh 1999:78; O'Shea 1984:66). This procedure eliminates variables with a low frequency of appearance across the cemetery. Especially, correspondence analysis tends to be sensitive to variables with low pervasiveness. Early in the analysis of the data, I tried different multivariate methods of analysis such as factor and principle component analyses but correspondence analysis tended to differentiate more clearly variables with low pervasiveness. This quality of correspondence analysis is useful when one searches for vertical social differences that can be marked by artifacts or features with relatively low frequencies of appearance. Fourth, only burials that included at least one observation for any of the variables were used. This requirement is specific for correspondence analysis.

The next step in the analysis focused on testing the differences that had been suggested during the previous exploratory part of the analysis. Testing focused on the number of specific artifacts and their variability between the graves of females vs. males, adults vs. subadults, and cremations vs. inhumations. The variability of artifacts in burials was coded into the following categories: ceramic vessels, tools, weapons, ornaments and garments, other non-utilitarian objects, and grave furniture. Therefore, the burial with three ceramic vessels and one dagger was assigned a value of “two” because it contained two types of artifacts: ceramic vessels and a weapon. Resampling tests were used for testing differences in the number and variability of artifacts in burials. Resampling techniques appear to be one of the most useful tools that have been developed recently for the analysis of small samples that are not normally distributed. Resampling techniques are computer-intensive procedures that are based on simulations of statistical models' behavior through the generation of random samples (Baxter 2003:147; Efron and Tibshirani 1993; Manly 1991). The strength of these techniques lies in the potential to effectively distinguish between random and non-random patterns and test differences between samples without making assumptions about the population from which these samples were drawn (Drennan and Peterson 2004:540). These techniques proved to be very effective for the analysis of patterns in cemeteries (Manly 1996). I used a resampling procedure that produces an estimate of a specific parameter by sampling the original sample with replacement.

I used the following resampling procedure: The difference in a selected parameter (e.g., average number of bronze artifacts in burial) of two samples (e.g., females vs. males) was tested. I assumed that if the original difference between two samples was significant, it would be among the extreme values obtained by resampling. The procedure tested the difference between two samples as follows: The mean value for a variable (e.g., number of bronze artifacts in burial) was calculated for two samples (e.g., females and males). Then, the difference between these two sample means was calculated. After that, a categorical variable (e.g., female vs. male) was randomly assigned to burials and the mean value was calculated for each sample (i.e., females and males) again. Then, the difference between these new sample means was calculated and the entire procedure was repeated 1,000 times. The sequence of this procedure is depicted in Figure 5.1. This kind of testing, based on resampling, proved to be effective.

Data for formal analyses were prepared in MS Excel 2002. This program was also used for the initial visual exploration of patterns in the data via filtering (e.g., all Infant I individuals in the cemetery and types of artifacts in their burials). Resampling was performed also in MS Excel 2002 using VBA macros. The essential macro that can be used for various kinds of resampling was developed by my colleague Patrik Galeta, who generously allowed me to use and modify it for the needs of my research. The t-test, the Mann-Whitney test, Fisher's exact test, linear regression, and multivariate analyses were conducted using the statistical computer packages R 2.3.1 and Statistica 6.1.

Spatial Analysis

The exploration of spatial patterns within individual cemeteries was the second major part of intra-site analyses. Since some of the research hypotheses were related to spatial properties of burials and artifacts, it was necessary to explore the distribution of multiple variables in space. This kind of approach has relatively recent roots in archaeology (Binford 1977; Hodder and Orton 1976; Voorrips and O'Shea 1987; Whallon 1973, 1974). Spatial patterning can be used for the validation of the patterns that were detected statistically during the analysis of formal properties of burials (Neustupný 1997). The most effective spatial analysis uses a GIS environment (Burrough et al. 1998; Wheatley and Gillings 2002). The power of GIS stems primarily from the combination of databases with the tools that can link them to spatial information. ArcView 9.0 software was used for spatial analysis in this study.

1

Calculation of difference between $\bar{Y}$ for females and $\bar{Y}$ for males

F	M	
8	2	
3	1	
2	3	
3	2	
...	...	
$\bar{Y}$ 4	2	$\rightarrow \bar{Y}_{d0} = \bar{Y}_F - \bar{Y}_M$

2

Shuffling and creation of the samples S1 and S2.
Calculation of difference between $\bar{Y}$

S1	S2	
3	2	
3	3	
2	8	
1	2	
...	...	
$\bar{Y}$ 2.25	3.75	$\rightarrow \bar{Y}_{d1} = \bar{Y}_{S1} - \bar{Y}_{S2}$

3

Repetition of the step 2 10,000 times
and creation of the distribution of $\bar{Y}_{dn}$

4

Comparison of $\bar{Y}_{d0}$ with
the distribution of $\bar{Y}_{dn}$

Figure 5.1. Testing differences between two sample means using resampling.

The first step was to create a GIS that enabled the visualization of the spatial patterns of different variables in a cemetery. Initially, maps of individual cemeteries were scanned and rectified in GIS to match the original scale. Then polygons, which embodied burials, were drawn and linked to a table that included the data about those burials. Once these polygons were associated with the table, the distribution of all variables could be visualized.

The hypotheses predict that in a society with vertical social differences the burials of individuals with the same status tend to cluster. Therefore, it was necessary to explore “conditional spatial patterning” (see Voorrips and O'Shea 1987:502). Initially, the approximate center of each burial was determined to convert the polygon features (i.e., burials) into points. Then I focused on a specific variable, such as burials with bronze awls, recorded the coordinates, and created a data matrix that was imported to the R statistical package. In R, I uploaded the spatial analytical package and defined the extent of the region of interest using the *ppregion* function. The extent of the region was defined by minimum and maximum eastern and northern coordinates for the distribution of burials in the cemetery. Next I created a plot of points (e.g., burials with bronze awls). After that, I used the *Psim* function to generate random points in the same area via a binomial distribution. The number of randomly generated points was equal to the number of points imported from GIS (e.g., six burials with bronze awls). I simply kept generating new random patterns and recorded the frequency of patterns that looked as similarly clustered as the original pattern. This approach allowed me to model how much patterning can be produced by random processes. When I received patterns that I subjectively evaluated as patterns with a similar degree of clustering as the original pattern in more than five percent of simulations (3 from 60 simulations), I rejected the hypothesis that the original clustered pattern in the cemetery was unlikely to originate by chance.

I also used spatial intra-cemetery analysis to shed light on chronology. The basic level of this analysis included the visual exploration of the spatial distribution of chronologically sensitive artifacts. It was assumed that chronologically sensitive artifacts would yield a spatial pattern; chronologically late artifacts could be on the periphery as a reflection of a burial ground's radial expansion, could be clustered in a specific part of a burial ground as a

reflection of its unidirectional expansion, or could lack any meaningful spatial pattern. Moreover, I plotted the results of correspondence analysis. Neustupný (1997) calls this process spatial validation, which confirms patterns in the data spatially. This technique has been applied successfully in mortuary contexts (Šmejda 2004). I selected the coordinates for the dimensions of correspondence analysis which seemed to reflect chronological differences and plotted the coordinates in space.

Analysis of Burial Disturbances

The nature of postdepositional processes was investigated to understand their effects on subsequent analyses. This analysis was a crucial prerequisite for the analyses that focused on artifacts and the body. It was necessary especially in the case of the Rebešovice cemetery where only eight burials (10%) were undisturbed (Ondráček 1962:65). Some burials were disturbed during the excavations by heavy machinery, other burials were only slightly cut by later Slavic burials, or clearly intentionally re-opened as evidence of “looting shafts” indicates. It was necessary to investigate different kinds of disturbances to understand their effect on the burial content and interpret the reason for the graves’ re-opening. I divided the disturbances into the following analytical categories: 1. disturbed during excavations, 2. disturbed by later burials, and 3. disturbed by shafts.

While the first two categories of disturbances are straightforward, the third category remains one of the major mysteries of Central European archaeology (cf. Heyd and Bartelheim 2001). In order to test various reasons for re-opening the burials, I defined four possible reasons: 1. burial of another individual in the already existing grave, 2. looting focused on valuable artifacts, 3. intentional pollution of burials, and 4. secondary mortuary treatment of the bodies.

The first possible possibility, burial of another individual in the already existing grave, is relatively easy to test. It is assumed that burials with shafts would contain more than one individual because the shaft was used to get the second body into the grave. Moreover, there would be evidence of moving the body parts of the first individual to the grave’s side to make space for another (other) individual(s).

The second possibility also can be tested. I would expect several results if the burials were looted. First, disturbed burials would contain fewer bronze artifacts than the undisturbed burials. Second, disturbed burials would not contain massive bronze artifacts

such as ring ingots, daggers, or bracelets, because they would not likely be overlooked by looters. Third, disturbed burials would contain a higher proportion of bones with corrosive stains that are not associated with bronze artifacts in contrast with undisturbed burials where bones with stains would be associated with bronze artifacts that left marks on them. Although this assumption may sound complicated, the reasoning behind it is simple: When looting occurs, bronze artifacts disappear from burials, but the stains on the bone surface remain (Figure 5.2).

Figure 5.2. A corrosive stain produced by hair rings from the Rebešovice cemetery burial 192-2.

In order to test the hypotheses developed from these expectations statistically, various techniques were used. To test the difference between the average number of bronze artifacts in disturbed and undisturbed burials, resampling tests were used (see p. 102-103). Testing of the association between corrosive stains and artifacts was more complicated. It was necessary to create a model of the relationship between the specific artifacts and body parts. Intact graves from three Únětice cemeteries were used to build this model: Rebešovice (Král 1954; Nekvasil 1954; Staňa 1954), Slavkov u Brna (Horálková-Enderová and Štrof 2000), and

Těšetice-Kyjovice (Lorencová et al. 1987). Since artifacts were not associated with mutually exclusive parts of the body, five major target areas were defined (Figure 5.3) and specific artifacts were assigned to these areas (Table 5.2). The first area consists of the temporal, parietal, and occipital bones, lateral parts of the mandible, and the first three cervical vertebrae. The second area consists of the ribs, sternum, and the first three of the cervical vertebrae. The third area consists of the clavicles and superior parts of the scapulas and humeri. The fourth area consists of the forearms and the hands. The fifth area consists of the tibiae, fibulae, and tali. Fisher's exact test was used to test the difference in the frequency of individuals with artifact-associated stains and individuals with stains unassociated with any bronze artifact between disturbed and undisturbed burials.

The third reason for re-opening burials is based on the assumption that burials could be intentionally disturbed to hurt those who kept ancestral ties to the dead. Ondráček (1962:68) suggests that burial disturbances were associated with the expansion of Věteřov communities that replaced Únětice at the very end of the Early Bronze Age. It is well known that cemeteries often serve as important landscape features that signal territorial boundaries in prestate societies (Beck 1995). A conflict between competing groups can be undertaken via the pollution of the places that are considered sacred. Even today, the denial to bury or “keep in touch” with the dead is one of the effective strategies to indirectly fight enemies (see Robben 2004). Therefore, I assume that if such a symbolic act took place in the Early Bronze Age cemeteries, the skeletal parts would be disturbed, damaged, or missing while valuable metal artifacts would remain in the graves. In other words, the target of re-opening would be the body rather than the valuable artifacts. However, the body would not be treated with respect and caution as we know from secondary mortuary practices (Schroeder 2001; Sosna in press). In ethnographically documented secondary mortuary practices, parts of the decayed body are collected and removed from the place of primary disposal with different precision. The degree of precision ranges from the extremely careful removal of the entire skeleton including the smallest phalanges and carpal bones (Adriani 1951:780) to the removal of selected parts of the body (Downes 1971; Lambrecht 1932:478; Ray 1991). However, the body tends to be treated with respect and bones are not intentionally damaged or discarded. Therefore, in case of ritual pollution of burials in the Early Bronze Age, skeletal elements and their fragments would be damaged and distributed in the grave fill or on the surface.

Figure 5.3. Five areas on the body associated with corrosive stains.

Table 5.2. Relationship between bronze artifacts and body areas.

Area	Associated bronze artifacts
1	bead, hair ring, pin, ring ingot, tube
2	pin
3	pin
4	bracelet, dagger, tube
5	anklet, dagger

The fourth reason for re-opening burials is the secondary mortuary treatment of the dead. The cemeteries would be places where primary burials were deposited for a limited period of time. It is assumed that such practices would result in the removal of the entire body or selected body parts with respect and caution. Also, the bodies that were removed would be placed in new locations. This kind of treatment differs from the simple movement of already buried bodies to the grave sides to make space for another individual. Spatial difference between the primary and secondary burials is one of the essential features of

secondary mortuary practices (Sosna in press). It is also assumed that the head would be the most likely target of manipulation if only parts of the body were removed.

Cemeteries vs. Burials in Settlement Pits

The institutionalization of vertical social differences was explored through the comparison of burials in Únětice cemeteries and settlement pits. Only Únětice burials could be analyzed because burials in settlement pits do not appear in the Late Copper Age. The sample of burials in settlement pits that was specified by Salaš (1990), burials found after 1990, and isolated finds of bones were all explored via cross-tabulation to test Salaš's hypothesis that there is no bias towards any age or sex category. Significant patterns in contingency tables were tested with Fisher's exact test. Then, the variability and pervasiveness of associated artifacts was explored and compared to the variability and pervasiveness in the Únětice cemeteries; the Rebešovice and Slavkov u Brna cemeteries were used as representatives of the Únětice cemeteries. Special attention was paid to the forms of body treatment and artifacts that appeared in the cemeteries but not in the settlement pits. Moreover, the frequency of individuals with skeletal stress markers in cemeteries and settlement pits was compared. Formal statistical testing was not applied because of the different quality of the data for cemeteries and settlement pits.

General Comparison between the Periods

The final step in mortuary analysis was the general comparison between the Late Copper Age and the Early Bronze Age. The analysis focused on two large samples: the Late Copper Age burials (Bell Beaker and Proto-Únětice) and Early Bronze Age burials (Early Únětice and Late Únětice phases).

The first step in the analysis was the comparison of major changes in mortuary practices over time. The point was to identify major changes in artifact types and quantities of artifacts deposited in burials. I focused on the pervasiveness of different types of artifacts and grave features in the Late Copper Age and the Early Bronze Age. Then, the difference in the number of artifacts in general and copper/bronze artifacts in the Late Copper Age and the

Early Bronze Age burials was tested by the nonparametric Wilcoxon test (Wilcoxon 1945). The dataset was large enough to apply this test.

The appearance of marked differences within a group of females and males was explored via histograms that presented a number of artifacts in female and male burials in the Late Copper Age and the Early Bronze Age. The qualitative dimension of marked differences focused on the detection of exceptional burials of females and males in the Late Copper Age and the Early Bronze Age.

I also compared possible changes in the treatment of infants. Burials of Infants I and II were selected and four parameters were compared between the Late Copper Age and the Early Bronze Age individuals. Three parameters consisted of the pervasiveness of bronze/copper, golden, and amber artifacts in infant burials in both periods. The fourth parameter described the proportion of infant burials with unusually rich burial content. As a threshold, I used the number of associated artifacts that was higher than the 75% quantile for the number of artifacts in the Late Copper Age or Early Bronze Age samples. Fisher's exact test was applied to test the significant difference in the proportion of burials with these characteristics in the Late Copper Age and Early Bronze Age.

The next analysis examined gender relations. I focused on two main forms of comparison. First, I used cross-tabulation to identify forms of mortuary treatment, grave features, and artifacts that were associated exclusively with males in the Late Copper Age and the Early Bronze Age. Second, I focused on quantitative aspects of burials and compared significant differences in the number of bronze artifacts and the grave depth between females and males in the Late Copper Age and the Early Bronze Age. A resampling test was applied for the number of artifacts and the Wilcoxon test was applied for grave depth.

Analysis of Non-Mortuary Data

The analysis of non-mortuary data focused on settlements and hoards. The purpose of these analyses was to supplement mortuary evidence with an alternative line of evidence that would show the transition to the Early Bronze Age from a different angle. The brevity of this part of research stems from the fact that settlement evidence was not the central focus of this project. Detailed analysis of settlements would require another large project. Although non-

mortuary data did not come from a systematic survey, I assume that both Late Copper Age and Early Bronze Age sites were exposed to a similar bias. The sites were found mostly during the construction of roads, buildings, dams, modification of river channels, exploitation of sand in sand pits, agricultural activities, and non-systematic archaeological survey.

In order to understand the population dynamics during the transition from the Late Copper Age to the Early Bronze Age, the frequency of settlements and their approximate size were explored. The main parameter of interest was the number of settlement pits that were assigned to the particular archaeological culture that was based on the nature of artifacts and the shape of the pits. It would be mere speculation to associate these pits with the number of individuals who lived in the settlements. Nonetheless, it is still useful to use the number of pits as a proxy for population size for a general comparison, which attempts to answer if the population increased, decreased, or remained stable. To account for the effect of time, the relative number of pits per 100 years was calculated (cf. Chamberlain 2006:129). The estimate of 400 years for the Bell Beaker period (2,500-2,100 B.C.) and 600 years for the Únětice period (2,300-1,700 B.C.) was used to calibrate the counts of pits to a unit of time.

Also, the distribution of hoards was explored to test if they were associated with the natural corridors that most likely served for the long-distance transport of gifts.

Summary

This chapter presents the overview of procedures that were used to collect and analyze archaeological data from both mortuary and non-mortuary contexts. I have described the two-tiered approach that focuses on the detailed investigation of four large cemeteries and the use of textual information for the more general comparison of two large burial samples from the Late Copper Age and the Early Bronze Age. The entire research sequence from the data collection to computer-intensive testing based on resampling techniques has been specified. Part of the intra-site analysis has dealt with the problem of post-depositional processes and testing different reasons for the re-opening of Únětice burials. Attention was paid also to spatial analysis of patterns inside cemeteries as well as the exploration of the settlement pattern and the estimation of population dynamics.

CHAPTER 6

SAMPLE SELECTION AND STUDY MATERIALS

Introduction

This chapter describes archaeological sites that will be analyzed in Chapter 7. The first part focuses on the four selected cemeteries that will be subject to detailed analyses. The characterization of each of these four cemeteries consists of the history of research, materials and data sources that were used for this study, geographic nature, and the plan of these cemeteries. In addition, the description of each cemetery includes a brief discussion of chronology and data evaluation including the procedures that were applied to rectify problematic data. The second part of this chapter contains the description of Early Bronze Age burials from settlement features and samples that were used for general comparison between the Late Copper Age and the Early Bronze Age.

Selected Cemeteries

Four cemeteries were selected for detailed analysis. The selection criteria were based on the quality of the documentation, availability of archaeological materials for study, and the cemetery size. Moreover, the availability of skeletal material or bioarchaeological reports was taken into account. The four selected cemeteries consist of two Bell Beaker cemeteries (Ostopovice and Šlapanice II) and two Únětice cemeteries (Rebešovice and Slavkov u Brna). Although there is variability in the quality of available information, all these cemeteries yield detailed information about mortuary differentiation in the past.

The Šlapanice II Cemetery

In 1934, Poulík identified a Bell Beaker cemetery in part of Šlapanice (Brno-venkov County) called Široká pole. During 1934 and 1935, he excavated a majority of the burials. In the meantime at the same site in 1935, Dvořáček excavated 12 burials. The total number of excavated burials is 59, which makes this cemetery one of the largest European Bell Beaker

cemeteries. The information that was used for this study consists of Poulík's (n.d.) field notes, Dvořák and Hájek's (1990) catalogue, and Dvořák's (1990) thorough descriptive analysis of this cemetery. Archaeological materials were available for study at the Institute of Archaeology, Moravian Museum in Brno. Skeletons, however, were not available. Today, no curator can explain the destiny of skeletons from this cemetery (Dvořák, personal communication 2005). Since the potential of skeletons was underestimated by archaeologists in the past, it is possible that the skeletons were not collected at all. The alternative explanation is that the skeletons were lost in the turmoil of World War II or later.

The Šlapanice II cemetery is located on a slight SE slope ca. 245 m above sea level. The cemetery is located on the loess subsoil. The geographic coordinates of the center of the site are 49°10'32" N, 16°44'47" E (WGS-84). The Šlapanice II cemetery is one of several Bell Beaker archaeological sites in Šlapanice cadastre. There are eight other Bell Beaker sites (Šlapanice I, III-IX) that consist of burials and isolated finds, predominantly ceramic vessels.

The distribution of the burials in the Šlapanice II cemetery indicates three clusters of burials located along the N-S axis (Figure 6.1). Since the exact location of four burials was not recorded by Dvořáček, I generated the location of the four burials randomly within the area that was excavated by Dvořáček (see the section Data evaluation and rectification below for the explanation).

From the 59 burials that have been identified and excavated, only 51 have acceptable documentation (see below for the explanation). The majority of burials are single inhumations but cremations and one multiple burial also appear at the cemetery. Dvořák (1990) argues that the excavations probably uncovered the entire extent of the cemetery because of the system of test pits that was applied during the search for new burials.

Chronology

There is no absolute date available from the Šlapanice II cemetery. Therefore, relative chronology is the only source of temporal information. Dvořák (1990:110) argues that this cemetery was used during a relatively short period of time that falls within his stage II. This evaluation is based on the absence of both very early (maritime and epi-maritime bell beakers) and late (jugs with beards, decorated *Begleitkeramik*, and copper hair rings) types of artifacts. This evaluation is reasonable because this cemetery really did not yield stylistically

late artifacts and the absence of tall decorated bell beakers suggest that very early forms were not present either.

Figure 6.1. Plan of the Šlapanice II cemetery. The position of four Dvořáček burials was created by the generator of random points within the area of Dvořáček's excavation. Digitized after Dvořák and Hájek 1990.

Data Evaluation and Rectification

Adequate documentation is available only for 51 burials. Unfortunately, Dvořáček, who excavated 12 burials in 1935, did not record the location of burials and he lumped archaeological finds from eight burials. However, Dvořák (1990:102) successfully identified the archaeological material from four of Dvořáček's burials and extended the sample of 47 burials documented by Poulík. The spatial position of Dvořáček's burials was problematic. The only available information was the extent of the area where Dvořáček excavated (see Dvořák 1990:101; Poulík n.d.). To provide at least an approximate solution to this problem, a stochastic approach was applied. The position of four of Dvořáček's burials was created within the area of his activity by the generator of random points in GIS (Figure 6.1). Although this approach is not standard, it reflects the problematic nature of Dvořáček's documentation. I assumed that the random generation of four burials within the limited area of their appearance was a better choice than discarding the burials from analysis entirely.

Missing skeletons provided the next challenge for the analysis. The age of individuals followed the description in Poulík's field notes; child (*dětský*) burials were coded as "subadults" and adult burials were coded as "adults." This binary categorization based on Poulík's estimation probably overestimates the number of adults because the age of juveniles may be difficult to evaluate without a detailed anthropological analysis. However, this approach clearly distinguishes infants from other individuals. The sex of individuals could not be directly estimated either. The only possibility was to focus on gender identity reflected in the mortuary treatment of the human body. Fortunately, gender-related position and orientation of the human body was rigid during the Bell Beaker period. In an extensive study of Bell Beaker mortuary rites in Bohemia and Moravia, Müller (2001) found that the aspect and orientation of 106 individuals correlated with the biologically estimated sex in 94% of cases. Therefore, individuals buried on their right side with the head to the south were coded as females and individuals buried on their left side with the head to the north were coded as males. In cases where the position and orientation of the body did not fit this model, gender of individuals was coded as indeterminate.

The last correction that had to be made was the age of the individual in burial 19/35. Since there was a disagreement between Poulík's (n.d.:27) field notes, the catalogue (Dvořák

and Hájek 1990:15), and the published paper (Dvořák 1990:108), the age of this individual was coded as indeterminate.

The Ostopovice Cemetery

During the clearance of land for the construction of new buildings in Ostopovice (Brno-venkov County) in 1970, multiple prehistoric features were found. During 1970 and 1971, archaeologists from the Moravian Museum in Brno lead by Ondruš undertook the rescue excavations. Twenty Bell Beaker burials were found. The original number of burials at the cemetery was probably higher because heavy machinery had completely destroyed parts of the cleared area before the archaeologists arrived (Ondruš and Dvořák 1992:81). In addition to the Bell Beaker burials, settlement features from the Early Neolithic, Late Bronze Age, and Early Iron Age – including two burials – were found at the site. The information about the excavation is available in the field report deposited at the Institute of Archaeology, Moravian Museum in Brno (Ondruš 1971). The description of the burials and the descriptive analysis was published by Ondruš and Dvořák (1992). Archaeological materials were available for study at the Institute of Archaeology, Moravian Museum and the skeletons are in the Anthropos Institute, Moravian Museum.

The cemetery is located on a small hill in the eastern part of Ostopovice. The upper part of this hill creates a platform, which lies 240-250 meters above sea level. The cemetery is located on Tertiary sediments covered by loess and the top 20-30 cm are the plow zone (Ondruš and Dvořák 1992:81). The geographic coordinates of the center of the site are 49°9'37.13"N, 16°32'55.28"E (WGS-84).

Bell Beaker burials in the Ostopovice cemetery consist of inhumations only. The distribution of the burials is presented in Figure 6.2. Burial 15 and 18 were found in superposition.

Chronology

There are no absolute dates from the Ostopovice cemetery. Therefore, relative chronology is the only source of temporal information. According to Ondruš and Dvořák (1992:93), style of the vessels in the majority of burials suggests the Late Phase of the Bell Beaker period. In particular, small bulges on the body of mugs and so-called beards – a form

of plastic decoration which is reminiscent of beards – that appear on mug bodies in the place where a lug is attached indicate a later period. The rich burial 19/70 that includes decorated bell beakers has been interpreted as being older than the rest of the burials (Ondruš and Dvořák 1992:93). This interpretation is based on the problematic assumption that burials with decorated bell beakers, which also tend to be rich, are chronologically early (see Dvořák 1989). The presence of decorated bell beakers associated with amber, copper, V-bored buttons and a wooden construction in burial 19/70 more likely reflects social than temporal differences. The early dating of the burial 19/70 is highly speculative. Therefore, the cemetery as a whole appears to fall within the Late Phase of the Bell Beaker period.

Figure 6.2. Plan of the Ostopovice cemetery. Digitized after Ondruš 1971.

Data Evaluation and Rectification

The most serious and unfortunate problem of this cemetery was looting that happened during the excavations. Two burials had to be excluded from the analysis because of looting. An unknown person uncovered two burials, no. 15 and 20, during the night. The skeleton from burial 15 was removed from the grave pit and the skull was stolen. It is impossible to reconstruct if grave goods were in the burial or not. The skeleton in burial 20 was uncovered but the looter did not disturb it. However, the presence of grave goods is – with the exception of the imprint of a ceramic bowl – unclear (Ondruš and Dvořák 1992:82). Another factor that has to be mentioned is the impact of heavy machinery. Since the plow zone was removed by bulldozers, some burials were crushed and fragile parts of the burial content were broken. Finally, the extent of excavation of this cemetery has to be taken into account. As is the case of the majority of prehistoric cemeteries, it is not clear if the Ostopovice cemetery was excavated in its entirety. The land around the excavated area was not systematically investigated by test pits because of the presence of excavated soil and the facilities of workers (Ondruš and Dvořák 1992:82). Therefore, it is possible that there might be more graves to the east and south of the excavated area.

Sex estimations were produced by Dacík (1971) primarily from skull morphology. Since this approach is currently considered less reliable than the methods based on analyses that also incorporate information from the postcranial skeleton, my colleagues Galeta and Sládek estimated sex from the postcrania. Sex was allocated through the assessment of pelvi, femora, tibiae, and humeri using primary and secondary sex analysis (Murail et al. 1999). The primary analysis of sex allocation was based on a set of five pelvic measurements and two discriminant function analyses (Brůžek 1984; Novotný 1975), as well as on five pelvic morphological features (Brůžek 2002). The discriminant functions were derived from the sample of 41 individuals from Late Copper Age and Early Bronze Age sites in Central Europe (see Sládek et al. 2006a; Sládek et al. 2006b). The final decision for the sex allocation was based on the consistency between the results of primary and secondary analyses. If an agreement between the selected parameters was not reached, an individual was allocated as indeterminate. The results generally agreed with Dacík's estimations but were more conservative. Consistency of primary and secondary sex allocation was found

only for five individuals. Sex estimations of these five individuals were used in the mortuary analysis.

The Rebešovice Cemetery

The first notes about the Rebešovice cemetery come from 1846 when Ř. Wolný uncovered 43 burials that predominantly came from the Slavic period (Král 1960). Much later, from 1952 to 1953, the Rebešovice cemetery was excavated by archaeologists from the Institute of Archaeology in Brno. This project had the status of rescue excavations because an agricultural cooperative planned to create a new vineyard and the excavations had to be done within a short period of time. Despite the time pressure, archaeologists did a careful job of uncovering the finds and documenting the burials. The Rebešovice cemetery is a multi-component site that yields evidence of mortuary and settlement activities for a few thousand years. There are 80 Únětice burials, one undated prehistoric burial, 226 medieval (6th and 9-10th centuries A.D.) burials as well as isolated finds and features from the Neolithic, Copper Age, Bronze Age, and Roman times (Nekvasil 1954; Ondráček 1962:5). The main source of information for this study comes from the field reports curated in the Institute of Archaeology, Academy of Sciences of the Czech Republic in Brno (Král 1954; Nekvasil 1954; Staňa 1954) and the published catalogue with descriptive analysis (Ondráček 1962). Archaeological materials were studied in the Institute of Archaeology, Moravian Museum and skeletal material was available in the Anthropos Institute, Moravian Museum in Brno.

The Rebešovice cemetery is located on a small hill above the Svatka River, ca. 213 meters above sea level. The surface of the site was covered by a 60-80 cm thick layer of plow zone that was removed by bulldozers (Nekvasil 1954). The information about the stratigraphy is not explicit but the description of individual burials suggests that subsoil was sandy. The geographic coordinates of the center of the site are 49°6'2.67"N, 16°37'47.44"E (WGS-84).

The distribution of burials in the Rebešovice cemetery does not show any obvious spatial patterning. Only burials 163 and 164, which are located in the northern part of the cemetery, are slightly separated from the rest of the burials (Figure 6.3). Although it is clear that the majority of burials were excavated, there is a possibility that a few burials still remain to the southwest of the excavated area.

Chronology

There is no absolute date available from the Rebešovice cemetery. However, the presence of typical Únětice cups, onion-like vessels, Únětice pins, ring ingots, and generally a large number of bronze artifacts lead Ondráček (1962:73) to argue that the cemetery belonged to the Late Únětice phase. Moreover, Stuchlík estimates that this cemetery was not in use longer than 100 years (Stanislav Stuchlík, personal communication 2005). The estimation of the relatively short period of use of this cemetery appears to be reasonable given the fact that the contents of burials are stylistically comparable.

Data Evaluation and Rectification

This cemetery was heavily affected by disturbances that were interpreted as looting (Ondráček 1962). Since 80% of the burials yield evidence of shafts and another 10% of burials were disturbed by other activities, it was not possible to exclude the disturbed burials from the analysis of social differentiation. Instead, the analyses explored social differences among both disturbed and undisturbed burials. The effect of disturbances on burial content had to be explored prior to the analysis of social differentiation to understand possible bias in the data.

Biological estimations of age and sex derived by Jelínek were included both in the field reports and Ondráček's (1962) publication. Since methods of sex estimation were not described, it was not clear how the results were reached. In order to produce sex estimations that reflect current methodological tools, new estimations were produced by my colleagues Galeta and Sládek. Procedures followed the methods specified above for the Ostopovice cemetery. There were four individuals whose sex estimation differed from Jelínek's results. In this study, I used the new estimations produced by Galeta and Sládek. Jelínek's estimations were used only in the case of four skeletons that were not available for this study.

The Slavkov u Brna Cemetery

During 1993 and 1994, the Cultural Resource Management Institute (*Ústav archeologické památkové péče*) in Brno organized rescue excavations in Slavkov u Brna (Vyškov County). This project was run during the construction of the highway exit near Slavkov. The site yielded 40 settlement features and 43 burials dated to the Únětice period.

The excavators published a detailed catalogue of finds that does not include any mortuary analysis (see Horálková-Enderová and Štrof 2000), but does include a detailed analysis of skeletal material (Dočkalová and Svenssonová 2000). These publications provided the only source of information. Archaeological materials were deposited in the museum in Slavkov u Brna but it was not possible to arrange a re-analysis. Despite the lack of direct first-hand data, the published catalogue offered a great chance to analyze mortuary patterns in the cemetery that previously had not been analyzed.

The cemetery is located on a low ridge ca. 220 meters above sea level. The subsoil is composed of loess that lies above Tertiary sand and loam. The cultural layer is covered by ca. 35 cm of plow zone and in some places also by 10-15 cm layer of chernozem (Horálková-Enderová and Štrof 2000:10). The geographic coordinates of the center of the site are 49°9'1.62"N, 16°54'10.46"E (WGS-84).

The cemetery consists of 43 Únětice burials that are divided into two groups: the larger eastern group and the smaller western group (Figure 6.4). The distribution of burials suggests that the majority of burials were found and excavated. However, there is a possibility that more burials might be located to the south and north of the excavated area.

Chronology

There are no available absolute dates from the Slavkov u Brna cemetery. Typical Únětice cups, onion-like vessels, Cypriot pins, ring ingots, and spiral bracelets suggest that the cemetery dates to the Late Únětice Phase.

Data Evaluation and Rectification

This cemetery was affected by disturbances that commonly appear in Únětice cemeteries. Since only nine single burials were undisturbed, it was not possible to exclude all disturbed burials from the analysis of social differentiation. In order to achieve meaningful results, the effect of disturbances on burial content had to be explored prior to the analysis of social differentiation to understand possible bias in the data.

Figure 6.4. Plan of the Slavkov u Brna cemetery. Digitized after Horálková-Enderová and Štrof 2000.

Burials from Settlement Pits

This sample includes Únětice burials from settlement features. This sample includes 70 settlement pits that contained entire skeletons or isolated human bones (see Table 6.1 and Figure 6.5 for a listing of all specimens and their geographic distribution). The sample includes all known cases of human remains in settlement features in South Moravia.

Samples for General Comparison

The first sample includes Late Copper Age burials (Bell Beaker, Nitra, and Protoúnětice). This sample contains 343 burials of single individuals which were relatively

well preserved, documented, and not disturbed by prehistoric activities (Tables 6.2; Figure 6.6).

The second sample includes Únětice burials (Early and Late Phases) that were found in cemeteries. This sample consists of 86 burials of single individuals which were relatively well preserved, documented, and not disturbed by prehistoric activities (Table 6.3; Figure 6.7). The sample is much smaller than the Late Copper Age sample primarily because of the common presence of prehistoric disturbances of burials and multiple individuals in one grave.

Summary

This chapter has outlined the cemeteries and burials that will be used for the analyses in the following chapter. The first part of this chapter focused on the description of the four selected cemeteries that will be analyzed in detail. Although these four cemeteries represent large and well documented cemeteries, there are also weaknesses in the data that have to be noted. The inability to examine the archaeological material from the Slavkov u Brna cemetery and the absence of skeletal material from the Šlapanice II cemetery impose some analytical limits. The former case limits the stylistic analysis, while the latter makes the exploration of the relationship between sex and gender in the Šlapanice II cemetery impossible.

The second part of this chapter presented the sample of Únětice burials in settlement features and samples of Late Copper Age and Early Bronze Age burials for general comparison. The two samples of burials from cemeteries represent only a portion of the total number of known Late Copper Age and Early Bronze Age burials. The burials that were not included in this study include insufficiently documented, disturbed, equivocally dated, or yet unpublished cases.

Table 6.1. Únětice burials in settlement pits.

ID	Site	Topographic name	County	No. of pits with humans	References
1	Blučina	Cezavy	Brno-venkov	3	Salaš 1990, Tihelka 1959
2	Blučina	Konopné zahrádky	Brno-venkov	1	Salaš 1990
3	Blučina	Padělky u boží muky	Brno-venkov	2	Salaš 2003
4	Branišovice		Znojmo	1	Salaš 1990
5	Brno-Černá pole		Brno-město	5	Tihelka & Hank 1949
6	Brno-Královo Pole	Poděbradova ulice	Brno-město	1	Geisler 2002
7	Brno-Židenice		Brno-město	1	Salaš 1990
8	Dobšice	Silniční obchvat	Znojmo	1	Geisler & Kovárník 1983
9	Drnovice	Za lesní zprávu	Vyškov	1	Šmíd 2003
10	Hrušky	Újezd	Vyškov	1	Stuchlík 1969
11	Lovčice	Na panském lánu	Hodonín	3	Stuchlík 1969
12	Lovčičky	Žleby	Vyškov	4	Říhorský 1968, Salaš 1990
13	Marefy		Vyškov	1	Salaš 1990
14	Nedakonice	Přídanky	Uherské Hradiště	1	Menoušková 2002
15	Němčany	Pratlosova zmola	Vyškov	1	Stuchlík 1969
16	Nosislav	Dům č. 94	Břeclav	1	Stuchlík 1974
17	Pavlov		Břeclav	1	Salaš 1990
18	Podolí	Nad paloukem	Brno-venkov	1	Kos 2000
19	Pohořelice	Cihelna	Břeclav	1	Stuchlík 1969
20	Přibice		Břeclav	1	Ondráček 1971
21	Rajhrad	Matlaška	Brno-venkov	1	Peškař 1958
22	Rajhrad		Brno-venkov	1	Stuchlíková et al. 1985
23	Sobůlky	Hliník	Hodonín	2	Stuchlík 1969
24	Sokolnice		Brno-venkov	1	Salaš 1990
25	Svatobořice		Hodonín	1	Salaš 1990
26	Šatov	Unzendorfer	Znojmo	1	Stuchlík 1969
27	Šatov	Potok Danyž	Znojmo	2	Stuchlík 1969
28	Šlapanice		Brno-venkov	5	Salaš 1990
29	Slavkov u Brna	Obchvat V od města	Vyškov	4	Horáková-Enderová & Štrof 1997
30	Telnice	Nad hliníkem	Brno-venkov	1	Staňa 1960
31	Telnice		Brno-venkov	1	Salaš 1990
32	Těšetice	Záhumenky	Znojmo	1	Stuchlík 1969
33	Těšetice-Kyjovice		Znojmo	1	Dočkalová et al. 1993

Table 6.1. Continued.

ID	Site	Topographic name	County	No. of pits with humans	References
34	Topolany	Nad Žlebem	Vyškov	2	Bálek et al. 2003
35	Trboušany		Brno-venkov	1	Meduna 1961
36	Tučapy	Dálnice Holubice - Tučapy	Vyškov	1	Čižmář & Geisler 1991
37	Tulešice	Parcela 1009	Znojmo	1	Stuchlík 1969
38	Tvarožná	U motorestu Rohlenka	Brno-venkov	1	Mikulková 1997
39	Tvrdonice	Písečník	Břeclav	1	Ondráček 1967
40	Uherčice	Letná	Břeclav	1	Vitula 1999
41	Újezd u Brna	Cihelna	Brno-venkov	1	Stuchlík 1969
42	Velešovice	Dálnice	Vyškov	2	Čižmář & Geisler 1987
43	Velké Pavlovice	U zastávky ČSD	Břeclav	1	Stuchlíková & Stuchlík 1983
44	Velké Pavlovice	Na hrůdkách	Břeclav	1	Salaš 1990
45	Višňové	Cihelna	Znojmo	1	Stuchlík 1969
46	Vyškov	Markova Cihelna	Vyškov	1	Ondráček 1960
47	Znojmo	Ulice 28. října	Znojmo	1	Stuchlík 1969
Total:				70	

Table 6.2. Late Copper Age sample of single preserved burials.

ID	Site	Topographic name	County	Arch. culture ^a	No. of burials	No. of preserved single burials	References
1	Brno-Brněnské Ivanovice II	Vinohrady	Brno-město	BB	2	2	Dvořák 1992
2	Brno-Černá pole I	Kunze Gase	Brno-město	BB	1	1	Dvořák 1992
3	Brno-Holásky II	Pískovna	Brno-město	BB	71	65	Dvořák 1991
4	Brno-Holásky III	Dům č. 158	Brno-město	BB	1	1	Dvořák 1992
5	Brno-Chrlice I		Brno-město	BB	4	2	Dvořák 1992
6	Brno-Chrlice II	Nivy	Brno-město	BB	1	1	Stuchlík 1975-6
7	Brno-Juliánov	Krásná ulice č. 24	Brno-město	BB	1	1	Peškař 1968
8	Brno-Královo pole	Sanatorium	Brno-město	BB	1	1	Dvořák 1992
9	Brno-Líšeň	Klicperova ulice	Brno-město	BB	7	6	Matějčková 2001a
10	Brno-Řečkovice II	u Krbála	Brno-město	BB	1	1	Dvořák 1992
11	Brno-Židenice I	Grefky	Brno-město	BB	17	9	Dvořák 1992
12	Bulhary III	Přední díly	Břeclav	BB	2	2	Dvořák et al. 1996
13	Bulhary IV	Nejdecké roviny	Břeclav	BB	1	1	Dvořák et al. 1996
14	Bulhary V	Na pískách	Břeclav	BB	1	1	Dočkal & Měřinský 1980
15	Čejč		Hodonín	BB	1	1	Geisler & Vítula 1993
16	Dolní Věstonice II	Zadní písky	Břeclav	BB	2	2	Dvořák et al. 1996
17	Dolní Věstonice III	Schottergrube	Břeclav	BB	22	18	Dvořák et al. 1996
18	Dubňany	Parcela č. 597	Hodonín	BB	1	1	Šebela & Dočkalová 1997
19	Holubice	Dům č. 223	Vyškov	BB	1	1	Šaurová 1974
20	Holubice IV		Vyškov	BB	7	7	Rakovský 1985
21	Horní Bojanovice I	Dlouhý	Břeclav	BB	1	1	Dvořák et al. 1996
22	Ivančice I	Oslavanská ulice	Brno-venkov	BB	1	1	Dvořák 1992
23	Jezeřany-Maršovice	Na Kocourkách	Znojmo	BB	1	1	Langová & Rakovský 1981
24	Jiřkovice	Díly	Brno-venkov	BB	1	1	Bálek & Matějčková 1999
25	Jiřkovice	Rohlenka	Brno-venkov	BB	1	1	Matějčková 2001b
26	Kobylnice I	Za ovčírnou	Brno-venkov	BB	25	21	Dvořák 1992

Table 6.2. Continued.

ID	Site	Topographic name	County	Arch. culture ^a	No. of burials	No. of preserved single burials	References
27	Ledce II	Přední hony	Brno-venkov	BB	2	2	Dvořák 1992
28	Lechovice	U silnice do Práčů	Znojmo	BB	7	7	Medunová & Ondráček 1969
29	Luleč	Intravilán	Vyškov	BB	1	1	Baarová 2004
30	Modřice	Podnik Korek	Brno-venkov	BB	1	1	Geisler 1993
31	Moravany I	Dům č. 155	Brno-venkov	BB	1	1	Dvořák 1992
32	Moravská Nová Ves-Hrušky	Hrubé díly	Břeclav	BB	10	6	Stuchlík & Stuchlíková 1993
33	Morkůvky I	Dům č. 8	Břeclav	BB	1	1	Unger 1983
34	Oslavany I	Blízko dílny V. Noska	Brno-venkov	BB	1	1	Dvořák 1992
35	Ostopovice	Na branách	Brno-venkov	BB	20	15	Ondruš & Dvořák 1992
36	Pavlov I	Horní pole	Břeclav	BB	43	30	Dvořák et al. 1996
37	Pavlov II	Dolní pole	Břeclav	BB	1	1	Dvořák et al. 1996
38	Prosiměřice		Znojmo	BB	2	2	Perníčka 1961
39	Pustiměřické Prusice	JZD	Vyškov	BB	8	7	Ludikovský 1962
40	Smolín I	Lochaperky	Břeclav	BB	6	3	Dvořák et al. 1996
41	Šlapanice II	Široká pole	Brno-venkov	BB	59	50	Dvořák 1990
42	Tvořín		Znojmo	BB	4	2	Bálek et al. 1999
43	Uherčice I	Odlejtý	Břeclav	BB	5	2	Dvořák et al. 1996
44	Újezd u Brna I	Mateřská školka	Brno-venkov	BB	2	2	Dvořák 1992
45	Veselí nad Moravou	Náklí	Hodonín	BB	1	1	Staňa 1960
46	Želešice II	Pískovna Freuneka	Brno-venkov	BB	11	9	Dvořák 1992
47	Želešice III	Pískovna Milana	Brno-venkov	BB	1	1	Dvořák 1992
48	Dolní Němčí	Dům č.p. 506	Uherské Hradiště	NI	1	1	Pavelčík 1970
49	Bedřichovice	Malé pole	Brno-venkov	PUK	22	19	Čižmář & Dvořák 1985
50	Moravská Nová Ves-Hrušky	Hrubé díly	Břeclav	PUK	26	19	Stuchlík & Stuchlíková 1996
51	Otnice	Intravilán	Vyškov	PUK	6	5	Šebela & Dočkalová 1996
52	Velké Bílovice	JZD Mír	Břeclav	PUK	1	1	Šebela 1993
53	Velké Pavlovice	Nad zahrady	Břeclav	PUK	7	2	Stuchlík 1996
54	Vyškov	Hybešova ulice	Vyškov	PUK	2	1	Ondráček 1971
Totals:					427	343	

^a BB – Bell Beaker, NI – Nitra, PKU – Proto-Únětice.

Table 6.3. Early Bronze Age sample of single preserved burials.

ID	Site	Topographic name	County	Arch. culture ^a	No. of burials	No. of preserved single burials	References
1	Čejč	Pod lesíkem	Hodonín	UK	13	3	Ondráček 1967
2	Jiřkovice	Díly	Brno-venkov	UK	30	18	Skutil 1941
3	Klobouky u Brna	Padělky u Morkovského kříže	Břeclav	UK	1	1	Ondráček 1968
4	Letonice	Háj nad Letonicemi	Vyškov	UK	2	2	Chleborád et al. 2000
5	Moravská Nová Ves-Hrušky	Hrubé díly	Břeclav	UK	7	3	Stuchlík & Stuchlíková 1996
6	Mušov	Bockengraben	Břeclav	UK	35	8	Stuchlík 1987
7	Pavlov	Dolní pole I	Břeclav	UK	10	2	Stuchlík 1992
8	Pavlov	Dolní pole II	Břeclav	UK	2	2	Stuchlík 1992
9	Pavlov	Dolní pole III	Břeclav	UK	1	1	Stuchlík 1992
10	Pavlov	Nad silnicí	Břeclav	UK	3	1	Stuchlík 1992
11	Polešovice	Nivy	Uherské Hradiště	UK	3	1	Snášil 1968
12	Rebešovice	Vinohrad	Brno-venkov	UK	80	8	Ondráček 1962
13	Slavkov u Brna	Silniční obchvat	Vyškov	UK	43	9	Horálková-Enderová & Štrof 2000
14	Těšetice	Vinohrady	Znojmo	UK	41	17	Podborský 1987
15	Velké Pavlovice	Nad zahrady	Břeclav	UK	20	8	Stuchlík 1996
16	Vyškov	Markova cihelna	Vyškov	UK	4	1	Ondráček 1958
17	Ždánice	Cihelna	Hodonín	UK	2	1	Ondráček 1974
Totals:					297	86	

^a UK – Únětice.

Figure 6.5. Early Bronze Age (EBA) Únětice burials in settlement pits. Numbers correspond to ID values in Table 6.1.

Figure 6.6. Late Copper Age (LCA) sample of cemeteries. Numbers correspond to ID values in Table 6.2..

Figure 6.7. Early Bronze Age (EBA) sample of cemeteries. Numbers correspond to ID values in Table 6.3.

CHAPTER 7

RESULTS OF ANALYSES

Introduction

This chapter provides the results of the analyses of Late Copper Age and the Early Bronze Age burials and the finds from non-mortuary contexts. The first section of this chapter describes the results concerning the four major cemeteries. The analysis of each cemetery begins with the exploration of body preparation and treatment of the dead. I cross tabulate individuals and burials according to their main characteristics and employ formal tests to identify the significant differences. Then, the analysis continues with the exploration of grave inclusions.

The analysis of each cemetery also includes the presentation of meaningful spatial patterns. Postdepositional disturbances are investigated in the two Únětice cemeteries to understand their effect on other analyses and to attempt an understanding of these disturbances. The last part of the intra-cemetery analysis of each cemetery focuses on exceptional burials.

The second section of this chapter focuses on the analysis of Únětice burials from settlement pits. I explore the variability of burials in settlement pits and compare the differences to burials in Únětice cemeteries. This analysis attempts to identify possible status differences between individuals buried in settlement pits and cemeteries.

The third section of this chapter focuses on the comparison of two general samples of preserved single burials from the Late Copper Age and the Early Bronze Age. The analyses focus on the identification of major differences in vertical social differentiation and gender relations between the Late Copper Age and the Early Bronze Age sample.

The last section of this chapter describes the changes in population size measured through the quantity of settlement pits in the Late Copper Age and the Early Bronze Age. Furthermore, the distribution of bronze hoards and hilltop settlements in the landscape is investigated to infer their relationship to trade networks and control over the landscape.

The Šlapanice II Cemetery

Body Preparation and Treatment

There are 51 documented burials that contain 52 individuals in the Šlapanice II cemetery. The majority of burials in this cemetery are single inhumations (Table 7.1). Cremations constitute only 15% of all burials. The only double burial at the site is burial 5-6/35 that contains a cremation placed in an amphora-like vessel and an inhumation located underneath. The number of indeterminate burials, which were neither obvious inhumations nor cremations constitutes a small portion of all burials. These burials might have been cremations, which yield only a small amount of biological material that can be strongly affected by differential preservation. Cremations are scattered across the cemetery (Figure 7.1).

The Body

Orientation of the body is standardized in the Šlapanice II cemetery (Table 7.2). There is only one burial (15/34) that differs from the standard north-south orientation. This difference is not very remarkable as the individual in this burial has the head oriented to the southwest. Unfortunately, 25% of burials did not yield well preserved skeletons and the remaining 15% of burials represent cremations (total number of burials with indeterminate orientation is 40%).

Table 7.1. Types of burials in Šlapanice II, by individuals.

Burial	Inhumation	Cremation	Indeterminate	Total
Single burials	39	7	4	50
Double burials	1	1	0	2 ^a
Totals:	40	8	4	52

^a This designates a double burial, which consists of one inhumation and one cremation.

Figure 7.1. Distribution of cremations and inhumations in Šlapanice II.

The majority of individuals, whose age is estimated are adults (Table 7.3; Figure 7.3). Subadult individuals constitute only 14% of burials. Although it is not possible to estimate the age of seven individuals, it is still a small proportion in comparison to 23 individuals whose sex is indeterminate. Because the aspect and orientation of the body is used as a proxy for gender identity, two individuals with unclear gender identity are labeled as indeterminate. Burial 11/35 includes an individual who was buried on the left with the head to the south. Burial 12/35 includes an individual who was buried on the right with the head to the north. These two burials are also located close (ca. 6 meters) to each other in the southwestern part

of the cemetery. Although these two individuals violate the normative body treatment in a different way, both cases face the west. The remaining 21 indeterminate individuals represent cases when body aspect or orientation is not clear because of the preservation or incineration of the body.

Table 7.2. Body orientation in Šlapanice II.

Orientation	Frequency	Percentage
North	11	21 %
South	19	37 %
Southwest	1	2 %
Indeterminate	21	40 %
Totals:	52	100 %

Figure 7.2. Body orientation in Šlapanice II. Percentages for determinate burials only.

Table 7.3. Age and gender in Šlapanice II. Gender was estimated on the basis of aspect and orientation of the body (single burials).

Age category	Females	Males	Indeterminate gender	Total
Subadult	2	2	3	7
Adult	15	8	13	36
Indeterminate age	0	0	7	7
Totals:	17	10	23	50

Figure 7.3. Simplified demographic profile for Šlapanice II.

The Grave

Grave dimensions represent another sphere of mortuary variability that was investigated. Table 7.4 describes grave length, width, and depth. Only grave depth yields enough information that can be used for testing because grave length and width were not recorded well by the excavators. The comparison between subadults vs. adults and females vs. males shows that there are significant differences in grave depth (Table 7.5). Males were buried in significantly deeper grave pits than females (Figure 7.4) and adults were buried in significantly deeper grave pits than subadults. The comparison between cremations and inhumations was not performed because the number of cremations with recorded grave depth was too low and would not produce meaningful results. Also, it is necessary to note that burial 11/35, which contained the individual with the abnormal combination of aspect and orientation of the body, was far deeper (220 cm) than other burials. The distribution of burials with different grave depth does not show any obvious clustering. The deepest grave pits can be found in different parts of the cemetery (Figure 7.5).

Table 7.4. Dimensions of graves in Šlapanice II.

Parameter	Length (cm)	Width (cm)	Depth (cm)
Mean	153.3	90.0	87.8
Median	180.0	100.0	100.0
SD	50.0	20.0	40.5
N	6	4	37

Table 7.5. Testing differences in grave depth in Šlapanice II.

Grave depth	N	p
Females vs. Males	27	.024*
Subadults vs. Adults	33	.008**

Tested by resampling. * < .05, ** < .01, *** < .001

Figure 7.4. Grave depth for females and males in Šlapanice II. Box – quartiles and the median, whiskers – 1.5x box size from the nearest hinge.

Grave Inclusions

The exploration of grave inclusions began with the Minimum Recognized Units (Table 7.6). Ceramic vessels are the most pervasive artifacts in the cemetery. The differentiation of ceramic types reflects the supposed function, size, shape, and presence or absence of decoration (Figure B2-B5). Other artifacts include various stone objects such as archery equipment and flakes. Copper, amber, and bone artifacts (Figure B6) are relatively rare and the majority of them are associated with personal adornment. Some of the buttons show clear evidence of typical V-shaped bores inside them. This feature is characteristic for Bell Beaker material culture.

Figure 7.5. Grave depth in Šlapanice II.

Table 7.6. Minimum Recognized Units in Šlapanice II.

Amber bead	Ceramic mug
Amber button	Ceramic strainer
Bone brace	Copper dagger
Bone button	Copper ring
Ceramic amphora	Copper awl
Ceramic bell beaker - undecorated	Faunal bone/antler
Ceramic bell beaker - decorated	Stone dart
Ceramic bowl - undecorated	Stone flake
Ceramic bowl - decorated	Stone pebble
Ceramic jug	Stone sharpener
Ceramic jar	Stone wrist guard
Ceramic lugless amphora	

Sex and Age Differences

The association of the Minimum Recognized Units with age and sex shows several patterns (Table 7.7). Since the number of observations in each cell of the table is frequently low, the inference is not probabilistic but simply focuses on the exclusive associations. There are several types of artifacts that are associated only with females, males, subadults, or adults. Large ceramic jars, jugs, decorated bowls, bone and amber buttons, the stone wristguard, and the copper awl appear only in female burials. Bone braces, chipped stones, the copper dagger and ring appear only in male burials. Although not all of these artifacts can be considered strictly gender specific, it is clear that females and males were marked by specific grave inclusions. Bell beakers are associated both with females and males.

The distinction between adults and subadults is even stronger. The only class of artifacts that appears in subadult burials is ceramics. Although other artifacts are associated with subadult cremation in double burial 5-6/35, it cannot be considered as a clear association because two individuals were buried in the same grave.

The dimensions of ceramic vessels are explored to identify possible differences between females vs. males and subadults vs. adults. The tallest vessels (jars and jugs) are associated with females and indeterminate individuals (Figure 7.6). High variance, however, affects testing. The comparison between females and males in vessel height is not significant (Mann-Whitney, $U = 508$, $p = .085$). A similar difference does not appear between subadults and adults (Figure 7.7) and the test for vessel height is not significant either (Mann-Whitney, $U = 822$, $p = .16$). The difference in maximum rim diameter is insignificant for both females vs. males (Mann-Whitney, $U = 584$, $p = .35$) and subadults vs. adults (Mann-Whitney, $U = 1011$, $p = .89$).

Association between Artifacts

In order to explore the relationship between multiple variables, artifacts were lumped into broader categories. The pervasiveness of artifacts is explored and those that appeared in more than 5% of single burials are used for correspondence analysis (Table 7.8). The data matrix, which provided the input for correspondence analysis, includes 50 single burials (rows) and 11 variables (columns). This matrix is composed of binary presence/absence data.

The results of correspondence analysis show that there is no single dominant factor that would explain the major part of variability in the data matrix. In fact, the first two

dimensions explain only 38% of the entire variability. When the first four dimensions are considered, the explained variability increases to 64% (Table 7.9).

Table 7.7. Minimum Recognized Units vs. age and gender in Šlapanice II.

Artifact	Gender				Age			
	Females	Males	Ind.	Total	Adults	Subadults	Ind.	Total
Number of burials containing the artifact type								
Amber bead	0	0	2	2	2	0	0	2
Amber button	1	0	0	1	1	0	0	1
Bone brace	0	3	1	4	4	0	0	4
Bone button	3	0	1	4	4	0	0	4
Amphora	0	0	3	3	1	1	1	3
Bell beaker – undec.	0	0	1	1	1	0	0	1
Bell beaker – dec.	4	3	2	9	7	1	1	9
Bowl – undec.	12	7	13	32	26	3	3	32
Bowl – dec.	1	0	3	4	2	2	0	4
Jug	3	0	4	7	5	1	1	7
Jar	7	0	3	10	10	0	0	10
Lugless amphora	0	0	3	3	1	1	1	3
Mug	17	10	22	49	35	7	7	49
Strainer	0	0	1	1	0	0	1	1
Copper dagger	0	1	0	1	1	0	0	1
Copper ring	0	1	0	1	1	0	0	1
Copper awl	1	0	0	1	1	0	0	1
Faunal bone/antler	0	0	2	2	2	0	0	2
Stone dart	0	1	0	1	1	0	0	1
Stone flake	0	1	2	3	2	0	1	3
Stone pebble	0	0	1	1	0	0	1	1
Stone sharpener	0	0	1	1	0	0	1	1
Stone wrist guard	1	0	1	2	1	0	1	2

Ind. – indeterminate, dec. – decorated, undec. – undecorated.

Figure 7.6. Dimensions of ceramic vessels. F – females, I – indeterminate, M – males.

Figure 7.7. Dimensions of ceramic vessels. A – adults, I – indeterminate, SA – subadults.

Table 7.8. Variables and their pervasiveness in Šlapanice II.

Variable	Count ^a	Percentage
Mug	48	96 %
Bowl	36	72 %
Jar	10	20 %
Bell beaker	9	18 %
Bone artifact	8	16 %
Cremation	7	14 %
Jug	6	12 %
Amber artifact	3	6 %
Amphora	3	6 %
Metal	3	6 %
Chipped stone	3	6 %
Lugless amphora	2	4 %
Fauna	2	4 %
Stone pebble	1	2 %
Stone wrist guard	1	2 %

^a Number of single burials with positive value for the variable.

Table 7.9. The amount of variability accounted for by all dimensions in correspondence analysis.

Dimension	Eigenvalue	% inertia	Cumulative % inertia
1	0.52	21.94	21.94
2	0.38	16.27	38.21
3	0.32	13.68	51.88
4	0.29	12.41	64.29
5	0.24	10.02	74.31
6	0.22	9.43	83.74
7	0.16	6.66	90.40
8	0.11	4.72	95.12
9	0.06	2.68	97.80
10	0.05	2.20	100.00

The results of correspondence analysis show a few patterns. The first dimension clearly separates cremations from the rest of burials (Figure 7.8). A closer look at the data shows that generally cremations have a low number of grave inclusions, a low variability of

grave inclusions, and do not contain any decorated vessels or bell beakers. The significance of this pattern will be tested further (see below). The second dimension separates metal artifacts and chipped stones on the one hand and amphorae and jugs on the other hand. This dimension most likely reflects gender differences. Chipped stones and metal artifacts tend to be associated with males and ceramic jugs are associated exclusively with females.

Although amphorae are associated with indeterminate individuals in single burials, double burial 5-6/35, which consists of a cremation of the subadult individual and an inhumation of the adult female, contains an amphora. Therefore, this association supports the argument that lower values for jugs and amphorae in the second dimension reflect gender identity. The third dimension separates jugs and amphorae on one hand and jars on the other hand (Figure 7.9). This dimension is unlikely to reflect gender differences. Both jars and jugs are associated exclusively with females and, as I have argued above, amphorae may be typical for females too. Therefore, the third dimension probably reflects groups of females with different identities. Jars appear exclusively in adult burials while jugs and amphorae appear also in subadult burials. It seems that this dimension distinguishes some kind of identity associated with adult females versus the identity that embraces both adult females and subadult individuals.

The fourth dimension distinguishes between the burials with amber artifacts and burials with chipped stones. This dimension is the first one that appears to reflect vertical social differences. However, this pattern cannot be understood as a difference between “rich” and “poor” burials. Burials with amber and chipped stones fall among the burials with the highest number of grave inclusions, and the variability in grave inclusions is also high. Both of these kinds of burials tend to be associated with prestige items. Because amber is associated only with females and chipped stones with males, this dimension can reflect gender differences within the group of high status individual.

Figure 7.8. Results of correspondence analysis for Šlapanice II (Dimension 1 vs. 2). A – mug, B – bowl, C – jar, D – bell beaker, E – bone artifact, F – cremation, G – jug, H – amber artifact, I – amphora, J – metal artifact, K – chipped stone.

Figure 7.9. Results of correspondence analysis for Šlapanice II (Dimension 3 vs. 4). A – mug, B – bowl, C – jar, D – bell beaker, E – bone artifact, F – cremation, G – jug, H – amber artifact, I – amphora, J – metal artifact, K – chipped stone.

Spatial patterns show that various categories of burials are distributed across the cemetery. The distributions of cremations and inhumations, females and males, and subadults and adults do not show evidence of clustering. Nor does the distribution of grave inclusions (Figure 7.10) and the variability of artifacts in individual burials (Figure 7.11) show any pattern of clustering in specific parts of the cemetery.

Figure 7.10. Distribution of amber and metal artifacts in Šlapanice II.

Formal Testing

The quantitative aspect of grave inclusions is also explored to test some suggestions that appeared in the exploratory multivariate analysis. The null hypothesis that there is no significant difference in the average number of artifacts between cremations and inhumations is rejected (Table 7.10). Therefore, the suspicion that cremations may be different in terms of grave inclusions is supported. Despite the fact that cremations have very little variability in grave inclusions, the difference is not significant. In other words, there are still many inhumations that have only one form of artifact. With the form, I mean one of the following categories: ceramic vessels, tools, weapons, ornaments and garments, other non-utilitarian objects, and grave furniture. However, this result has to be described from more than a strictly statistical point of view as well. All single cremations contain only one form of artifact. There are also inhumations that contain only one form of artifact but the main point is that single cremations never have more than one form of artifact. Therefore, the difference in the variability of artifacts between cremations and inhumations is meaningful despite the insignificant result of testing.

The difference between females and males is insignificant for both the number of artifacts and their variability (Table 7.10). The same result is obtained for subadults and adults. However, the comment that was mentioned in the case of artifact variability of cremations vs. inhumations has to be made. Despite the insignificant results for artifact variability, subadult burials never have more than one form of artifact.

Exceptional Burials

The last part of the analysis focuses on individual burials. There are a few burials that can be considered exceptional. Burial 11/35 contains remains of an individual with the anomalous combination of body aspect and orientation (facing west), four bone buttons, ceramic vessels (including one decorated mug), and a skeleton of a dog. Moreover, the depth of the grave pit (220 cm) represents the outlier in comparison to other graves. The individual in burial 21/35, whose body treatment and artifacts point at male identity, also is unusual. This burial contains a large number of artifacts including four ceramic vessels, a metal dagger, a stone flake, and a bone brace.

Table 7.10. Resampling tests for differences in the number and variability of artifacts in burials in Šlapanice II (single burials only).

Comparison	Number of artifacts		Variability of artifacts	
Groups tested	N	p	N	p
Females vs. males	27	.722	27	.156
Subadults vs. adults	43	.682	43	.128
Inhumations vs. cremations	46	< .001***	46	.214

Tested by resampling. * < .05, ** < .01, *** < .001

Figure 7.11. Variability of artifacts in Šlapanice II.

The Ostopovice Cemetery

Body Preparation and Treatment

A total number of 22 individuals in 20 burials was identified in the Ostopovice cemetery. There are 18 single and two double burials at the site. Table 7.11 shows the frequency of individuals according to age and sex. The demographic profile is in Figure 7.12. The sex of only five individuals is reliably estimated. This is not only because of the state of preservation but largely because of the effect of age. Because this cemetery yielded a high proportion of subadults (59%), which are generally not subject to sex estimation, the number of sexed skeletons decreases. In order to enlarge the sample of individuals who could be considered either female or male, the aspect and orientation of the body is used as a proxy for gender identity. The degree of agreement between biological sex and gender was 100%. In other words, all individuals biologically estimated as males or females fit the model based on the aspect and orientation of the body. Table 7.12 shows the breakdown according to age and gender. Although the number of estimated females and males increased, indeterminate sex individuals still constitute a substantial portion of the sample (46%).

Table 7.11. Age and sex for Ostopovice.

Age category	Females	Males	Indeterminate age	Total
Infant I	0	0	5	5
Infant II	0	0	3	3
Juvenile	0	0	5	5
Adult	2	3	2	7
Indeterminate sex	0	0	2	2
Totals:	2	3	17	22

Table 7.12. Age and gender for Ostopovice. Gender was based on the aspect and position of the body.

Age category	Females	Males	Indeterminate age	Total
Subadult	4	2	7	13
Adult	3	3	1	7
Indeterminate sex	0	0	2	2
Totals:	7	5	10	22

Figure 7.12. Demographic profile for Ostopovice.

The Body

The orientation and aspect of the bodies correspond to the previously observed Bell Beaker pattern. There are two general groups of individuals oriented either north or south with some minor fluctuations from the ideal north-south axis (Table 7.13, Figure 7.13). Individuals oriented with their heads to northern directions constitute 23% and those oriented towards southern directions constitute 32%. All of these individuals are placed either on their right (southern orientation) or left (northern orientation) side. Therefore, almost all individuals in the Ostopovice cemetery fit the normative Bell Beaker pattern.

The Grave

Table 7.14 describes the dimensions of the grave pits. The degree of variance for grave length and depth is relatively higher than the variance for grave width. Resampling tests, which focused on the difference in grave depth between subadults vs. adults, yield highly significant results. Adults are buried in significantly deeper grave pits. Tests for the difference between females and males are abandoned because of the small number of observations. However, the comparison of 95% confidence intervals for the mean shows

large overlap between females and males (Females: 74.6-112.0, Males: 78.1-112.0). There is one outlier. Grave 18/70 is 130 cm deep.

Table 7.13. Body orientation in Ostopovice.

Orientation	Frequency	Percentage
North	1	4.5 %
North-northeast	1	4.5 %
Northeast	2	9.1 %
South-southeast	1	4.5 %
South	1	4.5 %
South-southwest	3	13.8 %
Southwest	2	9.1 %
North-northwest	1	4.5 %
Indeterminate	10	45.5 %
Totals:	22	100 %

Figure 7.13. Body orientation in Ostopovice. Percentages for determinate burials only.

Table 7.14. Grave dimensions in Ostopovice.

Parameter	Length (cm)	Width (cm)	Depth (cm)
Mean	142.8	74.0	85.0
Median	150.0	75.0	80.0
SD	33.7	12.4	22.1
N	14	15	18

Table 7.15. Resampling tests for differences in grave depth in Ostopovice.

Grave depth	N	p
Subadults vs. Adults	16	< .001***

Tested by resampling. * < .05, ** < .01, *** < .001

Grave inclusions

The Minimum Recognized Units for the Ostopovice cemetery are presented in Table 7.16. Because the Ostopovice cemetery is relatively small and contains a high proportion of subadult individuals, the diversity in grave inclusions is small. Ceramic mugs and bowls represent the most frequent types of artifacts. Other ceramic types are represented by

individual cases only. Animal bones, which appear in two adult burials, include cattle, sheep, and pig bones. Other types of bone, copper, and stone artifacts come from two burials (14/70, 19/70). In particular, burial 19/70 is exceptional in comparison to other burials in this cemetery (see below).

Table 7.16. Minimum Recognized Units and their pervasiveness in Ostopovice.

Artifact	Count ^a	Percentages
Ceramic mug	9	45 %
Ceramic bowl - undecorated	7	35 %
Faunal bone/antler	2	10 %
Amber bead	1	5 %
Boar tusk	1	5 %
Bone button	1	5 %
Ceramic bell beaker - decorated	1	5 %
Ceramic bowl - decorated	1	5 %
Ceramic lugless amphora	1	5 %
Copper awl	1	5 %
Stone dart	1	5 %

^a Number of burials with the artifact.

Gender and Age

The relationship between the Minimum Recognized Units and gender shows that some artifacts were associated exclusively with either females or males (Table 7.17). However, all of these cases are represented by single instance only. Drawing conclusions from these results would be unreliable, but the nature of these associations has to be described. While the association of an adult male in burial 14/70 with stone darts is not surprising, the association of an adult female in burial 19/70 with the boar tusk is less common for Bell Beaker burials. Burial 19/70 is truly exceptional in several ways. It contains two decorated bell beakers, a fragment of a copper awl, a boar tusk, 23 bone buttons with V-bore, and six amber beads. Moreover, wooden fragments, which were found in the grave, suggest the existence of a wooden grave construction. Although individuals in burials 14/70 and 19/70 differ from the others in terms of quality and quantity of grave inclusions, their stature shows the reverse. These two individuals represent the smallest female (150 cm) and smallest male (153 cm) among the seven individuals with an estimated body height in the

Ostopovice cemetery (sample mean = 161, SD = 7.7). Nonetheless, the These two burials, 14/70 and 19/70, are also located next to each other in the southeastern corner of the cemetery (Figure 7.14, two richest burials).

The association of the Minimum Recognized Units with age categories shows that subadult individuals were buried only with undecorated mugs and bowls (Table 7.18). This stands in contrast to adult burials that also contained bone, copper, and stone artifacts as well as parts of animal bodies. The difference between subadults and adults is not only qualitative but also quantitative. The resampling test, which focuses on the number of artifacts in burials, shows that there is a significant difference between subadult and adult burials ($p = .028$).

Figure 7.14. Distribution of burials according to the number of artifacts in Ostopovice.

Table 7.17. Minimum Recognized Units vs. gender (single burials).

Artifact	Females	Males	Indeterminate	Total
	Number of burials containing the artifact type			
Amber bead	1	0	0	1
Boar tusk	1	0	0	1
Bone button	1	0	0	1
Ceramic bell beaker – decorated	1	0	0	1
Ceramic bowl – decorated	1	0	0	1
Ceramic bowl – undecorated	3	3	1	7
Ceramic lugless amphora	1	0	0	1
Ceramic mug	4	2	2	8
Copper awl	1	0	0	1
Faunal bone/antler	1	1	0	2
Stone dart	0	1	0	1

Table 7.18. Minimum Recognized Units vs. age (single burials).

Artifact	I1 ^a	I2	J	A	Indeter.	Total
	Number of burials containing the artifact type					
Amber bead	0	0	0	1	0	1
Boar tusk	0	0	0	1	0	1
Bone button	0	0	0	1	0	1
Ceramic bell beaker – decorated	0	0	0	1	0	1
Ceramic bowl – decorated	0	0	0	1	0	1
Ceramic bowl – undecorated	1	2	0	4	0	7
Ceramic lugless amphora	0	0	0	1	0	1
Ceramic mug	2	2	0	4	0	8
Copper awl	0	0	0	1	0	1
Faunal bone/antler	0	0	0	2	0	2
Stone dart	0	0	0	1	0	1

^a I1 – infant I, I2 – infant II, J – juvenile, A – adult, Indeter. – indeterminate.

The Rebešovice Cemetery

Body Preparation and Treatment

A total number of 89 individuals was identified in 80 burials in the Rebešovice cemetery. This number is based on the minimum number of individuals. There is a possibility that there might have been even more individuals in the cemetery; thus the estimation of 89

individuals is conservative. Table 7.19 shows that the sex of the majority (66%) of individuals was indeterminate. This is primarily because of postdepositional disturbances (see section disturbances below) and the conditions for preservation at the site. Females (20%) slightly dominated males (14%) among the individuals with estimated sex. The estimations of age are more successful. The age of only 23% of the individuals is estimated as indeterminate. The demographic profile shows that the number of infants I and II is low in comparison to the number of adult individuals (Figure 7.15). This is evidence of either differential treatment for infants, where only a portion was buried in the cemetery, or an effect of preservation.

Table 7.19. Age and sex for Rebešovice.

Age category	Females	Males	Indeterminate sex	Total
Infant I	0	0	6	6
Infant II	0	0	7	7
Juvenile	1	0	4	5
Adult	17	11	23	51
Indeterminate age	0	1	19	20
Totals:	18	12	59	89

The majority of burials contain remains of one individual, but 10% have more than one individual (Table 7.20). Most of these multiple burials contain two individuals. There is only one triple burial (192), but double burial 11 might have contained three individuals as well. Because the analysis of skeletal material in burial 11 could not confirm the presence of the third individual with a high degree of certainty, I decided to keep the conservative estimate, which only suggested the presence of two individuals. The spatial distribution of burials according to the number of buried individuals shows that the burials with more than one individual tend to be located on the eastern edge of the cemetery (Figure 7.16). The relationship between females and multiple burials has to be mentioned, because it is not presented in Table 7.20. Among the seventeen individuals who were found in double or triple burials, all were estimated to be females.

Figure 7.15. Demographic profile for Rebešovice.

Table 7.20. Types of burials by age and sex category in Rebešovice.

Category	Single	Double	Triple	Total
Number of burials that contain the category				
Infant I	4	—	—	4
Infant II	4	—	—	4
Juvenile	4	—	—	4
Adult	42	—	—	42
Indeterminate age	18	7	1	26
Totals:	72	7	1	80
Female	12	—	—	12
Male	12	—	—	12
Indeterminate sex	48	7	1	56
Totals:	72	7	1	80

The Body

Body orientation is relatively standardized in the Rebešovice cemetery. The majority of the burials are oriented towards the west and southwest (Table 7.21, Figure 7.17). The fluctuation around the west can be understood as a result of the sun's seasonal movement on the horizon. However, a few individuals clearly deviate from this general pattern and their

heads are oriented to eastern directions. There is no evidence that these burials share more than the deviation from the western orientation. Nonetheless, burial 285 deserves special attention. It includes an adult individual oriented towards the east-southeast and placed on the left side. The combination of these two characteristics is unusual because only two individuals in the entire cemetery were not placed on their right side (burial 285 and 28). Therefore, burial 285 differs in two normative characteristics from the other burials.

Figure 7.16. Distribution of single, double, and triple burials in Rebešovice.

Table 7.21. Body orientation in Rebešovice.

Orientation	Frequency	Percentage
Northeast	1	1.1 %
East-southeast	1	1.1 %
Southeast	2	2.2 %
South-southeast	1	1.1 %
South	2	2.2 %
South-southwest	11	12.4 %
Southwest	26	29.2 %
West-southwest	5	5.6 %
West	18	20.2 %
West-northwest	4	4.5 %
Northwest	7	7.9 %
Indeterminate	11	12.4 %
Totals:	89	100.0 %

Figure 7.17. Body orientation in Rebešovice. Percentages for determinate burials only.

The Grave

Grave pit dimensions show that there is limited variance in grave length and width (Table 7.22). Variance in grave depth, however, is considerable. A small number of burials shows extremely deep grave pits. The depth of grave 76, with an adult male, is 255 cm. Another deep grave (62) contains the remains of an adult female with non-normative orientation (northeast). Differences in grave depth should not be affected by the topography of the site. Because this site is located on the flat part of the small hill, the maximum altitude difference between the lowest and highest point at the cemetery is approximately one meter.

Testing the differences in grave dimensions between females vs. males and subadults vs. adults, the results are significant for age (Table 7.23). As might be expected, the dimensions of graves which contain subadults are significantly smaller than the dimensions of adult graves. The differences between females and males were insignificant for all variables.

Table 7.22. Dimensions of grave pits in Rebešovice.

Parameter	Length (cm)	Width (cm)	Depth (cm)
Mean	193.9	108.1	105.8
Median	195.0	108.0	90.0
SD	31.1	23.9	56.1
N	75	75	73

Table 7.23. Resampling and t-tests for differences in grave dimensions by age and sex in Rebešovice.

Variable	Females vs. Males		Subadults vs. Adults	
	N	p	N	p
Grave length ^a	22	.76	58	<.001***
Grave width ^b	23	.77	57	<.001***
Grave depth ^b	23	.78	54	<.001***

^a Tested by t-test. * < .05, ** < .01, *** < .001

^b Tested by resampling. * < .05, ** < .01, *** < .001

Because the Rebešovice cemetery yields a large sample of wooden coffins, their dimensions could be explored as well. Although the variance of both coffin length and width is relatively modest (Table 7.24), there are two burials that show extremely high values for coffin width. Burial 205, which included a 132 cm wide coffin, contained an adult individual of indeterminate sex. Burial 197, which included a coffin 130 cm wide, also contained an adult individual of indeterminate sex. The relationship between coffin length and stature is explored because estimates for stature are available for 22 individuals. Linear regression analysis yields a surprising result ($\beta = 1.13$, $p = .345$). Body height seems to be a weak predictor for coffin length. This finding is important for the understanding of mortuary practices. It suggests that some bodies were literally bundled into coffins. Some individuals were so flexed that their feet reached their pelvic area. This suggests that at least some bodies are buried when their bodies are already partially decayed.

Table 7.24. Dimensions of wooden coffins in Rebešovice.

Parameter	Length (cm)	Width (cm)
Mean	153.2	62.6
Median	150.0	54.0
SD	31.1	23.9
N	39	39

There are seven graves in the Rebešovice cemetery that are circumscribed by large limestone boulders. Although a limited number of large stones appear in other graves as well, only these seven show evidence of grave constructions. The stones encircle the bottom of the graves or they even fill the entire grave pit. The most extreme case is burial 150, which is filled with a large number of limestone boulders that are over one meter long in some cases.

These boulders not only circumscribed the grave pit but they also constituted a stone ceiling. Therefore, the interior of this grave is enclosed in a stone chamber. Both males and females are buried in the graves with stone constructions, and there are two double burials with stone constructions. Both of them contain an adult individual accompanied by an infant. Moreover, it is important to note that the stone construction burials contained massive bronze artifacts such as a ring ingot, bracelet, and dagger. Spatial distribution of these burials suggests a small cluster near the center of the cemetery (Figure 7.18). However, a modeling of the random distribution of points produced a similar pattern in more than 5% of simulations.

Figure 7.18. Distribution of graves with stone constructions in Rebešovice.

Disturbances

The majority of burials in the Rebešovice cemetery are disturbed. There are only 10% of burials that are intact. Table 7.25 describes the frequency of different types of disturbances. The majority of disturbances (83%) are caused by prehistoric activities. These are primarily detected by the presence of funnel-shaped shafts that start on the surface and end most frequently at the bottom of the grave pit. The shafts sometimes contain ceramic fragments from Únětice and Věteřov periods. The remaining two types of disturbances are the results of the construction of later archaeological features and the insensitive use of heavy machinery at the site during excavations. The later archaeological features are primarily Medieval Slavic graves that cut into earlier Únětice graves. The relationship between burial disturbances and the number of individuals in burials shows that the prehistoric disturbances affected both single and multiple burials. Therefore, the burying of another person in the same grave pit cannot explain all cases of disturbed burials. In fact, it would explain only 13% of burials disturbed in prehistory. Disturbances do not spatial patterning (Figure 7.19).

Table 7.25. Burial disturbances vs. number of individuals in burials in Rebešovice.

	Single	Double	Triple	Total
Disturbed during excavations	4	0	0	4
Disturbed by later features	7	0	0	7
Disturbed by prehistoric activities	53	7	1	61
Undisturbed	8	0	0	8
Totals:	72	7	1	80

The relationship between prehistoric burial disturbances and sex (Table 7.26) shows that there is no preference for females or males (Fisher's exact test, $p = .63$). The relationship between prehistoric disturbances and age is presented in Table 7.27. As in the previous case, there is no evidence for preferential impact upon the burials of subadults or adults (Fisher's exact test, $p = .87$). Therefore, given the low frequency of undisturbed burials and the lack of evidence for preference towards individuals of different age and sex, it appears that the prehistoric activities that caused disturbances were driven by some kind of general reason irrespective of age and sex.

Table 7.26. Prehistoric burial disturbances vs. sex in Rebešovice (single burials).

	Female	Male	Indeterminate sex	Total
Disturbed	10	8	35	53
Undisturbed	2	2	4	8
Totals:	12	10	39	61

Table 7.27. Prehistoric burial disturbances vs. age in Rebešovice (single burials).

	Subadults	Adults	Indeterminate age	Total
Disturbed	14	30	9	53
Undisturbed	1	6	1	8
Totals:	15	36	10	61

Figure 7.19. Distribution of disturbed and undisturbed burials in Rebešovice.

The first series of testing focuses on the quantities of different artifacts in burials. The hypothesis that the average number of artifacts in prehistorically disturbed and undisturbed burials is not significantly different was tested. Artifacts are divided into two general groups: bronze and non-bronze artifacts. Table 7.28 presents the results of testing by resampling. The number of non-bronze artifacts – represented primarily by ceramic vessels – is not significantly different between disturbed and undisturbed burials. Therefore, these artifacts are unlikely the reason for the reopening of the burials. In contrast, the number of bronze artifacts is significantly lower in disturbed burials (Figure 7.20). This result shows that the reopening of the burials affected the distribution of bronze artifacts.

If bronze artifacts are the target of looting, then massive bronze artifacts would be unlikely to appear in disturbed burials. Evidence from the Rebešovice cemetery shows the contrary. There are at least six disturbed burials that yield evidence of massive bronze artifacts. Burials 150, 171, and 217 are associated with massive ring ingots (Figure B1). Moreover, in burial 150, the ring ingot is placed on the disturbed fragments of skull and cervical vertebrae clearly inside the “looting” shaft. Burials 11 and 142 contain bronze daggers and bracelets and burial 8 only a dagger. All these artifacts were left in the burials despite burial disturbances.

Table 7.28. Resampling tests for the difference in the number of artifacts between disturbed and undisturbed single burials in Rebešovice (prehistoric disturbances only).

Comparison	N	p
Bronze artifacts		
Disturbed vs. undisturbed	61	.042*
Non-bronze artifacts		
Disturbed vs. undisturbed	61	.32

Tested by resampling. * < .05, ** < .01, *** < .001

The association between the parts of skeletons with corrosive stains and the presence or absence of bronze artifacts shows that the frequency of cases with stains and missing artifacts is low. Figure 7.21 shows that in areas 1, 2, and 3, the proportion of individuals with stains and missing artifacts was lower than the proportion of individuals with stains

associated with artifacts. In area 4, the proportion is 50%. Although no formal test for the significance of this pattern is provided, there is a relatively low number of cases in which the skeleton is marked by corrosive stains because of associated metal artifacts, but the artifacts themselves are missing. Therefore, this result does not support the view that the disturbances are the results of looting that was focused on valuable bronze artifacts.

Figure 7.20. Number of bronze and non-bronze artifacts in disturbed and undisturbed single burials in Rebešovice (prehistoric disturbances only). Box – quartiles and the median, whiskers – 1.5x box size from the nearest hinge, points – extreme values.

Individuals in the burials that were disturbed in prehistory frequently also are missing their heads. The calvaria are totally missing in 40% and the mandible in 50% of cases. Although crania, and especially faces, are fragile, the mandible is a durable part of the skeleton that tends to survive in the archaeological and paleontological record. Such a high frequency of missing parts of the skull suggests that they were intentionally removed from graves.

Figure 7.21. The number of individuals with corrosive stains that were or were not associated with artifacts typical for the body area (for details see Chapter 5). Stain - artifact means that a stain was present but an artifact was not present, stain + artifact indicates that a stain was present and an artifact was present too.

Grave inclusions

Table 7.29 presents the list of the Minimum Recognized Units for the Rebešovice cemetery. Bronze and ceramic artifacts dominate the list. There are fifteen types of bronze artifacts and ten types of ceramic vessels recognized (Figure B7-B12). Among the bronze artifacts, pins are divided into the largest number of subcategories based on the shape of their heads. Other types of artifacts include bone artifacts, stones, animal bones, and wooden coffins.

Sex and Age

The relationship between the Minimum Recognized Units and sex focused on exclusive associations. Females are exclusively associated with bronze beads, hair rings, ring ingots, Únětice pins, pins with spherical head, and onion-like vessels (Table 7.30). The majority of these artifacts have extremely low counts, and are often represented by a single case. However, the association of bronze hair rings and ring ingots with females is the most convincing pattern because of a relatively high number of observations. Males are exclusively associated with bone awls and Únětice cups. Because this association is based only on single cases, its reliability is low.

The relationship between the Minimum Recognized Units and age shows that some types of artifacts never appeared in burials of subadults: animal bones other than scapulas, bone awls, pendants, boar tusks, bronze awls, ring ingots, bronze bracelets, spherical-head pins, tubes, tube-head pins, Únětice pins, onion-like vessels, and stone flakes (Table 7.31). The majority of these artifacts have low counts. However, the association of bronze awls and ring ingots with adult individuals is the most convincing pattern. There is only one type of artifact, the bronze flat-head pin with a single coil, which appeared in a subadult burial (infant II) but never in adult burials. However, there is only one case.

The dimensions of ceramic vessels were explored to identify possible differences between females vs. males and subadults vs. adults. Although Figure 7.22 shows that the tallest and widest vessels tend to be associated with males, this difference is not statistically significant (Height: Mann-Whitney test, $U = 77$, $p = .24$, Maximum diameter of rim: Mann-Whitney test, $U = 84$, $p = .37$). Similar results are obtained when subadults and adults are compared (Figure 7.23). The differences are insignificant for both vessel height (Mann-Whitney test, $U = 522$, $p = .55$) and the maximum diameter of the rim (Mann-Whitney test, $U = 552$, $p = .81$). Therefore, there is no significant difference in the size of the ceramic vessels between female vs. male and subadult vs. adult burials.

Table 7.29. Minimum Recognized Units for Rebešovice.

Animal bones – other	Bronze tube-head pin
Animal scapula	Bronze Únětice pin
Bone awl	Ceramic amphora
Bone pendant	Ceramic beaker
Boar tusk	Ceramic bowl
Bronze awl	Ceramic jug
Bronze bead	Ceramic disc
Bronze chisel	Ceramic fragment (Únětice)
Bronze Cypriot pin	Ceramic lugless amphora
Bronze dagger	Ceramic lugless mug
Bronze flat-head pin with single coil	Ceramic mug
Bronze hair ring	Ceramic onion-shaped vessel
Bronze pin – other	Ceramic storage jar
Bronze ring ingot	Ceramic Únětice cup
Bronze single-coil bracelet	Stone – large
Bronze spherical-head pin	Stone flake
Bronze spiral bracelet	Wooden coffin
Bronze tube

Figure 7.22. Dimensions of ceramic vessels by sex in Rebešovice. F – females, I – indeterminate, M – males.

Table 7.30. Minimum Recognized Units vs. sex in Rebešovice (single burials).

Artifact	Females	Males	Indeterminate	Total
	Number of burials containing the artifact type			
Animal bones – other	0	0	1	1
Animal scapula	1	1	6	8
Bone awl	0	1	0	1
Bone pendant	0	0	1	1
Boar tusk	0	0	1	1
Bronze awl	3	1	0	4
Bronze bead	1	0	2	3
Bronze chisel	0	0	1	1
Bronze Cypriot pin	2	1	2	5
Bronze dagger	0	0	1	1
Bronze flat-head pin with single coil	0	0	3	3
Bronze hair ring	8	0	6	14
Bronze pin – other	1	1	4	6
Bronze ring ingot	3	0	1	4
Bronze single-coil bracelet	0	0	1	1
Bronze spherical-head pin	1	0	0	1
Bronze spiral bracelet	0	0	0	0 ^a
Bronze tube	0	0	3	3
Bronze tube-head pin	0	0	1	1
Bronze Únětice pin	2	0	2	4
Ceramic amphora	0	0	0	0
Ceramic beaker	2	7	12	21
Ceramic bowl	1	6	11	18
Ceramic jug	0	0	1	1
Ceramic disc	0	0	1	1
Ceramic fragment (Únětice)	0	2	6	8
Ceramic lugless amphora	0	0	2	2
Ceramic lugless mug	0	0	0	0
Ceramic mug	2	1	7	10
Ceramic onion-like vessel	2	0	3	5
Ceramic storage jar	0	0	0	0
Ceramic Únětice cup	0	1	4	5
Stone – large	6	4	16	26
Stone flake	0	0	3	3
Wooden coffin	7	7	32	46

^a Bronze spiral bracelets, ceramic amphorae, lugless mugs, and storage jars appeared only in burials with multiple individuals where their association with sex is not clear.

Table 7.31. Minimum Recognized Units vs. age in Rebešovice (single burials).

Artifact	I1 ^a	I2	J	A	Indeter.	Total
Burials containing the artifact type						
Animal bones – other	0	0	0	1	0	1
Animal scapula	1	0	2	3	2	8
Bone awl	0	0	0	1	0	1
Bone pendant	0	0	0	1	0	1
Boar tusk	0	0	0	1	0	1
Bronze awl	0	0	0	4	0	4
Bronze bead	0	0	1	1	1	3
Bronze chisel	0	0	0	0	1	1
Bronze Cypriot pin	1	0	0	3	1	5
Bronze dagger	0	0	0	0	1	1
Bronze flat-head pin with single coil	0	1	0	0	2	3
Bronze hair ring	0	0	1	11	2	14
Bronze pin – other	1	0	0	5	0	6
Bronze ring ingot	0	0	0	4	0	4
Bronze single-coil bracelet	0	0	0	1	0	1
Bronze spherical-head pin	0	0	0	1	0	1
Bronze spiral bracelet	0	0	0	0	0	0 ^b
Bronze tube	0	0	0	1	2	3
Bronze tube-head pin	0	0	0	1	0	1
Bronze Únětice pin	0	0	0	3	1	4
Ceramic amphora	0	0	0	0	0	0
Ceramic beaker	1	1	0	12	7	21
Ceramic bowl	2	0	1	10	5	18
Ceramic jug	0	0	0	0	1	1
Ceramic disc	0	0	0	0	1	1
Ceramic fragment (Únětice)	0	0	1	5	2	8
Ceramic lugless amphora	0	0	0	0	2	2
Ceramic lugless mug	0	0	0	0	0	0
Ceramic mug	1	0	1	5	3	10
Ceramic onion-like vessel	0	0	0	4	1	5
Ceramic storage jar	0	0	0	0	0	0
Ceramic Únětice cup	0	1	0	3	1	5
Stone – large	1	3	1	12	9	26
Stone flake	0	0	0	2	1	3
Wooden coffin	2	3	3	23	15	46

^a I1 – infant I, I2 – infant II, J – juvenile, A – adult, Indeter. – indeterminate.

^b Bronze spiral bracelets, ceramic amphorae, lugless mugs, and storage jars appeared only in burials with multiple individuals where their association with sex is not clear.

Figure 7.23. Dimensions of ceramic vessels by age in Rebešovice. A – adults, I – indeterminate, SA – subadults.

Association between Artifacts

The Minimum Recognized Units were lumped into more general categories for further multivariate analysis. The pervasiveness of artifact types in the Rebešovice cemetery shows that the most pervasive type of artifact is the wooden coffin (Table 7.32). The second most common artifact is the large stone, which is often associated with coffins as a sort of filling near the coffin corners. The most pervasive ceramic vessels are beakers and bowls. Among the bronze artifacts, pins and hair rings appear in burials most frequently. All artifact types that reach the 5% level were used in correspondence analysis. Although ceramic

fragments appear in more than 5% of burials, they were not used in correspondence analysis because they just represent the category of damaged vessels.

Table 7.32. Variables and their pervasiveness in Rebešovice.

Variable	Count ^a	Percentage
Coffin	46	64 %
Large stone	26	36 %
Beaker	21	29 %
Bowl	18	25 %
Bronze pin	16	22 %
Bronze hair ring	14	19 %
Mug	10	14 %
Animal scapula	8	11 %
Ceramic fragments	8	11 %
Onion-like vessel	5	7 %
Únětice cup	5	7 %
Bronze awl	4	6 %
Bronze ring ingot	4	6 %
Bronze bead	3	4 %
Bronze tube	3	4 %
Chipped stone	3	4 %
Lugless amphora	2	3 %
Animal – other	1	1 %
Bone awl	1	1 %
Bone pendant	1	1 %
Boar tusk	1	1 %
Bronze bracelet	1	1 %
Bronze chisel	1	1 %
Bronze dagger	1	1 %
Jug	1	1 %
Ceramic disc	1	1 %

^a Number of single burials.

The results of correspondence analysis show that there is no single dominant factor that would explain the major part of variability in the data matrix. The first two dimensions

explain 31% of variability and the next two dimensions explain 24% of variability (Table 7.33).

Table 7.33. The amount of variability accounted for by all dimensions in correspondence analysis.

Dimension	Eigenvalue	% inertia	Cumulative % inertia
1	0.46	16.24	16.24
2	0.43	15.06	31.30
3	0.36	12.86	44.16
4	0.33	11.56	55.72
5	0.28	9.79	65.52
6	0.23	8.08	73.60
7	0.20	6.98	80.58
8	0.19	6.82	87.40
9	0.17	5.84	93.24
10	0.12	4.29	97.53
11	0.07	2.47	100.00

The first dimension of correspondence analysis suggests that burials with bronze awls differ from others (Figure 7.24). Burials with bronze awls consist of both adult female and male interments. A careful comparison with the data matrix shows that these burials tend to lack ceramic vessels. Three out of four of these burials did not contain any ceramic vessels at all. Since it has been demonstrated that ceramic vessels were not significantly influenced by prehistoric disturbances (see above), the absence of vessels probably has a different reason. Also, the three burials with bronze awls and no ceramic vessels cluster in the northeastern edge of the cemetery. In addition, the most extreme outlier, burial 145, includes bronze beads, which are found only in this burial. The first dimension contrasts burials with bronze awls with those that generally include ceramic vessels. The spatial validation of the first dimension shows that the coordinates tend to be organized on the core/periphery principle (Figure 7.25). The second dimension repeats the pattern. Awls contrast with the rest of variables that cluster close to each other.

Figure 7.24. Results of correspondence analysis for Rebešovice (Dimension 1 vs. 2). A – animal scapula, B – beaker, C – bowl, D – bronze awl, E – bronze hair ring, F – bronze pin, G – bronze ring ingot, H – coffin, I – large stone, J – mug, K – onion-like vessel, L – Únětice cup.

Figure 7.25. Spatial validation of the first dimension of correspondence analysis for Rebešovice.

Figure 7.26. Results of correspondence analysis for Rebešovice (Dimension 3 vs. 4). A – animal scapula, B – beaker, C – bowl, D – bronze awl, E – bronze hair ring, F – bronze pin, G – bronze ring ingot, H – coffin, I – large stone, J – mug, K – onion-like vessel, L – Únětice cup.

The third dimension contrasts burials with bronze awls and onion-like vessels (Figure 7.26). While the burials with bronze awls have been discussed already, burials with onion-like vessels include only females who are generally associated with large quantities of artifacts. The fourth dimension contrasts burials with Únětice cups and mugs. This distinction most likely represents chronological differences within the cemetery.

Formal Testing

The differences in the number of associated artifacts between females vs. males and subadults vs. adults were tested. Artifacts were divided into two general groups of bronze and non-bronze artifacts and resampling tests were run for each of these general comparisons. The results show that only females and males differed in the number of bronze artifacts. Females had significantly more bronze artifacts in burials than males did (Table 7.34).

Table 7.34. Resampling tests for the difference in the number of artifacts between age and sex categories in Rebešovice (single burials).

Comparison	N	p
Bronze artifacts		
Females vs. males	24	.006**
Subadults vs. adults	60	.274
Non-bronze artifacts		
Females vs. males	24	.09
Subadults vs. adults	60	.786

Tested by resampling. * < .05, ** < .01, *** < .001

Spatial Patterns

Individuals without a coffin and with a lower number of artifacts tend to be located on the periphery of the cemetery (Figure 7.27 and 7.28). Although it has been shown above that the number of artifacts, especially bronze artifacts, is smaller in male burials, this spatial pattern is not the result of sex differences. The spatial distribution of females and males is not organized according to the model core/periphery. Therefore, there must be another factor that affected the spatial location of burials with a low number of artifacts. Moreover, burials without coffins also tend to be located on the periphery (Figure 7.28). The exploration of the spatial distribution of bronze artifacts did not, with the exception of bronze awls, yield a clear

clustered pattern. Bronze daggers, however, are located only in the eastern half of the cemetery.

Figure 7.27. Distribution of single burials according to artifact quantity in Rebešovice.

Figure 7.28. Distribution of coffins in Rebešovice.

Exceptional Burials

The last part of the analysis focuses on exceptional burials in the Rebešovice cemetery. Burial 298 contains an adult individual of indeterminate sex, who is accompanied by an elaborate head ornament composed of eight bronze hair spirals, along with three ceramic vessels, bronze pins, and a boar tusk. Although the sex of this individual is

indeterminate, the presence of hair rings suggests that this individual is more likely female. Burial 285 contains an adult individual of unknown sex who is interred with a hair spiral. The body is placed inside a substantial stone construction on its left side and oriented toward east-southeast. Such a position and the orientation of the body, combined with a construction made of 42 large stones, is unique. Double burial 11 includes the skeletons of two adult individuals – one estimated as a male – associated with a stone construction, multiple bronze artifacts including two daggers, and several ceramic vessels. There are no exceptionally rich single burials of infants. However, two double burials (11 and 142) include adults associated with infants, bronze daggers, and bracelets.

The Slavkov u Brna Cemetery

Body Preparation and Treatment

A total number of 54 individuals was identified in 43 burials in the Slavkov u Brna cemetery (Table 7.35). There are more males (31%) than females (19%) among the individuals whose sex was biologically estimated. Because age estimations were more successful, there are only three individuals whose age could not be estimated. The demographic profile (Figure 7.29) shows that almost 60% of all individuals are adults. The second largest group is represented by combined infants (28%). The number of juveniles is small (7%). This profile suggests that not all of the youngest infants were buried in the cemetery or their fragile skeletons did not survive. Because infant mortality is usually high in pre-industrial societies, it is likely that the infants who are recovered represent only a sample of all community infants.

Burials in this cemetery consist both of single and multiple burials. The Slavkov u Brna cemetery includes a relatively high proportion of double (16%) and triple (5%) burials (Table 7.36). The nature of these burials, however, is not entirely uniform. Some multiple burials contain two or three individuals in the grave pit but their bodies are spatially separated and even enclosed in individual wooden coffins (burials 26 and 41). Other multiple burials consist of those that were considered single burials during excavations but subsequent osteological analysis identified skeletal elements of multiple individuals. The exploration of

spatial patterning shows that burials with multiple individuals appear on the periphery of the cemetery (Figure 7.30).

Table 7.35. Age and sex breakdown for Slavkov.

Age category ^a	Females	Males	Indeterminate sex	Total
Infant I	0	0	6	6
Infant II	0	0	9	9
Juvenile	0	0	4	4
Adult	10	17	5	32
Indeterminate age	0	0	3	3
Totals:	10	17	27	54

^a Age and sex estimations after Dočkalová & Svenssonová 2000.

Figure 7.29. Demographic profile in Slavkov.

Table 7.36. Types of burials that contain age and sex category in Slavkov.

Category	Single	Double	Triple	Total
Number of burials that contain the category				
Infant I	3	—	—	3
Infant II	7	—	—	7
Juvenile	2	—	—	2
Adult	19	—	—	19
Indeterminate age	3	7	2	12
Totals:	34	7	2	43
Female	6	—	—	6
Male	11	—	—	11
Indeterminate sex	17	7	2	26
Totals:	34	7	2	43

Figure 7.30. Distribution of single, double, and triple burials in Slavkov.

The Body

Body aspect and orientation is uniform at Slavkov. There is only one individual (burial 5) who was placed on the left side. Other burials were placed on the right side or their body aspect is indeterminate because of burial disturbances. This strict preference for the right side for females and males of various age agrees with the standard treatment in Únětice culture in South Moravia. The orientation of the body also yields little variability. The majority of individuals (72%) are oriented with their heads to the west (Table 7.37; Figure 7.31). The deviations from this direction constitute 12% of burials and those individuals were oriented to the northwest or southwest. This difference should be seen as a reflection of environmental conditions during the year. The burials that differ from the normative orientation to the west do not seem to share any other characteristic that would distinguish them from other burials.

Table 7.37. Body orientation in Slavkov.

Orientation	Frequency	Percentage
Northwest	3	6 %
Southwest	3	6 %
West	39	72 %
Indeterminate	9	16 %
Totals:	54	100 %

Figure 7.31 Body orientation in Slavkov. Percentages for determinate burials only.

The Grave

The dimensions of grave pits are presented in Table 7.38. While the variance in grave length is slight, grave width and especially grave depth show that there are some outliers. There are two burials that exhibit extreme values for grave width. Both of them (burial 26 and 41) are burials with more than one individual, which explains this phenomenon. There are also two outliers for grave depth. While the first one is triple burial 41, the second one is

single burial 19 which contains an adult individual of unknown sex. This burial deserves attention because it has not only the deepest grave pit but it also contains an unusual combination of artifacts (hair spirals and a dart) that seems to blend feminine and masculine elements (see Grave Inclusions below).

Table 7.38. Dimensions of graves in Slavkov.

Parameter	Length (cm)	Width (cm)	Depth (cm)
Mean	206.2	111.6	83.7
Median	210.0	110.0	80.0
SD	32.6	29.4	50.2
N	43	43	43

Tests for differences in grave dimensions between females vs. males and subadults vs. adults do not produce any significant pattern, although the result for grave length is close to the 5% significance level (Table 7.39). This result is striking for age categories because the bodies of subadults – most of them were infants – are smaller. Indeed, this result remains insignificant when one compares only infants vs. adults. This suggests that the investment in burials of subadults and adults is not different in terms of energy expended in the preparation of the grave pit.

Table 7.39. Resampling and t-tests for differences in grave dimensions by age and sex in Slavkov.

Variable	Females vs. Males		Subadults vs. Adults	
	N	p	N	p
Grave length ^a	17	.44	31	.07
Grave width ^b	17	.72	31	.33
Grave depth ^b	17	.55	31	.13

^a Tested by t-test.

^b Tested by resampling.

Because the Slavkov u Brna cemetery also yields evidence of coffins, their dimensions are explored. Although the variability in coffin dimensions is slight (Table 7.40),

there is one outlier for coffin length. Burial 32 yields the skeleton of an adult male that was placed in a coffin that was over 207 cm long. The grave pit is also one of the largest at the cemetery. This individual is also among the tallest (169 cm) individuals at the cemetery. However, the relationship between the stature and coffin length is not perfectly correlated. The result of linear regression shows that the body height is not the perfect predictor for coffin length ($\beta = 3.17$, $p = .092$). Therefore, there are probably other effects that influenced coffin dimensions.

Table 7.40. Dimensions of wooden coffins in Slavkov.

Parameter	Length (cm)	Width (cm)
Mean	153.5	57.8
Median	153.0	55.0
SD	21.4	12.0
N	20	20

Disturbances

Table 7.41 describes the relationship between burial disturbances and number of individuals in burials. It is clear that all kinds of burials were affected by disturbances. The significance of this pattern is difficult to test because of the low number of observations in the cells. Nonetheless, Fisher's exact test yielded a highly insignificant result ($p = .80$). Differences in disturbances between females and males are not significant either (Fisher's exact test, $p = .28$) (Table 7.42). Age does not seem to be a factor that would influence the presence of disturbances either (Fisher's exact test, $p = .70$) (Table 7.43). Therefore, there is no evidence for preferential disturbance among age groups, females and males, and burials with a different number of individuals. Because disturbances are not preferentially focused on a specific kind of burial, it is possible to analyze differences in grave inclusions between age categories as well as females and males. The spatial distribution of disturbed burials shows that disturbances affected all parts of the cemetery (Figure 7.33).

Table 7.41. Burial disturbances vs. number of individuals in burials.

	Single	Double	Triple	Total
Disturbed	25	6	2	33
Undisturbed	9	1	0	10
Totals:	34	7	2	43

Table 7.42. Burial disturbances vs. sex (single burials).

	Female	Male	Indeterminate sex	Total
Disturbed	3	2	4	9
Undisturbed	3	9	13	25
Totals:	6	11	17	34

Table 7.43. Burial disturbances vs. age (single burials).

	Subadults	Adults	Indeterminate age	Total
Disturbed	8	14	3	25
Undisturbed	4	5	0	9
Totals:	12	19	3	34

In order to explain the reason for burial disturbances, it is possible to test if disturbances are associated with the loss of artifacts. I tested the hypothesis that the average number of artifacts in disturbed and undisturbed burials is not significantly different (Table 7.44). The difference between disturbed and undisturbed burials is significant for both metal and non-metal artifacts, although the significance for bronze artifacts is much higher (Figure 7.32). Therefore, one can infer that burial disturbances influence grave inclusions. However, the fact that non-bronze artifacts – represented predominantly by ceramics – also have significantly lower counts in disturbed burials makes the inference more complicated. It is hard to believe that looters would be interested in ceramics. Moreover, artifacts such as the bronze dagger (burial 9) and bronze bracelet (burial 34) remain in disturbed burials.

Table 7.44. Resampling test for the difference in the number of artifacts between disturbed and undisturbed single burials in Slavkov.

Comparison	N	p
Bronze artifacts		
Disturbed vs. undisturbed	34	<.001***
Non-bronze artifacts		
Disturbed vs. undisturbed	34	.034*

Tested by resampling. * < .05, ** < .01, *** < .001

Figure 7.32. Number of bronze and non-bronze artifacts in disturbed and undisturbed single burials in Slavkov. Box – quartiles and the median, whiskers – 1.5x box size from the nearest hinge, points – extreme values.

Figure 7.33. Distribution of burial disturbances in Slavkov.

Grave inclusions

The exploration of grave inclusions began with the Minimum Recognized Units (Table 7.45). Ceramic vessels, which represent the most pervasive category of artifact, are categorized according to their shape, size, and the presence of specific features such as lugs. Bronze artifacts are categorized according to their shape and the presence of specific features. This is especially demonstrated in the case of pins that were divided into four types based on the different nature of their head. Other categories of artifacts reflect various bone and stone artifacts and animal bones. Animal scapulas are categorized separately because they often appeared in burials without other animal bones and this pattern is consistent throughout the Únětice cemeteries.

Table 7.45. Minimum Recognized Units for Slavkov.

Amber bead	Ceramic bowl
Animal bones - other	Ceramic can
Animal scapula	Ceramic fragment
Bone awl	Ceramic lugless amphora
Bone bead	Ceramic mug
Bone pendant	Ceramic onion-shaped vessel
Bronze Cypriot pin	Ceramic storage jar
Bronze dagger	Ceramic Únětice cup
Bronze hair ring	Quern stone
Bronze ring ingot	Shell
Bronze spiral bracelet	Stone – large
Bronze tube	Stone dart
Bronze Únětice pin	Stone flake
Ceramic amphora	Stone pebble
Ceramic beaker	Wooden coffin

Sex and Age

The exploration of the Minimum Recognized Units focused on pervasiveness and exclusive associations with sex and age categories. Table 7.46 shows that ceramic bowls are the most common type of artifact. Wooden coffins and large stones, which often accompany coffins in their four corners, also appeared in a large number of burials. The association between artifacts and sex shows that bronze hair rings, Cypriot pins, ring ingots, shells, and stone pebbles appeared only in female burials. Because the number of observations is very low, hair rings represent the only type of artifact whose association with females is strong. In contrast, animal scapulas, bone awls, bronze spiral bracelets, Únětice pins, and ceramic lugless amphorae are associated exclusively with males. The bone awl is the artifact with the highest frequency of occurrence among males. The association of awls with males is strengthened by the two double burials of males with infants that contained bone awls as well. The investigation of multiple burials uncovered an individual who deserves mention. Supposedly, the adult female in double burial 41B is associated with animal scapulae, elaborate spiral bracelets and the Únětice pin. Moreover, this individual's frontal bone yields evidence of a healed injury.

Table 7.46. Minimum Recognized Units vs. sex in Slavkov (single burials).

Artifact	Females	Males	Indeterminate	Total
	Number of burials containing the artifact type			
Amber bead	0	0	3	3
Animal bones – other	1	2	2	5
Animal scapula	0	2	2	4
Bone awl	0	3	4	7
Bone bead	0	0	0	0 ^a
Bone pendant	0	0	1	1
Bronze Cypriot pin	2	0	0	2
Bronze dagger	0	0	1	1
Bronze hair ring	4	0	3	7
Bronze ring ingot	1	0	1	2
Bronze spiral bracelet	0	1	1	2
Bronze tube	0	0	1	1
Bronze Únětice pin	0	1	0	1
Ceramic amphora	0	0	2	2
Ceramic beaker	1	1	6	8
Ceramic bowl	4	8	9	21
Ceramic jug	0	0	0	0
Ceramic fragment	1	1	1	3
Ceramic lugless amphora	0	1	0	1
Ceramic mug	4	4	5	13
Ceramic onion-shaped vessel	3	5	4	12
Ceramic storage jar	0	0	0	0
Ceramic Únětice cup	1	2	4	7
Quern stone	0	0	0	0
Shell	1	0	1	2
Stone – large	1	7	6	14
Stone dart	0	0	1	1
Stone flake	1	3	0	4
Stone pebble	1	0	2	3
Wooden coffin	3	6	4	13

^a Bronze flat-head and spherical-head pin, bone pin, bone bead, ceramic jug and jar, and quern stone appeared only in burials with multiple individuals where their association with sex is not clear.

Table 7.47. Minimum Recognized Units vs. age in Slavkov (single burials).

Artifact	I1	I2	J	A	Indeter.	Total
Number of burials containing the artifact type						
Amber bead	1	2	0	0	0	3
Animal bones – other	0	1	0	3	1	5
Animal scapula	0	1	0	3	0	4
Bone awl	1	2	1	3	0	7
Bone bead	0	0	0	0	0	0 ^a
Bone pendant	0	1	0	0	0	1
Bronze Cypriot pin	0	0	0	2	0	2
Bronze dagger	0	0	0	1	0	1
Bronze flat-head pin	0	0	0	0	0	0 ^a
Bronze hair ring	0	2	0	5	0	7
Bronze ring ingot	0	1	0	1	0	2
Bronze spherical-head pin	0	0	0	0	0	0
Bronze spiral bracelet	0	1	0	1	0	2
Bronze tube	1	0	0	0	0	1
Bronze Únětice pin	0	0	0	1	0	1
Ceramic amphora	0	1	0	1	0	2
Ceramic beaker	0	1	1	3	3	8
Ceramic bowl	0	4	2	13	2	21
Ceramic jug	0	0	0	0	0	0
Ceramic fragment	1	0	0	2	0	3
Ceramic lugless amphora	1	0	0	0	0	1
Ceramic mug	1	2	1	9	0	13
Ceramic onion-shaped vessel	0	1	0	9	2	12
Ceramic storage jar	0	0	0	0	0	0
Ceramic Únětice cup	0	2	1	4	0	7
Quern stone	0	0	0	0	0	0
Shell	0	1	0	1	0	2
Stone – large	1	3	1	9	0	14
Stone dart	0	0	0	1	0	1
Stone flake	0	0	0	4	0	4
Stone pebble	0	1	0	2	0	3
Wooden coffin	0	3	0	10	0	13

^a Bronze flat-head and spherical-head pin, bone pin, bone bead, ceramic jug and jar, and quern stone appeared only in burials with multiple individuals where their association with sex is not clear. I1 – infant I, I2 – infant II, J – juvenile, A – adult, Indeter. – indeterminate.

The association between artifacts and age groups shows that the youngest children (infant I) received a limited number of artifact types (Table 7.47). They were not placed in wooden coffins and were not buried with any ceramic vessels, such as bowls. The only type of bronze artifact that appears in infant I burials is the bronze tube. The situation changes considerably when one focuses on the infant II category, in which ceramic vessels become more common, some bodies are placed in coffins, and artifacts such as the bronze ring ingot and hair ring appear. The number of juveniles is so small that it is difficult to evaluate the results. Nonetheless, there are no bronze artifacts in juvenile burials. Burials of adults contain some artifacts that do not appear in any of the subadult burials: a bronze dagger, the Cypriot and Únětice pin, and chipped stone artifacts such as flakes and darts.

Association between Artifacts

In order to explore the relationship between multiple variables, artifacts were lumped into broader categories. The pervasiveness of artifacts was explored and those that appeared in more than 5% of single burials were used for correspondence analysis (Table 7.48). Ceramic fragments were excluded from the analysis, despite their appearance in 9% of burials. The data matrix, which provides the input for correspondence analysis, includes 32 single burials (rows) and 19 variables (columns). Two burials had to be excluded because they contained none of the 19 variables. This matrix is composed of binary presence/absence data.

The results of the correspondence analysis show that there is no single dominant factor that would explain the major part of variability in the data matrix (Table 7.49). The first two dimensions explain only 29% of the entire variability. When the first four dimensions are considered, the explained variability increases to 49%.

The first dimension of correspondence analysis is characterized by the considerable separation of amber artifacts from the rest of variables (Figure 7.34). The comparison of this result with other data shows that all amber beads are associated with infants. This result suggests that the three infants associated with amber beads may differ from other infants. In particular, burial 27, which represents the outlier in Figure 7.34, is the only child in the category infant I who was buried with a bronze artifact. Moreover, this bronze artifact is a bronze tube, which was found only in this burial. All this evidence suggests that this child and possibly also the other two children with amber beads represent infants with special

status. The first dimension contrasts burials with amber to burials with shells and bone awls. The most extreme case is burial 7 that contains the remains of a child in the infant II category. The contrast between individuals with amber artifacts on one hand and bone awls and shells on the other hand may represent gender difference between infants with special status. It has been noted before that bone awls are associated with adult males. Individuals with amber beads are also associated with artifacts such as bronze hair rings or tubes, which suggest a feminine identity. This pattern also is validated spatially. When the coordinates for the first dimension of the correspondence analysis are plotted and divided into intervals according to standard deviation, the supposedly feminine component appears in the center of the cemetery while the supposedly masculine component appears on the southern and eastern edges of the cemetery (Figure 7.36).

Table 7.48. Variables and their pervasiveness in Slavkov.

Variable	Count ^a	%
Bowl	21	62
Large stone	14	41
Coffin	13	38
Mug	13	38
Onion-like vessel	12	35
Beaker	8	24
Únětice cup	7	21
Bronze hair ring	7	21
Bone awl	7	21
Bronze pin	5	15
Chipped stone	5	15
Animal – other	5	15
Bone scapula	4	12
Ceramic fragments	3	9
Stone pebble	3	9
Amber artifact	3	9
Amphora	2	6
Bronze bracelet	2	6
Bronze ring ingot	2	6
Shell	2	6
Lugless amphora	1	3
Bronze dagger	1	3
Bronze tube	1	3
Bone pendant	1	3

^a Number of single burials

Table 7.49. The amount of variability accounted for by all dimensions in correspondence analysis.

Dimension	Eigenvalue	% inertia	Cumulative % inertia
1	0.51	15.20	15.20
2	0.47	13.84	29.04
3	0.35	10.32	39.35
4	0.32	9.45	48.80
5	0.26	7.73	56.53
6	0.23	6.67	63.20
7	0.22	6.60	69.81
8	0.20	5.98	75.78
9	0.18	5.30	81.08
10	0.13	3.97	85.05
11	0.12	3.43	88.48
12	0.10	2.91	91.39
13	0.09	2.62	94.01
14	0.08	2.43	96.43
15	0.05	1.57	98.00
16	0.04	1.13	99.13
17	0.02	0.65	99.78
18	0.01	0.22	100.00

The second dimension of correspondence analysis contrasts burials with variables that were discussed earlier (amber artifact, bone awl, and shell) with burials that contain amphorae, stone pebbles, bronze bracelets, and bronze ring ingots. The burials with these artifacts are either children in the category infant II or adult women. The only exception is burial 34, which contains an adult male with a bracelet. This phenomenon is difficult to explain. The second dimension contrasts children with special status with the group of older children and adults who seem to share a common identity.

The results for the third and fourth dimension are presented in Figure 7.35. The third dimension creates a contrast between shells and Únětice cups, beakers, scapulas, and large stones. These two contrasting groups do not seem to be organized according to age, sex, or lavishness of the grave inclusions. This dimension may relate to two different horizontal identities for these two groups. Dimension four contrasts beakers with bone awls, Únětice cups, and amphorae. Again, this pattern crosscuts age and sex characteristics. Spatial analysis suggests that this dimension may be associated with a temporal change. Given the fact that

the variables are primarily different types of ceramic vessels, this explanation is parsimonious. Figure 7.37 shows that burials with high values for dimension four were probably the oldest burials. Then the cemetery expanded to the northwest, and the final phase was represented by additional burials on the southeastern edge and a single burial at the opposite side of the cemetery.

Spatial Patterns

Quantities of artifacts in single burials produce a spatial pattern. Figure 7.38 shows that burials with a higher number of artifacts tended to be located in the northeastern part of the cemetery. Based on the description of the topography and soils at the site, it does not seem that this pattern would result from differential environmental conditions which might have affected the preservation of metal artifacts. Interestingly, the northeastern part of the cemetery is a place where massive bronze ring ingots also appeared.

Formal Testing

Differences in quantities of artifacts show that the only significant result is the difference between burials of females and males (Table 7.50). Females are associated with a significantly higher number of bronze artifacts. Burials of females are domains where wealth is represented, mostly in the form of personal ornaments. Male bronze grave inclusions are more modest. Males are buried only with pins, and bronze bracelets, one male in triple burial 41 is probably associated with the dagger. This stands in a sharp contrast with the great variety and significantly larger numbers of bronze artifacts in burials of females.

Bioarchaeological Evidence

Bioarchaeological data provide another line of evidence and show a link between health and mortuary treatment. The infant in burial 27, which was discussed earlier for its exceptional status because of amber and bronze artifacts, shows evidence of marked *cribra orbitalia*, an indicator of nutritional stress or infectious disease. This individual lived long enough to develop a skeletal stress response. The cemetery yields limited evidence of injuries that might have been associated with violence. The adult male in burial 22 had a fracture on the left ulna and the adult female in burial 41 (see below) had a healed fracture on her frontal bone. Therefore, there is very little support for violent conflicts.

Figure 7.34. Results of correspondence analysis for Slavkov (Dimension 1 vs. 2). A – amber artifact, B – amphora, C – animal - other, D - beaker, E – bone awl, F – bone scapula, G - bowl, H – bronze bracelet, I – bronze hair ring, J – bronze pin, K – bronze ring ingot, L – coffin, M – chipped stone, N – large stone, O – mug, P – onion-like vessel, Q – shell, R – stone pebble , S – Únětice cup.

Figure 7.35. Results of correspondence analysis for Slavkov (Dimension 3 vs. 4). A – amber artifact, B – amphora, C – animal - other, D - beaker, E – bone awl, F – bone scapula, G - bowl, H – bronze bracelet, I – bronze hair ring, J – bronze pin, K – bronze ring ingot, L – coffin, M – chipped stone, N – large stone, O – mug, P – onion-like vessel, Q – shell, R – stone pebble, S – Únětice cup.

Figure 7.36. Spatial validation of the first dimension of correspondence analysis. SD – standard deviation from the mean coordinate for Dimension 1.

Figure 7.37. Spatial validation of the fourth dimension of correspondence analysis. SD – standard deviation from the mean coordinate for Dimension 4.

Figure 7.38. Distribution of single burials according to artifact quantity in Slavkov.

Table 7.50. Resampling tests for the difference in the number of artifacts between age and sex categories in Slavkov (single burials).

Comparison	N	p
Bronze artifacts		
Females vs. males	17	< .001***
Subadults vs. adults	31	.88
Non-bronze artifacts		
Females vs. males	17	.85
Subadults vs. adults	31	.57

Tested by resampling. * < .05, ** < .01, *** < .001

Exceptional Burials

The last part of the mortuary analysis focuses on individual cases. I already stressed the special status of children that are associated with amber beads. Burial 35, which includes a child in the infant II category, is associated with 15 artifacts including several vessels, bronze head ornaments, a spiral bracelet and a massive ring ingot. Individual 41B from

double burial 41 was already mentioned. This supposedly adult female is associated with the most lavish grave inclusions in the entire cemetery. There are 28 artifacts that include six vessels, bronze pins, hair rings, spiral bracelets, a quern stone, and two animal scapulae. More interestingly, this female has a healed injury on her frontal bone. Right next to her, adult male 41C was buried with a bronze dagger. This “couple” is accompanied by a disturbed child skeleton.

Burials in Settlement Pits

Table 7.51 presents the cross tabulation of individuals, who were buried in Únětice settlement features according to age and sex. Although a large portion of individuals do not have age and sex estimations available, this table shows that there does not seem to be any preference for either females or males. Also, the presence of subadults and adults suggests that burials in settlement pits were not restricted to specific age groups. However, the proportion of subadults to adults in settlement pits differs from proportions observed in the Rebešovice and Slavkov cemeteries (Table 7.52). A great number of subadult individuals in settlement pits results in the significant difference in proportions of subadults and adults between cemeteries and settlements (Fisher’s exact test, $p = .013$). Because subadults in settlement features are predominantly infants, higher frequencies of subadults in settlement features may partially explain an insufficient number of infants in cemeteries (see Selected cemeteries above).

Table 7.51. Individuals from Únětice settlement features according to age and sex.

Age category	Females	Males	Indeterminate sex	Total
Subadult	1	1	39	41
Adult	17	12	9	38
Indeterminate age	0	0	37	37
Totals:	18	12	85	115

Table 7.52. Comparison between burials in cemeteries and settlements according to age.

	SA	A
Cemeteries ^a	42	83
Settlements	41	38

^a Combined sample from Rebešovice and Slavkov.
SA – subadults, A – adults.

Table 7.53 shows the relationship between the number of individuals in settlement pits and age. First, the majority of settlement pits (77%) contained the remains of one individual. Second, the pits with three or more individuals most frequently contain subadults and adults together. Although it is possible that the individuals of different age in the same pit were related, biodistance analyses have not been performed yet and there is not enough taphonomic data that would shed light on the temporal sequence of burying. The comparison of the proportion of burials with single vs. multiple individuals between settlement features and burials from cemeteries yield an insignificant result (Fisher's exact test, $p = .12$).

Table 7.53. Únětice settlement features according to the number of individuals and age.

Number of individuals in the settlement pit	SA only ^a	A only	SA + A	Indeter.	Total
1	9	16	—	29	54
2	1	2	2	1	6
3<	0	1	7	2	10
Totals:	10	19	9	32	70

^a SA – subadults, A – adults, Indeter. – indeterminate.

The Artifacts

Table 7.54 describes the type and pervasiveness of artifacts that are found in settlement pits. This table shows that the majority of artifacts known from cemeteries also appear in burials in settlement pits. The most frequently appearing artifacts are ceramic vessels and their fragments. Fragments of ceramic vessels occur more frequently than the whole vessels. Because the whole vessels are often associated directly with the skeletons or their parts, they can be considered as grave offerings that are analogous to the vessels

deposited in cemeteries. Animal bones represent another type of artifact with a relatively high pervasiveness. They appear as either whole skeletons or isolated bones. Various taxa including pig, cattle, sheep/goat, dog, and bird are represented. Settlement pits with human remains also contain daub and chipped stones relatively frequently. The most interesting characteristic of burials in settlement pits is the presence of bronze artifacts. A bronze pin, hair ring, dagger, and bracelet appear in settlement pits. However, there are some bronze artifacts such as awls, chisels, and ring ingots that appear only in cemeteries. Burials in settlement pits rarely contain ornaments made of amber, faience, and shell but there are three settlement pits that contain stone axes. Nonetheless, there are artifacts such as daub, loom weights, and spindle whorls that appear in settlement pits but not in cemeteries. Because these pits contain refuse from settlement activities, not all artifacts have to be associated directly with the human bodies.

Table 7.55 describes the frequencies of burials from cemeteries and settlement pits with general types of artifacts. Fisher's exact test for the difference between cemeteries and settlement pits is highly significant ($p < .001$). While the pervasiveness of animal bones and bone artifacts in settlements is comparable to cemeteries, stone artifacts and especially bronze artifacts are rare in settlement pits (Fisher's exact test for a two-way table [presence/absence of bronze artifacts vs. burials in settlement pits/cemeteries], $p < .001$). The differential pervasiveness of ceramic vessels in cemeteries and settlements is not significant (Fisher's exact test for a two-way table [presence/absence of ceramic vessels vs. burials in settlement pits/cemeteries], $p = .76$).

The Body

The bodies of individuals in settlement pits frequently are articulated and complete (64%). There is less frequent evidence of postdepositional disturbances than in the cemeteries. However, a few extreme cases of human remains from settlement features include human bones that were broken, cut, and even burned. This suggests that there was variability even within the activities associated with the disposal of humans into settlement pits. Moreover, the bodies from settlement features were relatively frequently found in extended positions (13%). This is in contrast with the standardized positioning of crouched skeletons and their placement on the right side in cemeteries. Formal testing of bioarchaeological parameters between cemeteries and settlements was difficult because only

a few human remains from settlement features were analyzed in detail with respect to specific issues such as pathologies. However, there are at least seven individuals (two adult females and five infants) from settlement features that show evidence of *cribra orbitalia*. There are only three cases of *cribra orbitalia* in the Rebešovice and Slavkov cemeteries that have been analyzed by biological anthropologists. The comparison of the proportion of individuals with *cribra orbitalia* between settlements and cemeteries based on available data is significant (Fisher's exact test, $p = .003$).

Table 7.54. Pervasiveness of artifacts in Únětice settlement pits with human remains.

Artifact	N ^a	Percentage
Ceramics – other	28	40.0%
Animal bone	25	35.7%
Liquid container	13	18.6%
Daub	11	15.7%
Stone flake	10	14.3%
Shell	9	12.9%
Bronze hair ring	8	11.4%
Stone – other	8	11.4%
Bowl	7	10.0%
Bone pin	7	10.0%
Bone awl	5	7.1%
Bronze pin	4	5.7%
Quern stone	3	4.3%
Stone axe	3	4.3%
Bone bead	3	4.3%
Loom weight	3	4.3%
Stone sharpener	2	2.9%
Shell necklace	2	2.9%
Spindle whorl	2	2.9%
Storage jar	1	1.4%
Mouth-piece (metallurgy)	1	1.4%
Bronze bracelet	1	1.4%
Bronze dagger	1	1.4%
Amber pendant	1	1.4%
Faience bead	1	1.4%

^a Number of settlement pits with the artifact.

Table 7.55. Comparison between burials in cemeteries and settlement pits according to types of artifacts.

	Cemeteries ^a		Settlements	
	Count	Percentage	Count	Percentage
Animal bones	25 ^b	20%	25	36%
Bone artifact	15	12%	13	19%
Bronze artifact	59	48%	11	16%
Ceramic vessel	76	62%	41	59%
Stone artifact	57	46%	19	27%

^a Combined sample from Rebešovice and Slavkov.

^b Number of burials or pits with the artifact.

Comparison of General Mortuary Samples

The comparison between general Late Copper Age and Early Bronze Age samples focused on the changes in artifact deposition over time. The pervasiveness of a few types of artifacts changed (Table 7.56). While copper artifacts appear only in 7% of burials in the Late Copper Age, copper and bronze artifacts became almost a standard part of mortuary treatment (70% of burials) in the Early Bronze Age. Moreover, the increase in the frequency of stone constructions of graves and wooden coffins over time was radical as well. In contrast, the pervasiveness of chipped stones such as darts, scrapers, blades, and various flakes decreased over time. The use of other types of artifacts, such as bone and ceramic artifacts, as well as animal bones did not change considerably. Table 7.56 also demonstrates that there is no increase in the appearance of exotic artifacts such as amber, faience, gold, and silver. Therefore, with the exception of bronze and copper artifacts, there is little evidence for the substantial development or change in long-distance interactions.

The Early Bronze Age is characterized by increasing quantities of artifacts deposited in graves. When two general samples for the Late Copper Age and the Early Bronze Age were compared, the distinction was clear. The comparison of the number of artifacts in burials between the Late Copper Age and the Early Bronze Age burials was highly significant (Wilcoxon test, $W = 18828$, $p < .001$). A similar comparison, which focused just on the number of metal artifacts (bronze or copper) in burials and took into account only burials with one or more metal artifacts, yielded highly significant results as well (Wilcoxon test, $W = 1281$, $p < .001$) (Figure 7.39). Therefore, not only the pervasiveness of metal

artifacts changed over time, but the quantity of metal artifacts in burials increased over time as well.

Table 7.56. Comparison of artifact pervasiveness between the Late Copper Age and Early Bronze Age.

Artifact	Late Copper Age		Early Bronze Age	
	Count ^a	Percentage	Count	Percentage
Amber artifact	9	2.6 %	2	2.3 %
Bone artifact	35	10.2 %	13	15.1 %
Bronze/copper artifact	25	7.3 %	60	69.8 %
Ceramic vessel	331	96.5 %	70	81.4 %
Chipped stone	59	17.2 %	6	7.0 %
Faience artifact	0	0.0 %	1	1.2 %
Fauna	32	9.3 %	10	11.6 %
Gold artifact	5	1.5 %	0	0.0 %
Silver artifact	1	0.3 %	0	0.0 %
Stone construction	0	0.0 %	18	20.9 %
Wooden construction or coffin	14	4.1 %	31	36.0 %

^a number of burials that contain the artifact.

Figure 7.39. Number of metal (bronze or copper) artifacts in burials for the Late Copper Age (LCA) and Early Bronze Age (EBA). Box – quartiles and the median, whiskers – 1.5x box size from the nearest hinge, points – extreme values.

Differences among Females and among Males

Figure 7.40 shows the sex-specific comparison of grave inclusions between the Late Copper Age and the Early Bronze Age. The distribution of female burials according to the number of artifacts in burials is skewed to the right for the Late Copper Age. In addition, there is a small number of female burials in the Late Copper Age with an extremely large number of artifacts. In contrast, the distribution for the Early Bronze Age females is closer to a normal distribution. The histograms show that there is no evidence of more marked differences in the number of artifacts within the group of females over time. The distribution of Late Copper Age and Early Bronze Age male burials according to the number of associated artifacts is comparable. Therefore, the hypothesis that the marked differences within the groups of females and males would appear in the Early Bronze Age as a result of institutionalization of vertical social differences can be rejected from the quantitative point of view.

The qualitative dimension of differences within the groups of females and males yield evidence of individuals who were different from others both in the Late Copper Age and the Early Bronze Age. There is a rich Early Bronze Age burial of a female who is associated with the massive bronze ring ingot and bracelet (Velké Pavlovice 9). Moreover, this female falls on the very edge of the distribution of burials according to the number of associated artifacts. The orientation of her body to the southeast is also unusual. Another example includes the female (294) from Rebešovice, who was buried inside a substantial stone construction with a bronze ring ingot and other nine artifacts. There also are exceptional males in the Early Bronze Age sample. Two males from Těšetice-Vinohrady (16 and 24) are buried with bronze daggers inside substantial stone constructions. However, exceptional burials of both females and males also appear in the Late Copper Age sample. Female 1/90 from Tvořínhráz was buried inside a wooden chamber with amber beads, a gold plaquet, and various ceramic vessels including decorated bell beakers. Moreover, the circular ditch around her grave suggests that there used to be a mound above it in prehistory. Exceptional burials of males include burial A from Prosiměřice, which was located in a wooden chamber under a mound and surrounded by a circular ditch. This burial contains stone darts and decorated bell beakers. Proto-Únětice double burial 19 from Moravská Nová Ves, which contains two adult males buried above each other in separate pits, was located under a wooden house-like

structure that was erected on the surface. Although this comparison of individual burials is informal, it shows that exceptional burials of adult females and males can be found both in the Late Copper Age and the Early Bronze Age. The form of “exceptionality” might have changed over time but it does not seem that more marked differences within the groups of females and males developed over time.

Figure 7.40. Number of artifacts in female and male burials in the Late Copper Age (LCA) and Early Bronze Age (EBA).

Burials of Infants

A comparison between Late Copper Age and Early Bronze Age infant burials is presented in Table 7.57. This table focuses on the comparison of parameters that suggest an investment in infant burials. Therefore, the presence of copper/bronze, gold, and amber artifacts is described. In addition, the comparison shows the frequency of unusually rich infant burials, defined as those containing a number of artifacts beyond the 75% quantile for either the Late Copper Age or the Early Bronze Age sample. The results show the dramatic increase in the proportion of infant burials with copper/bronze artifacts over time (Fisher's exact test, $p < .001$, Late Copper Age vs. Early Bronze Age, infant burials with vs. without copper/bronze artifact). The increase of infant burials with large numbers of artifacts is not significant (Fisher's exact test, $p = .7$, Late Copper Age vs. Early Bronze Age, infant burials beyond 75% quantile vs. burials below 75% quantile). Infant burials with gold and amber artifacts are extremely rare. Nonetheless, there is no evidence for an increasing frequency of infant burials with gold and amber artifacts over time.

Table 7.57. Comparison between Late Copper Age and Early Bronze Age infant (Infant I & II) burials.

Variable	Late Copper Age		Early Bronze Age	
	Count ^a	Percentage ^b	Count	Percentage
Copper/bronze artifact	3	10 %	12	86 %
Gold artifact	1	3 %	0	0 %
Amber artifact	1	3 %	1	7 %
>75% quantile for number of artifacts	6 ^c	19 %	4	29 %

^a Number of infant burials with the positive value for the variable.

^b Percentage from all infant burials.

^c Number of infant burials with number of artifacts beyond 75% quantile.

Gender Inequality

Forms of mortuary differentiation restricted to males are described in Table 7.58. Since gender identities may go beyond the simplified binary opposition female vs. male, I consider as restricted those forms of differentiation that are not accessible to at least 80% of females. Table 7.58 shows that the number of differentiation forms that defined males decreases over time. Body orientation and aspect is not sex-specific in the Early Bronze Age.

Stone wrist guards disappear from the Early Bronze Age archaeological record and darts are so rare that they cannot serve as a marker of masculinity. Boar tusks appear both in the Late Copper Age and the Early Bronze Age but their sex-specific association is not convincing. In conclusion, only bronze daggers – which appear rarely – seem to be restricted solely to males in the Early Bronze Age.

A quantitative comparison between burials of females and males in respect to time period is presented in Table 7.59. Only number of artifacts yield a significant difference between females and males in the Early Bronze Age (Figure 7.41). This result is consistent with the results of the analyses of the four individual cemeteries. Therefore, the number of artifacts deposited in the burials of females increased during the transition from the Late Copper Age to the Early Bronze Age.

Table 7.58. Forms of mortuary differentiation restricted to males in the Late Copper Age and Early Bronze Age. Yes – restricted to males, No – not restricted to males.

Form of differentiation	Late Copper Age	Early Bronze Age
Body orientation	Yes ^a	No
Body aspect	Yes	No
Copper/bronze dagger	Yes	Yes
Stone dart	Yes	No
Stone wrist guard	Yes	No
Boar tusk	Yes	No

^a This strict distinction does not work Proto-Únětice culture.

Table 7.59. Resampling and Wilcoxon tests for the difference in number of associated artifacts and grave depth between female and male burials. LCA – Late Copper Age, EBA – Early Bronze Age.

Comparison	N	p
Number of artifacts ^a		
Females vs. males (LCA)	60	.146
Females vs. males (EBA)	33	.004**
Grave depth ^b		
Females vs. males (LCA)	60	.972
Females vs. males (EBA)	33	.754

^a Tested by resampling. * < .05, ** < .01, *** < .001

^b Tested by Wilcoxon test.

Figure 7.41. Number of artifacts in female and male burials in the Early Bronze Age. Box – quartiles and the median, whiskers – 1.5x box size from the nearest hinge, points – extreme values.

Regional Distribution of Cemeteries

The transition from the Late Copper Age to the Early Bronze Age is characterized by the integration of sub-regional social units. The Late Copper Age is characterized by the dispersed pattern of a primarily large number of small cemeteries (Figure 7.42), while the Early Bronze Age is characterized a smaller number of medium and large cemeteries (Figure 7.43). Although a few medium and large Late Copper Age cemeteries cluster, the regularity in the distribution of similar cemeteries in the Early Bronze Age is apparent. The medium and large Early Bronze Age cemeteries show more regular distribution across the region and an affinity to hilltop settlements (Figure 7.43).

Comparison of Non-Mortuary Data

The number of settlement pits in the Late Copper Age and the Early Bronze Age is described in Table 7.60. This table demonstrates that the number of settlement pits increased

considerably over time. This increase is affected mostly by settlement size rather than the absolute number of settlements. Bell Beaker settlements are small. They usually contain one or two pits and the maximum is six settlement pits. In contrast, there are a few examples of large Únětice settlements that contain more than one hundred settlement pits (Hrádek, Šatov, and Topolany). Although shape and size of settlement pits are variable both in the Late Copper Age and the Early Bronze Age, the pits from both periods are generally comparable. Bell Beaker settlement pits are represented by irregular shallow pits as well as deeper round and rectangular pits (Ondráček et al. 2005). Únětice settlement pits are mostly conical and deep but wide shallow pits also appear (Stuchlík 1969). In both periods, the wide shallow pits are assumed to be semi-subterranean houses while the deep pits served for storage and refuse.

Despite the longer duration of the Early Bronze Age (Únětice) period, the difference in the number of settlement pits per 100 years is still marked (Table 7.60). Therefore, settlement data suggest that there was a population increase during the Early Bronze Age.

Table 7.60. Number of settlement pits in the Late Copper Age and Early Bronze Age.

	Number of pits	Number of pits/100 years
Late Copper Age	82	21
Early Bronze Age	828	138

The distribution of Únětice bronze hoards and hilltop settlements in South Moravia is presented in Figure 7.44. These hoards primarily contain ring ingots. The number of deposited artifacts fluctuates, with most containing between 50 and 100 items. Nonetheless, the largest hoard from Hodonín is composed of 600 ring ingots. The distribution of hoards in the landscape shows an affinity to the major waterways in South Moravia. Therefore, it appears that hoard deposition is associated with the movement of people and goods along the rivers. However, it does not seem that hoards are associated with the two main passages to the north. The three easternmost hoards lie off major passages to the north. The most parsimonious explanation is that copper and bronze artifacts were transported to the south than to the north.

Figure 7.42. Distribution of Late Copper Age (LCA) cemeteries according to the number of burials.

Figure 7.43. Distribution of Early Bronze Age (EBA) hilltop settlements and cemeteries according to the number of burials.

Hilltop settlements are distributed along the southwest-northeast axis. They are relatively regularly spaced by approximately 20 kilometers and show a weaker affinity to major waterways than hoards do. The regular spacing shows that hilltop settlements might have controlled the movement of travelers in the landscape.

Figure 7.44. Location of bronze hoards and hilltop settlements in South Moravia.

Summary

This chapter has attempted to uncover patterns in mortuary differentiation in the Late Copper Age and the Early Bronze Age. The first section of this chapter, which dealt with the four selected cemeteries, showed that there were differences between the Late Copper Age and the Early Bronze Age. The two Late Copper Age cemeteries have clear distinctions between subadult and adult individuals. Moreover, differences between females and males

were signaled both through the body treatment and grave inclusions. There were, however, individuals who did not fit the simple binary female/male model. There is little evidence for the differential treatment among children in the Late Copper Age that would suggest the transmission of social status across generations. Burials of individuals with exceptional treatment and restricted artifacts appeared in the two Late Copper Age cemeteries but their spatial distribution has not shown any sign of spatial clustering.

The two Early Bronze Age cemeteries show less emphasis on age differentiation. There still were some artifacts that were restricted to adults only but some subadults received special treatment. There were a few infant burials placed in wooden coffins and associated with bronze artifacts or amber. Differences between females and males were much less marked than in the Late Copper Age. Body treatment and ceramic vessels were not spheres of gender differentiation as in the Late Copper Age. Moreover, females became the focus of mortuary elaboration especially embodied in bronze ornaments. Exceptional burials of both females and males have been identified in the two Early Bronze Age cemeteries. Exceptional burials tend to contain females rather than males. Moreover, the distribution of burials according to artifact quantity has shows spatial patterns in both cemeteries.

The comparison between Early Bronze Age burials in settlements and cemeteries demonstrates that almost all types of artifacts including the rare artifacts appeared in settlement pits. However, the pervasiveness of these artifacts in settlement burials is significantly lower than in cemeteries. There is also a higher proportion of subadults among the burials in settlement pits.

The comparison between the large general samples for the Late Copper Age and the Early Bronze Age shows that metal artifacts represent the most striking change over time. Copper and bronze artifacts became a standardized part of mortuary treatment and their quantities in burials increased over time. There is no evidence for the emergence of marked differences within the groups of females and males. The comparison of burials of infants and adults between the Late Copper Age and the Early Bronze Age shows that both periods yielded evidence of exceptional burials. The main difference was the increasing emphasis on the metal artifacts.

The comparison of settlement data shows that the population was growing over time. Larger settlements began to emerge during the Early Bronze Age. The distribution of hoards

shows a spatial patterning along natural corridors in river valleys. However, the spatial pattern does not show the emphasis on the flow of objects to the north. Hilltop settlements appear regularly spaced in the landscape, most likely to control the movement of travelers.

Table 7. 61. Summary table. NA – not applicable.

	Age differences	Sex/Gender differences	Elaborate child burials	Exceptional treatment of adults	Exceptional artifacts in adult burials	Clustering of similar burials	Amount of metal artifacts	Amount of exotic artifacts	Population size	Integration
<u>Selected cemeteries</u>										
Šlapanice II	prominent	prominent	no	yes	yes	no	low	low	NA	NA
Ostopovice	prominent	moderate	no	yes	yes	no	low	low	NA	NA
Rebešovice	moderate	moderate	no	yes	yes	no	high	low	NA	NA
Slavkov u Brna	moderate	moderate	yes	yes	yes	possibly	high	low	NA	NA
<u>Settlements vs. cemeteries</u>										
Burials in settlement pits	moderate	moderate	no	yes	yes	NA	low	low	NA	NA
Burials in cemeteries	moderate	moderate	yes	yes	yes	NA	high	low	NA	NA
<u>General Comparison</u>										
Late Copper Age sample	prominent	prominent	yes	yes	yes	NA	low	low	NA	primarily dispersed integration into several regional sub-units
Early Bronze Age sample	moderate	moderate	yes	yes	yes	NA	high	low	NA	
<u>Non-mortuary evidence</u>	NA	NA	NA	NA	NA	NA	high	low	increase over time	yes

CHAPTER 8

DISCUSSION

Introduction

This chapter builds upon the results from Chapter 7 to discuss the three main hypothesis of this study. This chapter is structured according to the three main topics: the institutionalization of vertical social differences, strategies of leaders, and gender relations. The discussion of each of the three main hypotheses is organized according to the expectations specified in Chapter 4. The last section of this chapter discusses burial disturbances in the Early Bronze Age. Although this topic is not directly related to the three main hypotheses, it deserves discussion because burial disturbances affected the Early Bronze Age mortuary record.

The discussion of the institutionalization of vertical social differences is organized into three subsections that correspond to burials in formal cemeteries, burials in settlement pits, and non-mortuary archaeological evidence. The three subsections include the discussion of each relevant expectation.

The discussion of the great man and big man strategies is organized into two subsections that refer to mortuary and non-mortuary evidence. I focus on the quantity and quality of grave goods and evidence of hoarding and feasting in settlements.

Gender relations are discussed in light of the mortuary evidence. I focus on two expectations that correspond to the access to artifacts, grave features, and forms of body treatment for females and males and discuss the phenomenon of bridewealth and its relationship to gender inequality.

The last section explores four possible reasons for burial disturbances in the Early Bronze Age: burial of another individual in an already existing grave, looting focused on valuable artifacts, intentional pollution of burials, and secondary mortuary treatment of the dead. The goal of the discussion is to reject the reasons that were not responsible for burial disturbances and point on the most parsimonious explanation of burial disturbances.

In this chapter, I argue that the institutionalization of vertical social differences was moderate. Only the mortuary treatment of children and individuals who were buried in

settlement pits supports the process of the institutionalization of vertical social differences. Large quantities of metal in burials and hoards suggest that the big man strategy was a more viable pathway to inequality than the spiritual or violent strategies of the great men. Also, I argue that the decrease in male-specific forms of body treatment, artifacts, and grave characteristics accompanied by the increase of the elaboration of female burials over time reflects the decline of gender inequality.

Institutionalization of Vertical Social Differences

Cemeteries

Evidence of the institutionalization of vertical social differences in cemeteries is limited. This section compares the expectations for the first research hypothesis with the results of analyses of individual cemeteries, settlements, and the general samples for the Late Copper Age and the Early Bronze Age.

The First Expectation: Differences among Females and among Males

The first expectation for the first research hypothesis relates to mortuary differentiation among females and among males. This expectation suggests that the institutionalization of vertical social differences would result in more marked differences in grave goods and features among females and among males.

The Šlapanice II cemetery shows that some females and males differed from others who had the same gender identity estimated on the basis of the aspect and orientation of the body. Only two male burials (4/34 and 21/35) and one female burial (12/34) contained copper artifacts. Moreover, the female is associated with amber buttons. All these artifacts were rare during the Late Copper Age. I assume that these rare artifacts were most likely considered valuable simply because it was probably hard to obtain them. Therefore, their occurrence in a limited number of burials suggests the special standing of these burials. Moreover, the extremely deep grave 11/35 containing an individual with the abnormal combination of aspect and orientation of the body differs from others. The combination of the unusual grave pit and body treatment suggests special status of this individual.

Cremations in the Šlapanice II cemetery provide another dimension of differentiation that deserves attention despite the inability to directly estimate sex and thus approach directly

any difference among females and among males. Cremations as a whole differ from inhumations in the variability of grave inclusions in the Šlapanice II cemetery. Despite the association of cremations with modest treatment, the inference about the different social standing of cremated individuals is problematic. Artifacts such as small bone buttons and fragile copper ornaments might have been affected considerably by incineration. Also, when cremations from the general Late Copper Age sample are taken into account, the hypothesis about differential status is challenged. In the Holásky II cemetery, 94% of burials were cremations (Dvořák 1991:47). It is unlikely that the majority of individuals in that large cemetery would be the individuals with the low social status. As other authors have pointed out, the frequency of cremations increases in the southeastern direction (Dvořák 1991; Ondráček 1967:390; Turek 2006:289). Therefore, it is likely that cremations reflect either the spread of ideas or the movement of people from the southeast.

The Ostopovice Cemetery is too small to evaluate the range of variability among females and among males. However, even in this small sample one adult female markedly differed not only from other females but also from other adults in general. This female (19/70) was buried in the grave with a wooden construction or coffin that contained bell beakers, bone buttons, amber beads, a boar tusk and a fragment of the copper awl. Both the variability of artifacts and their quantity in this burial were considerably different from other burials.

The Rebešovice cemetery provides evidence of marked differences among females and among males. Since sex of many individuals was indeterminate, I took advantage of the presence of hair rings in burials to overcome the problem of sex estimation. Two burials of adult individuals with bronze hair rings (298 and 285) showed unusual characteristics. Burial 298 contained eight hair rings, ceramic vessels, bronze pins, and a boar tusk. Burial 285 contained bronze pins and the body was placed inside a stone construction made of 42 large stones in the non-normative position (on its left side and oriented toward the SEE). The differences among males were much less emphasized. Their burials were generally more modest than burials of females. However, double burial 11 included skeletons of two adult individuals – one estimated as male – associated with a stone construction, multiple bronze artifacts including two daggers, and several ceramic vessels.

The Slavkov u Brna cemetery yields evidence of a few individuals who were markedly different from others. Triple burial 41 yielded the remains of an adult female, an adult male, and an infant. Although the burials with multiple individuals were difficult to analyze because of the ambiguous association between artifacts and individuals, this triple burial included two coffins that facilitated the association of artifacts with individuals. The female was buried with 28 artifacts that included ceramic vessels, bronze pins, hair rings, massive spiral bracelets, a quern stone, and two animal scapulae. The male next to her was buried with a bronze dagger.

This overview of the four selected cemeteries suggests that marked differences within the group of females and males were present both in the Late Copper Age and the Early Bronze Age. The results of the comparison of the general Late Copper Age and the Early Bronze Age samples yield the same pattern. There is no evidence that lavish burials became more exceptional in the Early Bronze Age. The frequency distribution of female and male burials according to the number of associated artifacts shows that the burials with the average values became more common over time. Therefore, instead of the expected pattern of the increasing gap between the “really poor” and “really rich” burials, the opposite is true. Although it would be an oversimplification to assume the direct correlation between the number of artifacts and social status, the results show the tendency towards the development of mortuary rites that constrained extremes in favor of the average, at least seen through the prism of the quantities of deposited artifacts.

The comparison of the general samples for the Late Copper Age and the Early Bronze Age shows that exceptional burials appeared in both periods. Lavish Bell Beaker burials from Prosiměřice (Perníčka 1961) and Tvořihráz (Bálek et al. 1999) are no less extraordinary than the rich burials from Únětice cemeteries. The main difference is the way in which these burials stand out. While lavish Bell Beaker burials are exceptional because of the wooden burial chambers, mounds, circular ditches, and chipped stone and amber artifacts, lavish Únětice burials place emphasis on massive metal artifacts and substantial stone constructions. Some of these constructions were truly exceptional and required a large labor investment. For example, burial 29 from Mušov contained 20 tons of stones (Stuchlík 1987:33). Therefore, it was the manner of indicating the exceptional individuals rather than the existence of exceptional individuals that changed over time. Copper and metal artifacts became

ubiquitous and their pervasiveness and quantity in burials significantly increased during the transition to the Early Bronze Age. Also, stone constructions began to be built in the Early Bronze Age, possibly as a response to increasing re-opening of burials. Hence, the investigation of marked differences among females and among males over time becomes a comparison between different forms of exceptional burials: mounds, wooden constructions, and rare amber and copper artifacts versus stone constructions and large quantities of copper/bronze artifacts.

The Second Expectation: Articulation of Skeletons

This expectation stems from the ethnographically observed pattern of secondary mortuary treatment. The secondary post-mortem manipulation of the human body may be a standard part of mortuary treatment or it tends to be associated with the higher social status in communities where secondary treatment is not standard for all members of the community. It was predicted that during the transition from the Late Copper to the Early Bronze Age, the institutionalization of vertical social differences might have been associated with the increasing difference in the secondary mortuary treatment of individuals.

This expectation could not be tested reliably. First, the data resolution was found to be insufficient for the Bell Beaker cemeteries that were studied. Second, the degree of burial disturbances in Únětice cemeteries was so high that it significantly influenced the data about the manipulation of skeletons prior to these disturbances. Despite the lack of reliable results, there are some suggestions for increasing manipulation of the human body in the Early Bronze Age. In the Bell Beaker period, there is no unequivocal evidence for the display of the body or its parts before the final burial. In contrast, there are some examples of the placement of already disarticulated parts of the human body into piles in Únětice cemeteries. Burial 42 from the Rebešovice cemetery contained a pile of disarticulated bones of an adult individual that were placed in the grave pit (cf. Král 1954:148). Burial 19 from Jiřikovice yielded evidence of at least six individuals whose bones were piled in a rectangular accumulation in the grave pit (Skutil 1941:160-161). These examples suggest that bodies of some Únětice individuals were disarticulated prior to final disposal in the grave pit. Moreover, the weak correlation between the stature and coffin length in the Early Bronze Age Rebešovice cemetery showed that some individuals were literally bundled into the small wooden coffins. One of the possible explanations of this phenomenon is that joints might

have been already weakened and deformed in order to get the body into the coffin. This explanation, however, requires further investigation of skeletal taphonomy in the future. Bodies of individuals in some populations are more flexible than archaeologists and biological anthropologists usually assume. Positioning of the body in a small container does not necessarily require that the body was decayed prior to its placement to the container (Lynne Schepartz, personal communication, 2007).

The Third Expectation: Spatial Clustering

This expectation stems from the idea that societies with more institutionalized vertical social differences tend to spatially segregate individuals with different social status. Therefore, cemeteries in such societies yield evidence of clusters of burials with restricted artifacts, forms of body treatment, or grave characteristics.

The analyses of spatial patterns in the four selected cemeteries yield little evidence for the increase in clustering of specific burials over time. In the Šlapanice II cemetery, the results of spatial analyses confirmed Dvořák's (1990:109) claim that various characteristics of burials did not create clustered spatial patterns in the cemetery. In particular, restricted artifacts such as amber beads, buttons, and copper artifacts are distributed across the entire cemetery. Similar patterns were obtained when the distribution of burials according to the variability of associated artifacts and grave depth was explored. In the Ostopovice cemetery, two burials with the largest number of artifacts were located next to each other in the southeastern corner of the cemetery. However, the number of individuals in the entire cemetery is small and the variability of mortuary treatment is limited because of the high proportion of subadult burials. Therefore, two rich burials close to each other do not represent conclusive evidence of clustering.

The Early Bronze Age Rebešovice cemetery yields a few spatial patterns. Graves with stone constructions seem to cluster near the center of the cemetery. However, the evaluation of this pattern requires a critical approach. Only four of seven graves create this cluster. Modeling of the random distribution of points produced similar clusters of three or four points in more than 5% of simulations. Therefore, this apparent clustering of four of seven graves with stone construction cannot be considered as a significant pattern. Similar patterns can be produced by chance. Another spatial pattern, which included several variables, contrasted the center of the cemetery with the periphery. Although the Rebešovice

cemetery was not entirely excavated and a few burials may remain in the southeastern part, the other edges of this cemetery represent its extent. Therefore, the burials located on the edge – with exception of the southeastern part – do represent the periphery. Burials on the periphery tend to include low numbers of artifacts and lack coffins. Some of them do not contain ceramic vessels at all. In addition, a similar core vs. periphery pattern was identified when the coordinates for the first dimension of correspondence analysis were plotted in space.. These lines of evidence suggest that generally “poor” burials were located on the periphery of the cemetery. This phenomenon has two possible explanations. The first explanation is that this spatial pattern reflects differences in the social status. The second explanation is that the core/periphery difference reflects a temporal change in Únětice mortuary practices. As Stuchlík (1987:72-74) has noted, the very end – sometimes called the Post-classic Phase – of the Únětice period is characterized by decreasing numbers of artifacts in burials and the appearance of settlement ceramics in burials. A closer look at the stylistics of Rebešovice ceramics shows that three mugs with an unusual shape appear only on the periphery of the cemetery. These mugs are consistent with the shapes of the latest Únětice ceramic vessels. Given the fact that both late ceramic vessels and burials without ceramic vessels appear exclusively on the periphery of the cemetery, the temporal explanation appears to be better supported by the data.

The Slavkov cemetery also produced spatial patterns. Infant burials with amber beads were located in close proximity along the northwest-southeast axis that goes through the center of the cemetery. However, this pattern has to be interpreted with caution. The group of three burials is too small to support a definitive interpretation. The distribution of burials according to the number of associated artifacts produced a slightly more convincing pattern. Four burials with highest quantity of artifacts cluster in the northern part of the cemetery. Since the Slavkov u Brna cemetery does not include the latest Únětice ceramics, this pattern is unlikely to be significantly influenced by temporal change.

In conclusion, spatial patterns of burials with restricted artifacts, grave features, or body treatments did not emerge over time. The Šlapanice II, Ostopovice, and Rebešovice cemeteries do not show conclusive evidence of spatial clustering of specific burials. Only the Slavkov u Brna cemetery shows the small cluster of burials with a large number of artifacts in the northern part of the cemetery. Moreover, the argument against the clusters, which have

been mentioned, is straightforward: each cemetery yields patterns for different characteristics. Stone constructions seem to cluster in the Rebešovice cemetery, and amber beads and artifact quantity in the Slavkov u Brna cemetery. The Únětice cemetery Těšetice-Vinohrady is supposed to exhibit clustering of bronze daggers in the western part of the cemetery (Podborský 1987:102), although this pattern is not convincing either. One burial with a dagger is located in the eastern part and one is located in the middle (Podborský 1987:101, fig. 42). In contrast, daggers appear only in the eastern part of the Rebešovice cemetery. The idea behind the analysis of clustering emphasizes the re-appearance of similar patterns in multiple cemeteries across the region (O'Shea 1996:260). There is no evidence of such a consistency in South Moravia that could be used to argue for a marked increase in the institutionalization of vertical social differences.

The Fourth Expectation: Burials of Children

This expectation is based on the strategy of aggrandizers who invest in child growth payments to profit from the future marital transactions of their children. It is assumed that the premature death of children, who are subject to these payments, would mobilize wealth that would be deposited into the grave during the funeral.

Archaeological evidence from the Šlapanice and Ostopovice cemeteries yielded sharp distinctions between subadult and adult individuals. Burials of subadults contained only ceramic vessels or no artifacts at all. Moreover, their graves were significantly shallower and did not show any sign of special investment of time and energy. There is no reason to assume that the treatment of some subadults was markedly different from their peers.

The Únětice cemeteries yield evidence of less strict separation between the treatment of subadults and adults. Metal, amber, and bone artifacts appear in both subadult and adult burials. In the Slavkov u Brna cemetery, dimensions of subadult graves do not significantly differ from the dimensions of adult graves. However, there are still some artifacts that never appeared in subadult burials. In particular, the youngest children in the infant I category were buried with only a limited number and variety of artifacts.

Exceptional burials of subadults appear in the Slavkov cemetery. There are infant burials that contain rare artifacts such as amber beads, bronze bracelets, tubes, and a ring ingot. Moreover, infants appeared in rich double and triple burials. Únětice mortuary

practices are distinct in this respect from Bell Beaker practices. Burials of adults with infants appeared rarely during the Late Copper Age. In contrast, burials of adults with infants were common in the Early Bronze Age. This phenomenon suggests that the trans-generational social ties became emphasized over time.

The comparison of the general samples for the Late Copper Age and the Early Bronze Age slightly weakens the contrast that was found during the analysis of four selected cemeteries. There is evidence of exceptional burials of infants both in the Copper Age and the Early Bronze Age. Some Late Copper Age burials are truly exceptional. For example, burial 6 from Lechovice contains an infant associated with copper rings, gold rings, a dagger, and an amber bead (Medunová and Ondráček 1969). Burial 3/50 from Bedřichovice (Čižmár and Dvořák 1985) and burial 13 from Moravská Nová Ves – Hrušky (Stuchlík 1996) contain copper hair rings. The comparison of the general samples show that there is no significant increase in the proportion of infant burials with rare artifacts such as amber and gold over time. Nevertheless, there is an increase in the proportion of burials with bronze artifacts. The interpretation of this pattern is challenging. Does the mere fact that 86% of infant burials in Early Bronze Age cemeteries contained a bronze artifact signal the institutionalization of vertical social differences? Not necessarily. As I have demonstrated earlier, the general pervasiveness of bronze artifacts significantly increased in Early Bronze Age cemeteries. Bronze rings and pins became almost the standard of mortuary treatment. Therefore, the higher proportion of Early Bronze Age infants associated with metal artifacts has to be understood in the context of changes of mortuary practices that placed general emphasis on bronze artifacts in the Early Bronze Age (cf. Primas 1997). However, a closer look at the types of bronze artifacts shows that half of Early Bronze Age infants were buried with bronze artifacts such as bronze ring ingots, bracelets, and daggers. There is a good reason to believe that these artifacts, which exhibit a low degree of pervasiveness in Early Bronze Age cemeteries, were restricted and valuable. The high pervasiveness (50%) of these restricted artifacts among infant burials may look too high. It is not too high if one takes into account the demographic data from the Early Bronze Age cemeteries. As I have suggested earlier, infants were underrepresented in cemeteries. Given the fact that infants frequently appear in settlement pits, the high pervasiveness of restricted bronze artifacts in cemeteries becomes

more meaningful. It appears that infants who were buried in Early Bronze Age cemeteries generally represent social units that were able to mobilize wealth for burial.

In conclusion, children were becoming more important vehicles of social differentiation over time. Although exceptional burials of children appeared both in the Late Copper Age and the Early Bronze Age, there are differences. The most striking difference between the two periods is the pervasiveness of metal artifacts in infant burials. Although this pattern has to be seen in light of the general increase in the deposition of metal artifacts over time, the consistent appearance of infant burials with restricted bronze artifacts in different cemeteries across the region suggests that special treatment of some infants became standard.

The Fifth Expectation: Personal Identity of Leaders

This expectation stems from the idea that more institutionalized forms of vertical social differences lead to “faceless” leaders whose personal traits were less emphasized. This expectation can be traced archaeologically through the variability of personal items in exceptional burials.

There is little evidence that would suggest the emergence of “faceless” leaders. Parts of garments such as bone and amber buttons and beads were relatively standardized in terms of their morphology and techniques of their production already in the Late Copper Age. Ornaments such as boar tusks were made by a similar technique of splitting the tusk along the long axis and their decoration was limited. Parts of garments in the Early Bronze Age did not show a marked trend towards uniformity. Bronze daggers were decorated and the variability of bronze pins was prolific (Podborský et al. 1993:256; cf. Podborský 1987:131). The majority of elaborate parts of garments were found primarily in female burials, which left only a little portion of elaborate material culture for males. Nevertheless, the overall evidence leads me to reject the hypothesis that Late Copper Age ornaments would be more differentiated as a reflection of more personified identity.

Burials in Settlement Features

The First Expectation: Bodies in Settlement Pits

This expectation is based on the idea that if individuals who are buried in settlement pits represent individuals with different social status, they would include females, males, and

individuals of different ages. In other words, horizontal social differences would not be the primary factor for disposing of individuals in settlement pits. Moreover, I assume that different social status of individuals in settlement pits might have resulted in different forms of body treatment and health conditions.

Burials in Únětice settlement pits contain all age categories and females as well as males. Nonetheless, the proportion of subadult burials in settlement pits is significantly higher than the proportion of subadult burials in cemeteries. Moreover, subadults in settlement pits are primarily infants. This phenomenon may explain low frequencies of infants in cemeteries. It appears that only some infants could have been buried in formal cemeteries. The majority of settlement pits contain skeletal remains of one individual. The proportion of pits with multiple individuals is not significantly different from the proportion of burials with multiple individuals in cemeteries.

Disposal of individuals in settlement pits was not a uniform process. First, there were articulated skeletons whose body treatment did not differ from the treatment of the individuals from cemeteries. Articulated bodies in settlement pits were buried primarily on their right side. However, extended positions appear in 13% of cases, which contrasts with the burials in cemeteries where extended bodies appear rarely. Second, there are examples of pits with isolated parts of the body. The most extreme example is represented by pit 5 from Cezavy by Blučina that contained ca. 700 fragments of human bones from eleven subadults and one adult (Jelínek 1988b:44; 1990:301). The bone fragments yielded evidence of burning, cut marks, spiral fractures, and pounding. The early interpretation suggested that these remains might have been the result of ritual cannibalism (Jelínek 1988a:14). Jelínek's (1990) later publication is more careful and avoids direct interpretation. Although the interpretation of cannibalism is speculative, the remains in pit 5 are different from other burials in Early Bronze Age settlement pits. In conclusion, the majority of individuals in settlement pits were articulated but their body position showed a higher frequency of deviation from the standard crouched, right-side pattern. The minority of individuals is represented by isolated human bones that suggest post-mortem manipulation of the body.

The Second Expectation: Artifacts in Settlement Pits

This point is based on the expectation that the differential status of individuals in settlement pits would result in a reduction of artifact categories associated with the dead.

Therefore, some types of artifacts that appear in cemeteries would not appear in burials in settlement pits.

The vast majority of artifact types known from cemeteries appeared also in settlement pits. In addition to ceramic vessels and animal bones, bronze artifacts such as a pin, a hair ring, a dagger, and a bracelet appeared in settlement pits. Moreover, burials in settlement pits contained artifacts made of amber, faience, shell, and stone. However, there were bronze artifacts such as ring ingots and chisels that never appeared in burials in settlement pits. Moreover, the critical difference between burials in cemeteries and settlement pits is the pervasiveness of artifacts. As I have demonstrated, bronze artifacts were significantly less common in burials in settlement pits than in burials in cemeteries. In other words, while bronze artifacts represented almost the standard of mortuary treatment in cemeteries, they were rare in burials in settlement pits. Moreover, the absence of bronze ring ingots in settlement pits is important. Given the fact that bronze ring ingots represented the most common artifact in hoards, which were undoubtedly valuable deposits, their absence among all 115 individuals buried in settlement pits is striking.

Available bioarchaeological data suggest that some individuals who were buried in settlement pits exhibited signs of nutritional stress or infectious disease. At least seven individuals from settlement pits yield evidence of *cribra orbitalia*. It is difficult to test the significance of this pattern against the data from cemeteries because only ca. 40% of individuals from settlement pits were analyzed in detail by bioarchaeologists. However, if one considers only three cases of *cribra orbitalia* among all 143 individuals from the Rebešovice and Slavkov u Brna cemeteries and compares it with seven cases from 48 individuals from settlement pits this pattern is highly significant. Nonetheless, future bioarchaeological research will be necessary to confirm this suspicion.

I will argue against Salaš's categorical claim that :

The reason or reasons for disposing of persons in settlement pits are still unclear. However, this is in no way a sign of social stratification. (Salaš 1990:290, translation mine)

Although Salaš uses the term “social stratification,” the main idea in his discussion is the denial of the effect of vertical social differences *sensu lato* on the disposal of the dead in settlement pits. His main conviction seems to stem from the fact that burials in settlement pits

also include grave goods such as bronze artifacts. However, as I have demonstrated, these artifacts are so rare that their sporadic appearance in settlement pits significantly contrasts with the appearance of similar artifacts in cemeteries. Also, if one takes into account that bronze artifacts in cemeteries were significantly influenced by post-depositional disturbances, the contrast between burials in settlement pits and cemeteries is even stronger.

Salaš's (1990:290) suggestion that individuals from settlement pits might have been subject to ritual sacrifice has little support from the data. There is a lack of ritual sacrifice marks on the body. Even if one accepts the sacrificial argument, the main questions, who the sacrificed individuals were and what made them appropriate for sacrifice, remain unanswered. More rational motives for burying individuals in settlement pits might have been associated with the fact that digging a grave with wooden, bone, or antler tools might have been a demanding task in the Early Bronze Age. Salaš (1990:291) made an excellent observation that bodies had been placed often at the bottom or near the bottom of settlement pits. He inferred that the bodies had been placed in the pits in a specific part of the year when the supposedly storage pits had been almost or entirely empty; most likely at spring. This suggests that the timing might have played an important role. Individuals who died during the season when storage pits were almost empty and the community was leaving or simply needed a new storage pit, might have been placed in the pits simply because some underground features were already available. Such pits would make digging of graves from time to time unnecessary. Moreover, the relatively frequent appearance of *cribra orbitalia* supports the idea that these individuals were dying in the spring after the period of stress during winter. Therefore, the timing of death might have played an important role for disposal of the dead in settlement pits.

The temporal aspect of dying does not explain the low pervasiveness of metal artifacts in settlement pit burials. I therefore argue that social standing of the dead played a role as well. Individuals who died at times when pits could be used for burial were also individuals for whom the pit burial was "good enough." It appears that individuals with high status underwent a formal burial in cemeteries regardless of the timing of their death. Evidence of massive stone constructions and big grave pits suggest that large amounts of labor were expended when some individuals died. Therefore, the most parsimonious explanation for articulated burials in settlement pits appears to be a combination of temporal

and social factors. Burials in settlement pits may represent the opportunistic disposal of individuals whose status was not high and who died in a specific part of the year.

Non-mortuary Evidence

In Chapter 4, I specified a few expectations for archeological signatures of institutionalized vertical social differences in settlements and other non-mortuary archaeological sites. Fortification of settlements is the first one. Although there is evidence of hilltop settlements in the Late Únětice phase (Stuchlík 1985), unequivocal signs of fortification did not appear until the Věteřov period. Some Únětice hilltop settlements are interpreted as ritual centers (see Salaš 1990), but the pragmatic explanation for the emergence of settlements on the hills is more plausible. When groups of travelers moved in the landscape carrying substantial resources, as documented by hoards, it would have made perfect sense to move to higher elevations to get better control over the landscape. The distribution of Únětice hilltop settlements shows regular spacing and location on the edges of shallow valleys, supporting the idea that visibility and control over landscape was the central concern. Nevertheless, Únětice hilltop settlements do not provide evidence for centralization of power embodied by special house constructions or fortifications.

The First Expectation: Craft Specialization

The evidence of craft specialization is difficult to interpret. Forms of ceramic, stone and bone artifacts do not suggest a significant increase in standardization in comparison to the Late Copper Age. In contrast, metal artifacts such as ring ingots and hair rings show evidence of standardization. As Bouzek (2005) pointed out, ring ingots served probably as a weight unit during exchange. Although general reviews of Bronze Age describe Únětice communities as intensive producers of copper and bronze artifacts (Kristiansen and Larsson 2005:119), actual data for specialized metallurgical centers in South Moravia is missing. Evidence of features and artifacts such as furnaces and clay nozzles that might have been associated with metallurgy is scant (see Stuchlík 1974). Harding's (2000:220) suggestion that smelting usually took place in the vicinity of mining sites, and that bronze-working was more regionally dispersed appears to fit the South Moravian archaeological record.

Spectral analyses of metal artifacts pointed to three main source areas for South Moravian Únětice copper artifacts: West Slovakia, West Bohemia, and Austria. West

Slovakia played the main role during the Late Copper Age and the Early Bronze Age. Slovakian provenience of copper artifacts has been identified in Proto-Únětice (Ondráček 1967:422) as well Late Únětice cemeteries (Págo 1962; 1987:99). Increasing use of tin during the Late Únětice phase suggests that West Bohemian sources of tin might have been exploited (Podborský 1987:136-138). But the recent lead isotope analyses of bronze artifacts cast doubt on that hypothesis (Niederschlag et al. 2003). Sources of copper from the Austrian Alps were of limited use during the entire Únětice period (Podborský 1987:138). It is unclear whether raw material was imported and then processed in Únětice settlements or whether by-products or final products were imported. Because of the lack of evidence for smelting and the presence of specific stylistic attributes for pins, bracelets, and daggers, it appears that smelting took place near the mining centers. Local metallurgy in South Moravia probably focused on the final stages of artifact production. Nonetheless, there is no evidence for marked centralization and control over metallurgical production. The model of metal production is reminiscent of Levy's (1995) model of horizontal production in Early Bronze Age Denmark. Levy (1995:46) argues that metal was locally produced in individual settlements without centralized control and specialized centers of production. This model is the most plausible model of metallurgical production in South Moravia.

The Second Expectation: Hoards

Únětice hoard depositions suggest that some individuals or groups were able to amass large quantities of copper and bronze artifacts. There is little doubt that these objects were valuable. The explanations of the hoard phenomenon range from ritual votive gift giving to invoke supernatural powers (cf. Harding 2000:361-365), and results of increased competition among aggrandizers reminiscent of the destructive forms of North American potlatch (cf. Mauss 1999[1923]), to more economic explanations that view the deposition of valuable artifacts as a mechanism for securing value in times of crisis (Halstead and O'Shea 1989). Because the discussion of the pros and cons of these different explanations would go beyond the main focus of this study, I will focus on the context and consequences of hoarding. The largest hoard from Hodonín contained 600 ring ingots with a combined weight of 120 kg (Podborský et al. 1993:253). Regardless of the reason for the burying of such a large quantity of ingots, a person or group was able to collect ingots and channel them to a specific place in a specific point in time. This by itself shows considerable influence on the circulation of

metal artifacts. People who were able to manage this task potentially could manage other tasks as well.

The Third Expectation: Population Dynamics

Population estimates show an increase in population size over time. The quantity of settlement pits increased significantly over time and larger settlements emerged in the Early Bronze Age. A superficial comparison with the demographic data from cemeteries reveals a contradiction. There were 427 burials from the Bell Beaker, Nitra and Proto-Únětice cemeteries versus only 297 burials from Únětice cemeteries. This disproportion is due to three factors. First, a significant portion of the Únětice population was buried in settlements. If one adds all the individuals from settlement pits (115) to the Únětice sample from cemeteries, the size of the entire Únětice sample approaches the Late Copper Age sample. Second, Únětice burials commonly contain multiple individuals. Since Late Copper Age burials rarely contain more than one individual, the actual number of individuals buried in the Early Bronze Age would be higher. Third, there are a few large Únětice cemeteries (see Červinka 1926; Procházka et al. 1927) that were not included in this study because their documentation was insufficient. Therefore, the mortuary evidence does not contrast with the estimations of population increase based on the number of settlement features.

The institutionalization of vertical social differences tends to rise in the context of population increase (see Carneiro 1981; Wiessner 2002). However, it is not possible to make a direct causal link. A population increase does not always result in a more hierarchical organization. Examples of highly dense but “corporate” communities in the American Southwest demonstrate that large and dense populations did not necessarily develop towards hierarchically organized structures with a few dominant individuals at the top (Feinman 2000; Feinman et al. 2000). Moreover, population density during the Early Bronze Age was lower than in the majority of ethnographically documented great men and big men societies. For example, Johnson and Earle (2000:219) present a population density of 30-80 individuals per km² for the Enga in New Guinea. Such a dense population is in contrast to the South Moravian population in the Early Bronze Age. The archaeological record yielded ca. 140 Únětice pits for each 100 years of Únětice period. If I make the most extreme estimate and assume that all 140 pits existed in one point of time, each of them represented 10 individuals,

and the known sample represents only 10% of Únětice pits that existed in the past, there would be only 14,000 individuals in South Moravia. This would give population density of two individuals per km². Although the population number in South Moravia increased and so did the population density, the values are near the lower limit of the values common in great men and big men societies (cf. Johnson and Earle 2000:219; cf. Kelly 1974:18; Ohtsuka 1983:18; Rappaport 1968:33).

Great Man versus Big Man Strategy

Since the institutionalization of vertical social differences over time was limited, there are only glimmers of insight regarding leadership strategies during the Copper to Bronze Age transition. However, I argue that within the range of the two extremes defined by great man and big man strategies, Early Bronze Age society in South Moravia tended more towards a big man strategy.

Mortuary Evidence

Quantity of Valuable Goods

This expectation is based on the idea that big men gain their power through the control of production and exchange of valuable artifacts. It is primarily the manipulation of material objects that allows them to convert objects into social capital. Therefore, increasing quantity of valuable artifacts in burials over time would suggest greater potential for aggrandizers to take advantage of the resources.

The quantity of valuable artifacts increased significantly over time. The general comparison between Late Copper Age and Early Bronze Age mortuary samples indicates the significant increase in the number of copper/bronze artifacts in burials over time. This mortuary pattern is reinforced by large amounts of metal artifacts which were deposited in hoards. Similar results were reached by Primas (1997:117) who compared the weight of metal artifacts in the Bell Beaker and Early Bronze Age period in several regions in Central Europe. Both lines of evidence suggest that the production and distribution of copper and bronze was efficient. Metal artifacts became broadly available and large quantities of metal artifacts appeared in single locations at specific points in time. Such a system offered

opportunities for ambitious individuals to manage the flow of metal artifacts. To what degree the ambitious individuals used this opportunity is questionable. As I have argued above, there were only minor changes in vertical social differences during the transition to the Early Bronze Age. Therefore, it appears that management of the economy of metal had a limited impact on social differentiation (cf. Primas 1997).

Quantities of other valuable objects made of gold, silver, faience, and amber do not show significant increase over time, nor did the frequency of exotic-shaped ceramic vessels increase over time. In short, artifacts other than those made of copper and bronze do not support the argument about the intensification of exchange, which is emphasized in the most recent synthesis of the Bronze Age (Kristiansen and Larsson 2005). Gerloff's (1993) argument that ring ingots and Cypriot pins were exported from Central Europe to the Mediterranean and the Near East based on the fact that these artifacts appeared in Central Europe earlier is convincing. However, this model poses two problems for South Moravia. First, there is no evidence of production centers that would be able to produce large quantities of ring ingots and pins for export. Second, even if Únětice communities in South Moravia produced metal artifacts for export, what kind of commodity was going in the opposite direction from the southeast? There are exotic gold artifacts in South Moravia, probably from the Balkans, but their frequency is so low that any claim about intensive long-distance exchange is an overestimation. One of the most striking characteristics of the South Moravian Early Bronze Age archaeological record is that evidence of exotic goods from areas beyond 500 km is so rare. The Late Copper Age was similar in this respect. The main difference was the intensity of interaction with close neighbors in Central Europe during the Early Bronze Age. As discussed above, copper was imported primarily from present day Slovakia. The source of tin is more problematic. Although tin deposits in *Erzgebirge* (West Bohemia) are commonly assumed to be exploited during the Bronze Age, there is no evidence for this assumption (Niederschlag et al. 2003).

Given the significant increase of copper and bronze artifacts in the Early Bronze Age, medium-distance interactions with the Nitra group in Slovakia and Únětice communities in Bohemia and Austria were probably essential for Únětice communities in South Moravia. Moreover, Únětice material culture spread to Slovakia at the end of the Early Bronze Age.

Therefore, the opportunities for aggrandizers lay in the medium-distance interactions with close neighbors rather than in interactions with distant regions in the southeast.

Alternative Great Man Strategy

Evidence for the great man strategy is even weaker. There is no evidence of places in the landscape that would be devoted solely to ritual activities that might have been associated with rites of passage. Although hoards may have carried symbolic meaning, the idea that they were primarily associated with rites of passage is highly speculative. In addition, there are no special enclosures or wooden structures that would suggest this possibility. Evidence that suggests ritual activities comes from the pit in Cezavy by Blučina. This pit contained fragments of 12 humans and was interpreted as a result of a sacrificial ritual (Salaš 1990:292). Although it is possible that this ritual was organized by a “great shaman,” this pit is anomalous. There is no evidence that similar activities were practiced on the regular basis across the region or even constituted the core of social hierarchy as in the case of great men societies (cf. Godelier 1986).

The emphasis on infant burials in the Early Bronze Age challenges the model of strict distinction between the great man and big man strategies. As I have argued above, trans-generational social ties became emphasized over time. Children became the standard medium for the perpetuation of social standing. On one hand, increasing amounts of metal that could be channeled to specific places in a specific point in time and lack of evidence for spiritual leaders in Early Bronze Age South Moravia suggest aspects of the big men pathway. On the other hand, signs of transmission of social status to the next generation are reminiscent of the great man pathway. Therefore, the strategies of aggrandizers in South Moravia fell in between the two extremes specified by the great man and big man pathways. This is not entirely surprising because even ethnographic accounts demonstrate that the distinction between the two idealized pathways is not always clear-cut (Mosko 1991). Although hereditary transmission of social status tends to be more common in the great men societies, the persistence of the entrepreneurial big men strategies throughout several generations leads towards the preparation of good starting positions for their children as well (see Wiessner 2002:249). I argue that the big man pathway finally led towards the emphasis on the hereditary transmission of social status.

Non-mortuary evidence

There is no direct evidence that large competitive feasts were part of life in the Early Bronze Age. There are no large houses or cooking structures that could be used for feasting, and no exceptional serving vessels appear in trash deposits. Fragments of ceramic vessels in Únětice settlement pits demonstrates that the most common types of vessels were bowls, mugs, cups, and jars which were primarily undecorated (Stuchlík 1969). There are suggestions, though, that some settlement pits were filled with diverse material in a short period of time. The top of the fill in Pit 5 from Cezavy by Blučina extends the edges of pit's mouth. This observation, as well as the large quantity of ceramic vessels, stone artifacts, and animal and human bones led Salaš (1990:275) to argue that this pit was filled in a short period of time, probably as a result of ritual activities. However, this settlement feature is unusual. Therefore, it does not seem that Únětice communities practiced feasting that would be reminiscent of ethnographic examples from other tribal and chiefly societies that were on their way to institutionalized inequality (see Dietler and Hayden 2001).

Gender Relations

Mortuary Evidence

The First Expectation: Access to Artifacts and Forms of Body Treatment

This expectation stems from the idea that gender inequality results in unequal access to certain forms of body treatment, grave features, and artifacts for females and males. A decrease in gender inequality over time would result in more equal access to forms of body treatment, grave features, and artifacts.

The normative distinction between females and males was maintained during the Late Copper Age. The aspect and position of the body served as a vehicle of gender differentiation. This distinction diminished at the very end of the Late Copper Age when the Proto-Únětice archaeological culture appeared in South Moravia. Although the analysis of the Šlapanice cemetery showed that females were buried in significantly shallower grave pits, this pattern was not confirmed when the entire Late Copper Age sample was analyzed. Therefore, energy investment in graves of females and males was similar. Masculine and

feminine identity was reinforced through gender-specific artifacts. The analyses showed that females tended to be associated with ceramic jugs and jars, amber beads, and bone buttons (cf. Dvořák 1990). Males tended to be associated with stone darts, wrist guards, copper daggers, and boar tusks (cf. Dvořák 1990). However, even during the Late Copper Age gender distinctions were not strictly binary. There are a few examples of ambiguous individuals that did not fit the binary pattern as Turek (2002) has already pointed out. Two individuals from the Šlapanice cemetery exhibit an unusual combination of body aspect and orientation, which results in their facing the west. One female in the Ostopovice cemetery is associated with a boar tusk, another female from the Šlapanice II cemetery with a wrist guard, and yet another female from the exceptional burial complex in Prosiměřice with a copper dagger.

Examples of ambiguously gendered individuals demonstrate the very essence of gender, which is not a direct reflection of human phenotype. As Arnold (2002:249) points out, there are multiple possibilities to explain the departures from the binary model female/male: alternative gender identities, “gender outlaws,” as well as persons with alternative sexual characteristics or orientation such as true- and pseudo-hermaphrodites, asexuals, bisexuals, and homosexuals. Ethnographic studies suggest that similar phenomena can be found in every human society. Therefore, it is not surprising that similar cases appeared, even in the Late Copper Age, a time which generally showed strict binary distinction between females and males. Furthermore, Arnold (1996:161) noted another important fact. Gender differences have to take into account also vertical social differences that shape gender identity within the group of females and males. High status females may differ considerably from other females. A closer look at the Bell Beaker females buried with artifacts that are primarily associated with males shows that the females from Prosiměřice and Ostopovice represent rich burials of individuals who most likely had prestigious positions. Therefore, it appears that high status females reached the point when feminine/masculine distinction became less strict.

The normative distinction between females and males was less strict in the Early Bronze Age. As I have demonstrated, the majority of dimensions of gender differentiation diminished at the beginning of the Early Bronze Age. The primary change had begun at the end of the Late Copper Age when Proto-Únětice communities buried most of their dead

predominantly in the normative position on the right side. However, this transition was not radical because some Proto-Únětice communities kept the binary gender-specific positioning of the bodies, most likely under the influence of the Chłopice-Veselé group (Stuchlík 1996:131). Únětice communities practiced rigid normative treatment of the body that entailed a crouched on the right side. The few exceptions from this pattern come primarily from the eastern part of South Moravia. As in the Proto-Únětice period, these anomalies can be understood as an influence from the east where the Nitra group practiced gender-specific positioning of the body (see Bátora 1991:119).

The material culture distinction between females and males is less pronounced in the Early Bronze Age than in the Late Copper Age. Mortuary analyses of two selected Únětice cemeteries identified a series of artifacts that might have been gender-specific. When I explored the same associations in the general Early Bronze Age sample, only a limited number of artifacts displayed the pattern. Bronze hair rings and ring ingots were associated exclusively with females. Bronze daggers were associated exclusively with males. Nevertheless, daggers and ingots are both rare artifacts in burials. The most striking finding is that the only gender-specific artifact with a relatively high pervasiveness is a bronze hair ring. In contrast to the Late Copper Age, types of ceramic vessels, and bone and stone artifacts do not seem to be crucial spheres for signaling gender identity. It is remarkable how little attention was paid to the marking of male identity in the Early Bronze Age. Since daggers were found only in a small portion of male burials, the remaining males did not have any clear marker of their masculine identity. One possible explanation is that markers of male identity were perishable and simply did not survive in the archaeological record. A similar phenomenon of limited gender markers was observed among North American Plains tribes and was interpreted as a result of post-depositional processes (O'Shea 1981). Therefore, it is possible that the identity of Únětice males was similarly signaled through perishable media that did not survive in the archaeological record. However, it is striking that other non-perishable artifacts were not used for this purpose.

Overall mortuary evidence from the Early Bronze Age does not indicate the subordination of females. Females were consistently buried with a significantly higher number of bronze artifacts, were placed in elaborate graves with stone constructions, and associated with bronze ring ingots that constituted the core of Únětice hoards. In contrast, the

elaboration of male burials was considerably lower. There is a possibility that female funerary wealth served as a vehicle for their husband's status (S.E. Shennan 1975:285; S.J. Shennan 2002:204). However, if that were the case, one could assume that males would have signaled their superiority through restricted artifacts or forms of mortuary treatment. Daggers are weak evidence for such gender inequality. Moreover, there are cases of disturbed Únětice burials that contained females associated with bronze daggers (Podborský 1987:45; Stuchlík 1987:56). The most plausible explanation is that the attention devoted to the funerals of females reflected the identities of these females.

Susan Shennan (1975:285; 1982:30) suggested that rich female burials might have reflected bridewealth that was obtained by females on marriage and deposited in graves when they died. Bridewealth represents the non-equivalent exchange common in big men societies, which enables men to exchange material resources for women (Godelier 1991:279). Bridewealth usually appears in societies where property is collective and resources are limited. There are two contrasting views of the relationship between the institution of bridewealth and social inequality. Schlegel and Eloul (1988:294) argue that bridewealth circulates the wealth rather than accumulates it. Therefore, it can be understood as a mechanism that reduces inequality among social segments. In contrast, Hayden (1995:43) argues that bridewealth is a powerful mechanism for creating social inequality. I suggest that these two perspectives contrast because they describe two different aspects of the same process. Bridewealth appears to circulate material resources and, therefore, may reduce economic inequalities among social segments. Aggrandizers, however, are known for building their prestige through giving away. Their strategy is often based on investing to social relations. For example, junior males who wish to marry are indebted to aggrandizers who secure the necessary resources for bridewealth. Therefore, bridewealth may serve as a vehicle for the rise of aggrandizers.

The suggestion that bridewealth, or at least its part, was buried with females is problematic. Susan Shennan's (1975; 1982) argument seems to stem from the fact that bridewealth has to be returned to wife-takers in cases of divorce or death (Goody 1973:12) and part of it may be buried with a female who died. The problem is that the bride herself is not the proprietor of bridewealth. Recipients of bridewealth are her male kin such as brother or father (Kelly 1993:390). Moreover, the crucial principle that defines bridewealth is

circulation. Wealth received in bridewealth is invested back to other social relations. Therefore, it is unlikely that bridewealth would appear in burials. Suggestions that marked differences in the amount and quality of ornamentation between subadult and adult females may reflect bridewealth (S.J. Shennan 2002:202-203) are unwarranted. In addition, rich Early Bronze Age burials of adult females contained metal ornaments such as bronze hair rings, bracelets, and tubes that could be considered a “permanent part of the body” in Sørensen’s (1997:102) terminology. Even if we accept the problematic assumption that bridewealth affected female burials, it seems unlikely that it would be embodied in the artifacts that constitute the permanent part of the body. The last line of evidence against bridewealth is that the differentiation between adult females and subadults in the Early Bronze Age was not sharp. Burials of infants contained non-ceramic artifacts such as bronze pins, hair rings, bracelets, and ring ingots suggesting an absence of the striking categorical distinction between adult females and subadults. The overall evidence casts doubt on the hypothesis that rich Early Bronze Age burials of females reflect the institution of bridewealth.

The core problem of the interpretation of elaborate female burials is the tendency to explain female social standing as a mere reflection of the standing of dominant males. Strathern (1988) challenged the perspective that the status of individuals – both men and women – can exist without a reference to others in the first place. She demonstrated that – in native point of view – women and men can be conceptualized as complementary elements that constitute the whole. Therefore, the value assigned to the products of their activities reflects not only men who may present themselves in public but also their wives. Similar model of female/male complementarity was observed in other societies (cf. Bodernhorn 1993; Joyce 1992). This model shows that both females and males are considered to be necessary for social reproduction and may have access to social positions and esteem.

A priori placement of Early Bronze Age females into subordinate positions (see Bátorá 1991; Furmánek et al. 1991; Neugebauer 1994; Neustupný 1967, 1978; S.J. Shennan 1993) may say more about the unconscious values of scholars rather than the organization of societies in the past (Conkey and Spector 1984; Gräslund 2001; Levy 1995; Moore and Scott 1997; Sørensen 2000). My interpretation of Early Bronze Age gender

relations does not attempt to depict an image of a community with perfect gender equality or even feminine dominance. I simply argue that the dominance of males held in the traditional view of gender relations in the Early Bronze Age is unwarranted. The relations between females and males seem to be based on the principle of complementarity. Therefore, given evidence of gender differentiation during the Late Copper Age and the Early Bronze Age, I argue that gender inequality really decreased.

Burial Disturbances

The problem of post-depositional processes is not directly related to the central hypotheses of this study. However, this phenomenon is so closely tied to mortuary analysis of the Únětice cemeteries that it should receive a brief discussion. In Chapter 5, I suggested four possible processes that might have been responsible for burial disturbances: 1. addition of another individual to the already existing grave, 2. looting focused on valuable artifacts, 3. intentional pollution of burials, and 4. secondary mortuary treatment.

These processes are not mutually exclusive. The archaeological record in Únětice cemeteries is a great example of how archaeological sites are palimpsests. For example, looting does not preclude the possibility that a grave was reopened earlier because of the placement of another individual and that the first individual already represents the secondary form of disposal. The resulting pattern is a mixture of different activities. Since Únětice cemeteries commonly contain more than one individual, it appears that graves might have been reopened and additional bodies might have been placed inside. Moreover, some bodies yield evidence of secondary mortuary practices. Burial 42 from the Rebešovice cemetery contained a pile of disarticulated bones of an adult individual that were placed in the grave pit (cf. Král 1954:148). The skeleton of this individual was well preserved and almost complete. This is in strong contrast with other disturbed burials where skeletons were incomplete, damaged, and skeletal parts were distributed in the grave's fill. This individual most likely was first disposed somewhere else and then the body parts were placed in the grave pit.

Secondary mortuary practices and burials of additional individuals in the same pit do not explain cases when narrow shafts were dug to specific parts of graves. These shafts

almost invariably hit the upper part of the body and result in disturbances of this part of the grave while lower limbs are left intact. The persons who dug these shafts clearly knew where to dig. It is unlikely that this digging would happen several hundreds or thousands of years after the initial burial (Ondráček 1962; Podborský 1987; Stuchlík 1987). Therefore, burial shafts were produced by people who knew where they were supposed to dig and were focused on the specific target: the upper part of the body and especially the head.

The difference in the number of bronze artifacts in disturbed and undisturbed graves was significant for both the Rebešovice and Slavkov u Brna cemeteries. However, the actual investigation of corrosive stains on skeletons shows that the vast majority of individuals with corrosive stains were associated with bronze artifacts. The number of individuals with stains but without artifacts was considerably lower. This suggests that the majority of bronze artifacts remained in disturbed graves. Such a result is contradictory to the results of testing that focused on the number of bronze artifacts in disturbed and undisturbed graves. Furthermore, there are multiple cases of massive bronze artifacts that were left in the disturbed graves. This happened so frequently that it is hard to believe that looters would miss massive ingots or daggers in graves. It appears that bronze artifacts were not the main reason for reopening the graves. There is a possibility that other artifacts that were considered valuable were the target. The lack of gold, silver, and amber in Early Bronze Age burials may be the result of looting. However, these artifacts appear extremely rarely in preserved burials. The hypothesis that looters focused on gold, silver, and amber is based on the assumption that they knew precisely the graves with these artifacts and left other graves untouched. The technique of re-opening the graves via shafts suggests that people who reopened them were informed about the graves. However, it seems unlikely that all preserved graves without gold, silver, and amber were recognized by looters on the basis of features on the surface. The weakness of the hypothesis about the looting of other valuable artifacts is its reliance upon negative evidence of artifacts that might have been in graves but disappeared. Therefore, this hypothesis is not convincing.

Human bones in disturbed graves often are distributed in various levels of the shaft fill. One can clearly reject the possibility of secondary mortuary practices because the human body was not treated with respect and caution. Human bones were damaged and distributed throughout the fill. This treatment is not consistent with the secondary mortuary practices

that have been recorded in ethnographic literature (see Schroeder 2001; Sosna in press). The most heavily affected part of skeleton was the skull. Disturbed graves with shafts frequently lack the skull or its parts. Similar observations were made by Podborský (1987:140) in Těšetice-Vinohrady. It appears that the main target for re-opening the graves was the head (cf. Podborský 1987:142). Naturally, the removal of body parts from the grave also was associated with the removal of bronze artifacts that were in the vicinity. This may explain the lower number of bronze artifacts in disturbed graves. Although this explanation may sound too far-fetched, post-mortem manipulation involving human skulls is not uncommon in non-industrial societies (see Adriani 1951; Downes 1971; Lambrecht 1932; Low 1892; Rosaldo 1996) and removal of skulls has been identified in the Neolithic (Kuijt 1996, 2001) and earlier Natufian cultures of the Levant (Belfer-Cohen 1988).

This discussion cannot resolve the problem of burial disturbances in the Early Bronze Age. However, it is clear that disturbances of Early Bronze Age burials in South Moravia are not the result of a single activity. It appears that graves were re-opened to add another individual into the pit, deposit already disarticulated parts of human bodies, and also to take something from the graves via shafts that hit the upper part of the body. Looting, which would focus solely on bronze artifacts, does not seem to be the best explanation. However, some bronze artifacts were removed from the graves, perhaps as an epiphenomenon of another activity. Skulls or their parts were frequently taken from the graves. It is difficult to decide if heads were targeted as trophies, to gain control over the living or the dead, or just out of curiosity. Nonetheless, it is clear that postcrania were not treated with respect comparable to the secondary mortuary practices associated with ancestor worship. This suggests that the “looters” were probably not the kin of the dead.

Summary

The evidence for the institutionalization of vertical social differences is limited. There are lines of evidence that support the hypothesis that vertical social differences became more institutionalized over time. I have argued that the emergence of burials in settlement features in the Early Bronze Age reflected vertical social differences in addition to a seasonal aspect of death. The increasing emphasis on burials of adults with infants, lavish burials of infants in cemeteries, and differences between the burials of infants in cemeteries and settlement pits

suggest that trans-generational ties became more important over time. This does not mean that Late Copper Age cemeteries did not yield evidence of elaborate burials of infants. However, the combination of double and triple burials with infants, the consistent appearance of elaborate infant burials in the region, and the distinction between infants in cemeteries and settlements in the Early Bronze Age suggest increasing concern with children. The population increase over time would also support rather than reject the institutionalization of vertical social differences.

Other lines of evidence have not supported increasing institutionalization of vertical social differences. Marked differences among females as well as among males were present both in the Late Copper Age and the Bronze Age. Burials with similar characteristics did not become more clustered in cemeteries and supposed leaders did not become less personified over time. Increase in the selective secondary manipulation of the body has not been conclusive either. Settlement evidence indicates the emergence of hilltop settlements but without fortification and signs of special house structures of leaders, or facilities of craftsmen. The overall evidence suggests that leveling mechanisms operated both in the Late Copper Age and the Early Bronze Age. I argue that the techniques that prevented the uncontrollable aggrandizement of influential individuals operated efficiently even during the Early Bronze Age.

The strategies of ambitious individuals tended to follow the big man pathway. Although the institutionalization of vertical social differences was not marked, as I have suggested above, a few lines of evidence suggests that the economy provided potential for entrepreneurial individuals. Although long-distance exchange of exotic commodities did not change much over time, medium-distance exchange of metal significantly increased. Large amounts of copper and bronze artifacts in burials and hoards suggest that some individuals were able to channel substantial resources to a specific place at one point in time.

Gender relations became more equal over time. I argue that the emphasis on female funerals as seen in less restricted access to gender-specific artifacts, grave features, and forms of body treatment in the Early Bronze Age was not mere coincidence. Although some scholars may argue that females were vehicles of their husbands' status, it is unlikely in light of the lack of evidence for male-restricted forms of mortuary differentiation. The most plausible explanation of mortuary differences in the Early Bronze Age is that females could

gain social esteem. It is not clear what the spheres that endowed females with high esteem were but the ethnocentric picture of males dominating females is unwarranted.

Burial disturbances in the Early Bronze Age created a palimpsest of signatures of prehistoric activities. I argue that disturbances in Únětice cemeteries could not be explained as a result of a single cause. Graves were reopened to add another individual to the grave, bodies were in some cases already disarticulated before their final disposal, and Bronze Age “looters” were digging grave shafts to reach the upper part of the buried body. The handling of the postcrania was so unsystematic and damaging that secondary practices can hardly explain this phenomenon. Bronze artifacts and skulls were taken from burials. However, frequent appearance of massive bronze artifacts in disturbed graves suggests that they were not probably the main target of grave reopening. It might have been the body itself that led some individuals to reopen and disturb the burial contents.

CHAPTER 9

CONCLUSIONS

This dissertation has attempted to elucidate changes that happened during the transition from the Late Copper Age to the Early Bronze Age in South Moravia. It appears increasingly clear that the beginning of the Bronze Age was not associated with radical changes and the emergence of qualitatively new forms of socio-political organization. I argue that social differentiation in the Late Copper Age and the Early Bronze Age was comparable. The most prominent changes were represented by economic intensification and population increase. However, neither population increase nor intensification of production and distribution of copper and bronze objects had a considerable impact on the structure of society. The entire transition is best understood as a gradual process that built upon structures that already existed in the Late Copper Age (cf. Podborský et al. 1993; S.J. Shennan 1993).

Production and circulation of copper and bronze artifacts increased over time. Evidence from burials and hoards demonstrates that copper and bronze were available in large quantities despite the absence of raw material sources in South Moravia. The absence of specialized centers for smelting suggests that South Moravian communities were probably engaged in the final stages of small-scale metal working. Intermediate copper products were imported primarily from Slovakia. I argue that the development of medium-scale exchange with close neighbors was the most vital part of interactions beyond the regional level. Kristiansen and Larsson (2005:118-127) have overestimated the importance of long-distance exchange with the southeast. I do not deny that some regions such as West Germany, West Slovakia or the North-Alpine zone might have interacted more intensively with the centers in Anatolia, the Levant, or Greece. However, Únětice communities in South Moravia did not seem to have interacted with the developed centers in the southeast more than the Bell Beaker communities did. Exotic and luxury goods are so rare in South Moravia that the picture of intensive exchange with the Anatolia, Levant, or Greece is untenable. As Harding (2000:195) has suggested, local or regional exchange was the most common form of exchange in most parts of Europe during the Bronze Age. Only some regions developed substantial long-distance exchange. I will go farther and argue that South Moravia represents

a region on the periphery that had neither crucial sources of metal ores nor an advantageous strategic position for exchange mediation. Therefore, long-distance interactions were not the main incentive for potential development.

The transition from the Late Copper Age to the Early Bronze Age in South Moravia can be grasped effectively via Parkinson's (2002; 2006) conceptual apparatus that distinguishes two processes: integration and interaction. It appears that the transition to the Early Bronze Age tended towards social integration organized into sub-units. A few large settlements appeared in the Early Bronze Age and the dispersed pattern of a primarily large number of small Late Copper Age cemeteries gave way to a smaller number of medium and large Early Bronze Age cemeteries. However, this process cannot be described simply as integration *sensu lato*. A few large and medium Late Copper Age cemeteries actually clustered. The main difference is the spatial patterning in the landscape. Medium and large Early Bronze Age cemeteries show more regular distribution across the region and affinity with hilltop settlements. I suggest that this is evidence of a more regionalized use of the landscape during the Early Bronze Age. South Moravian communities likely identified themselves with sub-regional units, which were represented by large communal cemeteries and hilltop settlements. The evidence of integration is much more pronounced in the neighboring regions where Early Bronze Age mega-cemeteries included several hundred individuals (see Neugebauer 1994; Ondráček and Šebela 1985; S.E. Shennan 1975; Vladár 1973). Also, the general trend towards regionalization is documented on a much larger scale by the emergence of regional archaeological cultures such as Mierzanowice, Nitra, Unterwölblinger, and Wieselburger in different parts of Central Europe during the Early Bronze Age.

Changes in interaction should be understood in terms of intensity rather than scale. As I have argued above, both the Late Copper Age and the Early Bronze Age provide limited evidence of long-distance interaction. The main change in interaction over time was associated with the exchange of copper and bronze artifacts. I argue that the intensity of medium-distance interactions with regions that were close to South Moravia increased considerably. The intensity of long-distance exchange did not increase significantly, however.

The transition from the Late Copper Age to the Early Bronze Age represents relatively small part of much longer processes that shaped European prehistory. The intensification of production and exchange and the tendency towards integration were common trends in prehistoric tribal societies. As Kristiansen (1998b) and Parkinson (2002) argue, the long period from the Neolithic to the Bronze Age can be conceptualized as a series of cycles. “Tribal cycling” is characterized by fluctuations in the degree of integration, intensity of interaction, production and exchange, and preferential use of certain parts of landscape. In Moravia, the Early Bronze Age intensification of economy, hoarding, and population increase are reminiscent of the Late Neolithic when Moravian Painted Ware groups dominated this region. Moreover, the phenomenon of hilltop settlements and intensification of production can be traced deeper to the past. Highly developed Baden hilltop settlements in the Middle Copper Age are reminiscent of Věteřov hilltop settlements that followed the Únětice pattern at the very end of the of the Early Bronze Age. Since similar cycling is evident in different parts of the world (see Parkinson 2002:431 for review), it most likely represents one of the essential features of tribal societies (Parkinson 2002:432). Prigogine’s (1989) ideas may help us understand this process. Reemergence of certain forms of action and organization may reflect responses to the situations outside of equilibrium. One should take into account that phenomena such as hoarding or hilltop settlements might have resulted from either stress or abundance.

Although the general principle of cycling can be used to conceptualize the dynamics in tribal societies, it is manifested in different temporal and spatial contexts. Rowlands (1998) demonstrated that social changes followed similar trajectory in different parts of Europe but appeared in different times in different places. In particular, the succession of changes followed the southeast-northwest continuum (Rowlands 1998:58). In addition, changes were regional specific. I argue that the transition to the Early Bronze Age in South Moravia is characterized by the low degree of long-distance exchange and warfare. These features were probably more pronounced in regions where water transport facilitated exchange and higher population density might have created conditions for a violent solution of disputes over critical resources.

Vertical Social Differences

Evidence for increasing institutionalization of vertical social differences is limited. The increasing emphasis on burials of children and differences between burials in cemeteries and settlement pits in the Early Bronze Age indicates increasing formalization of rules associated with vertical social differences. In contrast, stable patterns of exceptional burials, the lack of clustering of burials within the cemeteries, inconclusive evidence for the increase of restricted secondary mortuary practices and changes in personal identity of leaders, all undermine the argument that vertical social differences became more institutionalized. Settlement evidence does not suggest increasing emphasis on vertical social differences either. It is clear that the transition to the Early Bronze Age in South Moravia did not result in the emergence of chiefdoms. Although the size of some settlements increased over time, South Moravia consisted of autonomous villages without centralized control or coercion during both the Late Copper Age and the Early Bronze Age. Similar models of tribal social organization in the Early Bronze Age were identified in other parts of Europe (Harding 2000:389; O'Shea 1996:376). The overall patterning of archaeological evidence suggests that the intensification of metal economy and medium-scale interactions did not influence socio-political organization significantly (cf. Primas 1997:115).

Despite the limited increase in institutionalization of vertical social differences, it seems that the big man strategy was more viable than the great man strategy. Missing ritual and sacred structures, that might have been potentially associated with great men such as great shamans or masters of initiation, suggest that the pursuit of prestige did not follow the great man strategy. The presence of great warriors is not supported by archaeological evidence either. One of the striking characteristics of the South Moravian mortuary record is the lack of evidence for violence and warfare. My colleagues bioarchaeologists, have been surprised by the infrequent evidence of trauma that might have resulted from violence. There were only two cases where skeletons yielded evidence of trauma that might have been produced by violent blows. Moreover, fortifications and weapons did not seem to proliferate over time. Copper and bronze daggers were probably not intrinsic weapons. Stuchlík (1987:37) has pointed out that Early Bronze Age daggers were often small and, therefore, would be inefficient for combat. Engraved decorations on the surface of daggers suggest that they were media for non-verbal communication associated with signaling status of the

bearers, not weapons *per se*. This contrasts with general statements about the Bronze Age, which is often depicted as a period of emerging warrior elites and ubiquitous combat (see Earle 2004; Harding 2000; Kristiansen and Larsson 2005).

The big man strategy appears to be a more plausible pathway for pursuing prestige and power during the transition from the Late Copper Age to the Early Bronze Age. Large amounts of copper and bronze artifacts in burials and hoards suggest that organization of exchange provided an environment conducive to the ambitions of entrepreneurial individuals. There were no sources of ores in South Moravia and someone had to ensure the supply. The presence of substantial wealth, as shown in Early Bronze Age hoards and burials, suggests that some individuals were able to organize and to channel substantial resources. The increasing emphasis on child burials over time suggests that some individuals tried to overcome the system where status was reached only via personal achievement. Although hereditary transmission of social status is essential in great men societies, emphasis on child treatment appears in big men societies as well (Hayden 1995; Wiessner 2002). Investment in child growth payments and strategizing about the future of children is consistent with the big man strategy and may result in rich child burials.

Despite the tendency towards utilizing the big men strategy, the prominence of restricted social positions that would have placed a few over others was limited. Why should this be the case when the economy of metal provided such a fertile environment for aggrandizement? I argue that the reasons for the weak impact of the economy on changes in social differentiation over time should be pursued in social constraints on action. Many egalitarian societies have developed leveling mechanisms whose goal is to put down those who rise above other persons. Given the fact that Early Bronze Age settlements were still primarily villages with a few house structures, reciprocity and collective ethos were probably dominant. As Wiessner (2002) has demonstrated, ambitious agents have to act against the egalitarian institutions and ideologies that empower the weak. I argue that the existence of the system of social obligations and constraints on socially disruptive action is the most plausible explanation for the limited success of aggrandizers. Egalitarian institutions are not hard-wired in humans, but have to be actively maintained through everyday verbal interactions and enforcement of social obligations (Wiessner 2002:234-235). Such leveling mechanisms prevent the uncontrollable rise of inequality. Archaeological evidence from

South Moravia suggests that the leveling mechanisms were efficient enough to curb the ambitious individuals.

The inability to match archaeological evidence from South Moravia with either a strictly big man or great man strategy can be result of two main factors. First, these two pathways are two extreme forms within the range of possible social configurations. Second, one has to be aware of Wobst's (1978) warning about the "tyranny of the ethnographic record in archaeology." Both Late Copper Age and Early Bronze Age communities differ from the ethnographic examples of great men and big men societies. Population parameters for South Moravia show lower values for population density than in the ethnographically documented societies. Moreover, one has to take into account that ethnographically documented societies have interacted to various degrees with more complex societies. Therefore, the ethnographic models provide a few specific forms from a multitude of possible configurations, not the rigid templates into which archaeological evidence should neatly fit.

Gender Relations

Gender relations changed over time. I argue that the transition from the Late Copper Age to the Early Bronze Age is characterized by a decrease in gender inequality. This argument is based upon a decreasing number of domains that signal gender differences over time. While the emphasis on male identity during the Late Copper Age suggests male-oriented ideology, gender specific orientation and aspects of the body, as well as the majority of gender specific artifacts, diminished in the Early Bronze Age. Females in Únětice cemeteries were not only buried with significantly larger quantities of metal artifacts than males, they also received special treatment embodied by stone constructions and large graves. The most striking result of this research is the lack of domains that would mark male identity in the Early Bronze Age. There is almost nothing – with exception of rare daggers – that would maintain the symbolic boundary of male dominance. Even Stephen Shennan (1993:149-150), who built upon the research of Susan Shennan (1975; 1982) and provided the most convincing model of social change in prehistoric Central Europe, has fallen into the pitfall of assuming that male dominance is hardly questionable. In this model, exotic wealth embodied by metal ornaments was assumed to be obtained and controlled by males. The

wealth was transferred to females in the form of bridewealth that reinforced the male-oriented ideology. As I have demonstrated, evidence of bridewealth is problematic because of the missing strict distinction between adult and subadult females in South Moravia and the assumption that bridewealth impacts burials of married females. Convincing evidence of female subordination is simply not present in the archaeological record. The models that view elaborate burials of females as mere vehicles of their husbands' status undermine the possibility that females might have exploited alternative sources of power than males or husbands and wives were conceptualized as a single person in the public sphere.

One of the most interesting dimensions of gender relations during the transition from the Late Copper Age to the Early Bronze Age is the contradiction between gender-specific activities and the value given to these activities. The bioarchaeological research on activity patterns demonstrates different patterns in the bilateral asymmetry of humeri for females and males both in the Late Copper Age and the Bronze Age (Sládek et al. in press). In other words, gender-specific activities were probably so rigid that they did not change significantly during the transition to the Early Bronze Age. This finding appears to be inconsistent with the decreasing gender inequality, as I have argued above. There are two possible explanations for this paradox. First, cross-sectional analyses of long bones are not sensitive enough to distinguish shifts in human behavior. For example, digging storage pits with a hoe may be difficult to distinguish from digging copper ore in the mines. Therefore, activities of females and males might have changed without being observed in the skeletal morphology of long bones. Second, activities of females and males did not have to change considerably, but the meaning assigned to these activities changed. This view is reminiscent of Kelly's (1993) argument that a value is always imposed upon gender specific activities because human action can hardly be devoid of meaning. If the gendered division of labor did not change during the transition to the Early Bronze Age, but the value given to activities of females and males changed, this would suggest a shift in ideology. One may only speculate what would be the primary cause for this ideological shift. It might have been a higher contribution of females to subsistence, possession of spiritual power, or other factors. Given the available evidence, it would be speculative to give a definitive explanation for this phenomenon.

Future Research

The present research has tried to build a model of regional changes in social differentiation during the transition from the Late Copper Age to the Bronze Age. The research suffers from several shortcomings that restrict the understanding of social change modeled on the regional level. In this section, I will briefly delineate the most crucial gaps in our knowledge and suggest the approaches that would overcome the gaps.

The most prominent archaeological problem is the insufficient number of absolute dates in South Moravia. Late Copper Age and Early Bronze Age regional chronologies are based heavily on the relative chronology. This poses some interesting patterns such as the temporal contrast between “rich” and “poor” Bell Beaker burials that are assumed to represent temporal change rather than social difference (cf. Dvořák 1989). A similar trend towards poor burials at the very end of the Late Únětice Phase has been suggested by Stuchlík (1987). This issue would benefit greatly from large samples of absolute dates that could shed light on temporal aspects of the archaeological record in South Moravia.

Bioarchaeological investigations represent another critical source of information that is directly related to social differentiation. Detailed analyses of the nutrition, pathologies, and biomechanics of South Moravian populations would provide critical information for understanding the relationship between the status of the dead, as expressed in mortuary treatment, and the quality of their lives measured via bioarchaeological indicators. In particular, the investigation of possible differences in bioarchaeological parameters between the individuals in Únětice cemeteries and settlement pits would provide a critical test for my argument that status structured these two forms of disposal. The skeletons from the largest Únětice cemetery at Rebešovice are currently under investigation by the members of our research team in conjunction with the anthropologists from Plzeň and Vienna. We hope to run analyses of carbon and nitrogen stable isotopes in the near future.

Settlements represent a challenge for the future. While Bell Beaker settlements have received a lot of attention recently (see Ondráček et al. 2005; Turek et al. 2003), the last synthesis of Únětice settlement evidence is outdated (see Stuchlík 1969) and awaits a new synthesis. Moreover, there is virtually no published example of an Únětice settlement that has been excavated systematically and with attention to the internal structure, activity areas,

and the exploration of possible fortifications via remote sensing. We have only a very fuzzy idea about the organization of Únětice settlements.

The issue of burial disturbances in Únětice cemeteries emerged during the work on this dissertation and posed one of the most challenging problems. Unfortunately, I have dealt with the problem of burial disturbances only superficially. The detailed investigation of burial disturbances would result in another dissertation by itself. Nonetheless, this topic is so stimulating that it might become the central research topic of our research team. It would inevitably require field excavations of disturbed Únětice burials and the detailed analyses of post-depositional processes and the taphonomy of skeletons. I believe that the combination of ethnographic evidence for the construction of research hypotheses, the detailed excavation methodology inspired by Henri Duday's taphonomic school (see Duday et al. 1990), and the bioarchaeological investigation of skeletons will enrich our understanding of the processes responsible for burial disturbances in the Early Bronze Age.

APPENDIX A
DATA TABLES

Table A.1. Data matrix for Šlapanice. S – single burial, D – double burial, INH – inhumation, CRE – cremation, R – right, L – left, I – indeterminate, A – adult, SA – subadult.

Burial ID	Number of individuals	Form of burial	Orientation	Aspect	Age	Grave length (cm)	Grave width (cm)	Grave depth (cm)	No of artifacts	Variability of artifacts	Number of vessels	Decorated vessel	Mug	Bowl	Decorated bowl	Beaker	Decorated beaker	Jug	Jar	Amphora	Lugless Amphora	Strainer	Copper dagger	Copper ring	Copper awl	Chipped stone	Stone dart	Pebble	Sharpener	Wrist guard	Amber bead	Amber button	Bone brace	Bone button	Fauna		
2a/35	S	INH	I	I	A	180	100	60	2	1	2	*	*	*																							
3a/35	S	INH	I	I	A							2	2	2		*																					
4a/35	S	INH	I	I	A							4	1	4		*	*																				
5a/35	S	CRE	I	I	I							1	1	1		*																					
1/34	S	INH	I	I	A			40	3	1	3	*	*	*	*																						
2/34	S	INH	S	R	A	180	100	60	3	1	3		*	*																							
3/34	S	INH	I	I	SA	80	60	50	6	1	6	*	*	*	*			*																			
4/34	S	INH	N	L	A	180			7	3	4	*	*	*		*	*							*		*	*							*			
5/34	S	INH	N	L	A		100	140	2	2	1	*	*																				*				
6/34	S	INH	N	L	A			100	3	1	3		*	*																							
7/34	S	CRE	I	I	I			40	3	1	3		*																								
8/34	S	INH	S	R	A	200		100	4	1	4		*	*				*																			
9/34	S	INH	N	L	A	180		100	2	1	2	*	*			*	*																				
10/34	S	INH	S	R	SA			40	3	1	3		*																								
11/34	S	INH	I	I	SA			40	4	1	4	*	*	*	*					*	*																
12/34	S	INH	S	R	A			120	8	3	4	*	*			*	*		*					*						*		*		*			
13/34	S	INH	S	R	A			80	4	2	3	*	*			*	*	*																*			
14/34	S	INH	I	I	SA				3	1	3		*	*																							
15/34	S	INH	SW	R	A			140	9	2	8		*	*		*		*		*	*										*						
16/34	S	INH	S	R	A			140	4	1	4	*	*			*	*		*																		
17/34	S	I	I	I	A				6	2	5	*	*	*					*												*						
1/35	S	INH	S	R	A			100	4	1	4	*	*	*		*	*																				
2/35	S	INH	N	L	SA			70	2	1	2	*	*																								
3/35	S	I	I	I	A				4	2	3		*	*												*											
4/35	S	INH	N	L	A			140	3	1	3		*	*																							

Table A.1. Continued.

Burial ID	Number of individuals	Form of burial	Orientation	Aspect	Age	Grave length (cm)	Grave width (cm)	Grave depth (cm)	No of artifacts	Variability of artifacts	Number of vessels	Decorated vessel	Mug	Bowl	Decorated bowl	Beaker	Decorated beaker	Jug	Jar	Amphora	Lugless Amphora	Strainer	Copper dagger	Copper ring	Copper awl	Chipped stone	Stone dart	Pebble	Sharpener	Wrist guard	Amber bead	Amber button	Bone brace	Bone button	Fauna
5-6/35	D	CRE+INH	S	R	SA, A	100		40	11	3	7	*	*			*	*	*		*	*	*			*			*	*						
7/35	S	CRE	I	I	I			40	3	1	3		*	*																					
8/35	S	I	I	I	A			25	3	1	3	*	*				*	*																	
9/35	S	CRE	I	I	I				1	1	0																	*							
10/35	S	CRE	I	I	I	100		70	3	1	3		*	*																					
11/35	S	INH	S	L	A			220	6	3	4	*	*	*						*													*	*	
12/35	S	INH	N	R	A			100	3	2	2		*	*																			*		
13/35	S	INH	S	R	A			90	3	1	3		*	*							*														
14/35	S	INH	S	R	A			70	2	1	2		*	*																					
15/35	S	INH	S	R	A			100	5	1	5	*	*	*						*															
16/35	S	INH	S	R	A			90	2	1	2		*	*																					
17/35	S	INH	S	R	SA			40	3	1	3		*	*				*	*																
18/35	S	INH	N	L	SA			100	4	1	4	*	*	*			*	*																	
19/35	S	I	I	I	A				2	1	2				*				*																
20/35	S	CRE	I	I	I				3	1	3		*	*																					
21/35	S	INH	N	L	A			130	7	4	4	*	*	*									*			*							*		
22/35	S	INH	N	L	A			100	4	1	4		*	*																					
23/35	S	INH	S	R	A			50	6	1	6		*	*					*																
24/35	S	INH	N	L	A			120	3	1	3		*	*																					
25/35	S	INH	S	R	A			64	4	1	4	*	*	*						*															
26/35	S	INH	S	R	A			100	5	1	5	*	*	*	*	*																			
27/35	S	INH	I	I	A				5	2	4		*	*						*															*
1b/35	S	INH	S	R	A			100	5	2	4		*	*						*														*	
2b/35	S	INH	S	R	A			100	4	1	4	*	*	*						*															
3b/35	S	CRE	I	I	I				1	1	1		*																						
4b/35	S	INH	I	I	A				3	1	3		*																						

Table A.2. Data matrix for Ostopovice. S – single burial, D – double burial, R – right, L – left, I – indeterminate, F – female, M – male, I1 – infant I, I2 – infant II, J – juvenile, A – adult.

Burial ID	Disturbed	Number of individuals	Aspect	Orientation	Sex	Age	Stature (cm)	Grave length (cm)	Grave width (cm)	Grave depth (cm)	Construction	Number of Artifacts	Variability of Artifacts	Number of vessels	Bowl	Decorated bowl	Mug	Beaker	Decorated beaker	Lugless amphora	Copper awl	Stone dart	Amber	Boar tusk	Bone buttons	Fauna
2/70		S	L	NE	I	A	165	0	0	70	0	1	1	1	*											
3/70		S	I	I	I	I2		160	70	60	0	0	0	0												
4/70		S	R	SW	F	A	159	0	85	70	0	3	1	3			*			*						
5/70		S	I	I	I	I		140	80	60	0	0	0	0												
6/70		S	I	I	I	I1		130	80	60	0	0	0	0												
7/70		S	I	I	I	I1		0	0	60	0	0	0	0												
8/70		S	I	I	I	I1		100	60	70	0	1	1	1			*									
9/70		S	R	SSW	I	J		120	70	70	0	0	0	0												
11/70		D	R	SSW	I, I	J, I		0	0	70	0	0	0	0												
12/70		S	R	SSE	I	I2		105	65	90	0	3	1	3	*		*									
13/70		S	R	SW	I	I1		105	55	90	0	2	1	2	*		*									
14/70		S	L	NNE	M	A	161	160	95	100	0	9	3	2	*		*					*				*
15/70	*	S	I	I	I	J		170	90	100	0	0	0	0												
16/70		S	L	NNW	I	J		0	0	0	0	0	0	0												
17/70		S	L	NE	I	I2		95	55	100	0	3	1	3	*		*									
18/70		S	R	S	I	A	153	170	85	130	0	3	2	2	*		*									*
19/70		S	R	SSW	F	A	150	165	75	110	1	33	3	2	*	*		*	*		*		*	*	*	
20/70	*	S	L	N	M	A	164	185	80	110	0	0	0	0												
21/71	*	S	I	I	M	A	173	195	65	110	0	3	1	3	*		*									
22/70		D	I	I	I, I	J, I1		0	0	0	0	1	1	1			*									

Table A.3. Data matrix for Rebešovice (1). E – burials disturbed during excavations, F – burials disturbed by later features, P – prehistoric disturbance, UN – undisturbed burials, S – single burial, D – double burial, F – female, M – male, R – right, L – left, B – on the back, I – indeterminate, I1 – infant I, I2 – infant II, J – juvenile, A – adult.

Burial ID	Disturbance	No of individuals	Sex	Age	Orientation	Aspect	Stature (cm)	Grave length (cm)	Grave width (cm)	Grave depth (cm)	Coffin	Coffin length (cm)	Coffin width (cm)	Stones	Stone construction	Number of artifacts	Variability of artifacts	Number of non-bronze artifacts	Number of bronze artifacts	Number of vessels
8	P	D	F, I	A, A	NW	R	168	200	120	180	*	156	52	*		6	4	4	2	2
10	F	S	M	A	SW	R		200	130	190						1	1	1	0	0
11	P	D	I, I	I, I2	SW	I		280	180	140				*	*	9	3	5	4	5
12	P	S	I	I1	SW	I		250	120	120						2	1	2	0	2
17	P	D	F, I	A, I1	W	R	164	180	80	170						2	2	1	1	1
19	P	S	M	A	W	R			70	90						1	1	1	0	1
20	P	S	M	A	I	I					*					3	1	3	0	3
21	UN	S	I	A	NE	R		170	78	80						1	1	1	0	0
23	P	S	I	A	W	R	166	210	100	170						0	0	0	0	0
25	P	S	I	A	SW	R		220	110	170						3	2	1	2	1
28	P	S	M	A	W	B		225	150	210	*	170	80			5	2	4	1	4
29	P	S	I	I2	SW	I		150	80	150				*		0	0	0	0	0
34	P	S	I	J	SW	I	160	170	150	170	*	120	45	*		1	1	1	0	0
42	P	S	F	A	SSW	I		160	160	110				*		2	1	0	2	0
45	P	S	M	A	NW	R		173	200	110				*		4	2	4	0	3
62	P	S	F	A	NE	R		158	250	130				*		1	1	0	1	0
76	P	S	M	A	SW	I	168	240	150	255	*	150	50			1	1	0	1	0
91	P	S	F	A	SSW	I	143	195	80	50						2	2	1	1	1
92	P	S	M	A	W	I	153	220	70	40						0	0	0	0	0
94	P	S	I	A	S	I		196	120	150	*	140	60	*		0	0	0	0	0
120	E	S	I	I1	NW	I										0	0	0	0	0
129	P	D	F, I	J, I	SW	R		225	110	125	*	175	52			0	0	0	1	0
142	P	D	I, I	A, I2	NWW	I	168	163	115	105				*		7	4	5	2	4
145	P	S	F	A	W	I		220	120	120						2	1	0	2	0
150	P	S	F	A	SWW	R		230	112	128	*			*	*	8	1	0	8	0
151	P	S	I	I2	NWW	I		172	100	70	*	130	60	*		0	0	0	0	0

Table A.3. Continued.

Burial ID	Disturbance	No of individuals	Sex	Age	Orientation	Aspect	Stature (cm)	Grave length (cm)	Grave width (cm)	Grave depth (cm)	Coffin	Coffin length (cm)	Coffin width (cm)	Stones	Stone construction	Number of artifacts	Variability of artifacts	Number of non-bronze artifacts	Number of bronze artifacts	Number of vessels
158	UN	S	I	I	W	I		140	100	90	*	140	100			0	0	0	0	0
163	P	D	F, I	A, A	SW	I		180	190	85						0	0	0	0	0
164	P	D	F, I	A, I2	SSW	R		180	85	140				*	*	1	1	0	1	0
171	P	S	F	A	SE	R	158	200	115	140	*	175	50	*		8	2	1	7	1
172	P	S	I	I1	NE	I		142	105	95	*	130	40			6	3	4	2	3
173	P	S	F	A	W	I		187	153	215	*	132	88			6	1	0	6	0
177	P	S	I	I	SW	R		190	122	90	*					6	2	4	2	3
182	P	S	I	J	W	I		190	96	54	*	150	45			6	2	1	5	0
187	P	S	I	J	SW	I		130	80	60						0	0	0	0	0
188	P	S	I	A	SW	I		200	82							0	0	0	0	0
190	P	S	I	I	I	I		100	50							2	1	2	0	2
191	P	S	I	I	NNE	I		166	103	30	*	125	42	*		1	1	0	1	0
192A	P	T	F	A	SWW	R	158	200	170	105	*	142	52			14	2	1	13	1
192B	P	T	I, I	A, I1	SWW	I		200	170	105	*					1	1	0	1	0
194	P	S	I	I1	W	I		111	63		*	95	32	*		1	1	0	1	0
197	P	S	I	A	SW	I		200	130	100	*	200	130			0	0	0	0	0
204	P	S	I	A	SE	R	158	230	130	80		160	55			3	3	3	0	1
205	P	S	I	A	W	I		300	160	105	*	198	132			8	3	7	1	5
214	P	S	I	I	I	I		140	80	25	*	105	44	*		0	0	0	0	0
215	F	S	I	I	SW	I		180	82	32	*					5	2	5	0	4
217	P	S	I	A	SSE	I		244	164	180	*	177	81			2	2	1	1	0
218	P	S	F	A	W	I	158	174	88	49	*	150	64			2	1	2	0	2
225	P	S	I	A	W	R		188	108	60	*					1	1	0	1	0
226	UN	S	M	A	SW	R		190	85	74	*	165	60			0	0	0	0	0
234	UN	S	I	I2	SW	R		170	80	30	*					3	2	2	1	2
238	P	S	I	I	SW	I		160	115	70	*	125	70			5	2	4	1	4
240	P	S	F	A	S	R	166	204	70	24						0	0	0	0	0
245	P	S	I	I	W	I		160	80	80	*	154	54			1	1	1	0	1

Table A.3. Continued.

Burial ID	Disturbance	No of individuals	Sex	Age	Orientation	Aspect	Stature (cm)	Grave length (cm)	Grave width (cm)	Grave depth (cm)	Coffin	Coffin length (cm)	Coffin width (cm)	Stones	Stone construction	Number of artifacts	Variability of artifacts	Number of non-bronze artifacts	Number of bronze artifacts	Number of vessels
253	E	S	I	A	I	I										2	2	1	1	1
256	P	S	I	J	SWW	I		170	90	170	*	135	35			2	2	2	0	1
258	F	S	I	I	NW	R		170	100	60	*	140	45	*		4	2	3	1	2
259	P	S	M	I	NW	R		220	80	43	*			*		3	2	2	1	2
261	F	S	M	A	W	R	166	238	138	44	*	210	80	*	*	4	1	4	0	4
264	E	S	I	A	SWW	R	176	240	76		*					0	0	0	0	0
274	P	S	I	A	SW	R		210	70	70	*	170	40			3	1	3	0	3
276	P	S	I	I2	NWW	I		160	110	80	*	120	35	*		0	0	0	0	0
277	P	S	I	I	SSW	I		200	80	80	*	150	50	*		0	0	0	0	0
279	P	S	I	A	SSW	R		180	100	70	*	150	50			0	0	0	0	0
280	UN	S	M	A	SWW	R		130	85	50				*	*	1	1	1	0	1
282	P	S	M	A	W	R	167	226	120	130	*	190	61			3	1	3	0	3
283	P	S	I	I	SW	I		230	140	140	*	160	95	*		0	0	0	0	0
285	P	S	I	A	SEE	L		250	135	175	*	206	68	*	*	4	2	1	3	1
286	UN	S	F	A	SW	R	148	214	124	85	*	170	90	*		8	3	3	5	1
287	P	S	I	I	SW	R		240	160	130	*	180	80			7	3	5	2	5
288	F	S	I	A	W	R		258	120	110						4	2	4	0	3
290	P	S	I	A	SWW	I	153	210	120	110	*			*		0	0	0	0	0
291	P	S	F	A	W	I		160	80	120	*	140	50			0	0	0	0	0
293	P	S	I	I	SWW	R		236	110	80	*	185	75	*		4	3	3	1	1
294	UN	S	F	A	NWW	R	157	262	155	55	*	195	65	*	*	10	2	4	6	4
298	UN	S	I	A	SW	R		170	95	45						15	3	4	11	3
300	P	S	I	I	SWW	R		152	90	86	*					2	2	1	1	1
303	F	S	I	I	SWW	I		160		65				*		0	0	0	0	0
304	F	S	I	I	SW	I				60						1	1	0	1	0
305	E	S	I	A	SSW	I		105	50	10						2	2	1	1	1
306	P	S	I	I	SW	I		170	95	136	*			*		2	1	2	0	0

Table A.4. Data matrix for Rebešovice (2).

Burial ID	Bowl	Onion	Únětice cup	Beaker	Amphora	Mug	Lugless mug	Lugless amphora	Jug	Storage jar	Ceramic fragment	Ceramic disc	Bronze cypriot pin	Bronze unetice pin	Bronze flat-head pin with single coil	Bronze spherical-head pin	Bronze tube-head pin	Bronze pin-other	Bronze hair ring	Bronze tube	Bronze beads	Bronze ingot	Bronze dagger	Bronze awl	Bronze chisel	Bronze spiral bracelet	Bronze single coil bracelet	Chipped stone	Bone awl	Boar tusk	Bone pendant	Scapula	Other animal bones
8	*	*	*																				*									*	
10																																	
11	*			*		*											*						*		*				*				
12	*					*																											
17										*									*														
19				*																													
20	*			*																													
21																														*			
23																																	
25				*															*														
28	*		*	*		*																		*									
29																																	
34																																*	
42																			*					*								*	
45	*			*							*																					*	
62																		*		*													
76																	*																
91						*												*		*													
92																																	
94																																	
120																																	
129																							*										
142	*		*	*																			*			*		*					*
145																				*		*		*									
150												*					*	*		*		*		*									

Table A.4. Continued.

Burial ID	Bowl	Onion	Únětice cup	Beaker	Amphora	Mug	Lugless mug	Lugless amphora	Jug	Storage jar	Ceramic fragment	Ceramic disc	Bronze cypriot pin	Bronze unetice pin	Bronze flat-head pin with single coil	Bronze spherical-head pin	Bronze tube-head pin	Bronze pin-other	Bronze hair ring	Bronze tube	Bronze beads	Bronze ingot	Bronze dagger	Bronze awl	Bronze chisel	Bronze spiral bracelet	Bronze single coil bracelet	Chipped stone	Bone awl	Boar tusk	Bone pendant	Scapula	Other animal bones
151																																	
158																																	
163																																	
164																			*													*	
171		*											*	*					*			*											
172	*			*														*													*		
173																*				*													
177	*	*				*									*				*	*											*		
182											*								*	*	*												
187																																	
188																																	
190				*																													
191																					*												
192A							*										*	*	*		*												
192B																					*												
194																																	
197																																	
204			*																									*			*		
205	*			*		*					*															*	*						
214																																	
215	*			*				*																							*		
217											*											*										*	
218		*				*																											
225																	*																
226																																	

Table A.4. Continued.

Burial ID	Bowl	Onion	Únětice cup	Beaker	Amphora	Mug	Lugless mug	Lugless amphora	Jug	Storage jar	Ceramic fragment	Ceramic disc	Bronze cypriot pin	Bronze unetice pin	Bronze flat-head pin with single coil	Bronze spherical-head pin	Bronze tube-head pin	Bronze pin-other	Bronze hair ring	Bronze tube	Bronze beads	Bronze ingot	Bronze dagger	Bronze awl	Bronze chisel	Bronze spiral bracelet	Bronze single coil bracelet	Chipped stone	Bone awl	Boar tusk	Bone pendant	Scapula	Other animal bones
234			*	*											*																		
238				*				*											*														
240																																	
245			*																														
253																				*													
256	*					*																										*	
258	*					*					*									*													
259	*			*									*																				
261	*			*																													
264																																	
274				*							*																						
276																																	
277																																	
279																																	
280											*																						
282	*			*																													
283																																	
285	*													*				*	*														
286				*										*				*	*												*		
287	*			*		*			*					*											*								
288	*			*		*																										*	
290																																	
291																																	
293				*							*									*								*					
294	*			*									*		*			*		*			*										

Table A.4. Continued.

298	Burial ID	
300	Bowl	*
303	Onion	*
304	Únětice cup	*
305	Beaker	*
306	Amphora	
	Mug	
	Lugless mug	
	Lugless amphora	
	Jug	
	Storage jar	
	Ceramic fragment	
	Ceramic disc	
	Bronze cyprriot pin	*
	Bronze unetice pin	
	Bronze flat-head pin with single coil	
	Bronze spherical-head pin	*
	Bronze tube-head pin	
	Bronze pin-other	*
	Bronze hair ring	*
	Bronze tube	
	Bronze beads	
	Bronze ingot	
	Bronze dagger	*
	Bronze awl	
	Bronze chisel	
	Bronze spiral bracelet	
	Bronze single coil bracelet	
	Chipped stone	
	Bone awl	
	Boar tusk	*
	Bone pendant	
	Scapula	
	Other animal bones	

Table A.5. Data matrix for Slavkov u Brna (1). S – single burial, D – double burial, T – triple burial, F – female, M – male, R – right, I – indeterminate, I1 – infant I, I2 – infant II, J – juvenile, A – adult.

Burial ID	Disturbance	Number of individuals	Sex	Age	Orientation	Aspect	Stature (cm)	Grave length (cm)	Grave width (cm)	Grave depth (cm)	Coffin length (cm)	Coffin width (cm)	Coffin	Stone	Number of artifacts	Variability of Artifacts	Number of non-bronze artifacts	Number of bronze artifacts	Number of vessels
1	*	S	M	A	W	R	173.1	215	128	17				*	2	1	2	0	0
2	*	S	M	A	W	R	170.8	220	70	22				*	0	0	0	0	0
3	*	S	I	J	SW	R		260	112	32				*	5	1	5	0	5
4	*	D	M, M	A, A	W	R	169.7	288	133	100			*		3	2	2	1	2
5	*	S	F	A	W	L	158.3	210	115	115					1	1	1	0	1
6	*	D	M, I	A, I1	W	I		226	120	153	148	53	*		8	4	7	1	3
7	*	S	I	I2	W	R		200	93	100					4	3	4	0	0
8		S	F	A	W	R		195	80	20					10	4	8	2	5
9	*	S	I	A	NW	I		225	125	56					5	3	4	1	3
10	*	D	M, I	A, I1	NW	R	177.6	180	97	99			*	*	6	3	5	1	2
11	*	S	M	A	W	R	161.2	240	135	134					3	2	2	1	2
12	*	S	M	A	W	R		235	120	70				*	3	1	3	0	3
13	*	S	F	A	W	R		210	103	105	150	60	*		5	2	3	2	3
14	*	S	M	A	W	R		200	105	80	166	46	*	*	5	2	5	0	3
15		S	I	I2	W	R		155	83	20					1	1	1	0	0
16	*	S	I	I1	W	R		165	80	40					1	1	1	0	1
17	*	S	I	NA	W	I		183	85	52					4	1	4	0	4
18		S	I	I2	W	R		210	137	95	150	63	*	*	7	2	5	2	3
19	*	S	I	A	W	R		230	140	222	156	74	*	*	7	4	5	2	3

Table A.5. Continued.

Burial ID	Disturbance	Number of individuals	Sex	Age	Orientation	Aspect	Stature (cm)	Grave length (cm)	Grave width (cm)	Grave depth (cm)	Coffin length (cm)	Coffin width (cm)	Coffin	Stone	Number of artifacts	Variability of Artifacts	Number of non-bronze artifacts	Number of bronze artifacts	Number of vessels
20	*	S	I	I2	W	I		225	120	75					4	2	4	0	3
21	*	S	I	I1	W	I		160	90	79				*	2	2	2	0	1
22	*	S	M	A	NW	I	174.9	160	90	79	167	53	*		1	1	1	0	1
24	*	S	I	I2	W	I		220	120	35					2	2	2	0	0
25	*	D	M, F	A	W	R	152.9 F	180	98	109	85	40	*	*	5	3	3	2	2
26A	*	D	I	J	W	R		235	220	75	153	54	*		3	2	1	2	1
26B		D	I	A	W	R		0	0	0	160	63	*	*	16	2	2	14	2
27		S	I	I1	W	R		130	85	29					3	1	2	1	0
28	*	S	I	NA	W	I		210	110	89					4	2	4	0	3
30	*	D	I, F	I2, A	SW	I	161.8 F	170	90	20					0	0	0	0	0
31	*	T	I, I, I	J, A, A	SW	I		200	86	5					2	2	2	0	1
32	*	S	M	A	W	I	168.6	280	125	70	207	47	*	*	6	2	6	0	5
33		S	M	A	NW	R	165.6	230	80	18				*	6	3	6	0	3
34	*	S	M	A	W	I		210	110	110	140	50	*		4	2	3	1	3
35		S	I	I2	W	R		168	88	80	140	46	*	*	15	3	5	10	4
36	*	S	I	I2	W	R		232	130	106	161	72	*	*	4	2	3	1	3
37		S	F	A	W	R	155.6	210	120	130	155	78	*		12	3	5	7	3
38	*	S	M	A	W	I	160.4	180	100	118	152	55	*	*	5	2	5	0	4
39		S	F	A	W	R		200	122	127	147	38	*	*	9	2	4	5	4
40	*	S	I	NA	W	I		182	102	140					1	1	1	0	1

Table A.5. Continued.

Burial ID	Disturbance	Number of individuals	Sex	Age	Orientation	Aspect	Stature (cm)	Grave length (cm)	Grave width (cm)	Grave depth (cm)	Coffin length (cm)	Coffin width (cm)	Coffin	Stone	Number of artifacts	Variability of Artifacts	Number of non-bronze artifacts	Number of bronze artifacts	Number of vessels
41A	*	T	I	I2	W	I		251	210	220					3	2	1	2	1
41B		T	F	A	W	R		0	0	0	168	76	*		28	4	9	19	6
41C		T	M	A	W	R		0	0	0	152	61	*		7	2	5	2	5
42		S	M	A	W	R	167.8	200	115	140	153	73	*		5	3	4	1	3
43A		D	I	I1	W	I		200	100	100					3	2	3	0	2
43B		D	F	A	W	R	162.4	0	0	0	159	55	*	*	7	3	2	5	1
44	*	S	I	J	W	R		180	108	60					4	2	4	0	3
45	*	S	F	A	W	R	163.2	205	120	53					2	2	1	1	1

Table A.6. Data matrix for Slavkov u Brna (2).

Burial ID	Bowl	Onion	Únětice cup	Beaker	Amphora	Mug	Lugless amphora	Jug	Storage jar	Ceramic fragment	Bronze hair ring	Bronze Cypriot pin	Bronze Únětice pin	Bronze flat-head pin	Bronze spherical-head pin	Bronze pin – other	Bronze dagger	Bronze tube	Bronze spiral bracelet	Bronze ring ingot	Stone dart	Stone flake	Stone pebble	Amber bead	Quern stone	Bone awl	Bone pin	Bone pendant	Bone bead	Scapula	Shell	Other animal bones
1																					*				*							
2																																
3	*			*		*																										
4	*			*							*																					
5		*																														
6	*		*	*								*														*					*	
7																									*		*				*	*
8	*	*				*					*											*				*					*	
9		*			*	*											*						*									
10		*									*														*	*	*					
11	*		*										*																			
12	*		*				*																									
13	*		*			*					*																					
14	*			*		*																								*		*
15																																
16						*																										
17	*	*		*																												
18	*			*							*													*								
19	*		*	*							*										*										*	

Table A.6. Continued.

Burial ID	Bowl	Onion	Únětice cup	Beaker	Amphora	Mug	Lugless amphora	Jug	Storage jar	Ceramic fragment	Bronze hair ring	Bronze Cypriot pin	Bronze Únětice pin	Bronze flat-head pin	Bronze spherical-head pin	Bronze pin – other	Bronze dagger	Bronze tube	Bronze spiral bracelet	Bronze ring ingot	Stone dart	Stone flake	Stone pebble	Amber bead	Quern stone	Bone awl	Bone pin	Bone pendant	Bone bead	Scapula	Shell	Other animal bones
20	*					*																		*								
21										*															*							
22										*																						
24																									*					*		
25	*						*				*															*						*
26A		*									*	*																				
26B		*									*					*																
27																		*						*								
28	*	*		*																												*
30																																
31										*																			*			
32	*	*				*																*										
33	*	*				*																*				*						*
34	*	*																	*													
35	*		*		*	*					*					*			*	*			*									
36	*	*	*													*																
37	*	*				*					*	*											*									*
38	*	*																							*							
39	*			*		*					*	*								*												

Table A.6. Continued.

Burial ID	Bowl	Onion	Únětice cup	Beaker	Amphora	Mug	Lugless amphora	Jug	Storage jar	Ceramic fragment	Bronze hair ring	Bronze Cypriot pin	Bronze Únětice pin	Bronze flat-head pin	Bronze spherical-head pin	Bronze pin – other	Bronze dagger	Bronze tube	Bronze spiral bracelet	Bronze ring ingot	Stone dart	Stone flake	Stone pebble	Amber bead	Quern stone	Bone awl	Bone pin	Bone pendant	Bone bead	Scapula	Shell	Other animal bones
40				*																												
41A									*		*																					
41B	*	*	*				*				*		*						*						*						*	
41C	*		*	*				*					*				*															
42	*	*				*																								*		
43A	*	*																												*		
43B	*										*															*						
44	*		*																						*							
45										*																						

Table A.7. General sample of Late Copper Age preserved single burials (1). BB – Bell Beaker, NI - Nitra, PKU – Proto-Únětice, INH – inhumation, CRE – cremation, R – right, L – left, I – indeterminate, F – female, M – males, I1 – infant I, I2 – infant II, J – juvenile, A – adult, SA – subadult.

Culture	Site	Burial ID	Form	Sex	Age	Age general	Orientation	Aspect	Grave depth (cm)	Construction - wood	Coffin	Mound	Ditch	Number of artifacts	Number of metal artifacts
BB	Brno-Brněnské Ivanovice II	1/34	CRE	I	I	I	I	I						4	0
BB	Brno-Brněnské Ivanovice II	4/35	CRE	I	I	I	I	I	90					2	0
BB	Brno-Černá pole I	1/29	INH	F	A	A	S	R						4	0
BB	Brno-Holásky II	2	CRE	I	I	I	I	I	100					3	0
BB	Brno-Holásky II	3	CRE	I	I	I	I	I						3	0
BB	Brno-Holásky II	4	CRE	I	I	I	I	I						1	0
BB	Brno-Holásky II	5	CRE	I	I	I	I	I	75					6	0
BB	Brno-Holásky II	6	INH	I	I	I	N	L	100					2	0
BB	Brno-Holásky II	7	CRE	I	I	I	I	I	40					6	0
BB	Brno-Holásky II	8	I	I	I	I	I	I						2	0
BB	Brno-Holásky II	9	CRE	I	I	I	I	I	100					1	0
BB	Brno-Holásky II	10	CRE	I	I	I	I	I	100					3	0
BB	Brno-Holásky II	11	I	I	I	I	I	I						2	0
BB	Brno-Holásky II	12	INH	I	I	I	N	L	60					2	0
BB	Brno-Holásky II	13	CRE	I	I	I	I	I	75					7	0
BB	Brno-Holásky II	14	CRE	I	I	I	I	I	50					3	0
BB	Brno-Holásky II	15	CRE	I	I	I	I	I	80					1	0
BB	Brno-Holásky II	16	CRE	I	I	I	I	I	130					3	0
BB	Brno-Holásky II	17	CRE	I	I	I	I	I	120					2	0
BB	Brno-Holásky II	18	CRE	I	I	I	I	I						2	0
BB	Brno-Holásky II	19	CRE	I	I	I	I	I	75					1	0
BB	Brno-Holásky II	20	CRE	I	I	I	I	I	80					3	0
BB	Brno-Holásky II	21	CRE	I	I	I	I	I	85					3	0
BB	Brno-Holásky II	22	CRE	I	I	I	I	I	60					2	0
BB	Brno-Holásky II	23	CRE	I	I	I	I	I	60					1	0

Table A.7. Continued.

Culture	Site	Burial ID	Form	Sex	Age	Age general	Orientation	Aspect	Grave depth (cm)	Construction - wood	Coffin	Mound	Ditch	Number of artifacts	Number of metal artifacts
BB	Brno-Holásky II	24	CRE	I	I	I	I	I	50					1	0
BB	Brno-Holásky II	25	CRE	I	I	I	I	I	80					1	0
BB	Brno-Holásky II	26	CRE	I	I	I	I	I	70					1	0
BB	Brno-Holásky II	27	CRE	I	I	I	I	I	55					2	0
BB	Brno-Holásky II	28	CRE	I	I	I	I	I	60					3	0
BB	Brno-Holásky II	29	CRE	I	I	I	I	I	60					1	0
BB	Brno-Holásky II	30	I	I	I	I	I	I						5	0
BB	Brno-Holásky II	31	CRE	I	I	I	I	I	100					3	0
BB	Brno-Holásky II	32	CRE	I	I	I	I	I	70					3	0
BB	Brno-Holásky II	33	CRE	I	I	I	I	I	80					2	0
BB	Brno-Holásky II	34	CRE	I	I	I	I	I	100					1	0
BB	Brno-Holásky II	35	INH	I	I	I	N	L	90					6	0
BB	Brno-Holásky II	36	CRE	I	I	I	I	I	90					0	0
BB	Brno-Holásky II	37	CRE	I	I	I	I	I	80					1	0
BB	Brno-Holásky II	38	INH	I	I	I	NE	L	110					4	0
BB	Brno-Holásky II	39	CRE	I	I	I	I	I	60					2	0
BB	Brno-Holásky II	40	CRE	I	I	I	I	I	60					4	0
BB	Brno-Holásky II	41	CRE	I	I	I	I	I	100					1	0
BB	Brno-Holásky II	42	CRE	I	I	I	I	I	80					1	0
BB	Brno-Holásky II	43	CRE	I	I	I	I	I	80					1	0
BB	Brno-Holásky II	44	CRE	I	I	I	I	I	80					1	0
BB	Brno-Holásky II	45	CRE	I	I	I	I	I	80					2	0
BB	Brno-Holásky II	46	CRE	I	I	I	I	I	50					3	0
BB	Brno-Holásky II	47	CRE	I	I	I	I	I						2	0
BB	Brno-Holásky II	48	CRE	I	I	I	I	I	90					1	0
BB	Brno-Holásky II	49	CRE	I	I	I	I	I	100					1	0

Table A.7. Continued.

Culture	Site	Burial ID	Form	Sex	Age	Age general	Orientation	Aspect	Grave depth (cm)	Construction - wood	Coffin	Mound	Ditch	Number of artifacts	Number of metal artifacts
BB	Brno-Holásky II	51	CRE	I	I	I	I	I	120					2	0
BB	Brno-Holásky II	52	CRE	I	I	I	I	I	100					4	0
BB	Brno-Holásky II	53	CRE	I	I	I	I	I	100					1	0
BB	Brno-Holásky II	54	CRE	I	I	I	I	I	100					7	0
BB	Brno-Holásky II	55	CRE	I	I	I	I	I	100					1	0
BB	Brno-Holásky II	56	CRE	I	I	I	I	I	110					3	0
BB	Brno-Holásky II	57	CRE	I	I	I	I	I	100					3	0
BB	Brno-Holásky II	58	CRE	I	I	I	I	I	105					2	0
BB	Brno-Holásky II	59	CRE	I	I	I	I	I	100					3	0
BB	Brno-Holásky II	62	CRE	I	I	I	I	I						3	0
BB	Brno-Holásky II	63	CRE	I	I	I	I	I	60					2	0
BB	Brno-Holásky II	64	CRE	I	I	I	I	I	60					2	0
BB	Brno-Holásky II	65	CRE	I	I	I	I	I						3	0
BB	Brno-Holásky II	66	CRE	I	I	I	I	I	70					2	0
BB	Brno-Holásky II	67	CRE	I	I	I	I	I	70					3	0
BB	Brno-Holásky II	68	CRE	I	I	I	I	I						3	0
BB	Brno-Holásky II	69	CRE	I	I	I	I	I						3	0
BB	Brno-Holásky III	1	CRE	I	I	I	I	I	100					2	0
BB	Brno-Chrlice I	2/29	INH	I	I	I	W	I						3	0
BB	Brno-Chrlice I	3/29	INH	I	I	I	WWS	I						3	0
BB	Brno-Chrlice II	3/73	INH	I	I	I	S	R						2	0
BB	Brno-Juliánov	1	INH	M	A	A	N	L						1	0
BB	Brno-Královo pole	1/24	INH	I	I	I	I	R						4	0
BB	Brno-Líšeň	2	INH	F	A	A	SW	R	120					19	0
BB	Brno-Líšeň	3	INH	F	A	A	SW	R	120					13	1
BB	Brno-Líšeň	5	INH	I	I	SA	SW	R	84					3	0

Table A.7. Continued.

Culture	Site	Burial ID	Form	Sex	Age	Age general	Orientation	Aspect	Grave depth (cm)	Construction - wood	Coffin	Mound	Ditch	Number of artifacts	Number of metal artifacts
BB	Brno-Líšeň	6	INH	F	A	A	SW	R	94					2	0
BB	Brno-Líšeň	8	INH	M	A	A	NE	L	130					2	1
BB	Brno-Líšeň	9	INH	F	A	A	NE	R	40					1	0
BB	Brno-Řečkovice II	1/34	INH	I	A	A	N	L						10	0
BB	Brno-Židenice I	6/32	CRE	I	I	I	I	I	55					1	0
BB	Brno-Židenice I	7/32	CRE	I	I	I	I	I	60					4	0
BB	Brno-Židenice I	8/32	CRE	I	I	I	I	I						2	0
BB	Brno-Židenice I	9/32	CRE	I	I	I	I	I						3	0
BB	Brno-Židenice I	10/32	INH	I	I	I	I	I	75					2	0
BB	Brno-Židenice I	11/32	CRE	I	I	I	I	I	75					7	0
BB	Brno-Židenice I	1/45	INH	I	I	I	N	L	110					3	0
BB	Brno-Židenice I	1/63	INH	F	A	A	S	R	53					6	0
BB	Brno-Židenice I	1/67	INH	M	A	A	N	L	140					1	0
BB	Bulhary III	3/77	CRE	I	I	I	I	I	30					3	0
BB	Bulhary III	28/90	INH	I	I	I	NE	L						7	2
BB	Bulhary IV	6/89	INH	I	I	I	NE	L	100					1	0
BB	Bulhary V	1/77	INH	I	I	I	I	I						1	0
BB	Čejč	1	INH	I	I	I	I	R						3	0
BB	Dolní Věstonice II	1/49	INH	I	I	I	I	I	70					4	0
BB	Dolní Věstonice II	2/49	INH	I	I	I	I	L						3	0
BB	Dolní Věstonice III	74/76	INH	F	A	A	S	R	35					2	0
BB	Dolní Věstonice III	84/76	CRE	I	I	I	I	I	10					0	0
BB	Dolní Věstonice III	94/76	I	I	I	A	S	R	37					5	0
BB	Dolní Věstonice III	186/77	INH	I	A	A	S	R	7					1	0
BB	Dolní Věstonice III	187/77	I	I	I	I	I	I	12					3	0
BB	Dolní Věstonice III	303/77	INH	I	I	A	I	I	47					6	0

Table A.7. Continued.

Culture	Site	Burial ID	Form	Sex	Age	Age general	Orientation	Aspect	Grave depth (cm)	Construction - wood	Coffin	Mound	Ditch	Number of artifacts	Number of metal artifacts
BB	Dolní Věstonice III	323/77	INH	I	A	A	S	R	25					5	1
BB	Dolní Věstonice III	324/77	INH	I	I	A	I	I	25					2	0
BB	Dolní Věstonice III	330/77	INH	I	A	A	NE	L	55					4	0
BB	Dolní Věstonice III	333/77	INH	I	A	A	N	L	12					7	0
BB	Dolní Věstonice III	334/77	INH	I	I	A	N	L	50					4	0
BB	Dolní Věstonice III	336/77	INH	I	I	A	N	L	75					2	0
BB	Dolní Věstonice III	338/77	INH	I	A	A	NE	L	40					6	0
BB	Dolní Věstonice III	350/77	INH	I	A	A	NW	L	20					1	0
BB	Dolní Věstonice III	5/87	I	I	I	A	I	I						8	1
BB	Dolní Věstonice III	8/87	INH	I	I	SA	I	I						1	0
BB	Dolní Věstonice III	9/87	INH	I	I	SA	I	I						3	0
BB	Dolní Věstonice III	11/87	INH	I	I	I	N	L						5	0
BB	Dubňany	1	CRE	I	I	I	I	I						4	0
BB	Holubice	1	INH	I	I	SA	S	I						5	0
BB	Holubice IV	1	INH	I	I2	SA	S	R	15					10	0
BB	Holubice IV	3	INH	I	J	SA	NE	L	35					1	0
BB	Holubice IV	4	INH	F	A	A	S	R	18					7	0
BB	Holubice IV	5	INH	I	J	SA	N	L	68	*				4	0
BB	Holubice IV	6	INH	I	J	SA	SW	R	29					2	0
BB	Holubice IV	7	INH	M	A	A	NE	L	7					1	0
BB	Holubice IV	8	INH	I	I	I	W	I						1	0
BB	Horní Bojanovice I	1/91	INH	I	I	I	NW	L						2	0
BB	Ivančice I	1/52	INH	I	I	I	S	R						5	1
BB	Jezeřany-Maršovice	67	INH	I	I	I	N	L	46				*	37	0
BB	Jiřkovice	1	INH	M	A	A	N	L						4	1
BB	Jiřkovice	K829	INH	I	I	A	N	L	30					4	1

Table A.7. Continued.

Culture	Site	Burial ID	Form	Sex	Age	Age general	Orientation	Aspect	Grave depth (cm)	Construction - wood	Coffin	Mound	Ditch	Number of artifacts	Number of metal artifacts
BB	Kobylnice I	2/26	INH	I	I	I	S	R	160					5	0
BB	Kobylnice I	3/26	INH	I	I	I	S	R						5	0
BB	Kobylnice I	4/27	INH	I	I	I	N	L	150					0	0
BB	Kobylnice I	5/27	INH	I	I	I	S	R	150					1	0
BB	Kobylnice I	6/27	INH	I	I	I	N	L						1	0
BB	Kobylnice I	7/27	INH	I	A	A	NE	L	130					2	0
BB	Kobylnice I	8/27	INH	I	I	I	S	I	110					0	0
BB	Kobylnice I	9/27	INH	I	I	I	NE	L	120					1	0
BB	Kobylnice I	10/27	INH	I	A	A	SE	L	240					4	0
BB	Kobylnice I	11/27	CRE	I	I	I	I	I	60					7	0
BB	Kobylnice I	12/27	INH	I	I	I	NE	L	150					3	1
BB	Kobylnice I	13/27	I	I	I	I	I	I	100					8	0
BB	Kobylnice I	16/27	INH	I	I	I	NE	I	80					3	0
BB	Kobylnice I	19/27	INH	I	I	I	NE	L	140					2	0
BB	Kobylnice I	20/27	INH	I	J	A	SW	R	110					5	0
BB	Kobylnice I	21/27	INH	I	I2	SA	SW	I	10					3	0
BB	Kobylnice I	22/27	INH	I	A	A	NE	L	225					8	1
BB	Kobylnice I	23/27	INH	I	I2	SA	NE	I	110					4	0
BB	Kobylnice I	24/27	INH	I	A	A	SW	R	180					6	0
BB	Kobylnice I	25/27	INH	I	I2	SA	NE	L						3	0
BB	Kobylnice I	29/28	INH	I	I	I	NE	L						2	0
BB	Ledce II	1/52	INH	I	I	I	I	L	100	*				7	0
BB	Ledce II	2/52	INH	I	I	I	N	L	110	*				13	0
BB	Lechovice	1	INH	I	I1	SA	NW	L	35					2	0
BB	Lechovice	2	CRE	I	I1	SA	I	I	35					1	0
BB	Lechovice	3	CRE	I	I	I	I	I	75					5	0

Table A.7. Continued.

Culture	Site	Burial ID	Form	Sex	Age	Age general	Orientation	Aspect	Grave depth (cm)	Construction - wood	Coffin	Mound	Ditch	Number of artifacts	Number of metal artifacts
BB	Ostopovice	13/70	INH	I	I1	SA	SW	R	90					2	0
BB	Ostopovice	14/70	INH	M	A	A	NNE	L	100					9	0
BB	Ostopovice	16/70	INH	I	J	SA	NNW	L	0					0	0
BB	Ostopovice	17/70	INH	I	I2	SA	NE	L	100					3	0
BB	Ostopovice	18/70	INH	I	A	A	S	R	130					3	0
BB	Ostopovice	19/70	INH	F	A	A	SSW	R	110	*				33	1
BB	Pavlov I	500/83	INH	M	A	A	N	L	25					4	1
BB	Pavlov I	501/83	INH	F	A	A	SW	R	18					17	0
BB	Pavlov I	502/83	INH	M	A	A	NE	L	35					5	0
BB	Pavlov I	505/83	INH	I	I1	SA	S	R	10					4	0
BB	Pavlov I	511/83	INH	I	I1	SA	N	L	9					2	0
BB	Pavlov I	512/83	INH	F	A	A	S	R	20					4	0
BB	Pavlov I	513/83	INH	M	A	A	S	R	25					6	0
BB	Pavlov I	514/83	INH	M	A	A	SW	R						8	0
BB	Pavlov I	515/83	INH	I	I1	SA	SW	R						3	0
BB	Pavlov I	516/83	INH	M	A	A	NE	L	16					1	0
BB	Pavlov I	517/83	INH	M	A	A	NE	L	22					1	0
BB	Pavlov I	519/83	INH	I	I1	SA	NE	L	30					8	0
BB	Pavlov I	520/83	INH	I	J	SA	NE	L	40					3	0
BB	Pavlov I	523/83	INH	I	J	SA	SW	R	29					6	0
BB	Pavlov I	524/83	INH	M	J	J	NE	L	25					4	0
BB	Pavlov I	526/83	INH	I	I	I	I	L	27					2	0
BB	Pavlov I	529/83	CRE	I	A	A	I	I	20					3	0
BB	Pavlov I	563/84	INH	I	A	A	SW	R	23					5	0
BB	Pavlov I	565/84	INH	I	J	SA	NE	L	35					3	0
BB	Pavlov I	566/84	INH	I	J	SA	N	L	22					1	0

Table A.7. Continued.

Culture	Site	Burial ID	Form	Sex	Age	Age general	Orientation	Aspect	Grave depth (cm)	Construction - wood	Coffin	Mound	Ditch	Number of artifacts	Number of metal artifacts
BB	Pavlov I	567/84	INH	M	A	A	N	L	26					2	0
BB	Pavlov I	569/84	INH	I	A	A	I	I	20					2	0
BB	Pavlov I	570/84	INH	I	A	A	NE	L	32					5	0
BB	Pavlov I	573/84	INH	I	A	A	N	L	38					4	0
BB	Pavlov I	585/84	INH	F	A	A	SE	R	28					7	0
BB	Pavlov I	588/84	INH	F	A	A	S	R	38					4	0
BB	Pavlov I	590/84	INH	I	I1	SA	NE	I	10					3	0
BB	Pavlov I	591/84	INH	I	A	A	SW	R	25					3	0
BB	Pavlov I	593/84	INH	M	A	A	NE	L	12					5	0
BB	Pavlov I	1065/88	INH	I	I	I	NE	L	80					3	0
BB	Pavlov II	1/87	INH	I	I	I	NE	L						2	0
BB	Prosiměřice	A	INH	M	A	A	I	I	195	*		*	*	15	0
BB	Prosiměřice	B	CRE	F	A	A	I	I						2	1
BB	Pustiměřické Prusice	1	CRE	I	I	I	I	I						4	0
BB	Pustiměřické Prusice	2	INH	I	I	I	N	I						2	0
BB	Pustiměřické Prusice	4	INH	I	I	I	SE	I						5	0
BB	Pustiměřické Prusice	5	CRE	I	I	I	I	I						2	0
BB	Pustiměřické Prusice	7	INH	I	I	I	N	I						3	0
BB	Pustiměřické Prusice	8	INH	I	I	I	SW	I						24	0
BB	Pustiměřické Prusice	10	INH	I	I	I	N	I						4	0
BB	Smolín I	13/51	I	I	I	I	I	I	275					7	0
BB	Smolín I	33/52	I	I	I	I	I	I	125					4	0
BB	Smolín I	40/53	INH	I	I	SA	I	I	100					1	0
BB	Šlapanice II	2a/35	INH	I	I	A	I	I						2	0
BB	Šlapanice II	3a/35	INH	I	I	A	I	I						2	0
BB	Šlapanice II	4a/35	INH	I	I	A	I	I						4	0

Table A.7. Continued.

Culture	Site	Burial ID	Form	Sex	Age	Age general	Orientation	Aspect	Grave depth (cm)	Construction - wood	Coffin	Mound	Ditch	Number of artifacts	Number of metal artifacts
BB	Šlapanice II	5a/35	CRE	I	I	I	I	I						1	0
BB	Šlapanice II	1/34	INH	I	I	A	I	I	40					3	0
BB	Šlapanice II	2/34	INH	I	I	A	S	R	60					3	0
BB	Šlapanice II	3/34	INH	I	I	SA	I	I	50					6	0
BB	Šlapanice II	4/34	INH	I	I	A	N	L						7	1
BB	Šlapanice II	5/34	INH	I	I	A	N	L	140					2	0
BB	Šlapanice II	6/34	INH	I	I	A	N	L	100					3	0
BB	Šlapanice II	7/34	CRE	I	I	I	I	I	40					3	0
BB	Šlapanice II	8/34	INH	I	I	A	S	R	100					4	0
BB	Šlapanice II	9/34	INH	I	I	A	N	L	100					2	0
BB	Šlapanice II	10/34	INH	I	I	SA	S	R	40					3	0
BB	Šlapanice II	11/34	INH	I	I	SA	I	I	40					4	0
BB	Šlapanice II	12/34	INH	I	I	A	S	R	120					8	1
BB	Šlapanice II	13/34	INH	I	I	A	S	R	80					4	0
BB	Šlapanice II	14/34	INH	I	I	SA	I	I						3	0
BB	Šlapanice II	15/34	INH	I	I	A	SW	R	140					9	0
BB	Šlapanice II	16/34	INH	I	I	A	S	R	140					4	0
BB	Šlapanice II	17/34	I	I	I	A	I	I						6	0
BB	Šlapanice II	1/35	INH	I	I	A	S	R	100					4	0
BB	Šlapanice II	2/35	INH	I	I	SA	N	L	70					2	0
BB	Šlapanice II	3/35	I	I	I	A	I	I						4	0
BB	Šlapanice II	4/35	INH	I	I	A	N	L	140					3	0
BB	Šlapanice II	7/35	CRE	I	I	I	I	I	40					3	0
BB	Šlapanice II	8/35	I	I	I	A	I	I	25					3	0
BB	Šlapanice II	9/35	CRE	I	I	I	I	I						1	0
BB	Šlapanice II	10/35	CRE	I	I	I	I	I	70					3	0

Table A.7. Continued.

Culture	Site	Burial ID	Form	Sex	Age	Age general	Orientation	Aspect	Grave depth (cm)	Construction - wood	Coffin	Mound	Ditch	Number of artifacts	Number of metal artifacts
BB	Šlapanice II	11/35	INH	I	I	A	S	L	220					6	0
BB	Šlapanice II	12/35	INH	I	I	A	N	R	100					3	0
BB	Šlapanice II	13/35	INH	I	I	A	S	R	90					3	0
BB	Šlapanice II	14/35	INH	I	I	A	S	R	70					2	0
BB	Šlapanice II	15/35	INH	I	I	A	S	R	100					5	0
BB	Šlapanice II	16/35	INH	I	I	A	S	R	90					2	0
BB	Šlapanice II	17/35	INH	I	I	SA	S	R	40					3	0
BB	Šlapanice II	18/35	INH	I	I	SA	N	L	100					4	0
BB	Šlapanice II	19/35	I	I	I	A	I	I						2	0
BB	Šlapanice II	20/35	CRE	I	I	I	I	I						3	0
BB	Šlapanice II	21/35	INH	I	I	A	N	L	130					7	1
BB	Šlapanice II	22/35	INH	I	I	A	N	L	100					4	0
BB	Šlapanice II	23/35	INH	I	I	A	S	R	50					6	0
BB	Šlapanice II	24/35	INH	I	I	A	N	L	120					3	0
BB	Šlapanice II	25/35	INH	I	I	A	S	R	64					4	0
BB	Šlapanice II	26/35	INH	I	I	A	S	R	100					5	0
BB	Šlapanice II	27/35	INH	I	I	A	I	I						5	0
BB	Šlapanice II	1b/35	INH	I	I	A	S	R	100					5	0
BB	Šlapanice II	2b/35	INH	I	I	A	S	R	100					4	0
BB	Šlapanice II	3b/35	CRE	I	I	I	I	I						1	0
BB	Šlapanice II	4b/35	INH	I	I	A	I	I						3	0
BB	Tvořín	1/90	INH	F	A	A	SE	R	93	*			*	13	1
BB	Tvořín	4/91	INH	I	A	A	S	R	40					8	0
BB	Uherčice I	1/45	CRE	I	I	I	I	I						3	0
BB	Uherčice I	2/45	INH	I	I	SA	N	R						5	0
BB	Újezd u Brna I	1/84	INH	I	I	SA	I	I	120					4	0

Table A.7. Continued.

Culture	Site	Burial ID	Form	Sex	Age	Age general	Orientation	Aspect	Grave depth (cm)	Construction - wood	Coffin	Mound	Ditch	Number of artifacts	Number of metal artifacts
BB	Újezd u Brna I	2/85	INH	I	I	SA	N	L						3	0
BB	Veselí nad Moravou	1	INH	I	I	I	SE	L						7	0
BB	Želešice II	1/25	INH	I	I	I	N	L	100					0	0
BB	Želešice II	2/25	INH	F	I	A	N	L	100					4	0
BB	Želešice II	3/25	INH	M	I	A	N	L	100					3	0
BB	Želešice II	4/25	INH	I	I2	SA	S	R	80					4	0
BB	Želešice II	7/25	INH	I	I	I	I	I						1	0
BB	Želešice II	8/30	CRE	I	I	I	I	I						2	0
BB	Želešice II	9/30	CRE	I	I	I	I	I						2	0
BB	Želešice II	10/30	INH	I	I	I	I	I						3	0
BB	Želešice II	11/30	INH	I	I	I	I	I						1	0
BB	Želešice III	1/29	INH	F	A	A	S	R						3	0
NI	Dolní Němčí	1	INH	I	A	A	W	I						5	2
PUK	Bedřichovice	1/50	INH	F	A	A	SSW	R	26					5	0
PUK	Bedřichovice	2/50	INH	I	I	SA	I	I	10					2	0
PUK	Bedřichovice	3/50	INH	I	I2	SA	SSW	R	50					13	1
PUK	Bedřichovice	4/50	INH	F	A	A	SSW	R	40					3	0
PUK	Bedřichovice	5/50	INH	M	A	A	SSW	R	35					2	0
PUK	Bedřichovice	6/50	INH	F	A	A	SSW	R	30					3	0
PUK	Bedřichovice	7/50	CRE	I	I	I	I	I	18					1	0
PUK	Bedřichovice	8/50	INH	I	I	SA	SSW	R	39					2	0
PUK	Bedřichovice	9/50	INH	I	I	SA	SSW	R	50					3	0
PUK	Bedřichovice	10/50	INH	I	I	SA	SSW	I	10					3	0
PUK	Bedřichovice	11/50	INH	F	A	A	S	R	60					4	0
PUK	Bedřichovice	1/80	INH	I	I1	SA	S	I	12					2	0
PUK	Bedřichovice	2/80	INH	I	A	A	SSW	R	10					4	0

Table A.7. Continued.

Culture	Site	Burial ID	Form	Sex	Age	Age general	Orientation	Aspect	Grave depth (cm)	Construction - wood	Coffin	Mound	Ditch	Number of artifacts	Number of metal artifacts
PUK	Bedřichovice	3/80	INH	M	A	A	SSW	R	5					3	0
PUK	Bedřichovice	4/80	INH	F	A	A	SSW	R	5					1	0
PUK	Bedřichovice	5/80	INH	I	I2	SA	S	R	12					2	0
PUK	Bedřichovice	7/80	INH	F	A	A	SW	R	7					2	0
PUK	Bedřichovice	9/80	INH	F	A	A	SE	R	22					3	0
PUK	Bedřichovice	11/80	INH	F	A	A	S	R	80					3	0
PUK	Moravská Nová Ves-Hrušky	8	INH	M	A	A	SSE	R	12					7	0
PUK	Moravská Nová Ves-Hrušky	10	INH	I	A	A	S	R	14					7	0
PUK	Moravská Nová Ves-Hrušky	11	INH	F	A	A	N	L	20					3	0
PUK	Moravská Nová Ves-Hrušky	13	INH	I	I1	SA	N	L	21		*			9	2
PUK	Moravská Nová Ves-Hrušky	14	INH	I	I1	SA	NNE	L	16					5	0
PUK	Moravská Nová Ves-Hrušky	15	INH	M	A	A	S	R	55					2	0
PUK	Moravská Nová Ves-Hrušky	18	INH	M	A	A	S	R	35					3	0
PUK	Moravská Nová Ves-Hrušky	19/I	INH	M	A	A	S	R	50	*				4	0
PUK	Moravská Nová Ves-Hrušky	19/II	INH	M	A	A	N	R	65	*	*			3	0
PUK	Moravská Nová Ves-Hrušky	20	INH	F	A	A	NNE	L	7					4	0
PUK	Moravská Nová Ves-Hrušky	21	I	I	I	I	I	I	11					2	0
PUK	Moravská Nová Ves-Hrušky	22	INH	I	A	A	NNE	L	8					3	0
PUK	Moravská Nová Ves-Hrušky	24	INH	I	I1	SA	SSE	R	25					2	0
PUK	Moravská Nová Ves-Hrušky	27	INH	I	J	SA	S	R	14	*				4	0
PUK	Moravská Nová Ves-Hrušky	28	INH	I	A	A	N	L	40					2	0
PUK	Moravská Nová Ves-Hrušky	29	INH	I	A	A	S	R	8					3	0
PUK	Moravská Nová Ves-Hrušky	30	INH	M	A	A	S	R	17					18	0
PUK	Moravská Nová Ves-Hrušky	31	INH	I	A	A	N	L	30		*			4	0
PUK	Moravská Nová Ves-Hrušky	38	INH	I	A	A	S	R	35		*			8	0
PUK	Otnice	1	INH	M	A	A	S	I	80					3	0

Table A.7. Continued.

Culture	Site	Burial ID	Form	Sex	Age	Age general	Orientation	Aspect	Grave depth (cm)	Construction - wood	Coffin	Mound	Ditch	Number of artifacts	Number of metal artifacts
PUK	Otnice	2	INH	I	I2	SA	S	R	60					3	0
PUK	Otnice	4	INH	M	A	A	SSW	R	120		*			2	0
PUK	Otnice	5	INH	F	A	A	SSW	R	60					3	0
PUK	Otnice	7	INH	I	I	I	S	R	50					2	0
PUK	Velké Bílovice	1	INH	I	I	I	I	I						6	0
PUK	Velké Pavlovice	10	INH	I	A	A	SSW	R	7					3	0
PUK	Velké Pavlovice	20	INH	I	A	A	SE	I	15					5	1
PUK	Vyškov	2	INH	I	I	I	N	L						5	0

Table A.8. General sample of Late Copper Age preserved single burials (2). BB – Bell Beaker, NI - Nitra, PKU – Proto-Únětice.

Culture	Site	Burial ID	Bowl	Bell beaker	Other liquid container	Storage jar	Ceramics other	Copper awl	Copper dagger	Copper button	Copper ring	Copper plaque	Golden plaque	Golden ring	Silver ring	Stone dart	Stone flake	Stone wrist guard	Ground stone axe	Stone pebble	Amber button	Amber bead	Stone sharpener	Quern stone	Other stone	Bone button	Bone brace	Bone awl	Bone pin	Boar tusk	Dog teeth	Bone bead	Bone pendant	Bone burnisher	Fauna	Faïence bead	Daub	Spindle whorl
BB	Brno-Brněnské Ivanovice II	1/34			*																																	
BB	Brno-Brněnské Ivanovice II	4/35		*															*																			
BB	Brno-Černá pole I	1/29	*		*												*																					
BB	Brno-Holásky II	2	*		*																																	
BB	Brno-Holásky II	3	*		*																																	
BB	Brno-Holásky II	4			*																																	
BB	Brno-Holásky II	5	*	*	*												*																					
BB	Brno-Holásky II	6			*																																	
BB	Brno-Holásky II	7	*		*																																	
BB	Brno-Holásky II	8	*		*																																	
BB	Brno-Holásky II	9			*																																	
BB	Brno-Holásky II	10		*																																		
BB	Brno-Holásky II	11	*		*																																	
BB	Brno-Holásky II	12			*																																	
BB	Brno-Holásky II	13	*		*											*		*								*												
BB	Brno-Holásky II	14	*	*													*																					
BB	Brno-Holásky II	15			*																				*													
BB	Brno-Holásky II	16	*	*	*																																	
BB	Brno-Holásky II	17			*											*																						
BB	Brno-Holásky II	18			*																																	
BB	Brno-Holásky II	19	*																																			
BB	Brno-Holásky II	20	*		*																																	
BB	Brno-Holásky II	21	*		*																				*													
BB	Brno-Holásky II	22	*		*																																	
BB	Brno-Holásky II	23			*																																	

Table A.8. Continued.

Culture	Site	Burial ID	Bowl	Bell beaker	Other liquid container	Storage jar	Ceramics other	Copper awl	Copper dagger	Copper button	Copper ring	Copper plaquet	Golden plaquet	Golden ring	Silver ring	Stone dart	Stone flake	Stone wrist guard	Ground stone axe	Stone pebble	Amber button	Amber bead	Stone sharpener	Quern stone	Other stone	Bone button	Bone brace	Bone awl	Bone pin	Boar tusk	Dog teeth	Bone bead	Bone pendant	Bone burnisher	Fauna	Faïanse bead	Daub	Spindle whorl
BB	Brno-Holásky II	24			*																																	
BB	Brno-Holásky II	25			*																																	
BB	Brno-Holásky II	26			*																																	
BB	Brno-Holásky II	27	*		*																																	
BB	Brno-Holásky II	28	*		*																																	
BB	Brno-Holásky II	29	*		*																																	
BB	Brno-Holásky II	30	*	*	*																																	
BB	Brno-Holásky II	31	*		*											*																						
BB	Brno-Holásky II	32	*		*																																	
BB	Brno-Holásky II	33	*		*																																	
BB	Brno-Holásky II	34			*																																	
BB	Brno-Holásky II	35			*											*		*																				
BB	Brno-Holásky II	36																																				
BB	Brno-Holásky II	37			*																																	
BB	Brno-Holásky II	38	*		*												*																					
BB	Brno-Holásky II	39	*		*																																	
BB	Brno-Holásky II	40	*		*																																	
BB	Brno-Holásky II	41			*																																	
BB	Brno-Holásky II	42	*																																			
BB	Brno-Holásky II	43																																				
BB	Brno-Holásky II	44			*																																	
BB	Brno-Holásky II	45			*																																	
BB	Brno-Holásky II	46			*												*																					
BB	Brno-Holásky II	47			*												*																					
BB	Brno-Holásky II	48			*																																	
BB	Brno-Holásky II	49			*																																	

Table A.8. Continued.

Culture	Site	Burial ID	Bowl	Bell beaker	Other liquid container	Storage jar	Ceramics other	Copper awl	Copper dagger	Copper button	Copper ring	Copper plaque	Golden plaque	Golden ring	Silver ring	Stone dart	Stone flake	Stone wrist guard	Ground stone axe	Stone pebble	Amber button	Amber bead	Stone sharpener	Quern stone	Other stone	Bone button	Bone brace	Bone awl	Bone pin	Boar tusk	Dog teeth	Bone bead	Bone pendant	Bone burnisher	Fauna	Faïence bead	Daub	Spindle whorl
BB	Brno-Holásky II	51	*		*																																	
BB	Brno-Holásky II	52	*	*	*																																	
BB	Brno-Holásky II	53			*																																	
BB	Brno-Holásky II	54	*		*																																	
BB	Brno-Holásky II	55	*																																			
BB	Brno-Holásky II	56	*		*												*																					
BB	Brno-Holásky II	57	*		*																																	
BB	Brno-Holásky II	58	*		*																																	
BB	Brno-Holásky II	59	*		*																																	
BB	Brno-Holásky II	62	*		*																																	*
BB	Brno-Holásky II	63			*																																	
BB	Brno-Holásky II	64			*												*																					
BB	Brno-Holásky II	65			*																																	
BB	Brno-Holásky II	66	*		*																																	
BB	Brno-Holásky II	67			*																			*														
BB	Brno-Holásky II	68			*										*	*																						
BB	Brno-Holásky II	69	*		*																																	
BB	Brno-Holásky III	1		*	*																																	
BB	Brno-Chrlice I	2/29			*																																	
BB	Brno-Chrlice I	3/29	*		*																																	
BB	Brno-Chrlice II	3/73	*		*																			*														
BB	Brno-Juliánov	1			*																																	
BB	Brno-Královo pole	1/24	*	*																																		
BB	Brno-Líšeň	2	*	*																	*				*													
BB	Brno-Líšeň	3	*	*	*			*																	*										*			
BB	Brno-Líšeň	5	*		*																																	

Table A.8. Continued.

Culture	Site	Burial ID	Bowl	Bell beaker	Other liquid container	Storage jar	Ceramics other	Copper awl	Copper dagger	Copper button	Copper ring	Copper plaque	Golden plaque	Golden ring	Silver ring	Stone dart	Stone flake	Stone wrist guard	Ground stone axe	Stone pebble	Amber button	Amber bead	Stone sharpener	Quern stone	Other stone	Bone button	Bone brace	Bone awl	Bone pin	Boar tusk	Dog teeth	Bone bead	Bone pendant	Bone burnisher	Fauna	Faïence bead	Daub	Spindle whorl
BB	Brno-Líšeň	6			*																																	
BB	Brno-Líšeň	8						*										*																				
BB	Brno-Líšeň	9		*																																		
BB	Brno-Řečkovice II	1/34		*	*												*		*								*											
BB	Brno-Židenice I	6/32	*																																			
BB	Brno-Židenice I	7/32		*													*																					
BB	Brno-Židenice I	8/32	*		*																																	
BB	Brno-Židenice I	9/32	*	*	*																																	
BB	Brno-Židenice I	10/32	*														*																					
BB	Brno-Židenice I	11/32	*		*																																	
BB	Brno-Židenice I	1/45	*		*																																	
BB	Brno-Židenice I	1/63	*		*																	*													*			
BB	Brno-Židenice I	1/67			*																																	
BB	Bulhary III	3/77	*	*	*																																	
BB	Bulhary III	28/90	*	*	*								*												*													
BB	Bulhary IV	6/89	*																																			
BB	Bulhary V	1/77			*																																	
BB	Čejč	1	*		*																																	
BB	Dolní Věstonice II	1/49			*												*																					
BB	Dolní Věstonice II	2/49			*											*																						
BB	Dolní Věstonice III	74/76		*	*																																	
BB	Dolní Věstonice III	84/76			*																																	
BB	Dolní Věstonice III	94/76	*	*	*																															*		
BB	Dolní Věstonice III	186/77			*																																	
BB	Dolní Věstonice III	187/77	*	*																																		
BB	Dolní Věstonice III	303/77	*		*												*																			*		

Table A.8. Continued.

Culture	Site	Burial ID	Bowl	Bell beaker	Other liquid container	Storage jar	Ceramics other	Copper awl	Copper dagger	Copper button	Copper ring	Copper plaque	Golden plaque	Golden ring	Silver ring	Stone dart	Stone flake	Stone wrist guard	Ground stone axe	Stone pebble	Amber button	Amber bead	Stone sharpener	Quern stone	Other stone	Bone button	Bone brace	Bone awl	Bone pin	Boar tusk	Dog teeth	Bone bead	Bone pendant	Bone burnisher	Fauna	Faïence bead	Daub	Spindle whorl
BB	Dolní Věstonice III	323/77	*	*	*			*																														
BB	Dolní Věstonice III	324/77		*																																		
BB	Dolní Věstonice III	330/77		*													*	*																				
BB	Dolní Věstonice III	333/77	*	*													*																		*			
BB	Dolní Věstonice III	334/77		*	*																																	
BB	Dolní Věstonice III	336/77			*																																	
BB	Dolní Věstonice III	338/77	*		*																														*			
BB	Dolní Věstonice III	350/77		*																																		
BB	Dolní Věstonice III	5/87		*	*			*																*														
BB	Dolní Věstonice III	8/87			*																																	
BB	Dolní Věstonice III	9/87	*		*																																	
BB	Dolní Věstonice III	11/87	*		*																														*			
BB	Dubňany	1	*	*	*		*																															
BB	Holubice	1	*		*																																	
BB	Holubice IV	1	*	*	*												*								*								*					
BB	Holubice IV	3																																		*		
BB	Holubice IV	4	*	*	*																																	
BB	Holubice IV	5	*	*																										*					*			
BB	Holubice IV	6			*																																	
BB	Holubice IV	7		*																																		
BB	Holubice IV	8			*																																	
BB	Horní Bojanovice I	1/91	*	*																																		
BB	Ivančice I	1/52	*	*	*																																	
BB	Jezeřany-Maršovice	67		*											*	*	*	*		*				*			*		*									
BB	Jiřkovice	1							*							*																						
BB	Jiřkovice	K829	*	*					*							*																						

Table A.8. Continued.

Culture	Site	Burial ID	Bowl	Bell beaker	Other liquid container	Storage jar	Ceramics other	Copper awl	Copper dagger	Copper button	Copper ring	Copper plaque	Golden plaque	Golden ring	Silver ring	Stone dart	Stone flake	Stone wrist guard	Ground stone axe	Stone pebble	Amber button	Amber bead	Stone sharpener	Quern stone	Other stone	Bone button	Bone brace	Bone awl	Bone pin	Boar tusk	Dog teeth	Bone bead	Bone pendant	Bone burnisher	Fauna	Faïence bead	Daub	Spindle whorl
BB	Kobylnice I	2/26	*	*	*																																	
BB	Kobylnice I	3/26			*																																	
BB	Kobylnice I	4/27																																				
BB	Kobylnice I	5/27			*																																	
BB	Kobylnice I	6/27			*																																	
BB	Kobylnice I	7/27	*		*																																	
BB	Kobylnice I	8/27																																				
BB	Kobylnice I	9/27			*																																	
BB	Kobylnice I	10/27	*	*	*																																	
BB	Kobylnice I	11/27	*	*	*																																	
BB	Kobylnice I	12/27		*					*															*														
BB	Kobylnice I	13/27	*	*	*																																	
BB	Kobylnice I	16/27	*		*																																	
BB	Kobylnice I	19/27	*		*																																	
BB	Kobylnice I	20/27	*		*																																	
BB	Kobylnice I	21/27	*		*																																	
BB	Kobylnice I	22/27	*	*				*								*																				*		
BB	Kobylnice I	23/27	*		*																																	
BB	Kobylnice I	24/27	*	*	*																				*													
BB	Kobylnice I	25/27	*		*																																	
BB	Kobylnice I	29/28			*																																	
BB	Ledce II	1/52		*																									*									
BB	Ledce II	2/52		*	*											*	*																					
BB	Lechovice	1			*																																	
BB	Lechovice	2					*																															
BB	Lechovice	3	*		*		*																												*			

Table A.8. Continued.

Culture	Site	Burial ID	Bowl	Bell beaker	Other liquid container	Storage jar	Ceramics other	Copper awl	Copper dagger	Copper button	Copper ring	Copper plaquet	Golden plaquet	Golden ring	Silver ring	Stone dart	Stone flake	Stone wrist guard	Ground stone axe	Stone pebble	Amber button	Amber bead	Stone sharpener	Quern stone	Other stone	Bone button	Bone brace	Bone awl	Bone pin	Boar tusk	Dog teeth	Bone bead	Bone pendant	Bone burnisher	Fauna	Faïanse bead	Daub	Spindle whorl
BB	Lechovice	4	*	*		*																																
BB	Lechovice	5																*																				
BB	Lechovice	6	*	*					*		*			*							*																*	
BB	Lechovice	7	*	*								*										*				*							*					
BB	Luleč	1	*	*					*							*		*																				
BB	Modřice	1/43	*	*																																		
BB	Moravany I	1/39	*	*																																		
BB	Moravská Nová Ves-Hrušky	26/91																																				
BB	Moravská Nová Ves-Hrušky	32/91	*	*																																		
BB	Moravská Nová Ves-Hrušky	39/92	*	*																																		
BB	Moravská Nová Ves-Hrušky	41/92	*	*																																		
BB	Moravská Nová Ves-Hrušky	42/92	*	*																																		
BB	Moravská Nová Ves-Hrušky	43/92			*																																	
BB	Morkůvky I	1/81	*	*																																*		
BB	Oslavany I																																					
BB	Ostopovice	2/70	*																																			
BB	Ostopovice	3/70																																				
BB	Ostopovice	4/70			*																																	
BB	Ostopovice	5/70																																				
BB	Ostopovice	6/70																																				
BB	Ostopovice	7/70																																				
BB	Ostopovice	8/70			*																																	
BB	Ostopovice	9/70																																				

Table A.8. Continued.

Culture	Site	Burial ID	Bowl	Bell beaker	Other liquid container	Storage jar	Ceramics other	Copper awl	Copper dagger	Copper button	Copper ring	Copper plaquet	Golden plaquet	Golden ring	Silver ring	Stone dart	Stone flake	Stone wrist guard	Ground stone axe	Stone pebble	Amber button	Amber bead	Stone sharpener	Quern stone	Other stone	Bone button	Bone brace	Bone awl	Bone pin	Boar tusk	Dog teeth	Bone bead	Bone pendant	Bone burnisher	Fauna	Faïanse bead	Daub	Spindle whorl		
BB	Ostopovice	12/70	*	*																																				
BB	Ostopovice	13/70	*	*																																				
BB	Ostopovice	14/70	*	*												*																				*				
BB	Ostopovice	16/70																																						
BB	Ostopovice	17/70	*	*																																				
BB	Ostopovice	18/70	*	*																																*				
BB	Ostopovice	19/70	*	*																		*			*			*		*										
BB	Pavlov I	500/83			*			*																						*										
BB	Pavlov I	501/83	*	*																					*											*				
BB	Pavlov I	502/83	*	*												*															*					*				
BB	Pavlov I	505/83	*	*																												*								
BB	Pavlov I	511/83	*	*																																				
BB	Pavlov I	512/83			*												*																							
BB	Pavlov I	513/83	*	*	*																															*				
BB	Pavlov I	514/83																							*															
BB	Pavlov I	515/83	*	*																																				
BB	Pavlov I	516/83			*																																			
BB	Pavlov I	517/83	*																																					
BB	Pavlov I	519/83	*	*												*	*	*																		*				
BB	Pavlov I	520/83											*																											
BB	Pavlov I	523/83	*	*											*																					*				
BB	Pavlov I	524/83	*														*																		*					
BB	Pavlov I	526/83	*																																	*				
BB	Pavlov I	529/83		*																																				
BB	Pavlov I	563/84	*	*	*																																			
BB	Pavlov I	565/84	*	*	*																																			

Table A.8. Continued.

Culture	Site	Burial ID	Bowl	Bell beaker	Other liquid container	Storage jar	Ceramics other	Copper awl	Copper dagger	Copper button	Copper ring	Copper plaquet	Golden plaquet	Golden ring	Silver ring	Stone dart	Stone flake	Stone wrist guard	Ground stone axe	Stone pebble	Amber button	Amber bead	Stone sharpener	Quern stone	Other stone	Bone button	Bone brace	Bone awl	Bone pin	Boar tusk	Dog teeth	Bone bead	Bone pendant	Bone burnisher	Fauna	Faïense bead	Daub	Spindle whorl	
BB	Pavlov I	566/84	*																																				
BB	Pavlov I	567/84			*																																		
BB	Pavlov I	569/84		*	*																																		
BB	Pavlov I	570/84		*					*								*																						
BB	Pavlov I	573/84	*		*												*																						
BB	Pavlov I	585/84	*	*	*												*																						
BB	Pavlov I	588/84	*		*																															*			
BB	Pavlov I	590/84	*	*	*																																		
BB	Pavlov I	591/84	*		*																																		
BB	Pavlov I	593/84	*	*	*												*																			*			
BB	Pavlov I	1065/88	*		*											*																							
BB	Pavlov II	1/87	*		*																																		
BB	Prosiměřice	A		*												*	*							*															
BB	Prosiměřice	B		*					*																														
BB	Pustiměřické Prusice	1																																					
BB	Pustiměřické Prusice	2	*		*																																		
BB	Pustiměřické Prusice	4	*		*													*																	*				
BB	Pustiměřické Prusice	5	*		*																																		
BB	Pustiměřické Prusice	7	*		*																																		
BB	Pustiměřické Prusice	8	*		*																					*													
BB	Pustiměřické Prusice	10	*		*																																		
BB	Smolín I	13/51		*				*	*							*		*					*																
BB	Smolín I	33/52		*	*																																		

Table A.8. Continued.

Culture	Site	Burial ID	Bowl	Bell beaker	Other liquid container	Storage jar	Ceramics other	Copper awl	Copper dagger	Copper button	Copper ring	Copper plaquet	Golden plaquet	Golden ring	Silver ring	Stone dart	Stone flake	Stone wrist guard	Ground stone axe	Stone pebble	Amber button	Amber bead	Stone sharpener	Quern stone	Other stone	Bone button	Bone brace	Bone awl	Bone pin	Boar tusk	Dog teeth	Bone bead	Bone pendant	Bone burnisher	Fauna	Faïanse bead	Daub	Spindle whorl
BB	Smolín I	40/53		*																																		
BB	Šlapanice II	2a/35	*		*																																	
BB	Šlapanice II	3a/35			*																																	
BB	Šlapanice II	4a/35	*		*																																	
BB	Šlapanice II	5a/35			*																																	
BB	Šlapanice II	1/34	*		*																																	
BB	Šlapanice II	2/34	*		*																																	
BB	Šlapanice II	3/34	*		*																																	
BB	Šlapanice II	4/34	*	*	*						*						*											*										
BB	Šlapanice II	5/34			*																						*											
BB	Šlapanice II	6/34	*		*																																	
BB	Šlapanice II	7/34			*																																	
BB	Šlapanice II	8/34	*		*																																	
BB	Šlapanice II	9/34		*	*																																	
BB	Šlapanice II	10/34			*																																	
BB	Šlapanice II	11/34	*		*																																	
BB	Šlapanice II	12/34		*	*	*		*										*			*					*												
BB	Šlapanice II	13/34		*	*																					*												
BB	Šlapanice II	14/34	*		*																																	
BB	Šlapanice II	15/34	*	*	*																	*																
BB	Šlapanice II	16/34		*	*	*		*																														
BB	Šlapanice II	17/34	*		*	*		*														*																
BB	Šlapanice II	1/35	*	*	*																																	
BB	Šlapanice II	2/35			*																																	
BB	Šlapanice II	3/35	*		*												*																					
BB	Šlapanice II	4/35	*		*																																	

Table A.8. Continued.

Culture	Site	Burial ID	Bowl	Bell beaker	Other liquid container	Storage jar	Ceramics other	Copper awl	Copper dagger	Copper button	Copper ring	Copper plaque	Golden plaque	Golden ring	Silver ring	Stone dart	Stone flake	Stone wrist guard	Ground stone axe	Stone pebble	Amber button	Amber bead	Stone sharpener	Quern stone	Other stone	Bone button	Bone brace	Bone awl	Bone pin	Boar tusk	Dog teeth	Bone bead	Bone pendant	Bone burnisher	Fauna	Faïence bead	Daub	Spindle whorl
BB	Šlapanice II	7/35	*	*																																		
BB	Šlapanice II	8/35		*	*																																	
BB	Šlapanice II	9/35																	*																			
BB	Šlapanice II	10/35	*	*																																		
BB	Šlapanice II	11/35	*	*	*																				*										*			
BB	Šlapanice II	12/35	*	*																						*												
BB	Šlapanice II	13/35	*	*	*																																	
BB	Šlapanice II	14/35	*	*																																		
BB	Šlapanice II	15/35	*	*	*																																	
BB	Šlapanice II	16/35	*	*																																		
BB	Šlapanice II	17/35	*	*																																		
BB	Šlapanice II	18/35	*	*	*																																	
BB	Šlapanice II	19/35	*	*																																		
BB	Šlapanice II	20/35	*	*																																		
BB	Šlapanice II	21/35	*	*					*								*									*												
BB	Šlapanice II	22/35	*	*																																		
BB	Šlapanice II	23/35	*	*																																		
BB	Šlapanice II	24/35	*	*																																		
BB	Šlapanice II	25/35	*	*	*																																	
BB	Šlapanice II	26/35	*	*																																		
BB	Šlapanice II	27/35	*	*	*																															*		
BB	Šlapanice II	1b/35	*	*	*																				*													
BB	Šlapanice II	2b/35	*	*	*																																	
BB	Šlapanice II	3b/35			*																																	
BB	Šlapanice II	4b/35			*																																	
BB	Tvoříhráz	1/90	*	*	*							*					*					*	*		*									*				

Table A.8. Continued.

Culture	Site	Burial ID	Bowl	Bell beaker	Other liquid container	Storage jar	Ceramics other	Copper awl	Copper dagger	Copper button	Copper ring	Copper plaque	Golden plaque	Golden ring	Silver ring	Stone dart	Stone flake	Stone wrist guard	Ground stone axe	Stone pebble	Amber button	Amber bead	Stone sharpener	Quern stone	Other stone	Bone button	Bone brace	Bone awl	Bone pin	Boar tusk	Dog teeth	Bone bead	Bone pendant	Bone burnisher	Fauna	Faïense bead	Daub	Spindle whorl	
BB	Tvořín	4/91	*	*	*																											*		*					
BB	Uherčice I	1/45	*	*	*																																		
BB	Uherčice I	2/45	*	*	*																																		
BB	Újezd u Brna I	1/84	*		*																																		
BB	Újezd u Brna I	2/85	*		*																																		
BB	Veselí nad Moravou	1	*		*													*	*											*									
BB	Želešice II	1/25																																					
BB	Želešice II	2/25			*																						*												
BB	Želešice II	3/25			*																																		
BB	Želešice II	4/25	*		*																																		
BB	Želešice II	7/25			*																																		
BB	Želešice II	8/30		*																																			
BB	Želešice II	9/30		*																																			
BB	Želešice II	10/30		*																																			
BB	Želešice II	11/30			*																																		
BB	Želešice III	1/29	*		*																																		
NI	Dolní Němčí	1								*		*					*																						
PUK	Bedřichovice	1/50	*		*												*																						
PUK	Bedřichovice	2/50															*																						
PUK	Bedřichovice	3/50			*						*						*										*												
PUK	Bedřichovice	4/50	*		*																																		
PUK	Bedřichovice	5/50			*																																		
PUK	Bedřichovice	6/50	*		*																																		
PUK	Bedřichovice	7/50	*		*																																		
PUK	Bedřichovice	8/50	*		*																																		
PUK	Bedřichovice	9/50	*		*																																		

Table A.8. Continued.

Culture	Site	Burial ID	Bowl	Bell beaker	Other liquid container	Storage jar	Ceramics other	Copper awl	Copper dagger	Copper button	Copper ring	Copper plaquet	Golden plaquet	Golden ring	Silver ring	Stone dart	Stone flake	Stone wrist guard	Ground stone axe	Stone pebble	Amber button	Amber bead	Stone sharpener	Quern stone	Other stone	Bone button	Bone brace	Bone awl	Bone pin	Boar tusk	Dog teeth	Bone bead	Bone pendant	Bone burnisher	Fauna	Faïanse bead	Daub	Spindle whorl	
PUK	Bedřichovice	10/50																																					
PUK	Bedřichovice	11/50	*	*																															*				
PUK	Bedřichovice	1/80	*	*																																			
PUK	Bedřichovice	2/80	*	*																																			
PUK	Bedřichovice	3/80		*												*																							
PUK	Bedřichovice	4/80		*																																			
PUK	Bedřichovice	5/80	*	*																																			
PUK	Bedřichovice	7/80	*	*																																			
PUK	Bedřichovice	9/80	*	*																																			
PUK	Bedřichovice	11/80		*													*							*															
PUK	Moravská Nová Ves-Hrušky	8		*																*				*													*		
PUK	Moravská Nová Ves-Hrušky	10		*												*	*										*												
PUK	Moravská Nová Ves-Hrušky	11	*	*																																			
PUK	Moravská Nová Ves-Hrušky	13	*	*							*																*				*	*							
PUK	Moravská Nová Ves-Hrušky	14	*	*																							*												
PUK	Moravská Nová Ves-Hrušky	15	*	*																																			
PUK	Moravská Nová Ves-Hrušky	18															*																						
PUK	Moravská Nová Ves-Hrušky	19/I	*	*													*	*	*																				
PUK	Moravská Nová Ves-Hrušky	19/II		*												*																			*				
PUK	Moravská Nová Ves-Hrušky	20	*	*																																		*	
PUK	Moravská Nová Ves-Hrušky	21		*																															*				

Table A.8. Continued.

Culture	Site	Burial ID	Bowl	Bell beaker	Other liquid container	Storage jar	Ceramics other	Copper awl	Copper dagger	Copper button	Copper ring	Copper plaque	Golden plaque	Golden ring	Silver ring	Stone dart	Stone flake	Stone wrist guard	Ground stone axe	Stone pebble	Amber button	Amber bead	Stone sharpener	Quern stone	Other stone	Bone button	Bone brace	Bone awl	Bone pin	Boar tusk	Dog teeth	Bone bead	Bone pendant	Bone burnisher	Fauna	Faïence bead	Daub	Spindle whorl
PUK	Moravská Nová Ves-Hrušky	22	*	*																																		
PUK	Moravská Nová Ves-Hrušky	24	*	*																																		
PUK	Moravská Nová Ves-Hrušky	27	*	*												*																						
PUK	Moravská Nová Ves-Hrušky	28	*	*																																		
PUK	Moravská Nová Ves-Hrušky	29														*	*																					
PUK	Moravská Nová Ves-Hrušky	30	*													*	*										*		*						*			
PUK	Moravská Nová Ves-Hrušky	31	*	*																																		
PUK	Moravská Nová Ves-Hrušky	38	*	*												*	*										*											
PUK	Otnice	1	*	*																																		
PUK	Otnice	2	*	*																								*										
PUK	Otnice	4		*																																		
PUK	Otnice	5	*	*																																		
PUK	Otnice	7	*	*																																		
PUK	Velké Bílovice	1	*	*															*																			
PUK	Velké Pavlovice	10	*	*																																		
PUK	Velké Pavlovice	20	*	*						*																												
PUK	Vyškov	2	*	*													*																					

Table A.9. General sample of Early Bronze Age (Únětice) preserved single burials (1). F – female, M – male, CR – crouched, E – extended, R – right, L – left, I – indeterminate, , I1 – infant I, I2 – infant II, J – juvenile, A – adult, SA – subadult.

Site	Burial ID	Sex	Age	Age general	Orientation	Position	Aspect	Grave depth (cm)	Coffin	Construction - stone	Mound	Number of artifacts	Number of metal artifacts
Čejč	4	I	I	SA	EES	I	I	40	*			1	1
Čejč	5	F	A	A	E	CR	L	150				4	0
Čejč	6	F	A	A	SSE	CR	L	45				6	4
Jiřkovice	3	I	A	A	W	CR	R	0				4	1
Jiřkovice	5	I	A	A	W	CR	R	200				15	12
Jiřkovice	6	I	A	A	W	CR	R	0				4	0
Jiřkovice	7	I	A	A	W	CR	R	100				4	0
Jiřkovice	8	I	A	A	W	CR	R	120				4	1
Jiřkovice	10	I	A	A	W	CR	R	120				4	1
Jiřkovice	11	I	A	A	W	CR	R	70				2	1
Jiřkovice	13	I	A	A	W	CR	R	100				5	1
Jiřkovice	14	I	I	SA	N	CR	R	0				1	0
Jiřkovice	15	I	I	I	I	I	I	140				3	1
Jiřkovice	18	I	I	A	W	CR	R	110				3	0
Jiřkovice	20	I	I	I	I	I	I	140				2	0
Jiřkovice	21	I	I	A	S	CR	R	180				1	0
Jiřkovice	26	I	I	I	S	CR	R	120				1	0
Jiřkovice	27	I	I	I	S	CR	R	70				2	1
Jiřkovice	28	I	I	I	I	E	I	120				1	1
Jiřkovice	29	I	I	I	I	I	I	160				5	1
Jiřkovice	30	I	I	I	S	CR	R	140				8	5
Klobouky u Brna	1	I	I	I	SW	CR	I	0				2	1
Letonice	1	I	I	SA	E	R	I	360		*	*	1	0
Letonice	2	I	I	SA	N	CR	I	200		*	*	4	1
Moravská Nová Ves-Hrušky	4	M	A	A	SSW	CR	R	35	*			4	0
Moravská Nová Ves-Hrušky	5	I	A	A	SWW	CR	R	37	*			14	6

Table A.9. Continued.

Site	Burial ID	Sex	Age	Age general	Orientation	Position	Aspect	Grave depth (cm)	Coffin	Construction - stone	Mound	Number of artifacts	Number of metal artifacts
Moravská Nová Ves-Hrušky	6	F	A	A	NE	CR	L	40				16	9
Mušov	16	I	I	I	S	CR	R	65				4	4
Mušov	18	I	I2	SA	SW	CR	R	220	*			14	10
Mušov	19	I	A	A	SWW	CR	R	75				0	0
Mušov	23	I	A	A	SW	CR	R	260				4	1
Mušov	25	F	A	A	SWW	CR	R	180	*			11	9
Mušov	28	I	I1	SA	SW	CR	R	90				9	6
Mušov	31	F	A	A	SW	CR	R	210				5	3
Mušov	32	M	A	A	SWW	CR	R	280	*			2	0
Pavlov - Dolní pole I	54	I	I	I	SSE	CR	R	80				4	1
Pavlov - Dolní pole I	76	I	I	I	SW	CR	L	60				3	2
Pavlov - Dolní pole II	6	I	I	I	SW	CR	R	54				1	0
Pavlov - Dolní pole II	12	I	I	I	E	CR	R	120				0	0
Pavlov - Dolní pole III	1	M	A	A	SW	CR	R	200		*		4	1
Pavlov - nad silnicí	1	F	A	A	S	CR	R	30				1	0
Polešovice	1	I	I	I	SSW	CR	I	0				8	6
Rebešovice	21	I	A	A	NE	CR	R	80				1	0
Rebešovice	158	I	I	I	W	U	I	90	*			0	0
Rebešovice	226	M	A	A	SW	CR	R	74	*			0	0
Rebešovice	234	I	I2	SA	SW	CR	R	30	*			3	1
Rebešovice	280	M	A	A	SWW	CR	R	50		*		1	0
Rebešovice	286	F	A	A	SW	CR	R	85	*			8	5
Rebešovice	294	F	A	A	NWW	CR	R	55	*	*		10	6
Rebešovice	298	I	A	A	SW	CR	R	45				15	11
Slavkov u Brna	8	F	A	A	W	CR	R	20				10	2
Slavkov u Brna	15	I	I2	SA	W	CR	R	20				1	0
Slavkov u Brna	18	I	I2	SA	W	CR	R	95	*			7	2
Slavkov u Brna	27	I	I1	SA	W	CR	R	29				3	1

Table A.9. Continued.

Site	Burial ID	Sex	Age	Age general	Orientation	Position	Aspect	Grave depth (cm)	Coffin	Construction - stone	Mound	Number of artifacts	Number of metal artifacts
Slavkov u Brna	33	M	A	A	NW	CR	R	18				6	0
Slavkov u Brna	35	I	I2	SA	W	CR	R	80	*			15	10
Slavkov u Brna	37	F	A	A	W	CR	R	130	*			12	7
Slavkov u Brna	39	F	A	A	W	CR	R	127	*			9	5
Slavkov u Brna	42	M	A	A	W	CR	R	140	*			5	1
Těšetice	12	I	I1	SA	SW	CR	R	192	*	*		6	2
Těšetice	16	M	A	A	SW	CR	R	105	*	*		5	1
Těšetice	17	I	I1	SA	SSW	CR	R	135	*	*		10	8
Těšetice	24	M	A	A	SSW	CR	R	23		*		5	1
Těšetice	28	F	A	A	SSW	CR	R	100	*			7	4
Těšetice	29	F	A	A	SSW	CR	R	60		*		8	11
Těšetice	30	M	A	A	SW	CR	R	28	*	*		6	1
Těšetice	31	I	I1	SA	SSW	CR	I	35	*	*		5	4
Těšetice	32	I	I2	SA	SW	CR	R	100	*	*		7	4
Těšetice	33	F	A	A	SSW	CR	R	85		*		3	0
Těšetice	34	I	I1	SA	SW	CR	I	10				2	1
Těšetice	35	I	I2	SA	SW	CR	I	13				0	0
Těšetice	36	I	I	SA	SW	CR	I	105	*	*		6	4
Těšetice	40	I	I2	SA	SSW	CR	R	70	*	*		7	1
Těšetice	43	F	A	A	SW	CR	R	25				3	3
Těšetice	48	F	A	A	SSW	CR	R	85	*			16	10
Těšetice	50	M	A	A	SSW	CR	R	70	*	*		4	1
Velké Pavlovice	8	F	A	A	W	CR	R	20				8	4
Velké Pavlovice	9	F	A	A	EES	CR	L	25				14	10
Velké Pavlovice	10	I	I	I	SSW	CR	R	7				3	0
Velké Pavlovice	12	M	A	A	E	CR	L	67	*			10	5
Velké Pavlovice	16	M	A	A	W	CR	R	102	*			6	2
Velké Pavlovice	20	F	A	A	SSE	CR	I	15				5	1

Table A.9. Continued.

Site	Burial ID	Sex	Age	Age general	Orientation	Position	Aspect	Grave depth (cm)	Coffin	Construction - stone	Mound	Number of artifacts	Number of metal artifacts
Velké Pavlovice	21	I	I	I	E	CR	L	27	*			9	7
Velké Pavlovice	22	F	A	A	E	CR	L	80	*			7	6
Vyškov	3	I	I	SA	WWS	CR	R	0				2	0
Ždánice	1	I	I	I	NNW	CR	R	0		*		3	0

Table A.10. General sample of Early Bronze Age (Únětice) preserved single burials (2).

Site	Burial ID	Bowl	Liquid container	Storage jar	Ceramics other	Bronze pin	Bronze hai ring	Bronze finger ring	Bronze tube	Bronze bead	Bronze ring ingot	Bronze dagger	Bronze awl	Bronze chisel	Bronze bracelet	Bronze disc	Bronze button	Bronze plaque	Chipped stone	Ground stone axe	Stone pebble	Amber	Quern stone	Other stone	Faïence bead	Bone awl	Bone pin	Boar tusk	Bone pendant	Scapula	Other animal bones
Čejč	4						*																								
Čejč	5	*	*																				*		*						
Čejč	6		*			*	*		*																					*	
Jiřkovice	3	*	*									*																			
Jiřkovice	5	*	*			*	*				*													*	*						
Jiřkovice	6	*	*																								*				
Jiřkovice	7																														
Jiřkovice	8																						*								
Jiřkovice	10						*																								
Jiřkovice	11						*																*								
Jiřkovice	13																													*	
Jiřkovice	14	*																													
Jiřkovice	15					*																									
Jiřkovice	18																						*								
Jiřkovice	20																						*								
Jiřkovice	21																						*								
Jiřkovice	26	*	*																					*							
Jiřkovice	27		*																				*								
Jiřkovice	28						*																								
Jiřkovice	29	*	*									*																			
Jiřkovice	30	*	*			*	*								*																
Klobouky u Brna	1					*																									
Letonice	1		*																				*								
Letonice	2	*	*																				*		*						
Moravská Nová Ves-Hrušky	4	*	*																	*											
Moravská Nová Ves-Hrušky	5	*	*				*		*										*		*										

Table A.10. Continued.

Site	Burial ID	Bowl	Liquid container	Storage jar	Ceramics other	Bronze pin	Bronze hai ring	Bronze finger ring	Bronze tube	Bronze bead	Bronze ring ingot	Bronze dagger	Bronze awl	Bronze chisel	Bronze bracelet	Bronze disc	Bronze button	Bronze plaque	Chipped stone	Ground stone axe	Stone pebble	Amber	Quern stone	Other stone	Faïence bead	Bone awl	Bone pin	Boar tusk	Bone pendant	Scapula	Other animal bones
Moravská Nová Ves-Hrušky	6	*	*			*	*	*	*												*					*				*	
Mušov	16						*																								
Mušov	18	*	*		*	*	*			*					*																
Mušov	19																														
Mušov	23	*	*									*																			
Mušov	25		*			*	*		*	*			*																		
Mušov	28	*	*			*					*				*																
Mušov	31		*			*	*				*																				
Mušov	32				*																										
Pavlov - Dolní pole I	54					*														*						*					
Pavlov - Dolní pole I	76						*																	*							
Pavlov - Dolní pole II	6	*																						*							
Pavlov - Dolní pole II	12																														
Pavlov - Dolní pole III	1		*											*										*							
Pavlov - nad silnicí	1		*																					*							
Polešovice	1	*	*			*	*																								
Rebešovice	21																												*		
Rebešovice	158																														
Rebešovice	226																														
Rebešovice	234			*		*																									
Rebešovice	280																								*						
Rebešovice	286					*	*																	*						*	
Rebešovice	294	*				*	*				*													*							
Rebešovice	298	*	*	*		*	*																					*			
Slavkov u Brna	8	*	*				*												*												
Slavkov u Brna	15																														

Table A.10. Continued.

Site	Burial ID	Bowl	Liquid container	Storage jar	Ceramics other	Bronze pin	Bronze hai ring	Bronze finger ring	Bronze tube	Bronze bead	Bronze ring ingot	Bronze dagger	Bronze awl	Bronze chisel	Bronze bracelet	Bronze disc	Bronze button	Bronze plaque	Chipped stone	Ground stone axe	Stone pebble	Amber	Quern stone	Other stone	Faïense bead	Bone awl	Bone pin	Boar tusk	Bone pendant	Scapula	Other animal bones
Slavkov u Brna	18	*	*				*															*		*							
Slavkov u Brna	27								*													*									
Slavkov u Brna	33	*	*																*					*		*					*
Slavkov u Brna	35	*	*			*	*				*			*										*							
Slavkov u Brna	37	*	*			*	*																	*							*
Slavkov u Brna	39	*	*			*	*				*													*							
Slavkov u Brna	42	*	*																											*	
Těšetice	12	*	*			*						*												*				*			
Těšetice	16	*	*									*												*							
Těšetice	17	*	*			*	*		*			*			*									*		*					
Těšetice	24	*	*									*												*							
Těšetice	28	*	*				*								*									*							
Těšetice	29	*	*			*	*		*		*													*							
Těšetice	30	*	*			*																		*						*	
Těšetice	31		*				*		*		*													*							
Těšetice	32	*	*									*			*									*							
Těšetice	33	*	*																					*							
Těšetice	34		*			*																		*							
Těšetice	35																														
Těšetice	36	*				*			*						*									*							
Těšetice	40	*					*													*				*							
Těšetice	43					*	*													*											
Těšetice	48	*	*			*	*		*																	*				*	
Těšetice	50	*	*			*																		*							
Velké Pavlovice	8	*	*			*	*								*				*												
Velké Pavlovice	9	*	*				*				*				*				*		*										
Velké Pavlovice	10		*																												
Velké Pavlovice	12	*	*			*	*		*																						

Table A.10. Continued.

Site	Burial ID	Bowl	Liquid container	Storage jar	Ceramics other	Bronze pin	Bronze hai ring	Bronze finger ring	Bronze tube	Bronze bead	Bronze ring ingot	Bronze dagger	Bronze awl	Bronze chisel	Bronze bracelet	Bronze disc	Bronze button	Bronze plaque	Chipped stone	Ground stone axe	Stone pebble	Amber	Quern stone	Other stone	Faianse bead	Bone awl	Bone pin	Boar tusk	Bone pendant	Scapula	Other animal bones
Velké Pavlovice	16	*	*						*						*																
Velké Pavlovice	20	*	*																												
Velké Pavlovice	21		*			*	*									*	*	*													
Velké Pavlovice	22		*				*				*					*															
Vyškov	3	*	*																												
Ždánice	1	*	*																					*							

Table A.11. Únětice Burials from settlement pits. Articulated: 1 – intact body, 2 – partially disarticulated, 3 – isolated bones, F – female, M- male, I- indeterminate, CR – crouched, E – extended, I1 – infant I, I2 – infant II, J – juvenile, A – adult, SA – subadult.

Site	Feature	Individual	Number of individuals in pit	Articulated	Body	Sex	Age	Age general	Cribr orbitalia	Bowl	Liquid container	Storage jar	Mouth-piece	Ceramic sherd	Bronze pin	Bronze hair ring	Bronze bracelet	Bronze dagger	Quern stone	Chipped stone	Stone sharpener	Stone axe	Stone - other	Amber pendant	Faience bead	Bone pin	Bone awl	Bone bead	Shell necklace	Animal bones	Shell	Spindle whorl	Loom weight	Daub
Blučina	6/1957	1	1	1	CR	I	I2	SA						*	*														*				*	
Blučina	1/1958	1	1	1	CR	I	I	SA									*												*					
Blučina	5/1985	1	12	3	I	I	A	A		*	*			*					*	*									*				*	
Blučina	5/1985	2	12	3	I	I	I	SA	*																									
Blučina	5/1985	3	12	3	I	I	I	SA	*																									
Blučina	5/1985	4	12	3	I	I	I	SA	*																									
Blučina	5/1985	5	12	3	I	I	I	SA	*																									
Blučina	5/1985	6	12	3	I	I	I	SA																										
Blučina	5/1985	7	12	3	I	I	I	SA																										
Blučina	5/1985	8	12	3	I	I	I	SA																										
Blučina	5/1985	9	12	3	I	I	I	SA																										
Blučina	5/1985	10	12	3	I	I	I	SA																										
Blučina	5/1985	11	12	3	I	I	I	SA																										
Blučina	5/1985	12	12	3	I	I	I	SA																										
Blučina	?	1	6	1	I	F	A	A																										
Blučina	?	2	6	1	I	F	A	A																										
Blučina	?	3	6	1	I	M	A	A																										
Blučina	?	4	6	1	I	I	I1	SA																										
Blučina	?	5	6	1	I	I	I1	SA																										
Blučina	?	6	6	1	I	I	I1	SA																										
Blučina	508	1	1	1	E	M	A	A																										
Blučina	510	1	4	1	E	I	I1	SA															*											
Blučina	510	2	4	1	CR	F	A	A																										
Blučina	510	3	4	1	E	I	I1	SA																					*					
Blučina	510	4	4	1	I	I	I1	SA																										
Branišovice	?	1	1	1	I	F	A	A																*										
Brno-Černá pole	28	1	2	1	CR	F	A	A		*			*																*		*	*	*	
Brno-Černá pole	28	2	2	1	CR	M	A	A																										
Brno-Černá pole	31	1	2	1	CR	F	A	A					*						*						*	*		*					*	

Table A.11. Continued.

Site	Feature	Individual	Number of individuals in pit	Articulated	Body	Sex	Age	Age general	Cribra orbitalia	Bowl	Liquid container	Storage jar	Mouth-piece	Ceramic sherd	Bronze pin	Bronze hair ring	Bronze bracelet	Bronze dagger	Quern stone	Chipped stone	Stone sharpener	Stone axe	Stone - other	Amber pendant	Faience bead	Bone pin	Bone awl	Bone bead	Shell necklace	Animal bones	Shell	Spindle whorl	Loom weight	Dauh
Brno-Černá pole	31	2	2	1	CR	M	A	A																										
Brno-Černá pole	35	1	1	2	E	I	A	A		*				*											*	*				*				
Brno-Černá pole	42	1	2	1	I	I	I	I																										
Brno-Černá pole	42	2	2	1	I	I	I	I																										
Brno-Černá pole	?	1	1	1	E	F	A	A								*									*									
Brno-Královo Pole	?	1	2	1	I	I	A	A																										
Brno-Královo Pole	?	2	2	1	I	I	I	SA																										
Brno-Židenice	2	1	1	1	CR	M	A	A						*						*			*											
Dobšice	?	1	1		CR	I	J	SA																										
Drnovice	?	1	2		I	I	I	A																										
Drnovice	?	2	2		I	I	I	SA																										
Hrušky	?	1	1		I	I	I	I																										
Lovčice	?	1	1	1	I	I	I	I			*																						*	
Lovčice	?	1	1	1	E	I	I	I		*					*					*	*													
Lovčice	?	1	1	3	I	I	I	I																									*	
Lovčičky	180	1	3	1	CR	I	I	I						*																			*	
Lovčičky	180	2	3	1	CR	I	I	I																										
Lovčičky	180	3	3	1	CR	I	I	I																										
Lovčičky	149	1	1	1	CR	I	I	I																			*					*		
Lovčičky	88	1	1	1	CR	I	I	SA						*																		*		
Marefý	?	1	4	1	CR	I	I	A																										
Marefý	?	2	4	3	I	I	I	I		*				*	*	*				*	*													
Marefý	?	3	4	3	I	I	I	I																										
Marefý	?	4	4	3	I	I	I	I																										
Nedakonice	?	1	1	2	I	I	I	I																										
Němčany	?	1	1	1	I	F	A	A								*																		
Nosislav	?	1	1	3	I	I	I	I						*	*														*	*	*		*	
Pavlov	?	1	1	1	I	I	I	I																										
Podolí	?	1	1		I	I	I	SA						*																				

Table A.11. Continued.

Site	Feature	Individual	Number of individuals in pit	Articulated	Body	Sex	Age	Age general	Cribra orbitalia	Bowl	Liquid container	Storage jar	Mouth-piece	Ceramic sherd	Bronze pin	Bronze hair ring	Bronze bracelet	Bronze dagger	Quern stone	Chipped stone	Stone sharpener	Stone axe	Stone - other	Amber pendant	Faience bead	Bone pin	Bone awl	Bone bead	Shell necklace	Animal bones	Shell	Spindle whorl	Loom weight	Daub
Podolí	9	1	1	1	CR	M	A	A		*	*	*		*		*	*			*		*												
Pohořelice	?	1	1	1	CR	M	A	A																										
Přibice	?	1	1	1	CR	F	A	A						*						*														
Rajhrad	?	1	1	2	CR	I	I	I						*								*			*			*	*	*				
Rajhrad	?	1	5	1	E	I	I1	SA		*												*							*	*				
Rajhrad	?	2	5	1	E	I	I2	SA																										
Rajhrad	?	3	5	1	CR	I	I	SA																										
Rajhrad	?	4	5	1	E	F	A	A																										
Rajhrad	?	5	5	1	E	M	A	A																										
Sobůlky	?	1	1	3	I	I	I	I						*		*									*								*	
Sobůlky	?	1	1	3	I	I	I	I						*		*													*					
Sokolnice	?	1	1	3	I	I	I	I							*	*													*	*				
Svatobořice	?	1	1	1	CR	I	I	I						*																				*
Šatov	?	1	1	1	CR	I	I	I						*																				
Šatov	I-7/1962	1	1	1	E	I	I	I																										
Šatov	III-44/1967	1	1	2	I	I	I	I																										
Šlapanice	1/74	1	1	1	E	I	A	A																										
Šlapanice	5/74	1	1	1	CR	I	I	SA																										
Šlapanice	9/74	1	1	1	I	I	I	I																										
Šlapanice	10/74	1	1	1	I	I	I	A																										
Šlapanice	5/75	1	1	3	I	I	I	I						*																				
Slavkov u Brna	3	1	3	2	CR	M	A	A						*															*	*				
Slavkov u Brna	3	2	3	2	CR	M	A	A																										
Slavkov u Brna	3	3	3	3	I	F	A	A																										
Slavkov u Brna	34	1	1	1	CR	F	A	A	*		*											*		*		*								*
Slavkov u Brna	36	1	1	1	CR	F	A	A	*																									
Slavkov u Brna	38	1	1	1	CR	I	I2	SA	*	*	*											*		*		*		*						
Telnice	5/59	1	1	2	I	I	I	I			*		*									*							*					
Telnice	?	1	1	1	CR	I	I	I			*									*														
Těšetice	7	1	1	1	CR	I	J	SA						*					*						*		*	*	*					

Table A.11. Continued.

Site	Feature	Individual	Number of individuals in pit	Articulated	Body	Sex	Age	Age general	Cribr. orbitalia	Bowl	Liquid container	Storage jar	Mouth-piece	Ceramic sherd	Bronze pin	Bronze hair ring	Bronze bracelet	Bronze dagger	Quern stone	Chipped stone	Stone sharpener	Stone axe	Stone - other	Amber pendant	Faience bead	Bone pin	Bone awl	Bone bead	Shell necklace	Animal bones	Shell	Spindle whorl	Loom weight	Daub
Těšetice-Kyjovice	?	1	4	1	I	F	A	A			*																*		*					
Těšetice-Kyjovice	?	2	4	1	I	F	I	SA																										
Těšetice-Kyjovice	?	3	4	1	I	M	I	SA																										
Těšetice-Kyjovice	?	4	4	3	I	I	I	SA																										
Topolany	586	1	1	1	CR	I	I	I			*																				*			
Topolany	564	1	2	1	I	I	I	SA																										
Topolany	564	2	2	1	I	I	I	SA																										
Trbouchány	?	1	1	1	I	F	A	A															*											
Tučapy	?	1	1	3	I	I	I	I						*																				
Tulešice	?	1	1	1	CR	I	I	I						*																				
Tvarožná	?	1	4	1	CR	F	A	A	*	*				*						*		*				*		*	*	*	*	*	*	
Tvarožná	?	2	4	1	CR	I	I2	SA								*																		
Tvarožná	?	3	4	2	I	I	I1	SA																										
Tvarožná	?	4	4	2	I	I	I1	SA																										
Tvrdonice	?	1	1	1	CR	I	I	I						*																*				
Uherčice	?	1	1	1	I	I	I	I																										
Újezd u Brna	?	1	1	3	I	I	I	I								*							*											
Velešovice	49	1	1	1	CR	F	A	A																										
Velešovice	16	1	1	3	I	M	A	A																					*				*	
Velké Pavlovice	10/1981	1	1	1	CR	I	J	SA						*						*									*				*	
Velké Pavlovice	3/1985	1	1	1	CR	I	I	I																										
Višňové	?	1	1	1	E	I	I	I	*	*																			*				*	
Vyškov	?	1	1	3	I	I	I	I						*												*	*		*					
Znojmo	?	1	4	1	E	I	A	A						*					*											*				
Znojmo	?	2	4	2	E	I	A	A																										
Znojmo	?	3	4	1	I	I	I	SA																										
Znojmo	?	4	4	1	I	I	I	SA																										

APPENDIX B

FIGURES

Figure B.1. Disturbed burial # 150 from Rebešovice showing the shaft in the western part (redrawn after Nekvasil 1954).

Figure B.2. Decorated ceramic bowl from Šlapanice (#83627). Scale unit – 1 cm. Photo D. Sosna.

Figure B.3. Ceramic amphora from Šlapanice (#Pa 169/35-13). Scale unit – 1 cm. Photo D. Sosna.

Figure B.4. Decorated ceramic bell beaker from Šlapanice (#Pa 169/35-50). Scale unit – 1 cm. Photo D. Sosna.

Figure B.5. Ceramic mug from Šlapanice (#Pa 169/35-65). Scale unit – 1 cm. Photo D. Sosna.

Figure B.6. Bone braces from Šlapanice (#Pa 169/34-64 and Pa 169/35-55). Scale unit – 1 cm. Photo D. Sosna.

Figure B.7. Decorated ceramic Únětice cup from Rebešovice (#3-142-3). Scale unit – 1 cm. Photo D. Sosna.

Figure B.8. Decorated ceramic onion-like vessel from Rebešovice (#3-8-3). Scale unit – 1 cm. Photo D. Sosna.

Figure B.9. Bronze bracelet Únětice from Rebešovice (#3-142-1). Scale unit – 1 cm. Photo D. Sosna.

Figure B.10. Bronze dagger from Rebešovice (#3-142-2). Scale unit – 1 cm. Photo D. Sosna.

Figure B.11. Bronze Únětice pin from Rebešovice (#3-171-6). Scale unit – 1 cm. Photo D. Sosna.

Figure B.12. Bronze ring ingot from Rebešovice (#3-217-1). Scale unit – 1 cm. Photo D. Sosna.

Sites

ID:

site:

topog. name:

county: Type of site:

location: ☐ cache deposit

dates:

period/culture: ☐ all excavated

ZM:10 000: spatial precision: 0

Pian coordinates:

	ID	ZM:10000	Pian Z	Pian J
▶			0	0

Záznam: z 1

curation:

references:

Burials

no. of burials:

no. of disturbed burials:

no. of disturbed burials (not by other features):

☐ cremations no. of cremations:

no. of extended skeletons:

no. of right-side skeletons:

no. of left-side skeletons:

☐ constructions form of construction:

☐ coffins no. of coffins:

☐ cenotaph no. of cenotaphs:

☐ metal no. of metal artifacts:

☐ circumscribed cemetery ☐ barrow

☐ ditch around cemetery no. of barrows:

☐ palisade around cemetery ☐ ditch

graves:

body treatm:

goods:

exotic artifacts:

Settlements

no. of settlement features:

☐ burials in settlement features

no. of individuals in set feat:

other

Figure B.13. Site analysis form.

<i>Burials</i>			
ID:	<input type="text"/>	Notes-tum/cir:	<input type="text"/>
Entry date:	<input type="text"/>		
Site:	<input type="text"/>	No. of artifacts:	<input type="text" value="0"/>
Period/Culture:	<input type="text"/>	Variability of art:	<input type="text" value="0"/>
Phase:	<input type="text"/>	Position of art:	<input type="text"/>
Burial ID:	<input type="text"/>	Vessel-no:	<input type="text" value="0"/>
Grave ID:	<input type="text"/>	Vessel-period:	<input type="text"/>
Burial form:	<input type="text"/> ▼	Vessel-types:	<input type="text"/>
Orientation:	<input type="text"/>	Vessel-notes:	<input type="text"/>
Body:	<input type="text"/> ▼ Sex: <input type="text"/> ▼	Other ceram-no:	<input type="text" value="0"/>
Aspect :	<input type="text"/>	Other ceram-notes:	<input type="text"/>
Facing:	<input type="text"/>		
Position-notes:	<input type="text"/>	Stone-no:	<input type="text" value="0"/>
Grave shape:	<input type="text"/> ▼	Stone-notes:	<input type="text"/>
Grave (length):	<input type="text" value="0"/>	Stone-proven:	<input type="text"/>
Grave (width):	<input type="text" value="0"/>	Metal-no:	<input type="text" value="0"/>
Grave depth:	<input type="text" value="0"/>	Metal-type:	<input type="text"/>
Constructions:	☒ Coffin ☒	Metal-notes:	<input type="text"/>
Grave-notes:	<input type="text"/>		
Urn	☒ Cenotaph ☒		
Tumulus	☒ Circumscription ☒		
Addit. material:	<input type="text"/>		
Antler/Bone-no:	<input type="text" value="0"/>	Antler/Bone-notes:	<input type="text"/>
Fauna-no:	<input type="text" value="0"/>	Fauna-taxon:	<input type="text"/>
Fauna-body part:	<input type="text"/>	Fauna-modification:	<input type="text"/>
Fauna-notes:	<input type="text"/>		
Inv. č.:	<input type="text"/>		
Other:	<input type="text"/>		

Figure B.14. Burial analysis form.

<i>Artifacts</i>																							
<p>ID: <input style="width: 50px;" type="text"/></p> <p>Entry date: <input style="width: 50px;" type="text"/></p> <p>Site: <input style="width: 150px;" type="text"/></p> <p>Period-culture: <input style="width: 150px;" type="text"/></p> <p>Phase: <input style="width: 150px;" type="text"/></p>	<p>Burial ID: <input style="width: 150px;" type="text"/></p> <p>Grave ID: <input style="width: 150px;" type="text"/></p> <p>Artifact no: <input style="width: 50px;" type="text"/></p> <p>Material type: <input style="width: 80px;" type="text"/> ▼</p> <p>Type of artifact: <input style="width: 100px;" type="text"/></p> <p>No of fragments: <input style="width: 50px;" type="text"/></p>	<p>Length/Diam: <input style="width: 50px;" type="text"/></p> <p>Width: <input style="width: 50px;" type="text"/></p> <p>Thickness: <input style="width: 50px;" type="text"/></p> <p>Description: <div style="border: 1px solid black; height: 50px; width: 100%;"></div></p>	<p>Drawn ☐</p> <p>Photo ☐</p>																				
Ceramic Vessels																							
COMPLETE ☐																							
<p>TYPE</p> <p>Liquid container ☐</p> <p>Bowl ☐</p> <p>Other vessel ☐</p>	<p>PASTE</p> <p>Coarse paste ☐</p> <p>Medium paste ☐</p> <p>Fine paste ☐</p>	<p>BASE</p> <p>Base straight ☐</p> <p>Base concave ☐</p> <p>Base convex ☐</p> <p>Base coarser ☐</p> <p>Base separ ☐</p> <p>Base notes: <input style="width: 100px;" type="text"/></p>	<p>LUG</p> <p>Lug top ☐</p> <p>Lug non-top ☐</p> <p>Horizontal lug ☐</p> <p>Lug side spher ☐</p> <p>Lug side non-sph ☐</p> <p>Lug Width: <input style="width: 50px;" type="text"/></p> <p>Lug Slant: <input style="width: 50px;" type="text"/> ▼</p> <p>Lug Notes <input style="width: 100px;" type="text"/></p>	<p>DECORATION</p> <table style="width: 100%; border: none;"> <tr> <td>Painted ☐</td> <td>Incised ☐</td> </tr> <tr> <td>Curved ☐</td> <td>Incrusted ☐</td> </tr> <tr> <td>X-shaped ☐</td> <td>Plastic ☐</td> </tr> <tr> <td>V-shaped ☐</td> <td>Pierced ☐</td> </tr> <tr> <td>Upside V ☐</td> <td>None ☐</td> </tr> <tr> <td>Dots ☐</td> <td>Lines ☐</td> </tr> <tr> <td>Circles ☐</td> <td>Semi-circles ☐</td> </tr> <tr> <td>Horizontal ☐</td> <td>Vertical ☐</td> </tr> <tr> <td colspan="2" style="text-align: center;">Diagonal ☐</td> </tr> </table>		Painted ☐	Incised ☐	Curved ☐	Incrusted ☐	X-shaped ☐	Plastic ☐	V-shaped ☐	Pierced ☐	Upside V ☐	None ☐	Dots ☐	Lines ☐	Circles ☐	Semi-circles ☐	Horizontal ☐	Vertical ☐	Diagonal ☐	
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Diagonal ☐																							
<p>ADDS</p> <p>Lug ☐</p> <p>Handle ☐</p> <p>Pupiky ☐</p> <p>Other ☐</p>	<p>MOUTH</p> <p>Mouth open ☐</p> <p>Mouth straight ☐</p> <p>Mouth closed ☐</p>	<p>VARIOUS</p> <p>Lip ☐</p> <p>Holes in body ☐</p> <p>Inner rim edge ☐</p> <p>No of holes: <input style="width: 30px;" type="text"/></p> <p>Angled body: ☐</p>																					
<p>SURFACE</p> <p>Coarse ☐</p> <p>Medium ☐</p> <p>Fine ☐</p> <p>Surf color: <input style="width: 150px;" type="text"/></p>	<p>NECK</p> <p>Neck/body ridge ☐</p> <p>Neck/body groove ☐</p> <p>Neck/body other ☐</p>	<p>DIMENSIONS</p> <p>Height <input style="width: 50px;" type="text"/></p> <p>Max Diam of Mouth <input style="width: 50px;" type="text"/></p> <p>Max Diam of Base <input style="width: 50px;" type="text"/></p> <p>Max Diam of Body <input style="width: 50px;" type="text"/></p> <p>Min Diam <input style="width: 50px;" type="text"/></p>																					
<p>Shape perfect ☐ Shape medium ☐ Shape rough ☐</p> <p>Notes: <div style="border: 1px solid black; height: 50px; width: 100%;"></div></p>																							

Figure B.15. Artifact analysis form.

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