



DANIEL SOSNA, VLADIMÍR SLÁDEK, PATRIK GALETA

INVESTIGATING MORTUARY SITES: THE SEARCH FOR SYNERGY

ABSTRACT: This paper explores the divergent points of view about research in mortuary studies. This strategy serves to elucidate often unconscious assumptions about proper research and goals in scientific practise. In mortuary studies, tensions arise from the very nature of the mortuary archaeological record, which offers multiple lines of evidence that can be studied by various scholars using various methods. A scholar is exposed to a multi-evidence world where one has to put together several pieces of a puzzle to produce a meaningful interpretation of past societies. The critical problem is how to find a balance among divergent interests of various disciplines and put together the pieces produced by different methods and sometimes even epistemologies. The discussions in this paper map the tensions among the scholars and disciplines. It is argued that despite the problems that arise from the tensions among the scholars and disciplines, interdisciplinarity facilitates the production of novel and more valid knowledge about past societies.

KEY WORDS: Archaeology – Bioarchaeology – Funeral – Interdisciplinarity – Mortuary Studies

INTRODUCTION

Mortuary archaeology and anthropology has a long tradition that can be traced to antiquarian interests in the 18th century. As Trigger (1989: 66) pointed out, the antiquarians were interested in ancient finds because of the aesthetics of the finds themselves and the romantic notion of the past. Later in the 19th century, mortuary remains served primarily chronological and ideological purposes. Archaeologists produced various sequences of the development of artifacts and groups of people. This culture-historical approach aimed at examination of the ethnogeneses of specific ethnic groups such as Germans and Slavs. The beginning of modern approaches in mortuary studies is associated with 1970–80s when a series of influential works of processual archaeology by Saxe (1970), Brown (1971), Chapman *et al.* (1981), Neustupný (1983), and O'Shea (1984) appeared. Scholars became interested in the organization of past societies and used formal methodology to infer the essential structuring principles in the society from the patterning of the mortuary archaeological record. Postprocessual critique pointed at some simplistic assumptions of processualists such as the relationship between energy expenditure in

funeral and social status (Braun 1981, Parker Pearson 1982), inadequacy of role theory (Gillespie 2001), and underestimation of ideology and agency (Hodder 2000, Parker Pearson 2000). The last two decades have witnessed an increase in the diversity of approaches in mortuary studies. Some authors developed what Michelle Hegmon (2003) calls processual-plus approach. These studies do not abandon the processual heritage but try to improve it through better incorporation of ethnography, spatial dimension, and different categories such as ancestorhood or ceremonialism (Beck 1995, Carr 1995, Rakita *et al.* 2005). Other scholars build upon the concept of the body to explore it as a scene of display and artifact (Hamilakis *et al.* 2002, Joyce 2005, Sofaer 2006). Yet other scholars put into center of their interest individuality, life-histories, or social time (Meskell 1999, Sayer 2010, Zvelebil, Pettitt 2008).

The analytical and technological potential developed significantly, both in the sphere of data collection and analysis. Total stations are standard for the documentation of objects in space (Lock 2003, McPherron, Dibble 2002), various geophysical methods are used for the detection of underground features (Doolittle, Bellantoni 2010, Gaffney 2008), and soil samples are collected for chemical analyses

(Scudder 2008). Among the plethora of post-excavation analyses, human and animal bones receive special attention. Studies of stable isotopes produce information about the diet and physical movement of people and animals to different geographic areas (Ambrose, Krigbaum 2003, Bentley *et al.* 2007, Honch *et al.* 2006) while DNA studies focus frequently on the biological relationships among individuals (Haak *et al.* 2008, Mooder *et al.* 2005). The results of analyses serve as a basis for modeling various processes and structures such as migrations, patterns of subsistence, gender relations, kinship, or social inequality. Extensive research of human remains is carried out within the frame of bioarchaeology, which combines results of research in human osteology with archaeology and takes advantage of various methods ranging from classical morphometry to CT scanning (Buikstra, Beck 2006, Larsen 1999, Sládek *et al.* 2006, Weiss 2009).

The development of information technologies allowed scholars to engage in sophisticated analyses of mortuary data. The overlap with mathematics and geography created an environment for experimentation. Geographic information systems provided an environment for analyses and the visualization of mortuary variability (Květina 2004, Šmejda 2004, 2009). McHugh (1999) even presented models of hypothetical cemeteries based on the variable input data. Faster computers enabled analysts to use resampling techniques for the analyses of intra-cemetery variability (Manly 1996, Sosna *et al.* 2008) and other statistical tools such as Guttman scaling (Porčić, Stefanović 2009) and matrix decomposition models (Stojanowski 2003) were applied in mortuary studies.

This review shows that contemporary mortuary studies are rarely based on the activities of a single researcher. Multidisciplinary collaboration became not only a standard aspect of research but also a necessity. It is simply not possible to produce high quality research results without extensive collaboration with other specialists. Indeed, it seems that the most stimulating questions can be addressed via close collaboration of numerous scholars and the application of "multiple-lines of evidence approach". However, there is a difference in the engagement of scholars. While multidisciplinary just provides a sum of results of different disciplines in a single project, interdisciplinarity is based on the assumption that the final results are produced via interaction of scholars from different disciplines (cf. Strathern 2006: 195–196).

Parker Pearson's *et al.* (2005) investigation of mummification in the Bronze Age in the Outer Hebrides provides a convincing example of interdisciplinary research. The combination of osteological, histological, stratigraphic, dating, and spectroscopic analyses lead the researchers to conclude that mummified human bodies served as ancestors for a few generations and were later buried under the house floors. This finding is highly interesting given the frequent presence of secondary mortuary practices that include manipulation with the physical remains of the dead in ethnography (see Hertz 1960, Schroeder 2001). Similarly,

the Vedrovice Bioarchaeological Project put together different specialists to analyze the Early Neolithic cemetery at Vedrovice (Lukes *et al.* 2008). This project included both local and international scholars who focused on radiocarbon dating, osteology, palaeopathology, dental microwear, DNA, chemical traces and isotopes, and artifacts. The research team put together all these lines of evidence and presented the synthesis on the transition from foraging to farming in Central Europe (Zvelebil, Pettitt 2008). Another example of collaboration is the Eulau Project that included DNA, isotopic, osteological, and archaeological analyses of four multiple burials dating to the Copper Age (Haak *et al.* 2008, Meyer *et al.* 2009). The results contributed significantly to our understanding of prehistoric raiding and social relationships among people. These three examples of recent mortuary projects suggest that the future of mortuary studies tends towards complex collaborative research projects where scholars with different backgrounds interact.

This story about the progress in mortuary studies would be incomplete without critical evaluation. Each coin has two sides and interdisciplinarity is no exception. Collaboration among multiple specialists such as archaeologists, biological anthropologists, social anthropologists, botanists, chemists, and geologists produces new data that broaden the base for inferring the nature of past societies. Moreover, it stimulates thinking and enables scholars with different specializations to learn from each other as Härke (2002) pointed out. However, collection, analysis, and interpretation of the data opens space for various approaches that do not necessarily yield congruent results. A convincing example is Gillespie's case study of the Mayan ruler Pakal that shows the clash between biological anthropologists and linguists on the ruler's age at death (Gillespie 2001: 88–89). Moreover, scholars with different backgrounds and epistemologies inevitably negotiate their mutual expectations about how the research should be carried out and published. When we plant these divergent ideas of proper scholarship into international environment, things get even more complicated because of cultural differences among the scholars.

In this paper we will explore the overlaps and tensions among the disciplines that contribute to the broad area of scientific interest, which we call mortuary studies. The story starts in the field where decisions have to be made to collect appropriate evidence. Then it follows with the discussion about categories that are used for analysis. The last part focuses on different traditions of reasoning where ideas of rigid research design and deductive logic encounter flexible inductive logic open to modification. Throughout the entire paper, three imaginary characters will guide reader's journey.

IN THE FIELD

In 1970s Kent Flannery applied an intriguing dramatic element into his exploration of Early Mesoamerican

villages: Real Mesoamerican Archaeologist, Great Synthesizer, and Skeptical Graduate Student (Flannery 1976). This move was not a strategy to drown in the post-modern hodgepodge. On the contrary, it was an attempt to spread scientific rigor in a digestible way. Let us follow this inspiration and introduce the following characters: True Archaeologist (T.A.), Rigid Bioarchaeologist (R.B.), and Foreign Theorist (F.T.). T.A. loves shoveling, mud on the boots and wind in his hair. Field experience and unique artifacts are among the highest values in T.A.'s hierarchy. In contrast, R.B. loves her measuring tools, methodology, and fancy statistics. F.T. likes putting together various lines of evidence and extrapolate them into theories that T.A. and R.B. never dreamt about. Also, F.T. tends to be pragmatic and hard-working because the tenure pressure in his country exposes him to extreme expectations and hard evaluations.

First of all, it is necessary to emphasize that our three characters do not always meet directly in the field. The first problem of collaborative research stems from the variable engagement of different scholars in the field as Sládek (n.d.) pointed out. R.B. often stays in her laboratory and F.T. in his office. In contrast, T.A. holds the research permit that often gives him relative freedom of what and how he excavates. However, a project where R.B. receives the bones in a box at the end of excavations loses much contextual information about human remains, which can be collected in the field (cf. Duday *et al.* 1990, Duday, Guillon 2007, Prokeš 2007, Sládek *et al.* 2008, Willis, Tayles 2009). R.B. often asks: "Is it really necessary to be in the field? T.A. can do the job for me and deliver the bones." T.A. has no problem with that because he loves excavating and the presence of other scholars with different interests and points of view represents a potential problem. Indeed, it may slow down the excavation because R.B. and other natural scientists may want to take samples and measure objects of their interest in-situ. Therefore, T.A. as a manager – the most common model of scholarly hierarchy in Central Europe – is exposed to contradictory tensions. On one hand, he would like to include specialists and methods as diverse as possible to secure a wide range of data for subsequent analyses and interpretation. On the other hand, he faces the limits of project's budget, time constraints, and little enthusiasm of R.B. and other natural scientists who do not always feel the need to be in the field. The most common result of these tensions is that cemeteries and churchyards are excavated without the presence of R.B., the person who has the potential to collect critical data concerning human remains. Although the situation described fits the Czech Republic, we suspect that scholars in other parts of the world face the same issue.

The lucky projects where our three characters participate on excavations in the field are not trouble-free either. Each specialist considers his or her object of interest the most crucial. T.A. and the geologist care about stratigraphic relationships and sections. When R.B. uncovers the skeleton, everything else loses its brightness. R.B. suggests:

"We should modify the section immediately because skeleton's lower legs are hidden in the soil behind the section." T.A. and geologist do not like this idea because the section is more important than the complete removal of the skeleton. Another trouble occurs when R.B. wants to remove the bones before they get really dry in sunny weather but T.A. does not like this idea saying: "We have to wait a few more days and leave it there for the evaluation committee. They would love to take pictures." F.T. tends to be pragmatic: "We should remove the bones, otherwise we will lose some data. Also, leaving the skeleton in-situ would slow us down." No wonder, F.T. knows that the research team needs to collect as much data as possible to succeed in the hard peer-review process in a good journal. The final decisions depend, of course, on the rhetorical abilities of the actors, the weight of individual arguments, formal hierarchy in decision-making, and reciprocal relationships between the actors. However, the success in this process depends also on understanding the expectations of other scholars and knowledge of their disciplines. Therefore, much misunderstandings and tensions can be reduced via support of multidisciplinary programs at universities where students have opportunities to "look into the world of others". Since the very roots of anthropology stem from this idea, anthropology provides a useful framing environment for mortuary studies.

ANALYTICAL CATEGORIES

Finds collected in the field are classified, measured, digitized, and analysts can use them to create data matrices. The most common analytical unit in statistical analyses of mortuary variability is a burial that contains an individual (e.g., Manly 1996, O'Shea 1984, O'Shea 1996, Porčić, Stefanović 2009, Sosna 2009). This practice stems from the fact that artifacts and grave furnishing can be related directly to the individual in the grave. Therefore, biological estimations of sex, age, body height etc. can be linked to associated artifacts and furnishing. This ideal world, however, is not compatible with multiple burials because it is not always clear which individual can be linked to specific artifacts, unless they were unambiguously associated with the body. Since multiple burials are common in prehistoric settings, they deserve attention. Unfortunately, they usually embody only appendices to sophisticated statistical analyses. They are reminiscent of outliers in statistical analyses, which are neglected for the sake of robust generalizations.

Things may get even worse when one exposes the skeletons to detailed bioarchaeological investigation. For example, Parker Pearson *et al.* found that one of their skeletons was composed of bones of at least three different individuals – the post-cranial skeleton, the skull and the mandible came from different individuals (Parker Pearson *et al.* 2005: 534). This "puzzle individual" did not look unusual at the first glance. It was the detailed scrutiny that uncovered the combination of skeletal elements from

three individuals. What is the appropriate unit of analysis here? A bone or the body, which probably corresponded to a social category in minds of Bronze Age people? One may follow the reasoning along the lines suggested by Kuijt (2008: 176). He argues that the manipulation of the body does affect physical remains of an individual but it serves to link the living with the generalized ancestors. Therefore, during a few generations after individual's death, the single is transformed into collective. Given the fact that some periods of prehistory yield frequent evidence of so-called disturbed burials (see Heyd, Bartelheim 2001), which indicate manipulation of the dead, combination of skeletal parts and construction of the collective may be more frequent.

Social and cultural anthropology provides a great source of inspiration about the relationship between singular and plural. Several decades ago, Mauss (1938) opened the discussion about the category of personhood. He suggested that society is composed of certain number of characters (*personnages*) that are filled with particular individuals. While the individual as a biological unit may die, *personnage* tend to be perpetuated in time. More interestingly, the very nature of *personnage* is relational and collective because it is not only embodied by relations to other people but also places and things. Such a relational understanding of personhood has been subject to extensive discussions in social and cultural anthropology especially in Southeast Asia and Melanesia where dividuals (Strathern 1988), fractal (Wagner 1991), and partible persons (Busby 1997) entered the intellectual space of reasoning about the construction of personhood. Gillespie (2001), inspired primarily by Mauss, applied the relational notion of personhood to the study of archaeological mortuary remains of Mayan ruler Pakal. She argues that the discrepancy between the bioarchaeological estimation of Pakal's age at death and the linguistic decoding of inscriptions in Palenque stems from the confusion between the biological individual and social person, who lived long after his physiological demise. In other words, Gillespie points at analytic category "individual", which cannot be automatically assumed to be congruent with the category of "person" in non-western and prehistoric contexts. Although Gillespie's position was critiqued by Houston and McAnany (2003) for being too constructivist, her argument brought into light an important point: we often take our categories for granted.

Age represents another problem for classification. When T.A. approaches his friend R.B. he asks: "Have you already finished your age estimations from skeletons? I need the results for testing the differences between the graves of individuals in their twenties and thirties." R.B. answers with an uneasy feeling: "I am afraid that I will not be able to give you such fine-grained data. Age estimations for adults are quite unreliable. I can estimate age of subadults quite well but adults represent a problem. The best I can do is the distinction between the very young and very old adults. Anything beyond this level is the fortune-telling from a crystal ball." One does not need the crystal ball to

predict that T.A. is not happy about this: "But I have seen many studies where scholars worked with quite narrow age intervals." R.B. agrees: "Sure, I know. This, however, does not mean that we have to continue doing this. When new critical studies demonstrate that previous research was a bit uncritical to its methodology, we should reflect these new finds and do our best to produce knowledge, which would be more reliable and valid." At the end of this discussion, T.A. is not happy but he understands that some things cannot be pushed too far and researchers need to be aware of critical studies of scientific methodology.

Biological anthropologists have developed specific classification of age categories for skeletal material and designed methods to classify individuals into these categories (Brooks, Suchey 1990, Buckberry, Chamberlain 2002, Meindl, Lovejoy 1985, Scheuer, Black 2000). The most common models of classification works with infants, juveniles, adults, matures, and seniles (Sjøvold 1988) or young, middle and old adults respectively (Buikstra, Ubelaker 1994). There is, however, a methodological problem to working on a high level of resolution. As recent critical studies pointed out there are no reliable methods that would be able to classify adult individuals to narrow intervals (Brůžek 2008).

Age is not an unproblematic unidimensional category by itself. We can distinguish at least three different kinds of age: biological, chronological, and social (Halcrow, Tayles 2008: 192). The first reflects the physical changes of the body, the second describes the time difference between birth and a specific point of life, and the last one reflects the emic understanding of age in particular socio-cultural context. Many societies classify individuals into age sets and age grades that express shared life experience and collective ties (cf. Barth 2002, Turner 1967). These categories indicate that research has to be aware of these differences and should explain in which dimension of age he or she works. Critical rethinking of western categorization may affect statistical analyses. For analytical purposes associated with statistical testing, age categories can be lumped into more general categories subadult and adult. The crucial question is where the line between subadults and adults should be made. The common practice of using the biological features of adulthood such as ossified cartilages do not need to reflect the social understanding of adulthood. It seems that the best strategy is to start with biological categories and then reclassify the individuals according to other criteria such types of graves, artifacts, and body treatments. In other words, social age emerges from the data through the comparison of multiple lines of evidence rather than as a direct imprint of a priory biological categories.

TRADITIONS OF THOUGHT

Scholars from different disciplines and countries may differ in their views on the production of knowledge about past societies and the discourses within which they operate. The

meeting of our three characters R.B., T.A., and F.T. suggests that their ideas are not unified. One day F.T. comes with his eyes wide: "I just read a great paper about the language of Pirahã in *Current Anthropology*. It seems that those guys do not talk about anything beyond immediate experience. It is fascinating." T.A. says: "Interesting, but why do you care about such things? Is it relevant to archaeology?" F.T. responds: "Well, it is not relevant directly but I am committed to four-field anthropology. It just gives me better sense of how humans in different societies act and conceptualize the world. Sometimes, I learn things that were previously beyond my imagination." R.B. joins the discussion and asks: "This makes sense but did they use any statistical test? Are their linguistic results reliable?" F.T. replies: "I do not think that they used statistics. Why should they? Not everybody works with numbers. Semiotic approaches are quite sophisticated and convincing even without statistics." While R.B. contemplates about the science without statistics, T.A. attacks the four-field approach: "Ok, I got the point but is it really necessary to adopt this American four-field ideology? Here in Europe, we have quite a different tradition where archaeology is simply archaeology. There is no need for the four-field framework." After this point, the discussion continues with challenges and rebuttals among all three participants in the discussion.

Boasian four-field approach represents a controversy. Its position has been strong in the United States. In retrospective disciplines Binford's (1962) paper set the agenda and the publications in recent past (Gillespie, Nichols 2003, Skibo *et al.* 2007) also indicate that archaeological commitment to anthropology is still alive. Also, several highly influential works in mortuary studies built strong ties between archaeology and ethnography (Binford 1971, Goldstein 1976, O'Shea 1984, Saxe 1970) and between archaeology and biological anthropology (Buikstra 1977, Larsen, Milner 1994). Contrary to the celebration of the four-field approach Borofsky (2002) points at the discrepancy between the ideology of four-field and low frequency of actual collaboration among scholars within the four-field framework, which would yield results in the form of publications. In Europe, the disciplines associated with mortuary studies have been quite autonomous. Especially the ties between archaeology and ethnography (sociocultural anthropology) have been weak (cf. Härke 2000). Currently, while the four-field tradition has to fight for its survival in its original environment in the United States, multidisciplinary programs seem to flourish in the United Kingdom. In Central Europe, the separation among the disciplines in mortuary studies is still strong but increasing exposure to diverse literature, participation at international conferences, and collaborative projects gradually improve the understanding of related disciplines.

Tensions arise also during the discussions about the logic of "scientific" reasoning. R.B. has very strong opinion about this issue: "Every research has to start with a testable

hypothesis, which is later tested against the data." T.A. and F.T. reply: "This is one of the possibilities but we should not be dogmatic about it. Great research has been done via induction and 'softer' approaches." Less rigid and more inductive approaches are typical for European archaeology and sociocultural anthropology. Even in archaeology in the United States, where claims about hypothetico-deductive reasoning were strong during the processual era (e.g., Watson *et al.* 1971), things changed. As Fogelin (2007) argues, inference to the best explanation is the most appropriate and also most commonly practiced form of archaeological reasoning. This approach is based on the assumption that " ... the explanation that accounted for the greatest diversity of evidence was more likely to be true." (Fogelin 2007: 611). Its advantage lies in its potential to produce more or less compelling explanations instead of rigid rejection or non-rejection of a hypothesis. Inference to the best explanation can integrate diverse evidence and develops explanations for infrequent phenomena within each line of evidence (Fogelin 2007). This kind of reasoning, which simply produces the best explanation for diverse evidence, may be highly effective for mortuary studies where multiple lines of evidence are commonly processed and integrated.

CONCLUSION

We tried to describe the problems and tensions among the disciplines and scholars within the frame of mortuary studies to argue for the need and usefulness of interdisciplinary approaches. Nonetheless, interdisciplinarity cannot be viewed as unproblematic practices that produce only scientific advances. Similarly to other spheres of scientific enquiry where multiple scholars interact, the interaction produces tensions that rise from different priorities and the lack of understanding of other disciplines. These tensions spread into multiple layers ranging from the field practice to epistemology. Our three characters who were used to investigate the tensions, represent only small portion of diverse ideas about proper scholarship in mortuary studies but they point to the incompatibilities among scholars in different disciplines. We believe that these incompatibilities can be overcome, especially through interaction and education. We argue that scholars from different disciplines need to participate in field projects together to understand the priorities and techniques of others. Also, education that provides wider range of perspectives on mortuary studies helps to bridge divides in understanding of other disciplines.

Tensions among disciplines and scholars are counterbalanced by the positive effects of exposure to "otherness". Reading the literature from neighboring disciplines and interaction with other scholars widens one's perspectives and provides critique to various naive assumptions. Especially ethnography is useful in this respect because it provides the range of models of social

organization and practices. Also, it provides a critique of Western categories.

If we accept the argument that interdisciplinarity is useful for mortuary studies, we need to resolve the problem of how to integrate research results based on multiple lines of evidence. It seems that the forms of reasoning that would evaluate everything solely on the basis of either statistical significance or description of a single object cannot succeed. Inference to the best explanation offering a feasible way to integrate various lines of evidence in mortuary studies. On the more general level, anthropology as a discipline provides a viable general framework because of the long-term experience with holism and interaction among sub-disciplines with epistemological, theoretical, and methodological differences.

ACKNOWLEDGEMENTS

We would like to thank Bill Parkinson for the inspiration and David Henig for the feedback to earlier versions of the manuscript. All the errors remain responsibility of the authors. The work on this paper was supported by the grant of the University of West Bohemia SGS-2010-063.

REFERENCES

- AMBROSE S. H., KRIGBAUM J., 2003: Bone chemistry and bioarchaeology. *Journal of Anthropological Archaeology* 22, 3: 193–199.
- BARTH F., 2002: An anthropology of knowledge. *Current Anthropology* 43, 1: 1–18.
- BECK L. A. (Ed.), 1995: *Regional Approaches to Mortuary Analysis*. Plenum Press, New York.
- BENTLEY R. A., TAYLES N., HIGHAM C., MACPHERSON C., ATKINSON T. C., 2007: Shifting gender relations at Khok Phanom Di, Thailand – Isotopic evidence from the skeletons. *Current Anthropology* 48, 2: 301–314.
- BINFORD L. R., 1962: Archaeology as Anthropology. *American Antiquity* 28, 2: 217–225.
- BINFORD L. R., 1971: Mortuary Practices: Their Study and Potential. In: J. Brown (Ed.): *Approaches to the Social Dimensions of Mortuary Practices*, *Memoirs of the Society for American Archaeology* vol. 25, Pp. 6–29. Society for American Anthropology, Washington, D.C.
- BOROFSKY R., 2002: The four subfields: Anthropologists as mythmakers. *American Anthropologist* 104, 2: 463–480.
- BRAUN D. P., 1981: A Critique of Some Recent North American Mortuary Studies. *American Antiquity* 46, 2: 398–416.
- BROOKS S. T., SUCHEY J. M., 1990: Skeletal Age Determination Based on the os pubis: A Comparison of the Acsádi-Nemeskéri and Suchey-Brooks Methods. *Human Evolution* 5, 3: 227–238.
- BROWN J. A., 1971: Approaches to the social dimensions of mortuary practices. *Memoirs of the Society for American Archaeology*, vol. 25. Society for American Archaeology, Washington.
- BRŮŽEK J., 2008: Současná česká paleodemografie: falešné naděje přílišného optimismu a nový reálný cíl. *Archeologické rozhledy* 60, 2: 329–344.
- BUCKBERRY J. L., CHAMBERLAIN A. T., 2002: Age estimation from the auricular surface of the ilium: A revised method. *American Journal of Physical Anthropology* 119, 3: 231–239.
- BUICKSTRA J. E., 1977: Biocultural dimensions of archaeological study: a regional perspective. In: R. L. Blakely (Ed.): *Biocultural adaptation in prehistoric America*. Pp. 67–84. University of Georgia Press, Athens.
- BUICKSTRA J. E., BECK L. A., 2006: *Bioarchaeology: the contextual analysis of human remains*. Academic Press, Boston.
- BUICKSTRA J. E., UBELAKER D. H. (Eds), 1994: *Standards for Data Collection from Human Skeletal Remains*. Arkansas Archeological Survey Research Series No. 44, Arkansas.
- BUSBY C., 1997: Permeable and Partible Persons: A Comparative Analysis of Gender and Body in South India and Melanesia. *The Journal of the Royal Anthropological Institute* 3, 2: 261–278.
- CARR C., 1995: Mortuary practices: Their social, philosophical-religious, circumstantial, and physical determinants. *Journal of Archaeological Method and Theory* 2, 2: 105–200.
- CHAPMAN R., KINNES I., RANDSBORG K., 1981: *The Archaeology of Death*. Cambridge University Press, Cambridge.
- DOOLITTLE J. A., BELLANTONI N. F., 2010: The search for graves with ground-penetrating radar in Connecticut. *Journal of Archaeological Science* 37, 5: 941–949.
- DUDAY H., COURTAUD P., CRUBÉZY E., SELLIER P., TILLIER A.-M., 1990: L'anthropologie de terrain: reconnaissance et interprétation des gestes funéraires. *Bulletin et Mémoire de la Société d'anthropologie de Paris* 2, 3–4: 29–50.
- DUDAY H., GUILLON M., 2007: Understanding the Circumstances of Decomposition when the Body is Skeletonized. In: A. Schmitt, E. Cunha and J. Pinheiro (Eds.): *Forensic Anthropology and Medicine: Complementary Sciences From Recovery to Cause of Death*. Pp. 117–157. Humana Press, Totowa.
- FLANNERY K. V. (Ed.), 1976: *The Early Mesoamerican Village*. Academic Press, New York.
- FOGELIN L., 2007: Inference to the Best Explanation: A Common and Effective Form of Archaeological Reasoning. *American Antiquity* 72, 4: 603–625.
- GAFFNEY C., 2008: Detecting trends in the prediction of the buried past: A review of geophysical techniques in archaeology. *Archaeometry* 50, 2: 313–336.
- GILLESPIE S. D., 2001: Personhood, Agency, and Mortuary Ritual: A Case Study from the Ancient Maya. *Journal of Anthropological Archaeology* 20, 1: 73–112.
- GILLESPIE S. D., NICHOLS D. L., 2003: Archaeology is Anthropology. *Archaeological Papers of the American Anthropological Association* No. 13. American Anthropological Association, Arlington.
- GOLDSTEIN L. G., 1976: *Spatial Structure and Social Organization: Regional Manifestation of Mississippian Society*. Unpublished Ph.D. dissertation, Northwestern University.
- HAAK W., BRANDT G., DE JONG H. N., MEYER C., GANSLMEIER R., HEYD V., HAWKESWORTH C., PIKE A. W. G., MELLER H., ALT K. W., 2008: Ancient DNA, Strontium isotopes, and osteological analyses shed light on social and kinship organization of the Later Stone Age. *Proceedings of the National Academy of Sciences of the United States of America* 105, 47: 18226–18231.
- HALCROW S. E., TAYLES N., 2008: The Bioarchaeological Investigation of Childhood and Social Age: Problems and Prospects. *Journal of Archaeological Method and Theory* 15, 2: 190–215.

- HAMILAKIS Y., PLUCIENNIK M., TARLOW S., 2002: Thinking through the body: archaeologies of corporeality. Kluwer Academic/Plenum Publishers, New York.
- HÄRKE H., 2000: Social Analysis of Mortuary Evidence in German Protohistoric Archaeology. *Journal of Anthropological Archaeology* 19: 369–384.
- HÄRKE H., 2002: Interdisciplinarity and the archaeological study of death. *Mortality* 7: 340–341.
- HEGMON M., 2003: Setting Theoretical Egos Aside: Issues and Theory in North American Archaeology. *American Antiquity* 68, 2: 213–243.
- HERTZ R., 1960 [1907]: *Death and The right hand*. Cohen & West, Aberdeen.
- HEYD V., BARTELHEIM M., 2001: Cult after the Burial. Post-tombal treatment patterns in Central European Bronze- and Iron Age. In: P. Biehl, F. Bertemes and H. Meller (Eds.): *The Archaeology of Cult and Religion*. Pp. 261–276. Archaeolingua, Budapest.
- HODDER I., 2000: Agency and individuals in long-term processes. In: A.-M. Dobres and J. Robb (Eds.): *Agency in Archaeology*. Pp. 21–33. Routledge, London.
- HONCH N. V., HIGHAM T. F. G., CHAPMAN J., GAYDARSKA B., HEDGES R. E. M., 2006: A palaeodietary investigation of carbon (13C/12C) and nitrogen (15N/14N) in human and faunal bones from the Copper Age cemeteries of Varna I and Durankulak, Bulgaria. *Journal of Archaeological Science* 33, 11: 1493–1504.
- HOUSTON S. D., MCANANY P. A., 2003: Bodies and blood: critiquing social construction in Maya archaeology. *Journal of Anthropological Archaeology* 22, 1: 26–41.
- JOYCE R. A., 2005: Archaeology of the body. *Annual Review of Anthropology* 34, 1: 139–158.
- KUIJT I., 2008: The Regeneration of Life: Neolithic Structures of Symbolic Remembering and Forgetting. *Current Anthropology* 49, 2: 171–197.
- KVĚTINA P., 2004: Mocní muži a sociální identita jednotlivců – prostorová analýza pohřebišť LnK ve Vedrovicích. *Archeologické rozhledy* 56: 383–392.
- LARSEN C. S., 1999: *Bioarchaeology: Interpreting behavior from the human skeleton*. Cambridge University Press, Cambridge.
- LARSEN C. S., MILNER G. R., 1994: *In the wake of contact: biological responses to conquest*. Wiley-Liss, New York.
- LOCK G. R., 2003: *Using computers in archaeology: towards virtual pasts*. Routledge, London.
- LUKES A., ZVELEBIL M., PETTITT P., 2008: Biological and Cultural Identity of the first farmers: Introduction to the Vedrovice Project. *Anthropologie* 46, 2–3: 117–124.
- MANLY B. F. J., 1996: The statistical analysis of artefacts in graves: presence and absence data. *Journal of Archaeological Science* 23, 4: 473–484.
- MAUSS M., 1938: Une catégorie de l'esprit humain: la notion de personne celle de moi. *The Journal of the Royal Anthropological Institute of Great Britain and Ireland* 68: 263–281.
- MCHUGH F., 1999: *Theoretical and Quantitative Approaches to the Study of Mortuary Practice*. BAR International Series, Vol. 785. Archaeopress, Oxford.
- MCPHERRON S. J. P., DIBBLE H. L., 2002: *Using Computers in Archaeology*. McGraw-Hill, Boston.
- MEINDL R. S., LOVEJOY C. O., 1985: Ectocranial Suture Closure – a Revised Method for the Determination of Skeletal Age at Death Based on the Lateral-Anterior Sutures. *American Journal of Physical Anthropology* 68, 1: 57–66.
- MESKELL L., 1999: *Archaeologies of social life: age, sex, class et cetera in ancient Egypt*. Social archaeology. Blackwell, Malden.
- MEYER C., BRANDT G., HAAK W., GANSLMEIER R. A., MELLER H., ALT K. W., 2009: The Eulau eulogy: Bioarchaeological interpretation of lethal violence in Corded Ware multiple burials from Saxony-Anhalt, Germany. *Journal of Anthropological Archaeology* 28, 4: 412–423.
- MOODER K. P., WEBER A. W., BAMFORTH F. J., LIEVERSE A. R., SCHURR T. G., BAZALIISKI V. I., SAVEL'EV, N. A. 2005: Matrilineal affinities and prehistoric Siberian mortuary practices: a case study from Neolithic Lake Baikal. *Journal of Archaeological Science* 32, 4: 619–634.
- NEUSTUPNÝ E., 1983: *Demografie pravěkých pohřebišť*. Archeologický ústav ČSAV, Praha.
- O'SHEA J. M., 1984: *Mortuary Variability: An Archaeological Investigation*. Academic Press, New York.
- O'SHEA J. M., 1996: *Villagers of Maros: A Portrait of an Early Bronze Age Society*. Plenum Press, New York.
- PARKER-PEARSON M., 1982: *Mortuary Practices, Society and Ideology: an Ethnoarchaeological Study*. In: I. Hodder (Ed.): *Symbolic and Structural Archaeology*. Pp. 99–113. Cambridge University Press, Cambridge.
- PARKER-PEARSON M., 2000: *The Archaeology of Death and Burial*. Texas A&M University Press, College Station.
- PARKER-PEARSON M. et al., 2005: Evidence for mummification in Bronze Age Britain. *Antiquity* 79, 305: 529–546.
- PORČIĆ M., STEFANOVIĆ S., 2009: Physical activity and social status in Early Bronze Age society: The Mokrin necropolis. *Journal of Anthropological Archaeology* 28, 3: 259–273.
- PROKEŠ L., 2007: *Posmrtné změny a jejich význam při interpretaci pohřebního ritu: ke vztahu mezi archeologií a forenzními vědami*. *Archaeologia mediaevalis Moravica et Silesiana*, Supplementum 1. Ústav archaeologie a muzeologie, Filozofická fakulta Masarykovy univerzity, Brno.
- RAKITA G. F. M., BUIKSTRA J. E., BECK L. A., WILLIAMS S. R., (EDS.), 2005: Interacting with the dead: perspectives on mortuary archaeology for the new millennium. University Press of Florida, Gainesville.
- SAXE A. A., 1970: *Social Dimensions of Mortuary Practices*. Unpublished Ph.D. Dissertation, University of Michigan.
- SAYER D., 2010: Death and the family: Developing generational chronologies. *Journal of Social Archaeology* 10, 1: 59–91.
- SCHEUER L., BLACK S. M., 2000: *Developmental juvenile osteology*. Academic Press, San Diego.
- SCHROEDER S., 2001: Secondary Disposal of the Dead: Cross-Cultural Codes. *World Cultures* 12, 1: 77–93.
- SCUDDER S. J., 2008: Anatomy of a Southwest Florida Sand Burial Mound: Smith Mound at the Pineland Site Complex. In: E. Reitz, M. C. Scarry and S. J. Scudder (Eds.): *Case Studies in Environmental Archaeology*. Pp. 81–93. Springer, New York.
- SJØVOLD T., 1988: Geschlechtsdiagnose am Skelett. *Anthropologie Handbuch der vergleichenden Biologie der Menschen, Band I, Wesen und Methoden der Anthropologie*. Pp. 444–480. Gustav Fischer Verlag, Stuttgart.
- SKIBO J. M., GRAVES M. W., STARK M. T., 2007: *Archaeological anthropology: perspectives on method and theory*. University of Arizona Press, Tucson.
- SLÁDEK V., n.d.: *Field Anthropology* – unpublished manuscript.
- SLÁDEK V., BERNER M., SAILER R., 2006: Mobility in Central European Late Eneolithic and Early Bronze Age: Femoral cross-sectional geometry. *American Journal of Physical Anthropology* 130, 3: 320–332.
- SLÁDEK V., GALETA P., SOSNAD., ČECHURA M., 2008: Metody terénní antropologie a dokumentace kosterních nálezů: příklad hřbitova u kostela Sv. Ducha ve Všerubech. In: J. Macháček:

- Počítačová podpora v archeologii II. Pp. 217–236. Masarykova univerzita, Brno.
- ŠMEJDA L., 2004: Potential of GIS for analysis of funerary areas: prehistoric cemetery at Holešov, distr. Kroměříž, Czech Republic. In: L. Šmejda and J. Turek (Eds.): *Spatial Analysis of Funerary Areas*. Pp. 57–68. Aleš Čeněk, Plzeň.
- ŠMEJDA L., 2009: Time as a Hidden Dimension in Archaeological Information Systems: Spatial Analysis Within and Without the Geographic Framework. *Computer Applications to Archaeology*, Williamsburg, Virginia, USA. March 22–26, 2009, pp. 1–9.
- SOFAER J. R., 2006: *The body as material culture: a theoretical osteoarchaeology*. Cambridge University Press, Cambridge.
- SOSNAD., 2009: Social Differentiation in the Late Copper Age and the Early Bronze Age in South Moravia (Czech Republic). *BAR International Series* no. 1994. Archaeopress, Oxford.
- SOSNAD., GALETA P., SLÁDEK V., 2008: A resampling approach to gender relations: The Rebešovice cemetery. *Journal of Archaeological Science* 35, 2: 342–354.
- STOJANOWSKI C. M., 2003: Matrix decomposition model for investigating prehistoric intracemetery biological variation. *American Journal of Physical Anthropology* 122, 3: 216–231.
- STRATHERN M., 1988: The gender of the gift: problems with women and problems with society in Melanesia. *Studies in Melanesian anthropology* no. 6. University of California Press, Berkeley.
- STRATHERN M., 2006: A community of critics? Thoughts on new knowledge. *Journal of the Royal Anthropological Institute* 12, 1: 191–209.
- TRIGGER B. G., 1989: *A History of Archaeological Thought*. Cambridge University Press, Cambridge.
- TURNER V., 1967: *The Forest of Symbols: Aspects of Ndembu Ritual*. Cornell University Press, Ithaca.
- WAGNER R., 1991: The fractal person In: M. Godelier and M. Strathern (Eds.): *Big men and great men: personifications of power in Melanesia*. Pp. 159–173. Cambridge University Press, Cambridge.
- WATSON P. J., LEBLANC S. A., REDMAN C. L., 1971: *Explanation in archeology: an explicitly scientific approach*. Columbia University Press, New York.
- WEISS E., 2009: *Bioarchaeological science: what we have learned from human skeletal remains*. Nova Science Publishers, New York.
- WILLIS A., TAYLES N., 2009: Field anthropology: application to burial contexts in prehistoric Southeast Asia. *Journal of Archaeological Science* 36, 2: 547–554.
- ZVELEBIL M., PETTITT P., 2008: Human Condition, Life, and Death at an Early Neolithic Settlement: Bioarchaeological Analyses of the Vedrovice Cemetery and their Biosocial Implications for the Spread of Agriculture in Central Europe. *Anthropologie* 46, 2–3: 195–218.

Daniel Sosna
Katedra antropologických a historických věd
Fakulta filozofická
Západočeská univerzita v Plzni
Sedláčkova 15
30614 Plzeň, Czech Republic
E-mail: dsosna@ksa.zcu.cz

Vladimír Sládek
Katedra antropologie a genetiky člověka
Přírodovědecká fakulta
Univerzita Karlova
Viničná 7
128 43 Praha 2, Czech Republic
E-mail: sladekv@yahoo.fr

Patrik Galeta
Katedra antropologických a historických věd
Fakulta filozofická
Západočeská univerzita v Plzni
Sedláčkova 15
30614 Plzeň, Czech Republic
E-mail: galeta@sci.muni.cz