

## CULTURAL MOBILITY IN BRONZE AGE EUROPE

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The purpose of the following introduction is threefold. First, it sets out to provide an outline of archaeological research into cultural mobility while highlighting the Bronze Age as a major epoch of connectivity in European prehistory. This will serve as the background for the second section, which summarises the main research incentives driving the investigation of mobility in the EC research and training programme *Forging Identities – The Mobility of Culture in Bronze Age Europe* (FI)<sup>1</sup>. This section furthermore outlines the results of individual research projects and also makes efforts to synthesise these various outcomes by means of dialogue with the current state of Bronze Age research. The results of the Forging Identities project (FI) are still emerging and will be presented in overview form. Naturally, the third aim of this introduction is to form a broad foreword to the present book volume which comprises 52 articles based on the *Cultural*

*Mobility in Bronze Age Europe* conference held at Aarhus University (AU Moesgård) in Denmark from 5-9 June, 2012. With over a hundred presentations in five sessions, the conference was as macro-regional as the subject area with which researchers from all over Europe and from the United States of America engaged. In addition to marking the final phase of the ‘Forging Identities project’, the conference also hosted the 12<sup>th</sup> Nordic Bronze Age Symposium, a gathering of mainly Scandinavian researchers which was incorporated into a genuinely international context of knowledge and ongoing research targeting Europe’s Bronze Age for the very first time.

### Cultural Mobility in Research Historical Perspective

One could argue that mobility was embedded in the Bronze Age. As both concept and historical span, the Bronze Age’s defining alloy preconditioned the movement of raw materials as well as knowledge. Christian Jürgensen Thomsen (1836) coined the term Bronze Age almost two hundred years ago<sup>2</sup>. Since then, this epoch has been reframed in numerous ways by a variety of different archaeological studies. Influential among these was the work of Gordon Childe (1930, 1942, 1951, 1958) in the early 20th century. He demonstrated that the onset of metal production first took off within Neolithic villages and, more generally, that the establishment of farming societies was a precondition for the subsequent development of complex metallurgy including alloying. Copper production merited and even demanded a special infrastructure while copper circulation opened the metallurgical field for wide-ranging exchange networks, promoting novel social strategies. Today we would broadly define the Bronze Age as the (proto-)historic period between 3000 and 500 BC.

Even if mobility was only rarely investigated in and of itself, research has not questioned the Bronze Age as a period possessed of considerable geographical range. Except for the arctic and desert extremities, some form of a Bronze Age is, in fact, recognized throughout Eurasia, suggesting coherence across these huge distances, if only defined by the use of history’s first alloy and copper metallurgy in general (cf. Burmeister *et al.* 2013; Rahmstorf 2010, Fig. 6; Roberts *et al.* 2009, Fig. 1b). Be it weak or

<sup>1</sup> The Marie Curie Initial Training Network (ITN, FP 7) “*Forging Identities – The Mobility of Culture in Bronze Age Europe*” 2009-2012 was comprised of a series of collaborating partner institutions (of which Aarhus University was coordinator) and a total of fifteen research fellows. ‘Forging Identities’ anchored its networking between eighteen partners distributed across Europe and joined by a common platform of research training activities. The seven *network partners* consisted of the following institutions/scholars: Aarhus Universitet/Helle Vandkilde (coordinator, AU Denmark), Goeteborgs Universitet/Kristian Kristiansen (GU, Sweden), Eurasien-Abteilung des Deutschen Archäologischen Instituts/Svend Hansen (DAI-Berlin, Germany), Christian Albrechts Universität zu Kiel/Johannes Müller (CAU, Germany), The Chancellor, Masters and Scholars of the University of Cambridge/Marie Louise Stig Sørensen (UCAM DARC, United Kingdom), Aristotelio Panepistimio Thessalonikis/Konstantinos Kotsakis (UT, Greece) and University of Southampton/Joanna Sofaer (US, United Kingdom). Eleven *associated partners* provided secondments, scientific laboratory facilities, archaeological and scientific data, field school sites and media for public dissemination. Among the associated partners were several museums and institutions of archaeological science: University of Copenhagen/Niels Lynnerup (Denmark), Deutsche Montan Technologie – Deutsches Bergbau-Museum Bochum/Andreas Hauptmann (Germany), Museum of Natural History Vienna/Maria Teschler-Nicola (Austria), Stockholm University/Kerstin Lidén (Sweden), Muzeul National al Unirii Alba Iulia/Horia Cigudean (Romania), High Anthropological School Kisinev/Igor Manzura (Moldavia), Slovak Academy of Sciences/Joseph Batora (Slovakia), Uniwersytet im. Adama Mickiewicza w Poznaniu/Janusz Czebreszuk (Poland), The University of Umeå/Thomas B. Larsson (Sweden), Matrica Museum/Magdolna Vicze (Hungary), Moesgård Museum/Jan Skamby Madsen (Denmark). The group of *Phd fellows* comprised Ole Christian Aslaksen (GU), Esther Fejer (AU), Vanessa Guyot (DAI-Berlin), Christina Karlsson (US), Maikel Kuijpers (UCAM DARC), Sascha Mauel (UT), Heide Wrobel Nørgaard (AU), Dalia Pokutta (GU), Constanze Rassmann (AU), Samantha Reiter (AU), and Nicole Taylor (CAU). The group of *postdoctoral fellows* comprised Christian Horn (GU), Paulina Suchowska-Ducke (AU), Tim Flohr Sørensen (UCAM DARC) and Claes Uhnér (DAI-Berlin).

<sup>2</sup> This chronological division was, in fact, already in place around 1818 when Thomsen began his guided tours in the collection which would later become the Danish National Museum.

strong, such coherence is unthinkable without movement. From the early 20th century onwards, migration and diffusion were accordingly used to explain shifts in archaeological cultures in and between Bronze Age regions (cf. Demakopoulou *et al.* 1998; Kossinna 1926; Struve 1979). However, mobility has not been an independent item on the archaeological research agenda until recently.

Compared to Stone Age and Iron Age studies, Bronze Age research has been more inclined to incorporate exogenous contacts as driving factors behind societal change, probably due to the essential and defining qualities of the period. Research in the Neolithic and the Chalcolithic periods is generally preoccupied with supra-regional processes involving mobility and interaction over huge areas (such as the neolithization of Eurasia and the spread of copper metallurgy) in addition to the almost iconic macro-regional phenomena of Corded Ware and Bell Beakers (Czebreszuk, Szmyt 2011a,b). By comparison, Bronze Age research has tended to pick particular contacts (e.g. the exchange of exotic gifts between elites in the Mediterranean world and temperate Europe), or has attempted to elucidate more evasive cultural influences, such as those emanating from Scythian nomads.

#### *Research history: Diffusion, autonomy or systemic cohesion*

According to several studies from the earlier 20th century (cf. Kilian 1983; Kossinna 1926; Tode 1935), temperate Europe was subjected to human migration. In archaeology's culture-historical tradition, which evolved during the same century, such movements were commonly reduced to one-directional cultural diffusions from central hubs to the margins. Geographically, this could be equated with movements from the Mediterranean and the Near East towards temperate Europe. The idea of cultural influences on the move already ran strong within the tradition of *ex oriente lux* which, when combined with typological arguments, ruled Montelius' perception of the Bronze Age (1885, 1899) as well as those of many of his contemporaries and successors. However, diffusion remains a concept which is primarily descriptive. Hence, it indicates merely that some form of movement may have taken place across geographical space (Childe 1958). In some research, observations of diffusion patterns prepared the ground for later arguments for or assumptions of large-scale migration. Gimbutas (e.g. 1965) is a leading figure among the numerous adherents to the latter archaeological genre. This kind of archaeology is still very much alive especially in some parts of Eastern European archaeology and has also recently been expressed within interpretations of new aDNA analyses (e.g. Brotherton *et al.* 2013). Among the strengths of the culture-historical diffusion tradition is first the fact that movement is implicitly recognized as a central factor in cultural spread and change. Secondly, that typological observations are considered central to validating whether or not past movements took place. It does, however, raise the challenge of

how one should move beyond the description of movement to understand how and why it occurred.

Diffusion as an ingredient in the archaeology of the later 20th century – including such scholars as Clarke and Malmér as well as Hänsel, Lüning, Shennan and Sherratt – has increasingly been enriched with additional concepts such as acculturation, enculturation and contextualization. According to Kristiansen and Larsson's book about Bronze Age Europe (2005, 25-26), these notions add to diffusion the crucial dimension of local adaptations of exogenous culture. The authors argue that institutionalization ranks foremost among a whole suite of other components which are necessary to make diffusion more complete as a theoretical strategy for the study of the movement of culture. Prior to the latter study, Hänsel (1998, 2002a) had made observations of socio-political differences between Bronze Age societies in the Aegean and in temperate Europe. He had moreover inserted them into a conceptual framework of diffusion and local adaptation. In such interpretations, the link to the Aegean world is the principal trigger for socio-cultural reorientation in Bronze Age temperate Europe. For ongoing research in the Bronze Age, the international conference *Mensch und Umwelt in der Bronzezeit Europas* held in Berlin 1998 was important insofar as the connection between Southern and Northern Europe was once again brought into focus.

The diffusionist tradition in European Bronze Age research was nevertheless opposed to another strong research tradition which preferred a more autonomous interpretation of Bronze Age data. As early as the middle of the 20th century a 'non-ex oriente lux' model of European Bronze Age societies was formulated by Otto in his assessments of the trace element analyses of Únětician metal objects (Otto 1955). Regional innovations and improvements in bronze technology in Central Europe continued to be a theme in subsequent research (Gerloff 2010; Müller 2002a; Strahm 1996) which paid little attention to the role of diffusion but rather emphasized a relative autonomy of regional societal developments.

In archetypical versions, processual and post-processual archaeology (over)emphasized the autonomy of cultural and social entities. They did this in different ways and for different reasons, but the result was the same; cultural movement was largely ignored both as a theme and as a social factor during the last decades of the 20th century. Kristiansen and Larsson claim (2005: 5-7) that in western academic archaeology these two strong schools (one might say leading paradigms) had presented the exploration and discussion of movement a *faux pas*. There are nevertheless some trends which however deviate from this general picture of immobility in the past.

Together with contemporaneous anthropology, the neo-evolutionist branch of New Archaeology did investigate the kind of movement theorized as exchange and trade by the influential Polanyi school of economic anthropology

(e.g. Jensen 1982). Nevertheless, one might argue that this keen interest in the trilogy of exchange, gift and reciprocity generally over-emphasizes the sociality of transactions while at the same time under-emphasizes the implied movements of culture and materials. However, the existence of wide-ranging chains of gift exchange was sometimes underlined in archaeology (e.g. Fischer 1973), and this is much more in accordance with Mauss' (1900/1950) original thesis in which he used the Kula as a prominent ethnographic example to demonstrate both the innate and the wide-ranging effects of exchange cycles.

In spite of prevailing paradigms, the notion of cultural autonomy was challenged in the late 1980s across a range of academic disciplines. A new theoretical perspective of inter-societal and long-range systemic dependency objected to the preferences of the social sciences and humanities for engaging with sites and the micro-scale. This timely interlude sprang from the influential work of Wallerstein (1974), who theorized economic exploitation and power relations between geographically and historically distinct polities. Wallerstein explored the relatively stable hierarchical geo-political relationships of recent history. World systems theory had its origin in the world order of colonialism and in Marxist thinking; the latter bringing a dynamic element of change into how we may understand variation across time and space. In archaeology, such core-periphery models became widespread (accompanied by the peer-polity model of interaction), as exemplified by the work of Hedeager (1987), Rowlands (1987), Sherratt (1993, 1994), Vandkilde (1996), Kristiansen (1998), and several others. Frank and Gills (1993) even projected a world system back into the 3rd millennium BC.

World systems theory and variations on that theme – all of which can be classified under the umbrella of macro-economic theory – seem to almost have a life of their own (Wilkinson *et al.* 2011), probably because they enable the academic process of making sense of the overall rhythms of historical change. However, when such a theoretical platform is evaluated in hindsight, there are some inherent difficulties which arise. One problem is that the actual movements, which supported and created those systemic structures, remain outside the analytical focus. A related problem with world systems theory is that it often takes the form of general history-making, disregarding the multiple local realities of small-worlds on the ground and also ignoring the agency which inhabits the periphery (Stein 2002). Furthermore, modern world systems theory *sensu* Wallerstein is rarely directly applicable to remote history, where several rival centres and several concurrent peripheries often seem to have coexisted. In this way, their precise statuses likely fluctuated due to inherent instabilities. In a similar vein, the clear economic exploitation of the periphery is an unusual scenario in deep history. Unequal exchange to the perceived advantage of the involved parties is more likely to have been sustained. In any case, it was the peripheries that depended on the centres for resources rather than the other way around (Rowlands 1987). In

consequence, several scholars (cf. Harding 2000) rejected Wallerstein's world-systemic theory as being irrelevant to Bronze Age societies.

The domination portion of world system theory is probably also inadequate. This is because attempts to exercise dominance are always reacted in some way (Gosden 2001; Guha 1997; Stein 2002). Indeed, critical voices in the 1990s affirmed that people always engage in their world; they are not (and never were) mute subjects. Post-colonialist trends based on the critique of Western history-writing and expressed in literary and historical studies by intellectuals of former colonies can be considered among the initiators of cultural globalization studies (e.g. Appadurai 1996; Guha 1997). People not only move, they respond to movement and to external flows of culture and economy in creative ways (e.g. Clifford 1992; Sofaer 2014; Sørensen T. 2012; Sørensen M. 2013). For example, such responses could include an oppositional strengthening of cultural traditions and even autochthony, as well as various kinds and degrees of the blending of objects and ideas. Movement, materiality and identification walk hand in hand when culture persists or changes. The organization of this book, as well as the structure of the 'Forging' project itself, reflect this insight.

#### *Towards an archaeology of mobility: Contemporary globality and growing datasets*

In the shadow of a rather long period during which the cultural significance of human and material mobility in Western archaeology was largely neglected, a growing number of articles and conference volumes currently testify to an increasing amount of concern with these matters (e.g. Clarke 2005; Hahn and Weiss 2013; Meller and Bertemes 2010). In the archaeology of the 21<sup>st</sup> century, the tide has turned to permit – and even encourage – studies of mobility. Whereas the archaeological interest previously favoured the perspectives of dwelling, action and practice, the pendulum is now swinging towards movement, travelling, trafficking, encounters and interaction as absolutely crucial to the creation of human life-worlds. In this sense, we are drifting back towards the strong traditions in Central European Bronze Age research in which changes were explained by the movements of individuals and groups, which caused vast regions to be interlinked for economic, political and ritual reasons (e.g. Hachmann 1957; Hänsel 1998; Jockenhövel 1991). However, how is it that such a reorientation of research focus should happen just now, across archaeology and in Bronze Age studies?

As we have learned from the history of archaeological research, when a particular subject or theme moves to the top of the research agenda (often at the expense of other topics), this may well be due to contemporary impact (Trigger 1996/2006). There can be little doubt that the current attention paid to mobility in the past is influenced by the globalized setting in which the archaeological research of today is played out. Our own world is literally on the move: innovations speed up the way we move as well as

the way in which things and knowledge move. Even social change can be said to be in motion: People change when they move, as they acquire new forms of cultural, social and economic capital to transplant home and abroad. The sum of these processes is transformed by and during motion. Across the globe, convergence competes with divergence in a number of sectors from culture to politics and economy, implicating different scales from village to nation and from nation to global society as a whole. All this may compel one to jump to the conclusion that the present mobile state of affairs is not historically unique.

Based on our current knowledge of the Bronze Age as well as the evidence of deep history as such, this presumption is probably both right and wrong at the same time. The vast scale and complexity of today's global connectedness are very different from previously recorded instances of spatial-cultural coherence, whereas underlying mechanisms, causes and effects may well be similar or broadly comparable. Nevertheless, it is still crucial to demonstrate, rather than assume, that movement took place in the past and to pursue both the scales and consequences of these same movements. In any case, the conditions for observing the movements of people, objects and ideas differ between the present and the past. Whether short- or long-range, Bronze Age movement has to be indirectly inferred from a complexity of archaeological data often relying on now-immobile objects with only partially reconstructible biographies of past movements.

Ongoing globalization is *the* contemporary issue that has influenced archaeology's return to questions of movement. On the other hand, there is now a growing body of Bronze Age data which makes it impossible to ignore the central role of short-range and long-range movements in generating, sustaining and disrupting systemic coherences across wide distances. The minimalist arguments of the last decades are now markedly retreating (compare e.g. Harding 1994 and 2013). Hänsel's (1998; 2002a-b) influential revelation of Aegean-European links and, not least, the work of Kristiansen and Larsson (2005) have doubtless been motivating factors in bringing about the current research focus upon the mobility of objects, people, and ideas. In assessing the role of long-distance transport, encounters and movements, it is indeed difficult to disregard finds such as the content of the Salcombe shipwrecks (Needham and Giardino 2008; Parham *et al.* 2013; Roberts and Veysey 2011), the Ringlemere gold cup (Needham *et al.* 2006), the Hasfalva and Balkraka thrones (Knape and Broström 1994), the arrangement of amber beads in the shaft graves at Mycenae (Maran 2011a) and the strikingly similar cultural taste for wavy meandering spirals in Scandinavia, the Carpathian Basin, and the Aegean in the 16<sup>th</sup> century BC (Boroffka 1998; David 2007; Vandkilde 2014b). Naturally, this list can be continued. In addition, the present advances due to work in the archaeological sciences confirm and nuance insights into increased mobility with the onset of the metal ages (see below).

On the local level, the social effects of movement may be weak or strong depending on a number of factors, such as the important role of receptivity as well as other influences, like that of political economy. For example, one cannot ignore the fact that Bronze Age Europe comprised essential differences in societal organisation which notably caused the scale and character of mobility within the Eastern Mediterranean and Middle Eastern region to differ markedly from Western and Northern Europe (Jung 2010; Rahmstorf 2010). It should further be noted that people act – and interact – through culture, and local worlds have always responded variably to exogenous culture. This sometimes happened in unexpectedly complex ways. The so-called Cycladic *Schlitzlanzenspitze* (leaf-shaped copper spear point) from Kyhna in Saxony may illustrate such a complex situation since it is neither truly local nor genuinely foreign. The spearhead in question formed part of a pre-Classic Únětician hoard. Metal-analytical examination of the combination of trace elements strongly suggests that, like the other items in the Kyhna assemblage, the spearhead was locally manufactured from Central European copper ore, whilst the nearest parallels for this type of weapon can be found in the Aegean EBA (Krause 2003, Fig. 222-225). This spearhead is a locally manufactured product imitating closely a foreign form and therefore also preconditions long-range transport to have taken place at some point prior to the production of the spearhead. This movement furthermore took place surprisingly early: well before 2000 BC, in fact, which is otherwise the moment when the tide eventually turned towards full metal-use throughout most of Europe. A Central European traveller could have seen this particular weapon in the Aegean and brought the idea or a specimen back home to Saxony long before spearheads became prominent in temperate Europe. Alternatively, an Aegean traveller could have visited Central Europe bringing goods for trade while prospecting for valuable materials such as metals. The so-called Aegean drinking cup from Dohnsen (Lkr. Celle, Lower Saxony) is later (mid second millennium BC), and should likely be understood in a similar perspective (Suchowska-Ducke in prep.)

#### *Towards an archaeology of mobility: Theoretical entries*

Movement and local responses to movement are still relatively undertheorized. Contemporary archaeology currently appears to explore four different theoretical approaches that incorporate movement in different ways. These are briefly mentioned below although the most attention is paid to recent developments in globalization theory.

First and foremost, the ramifications of world systems theory still address macro-scale flows of culture and interregional structures of continuity and change. However, they do so in ways which are less rigid than when originally proposed while also paying greater attention towards local realities, active agents, cultural variations and deviating spheres of interaction (e.g. Fuller and Rowlands 2011; Maran 2011b; Stein 2002).

Secondly, diffusion theory has been modernized into an intercontextual archaeology through concepts that amplify the three central powerhouses of interaction, namely transmission, transformation and institutionalisation. At the same time, the notions of centre-periphery and prestige-good transactions are incorporated with ease, thereby allowing local, regional and macro-regional histories to be on speaking terms (Kristiansen and Larsson 2005, 1-38). In fact, this intercontextualism goes well with updated versions of the Bronze Age world system as well as with the Bronze Age as Eurasian macro-history (Kristiansen 2011).

Next, network theory is an alternative means of exploring interaction, rather than movement as such. It sets out to study how materials and people formed networks on the ground by assessing their symmetries and asymmetries while also operating with ascending scales from the proximate to the community as well as to the (macro)regional level (e.g. Knappett 2011; Sindbæk 2007). The more complex Latourian ANT is another branch of network theory which has grown into a genre of its own by bridging past and present interaction nodes (Olsen 2003; web reference 2013). It is a cornerstone of network theory (especially ANT) that people are considered to become networked with objects to such a degree that it is hard to clearly distinguish between the two.

Recently, globalization theory has found its way into archaeological studies particularly through singular concepts such as transculture, hybridity, hybridization and globalization (Jones *et al.* 2011; Maran 2012; Panagiotopoulos 2013; Vandkilde 2007, 2009, 2010, 2014). Essentially understood as markedly increased supra-regional connectivity, globalization and its ingredients of cultural conceptualisations represent a resource upon which the archaeology of mobility can draw. Globalization may create links. It may separate and even polarize people and the places they populate and move between. Basically, globalization comprises transcultural flows across geographical and cultural borders as well as their varied reception in local settings. The global and the local are interdependent. It becomes clear, therefore, that travelling flows of transculture are both created and responded to within the context of settlements and local units. Depending on the local economic and cultural strategies towards the foreign and exogenous, there can be both losers and winners. Specific forms of strategic interaction can be illuminated through the investigation of the numerous small-worlds across Bronze Age Europe and Eurasia (e.g. Earle and Kristiansen 2010; Czebreszuk and Müller 2004; Hansen and Müller 2011; Kotsakis 1999; Kotsakis and Andreou 1999; Müller *et al.* 2010).

Among recent culture-economic trends in globalization research, mobility – and its active form of movement – can be considered to cover most aspects of social life, excepting periods of rest and breaks, which are categorized as

in-betweenness rather than immobility. Movement presupposes reception, and *vice versa*. To study mobility without considering the other side of the coin – the varied and often identity-based responses – is, therefore, inadequate. Both Clifford (1992) and Urry (2007) play with two composite concepts to illustrate the duality of movement and reception. *Dwelling in motion* clarifies that travelling people also dwell. They are sociable while on the move in boats, wagons or on foot, and they receive and forward culture both when moving and when movement is interrupted during shorter or longer breaks; hence the phrase ‘intermittent movement’. *Motion in dwelling*, by comparison, elucidates that even when dwelling, people engage on small-scale movement: they are sociable while staying in ‘places of in-between’ in which movement has been momentarily slowed down. Notably, objects, dress, human and animal bodies, ideologies, knowledge and technologies – in fact all kinds of tangible and intangible culture – dwell in and move through such transfer points.

This perspective renders micro-scale studies extremely valuable to understanding how identities come into existence, are negotiated and become rooted, challenged and transformed against the background of movement and its reception (Budden and Sofaer 2009; Sofaer 2011; Sørensen M. 1997, 2004, 2010a, 2013; Sørensen and Rebay-Salisbury 2009). As a consequence, social hierarchies may emerge or collapse (Hansen 2002; Müller 2012) and strong cultural traditions may reinforce themselves, or, indeed, change either gradually or radically. When being globalized, even social change can move directionally through geographical spaces while being locally adapted *en route* (cf. Hansen 2002; Friedman 2006; Vandkilde 2008, 2014).

Urry’s understanding of ‘mobilities’ (2007) also has a very concrete side. Movement usually demands some form of infrastructure in order to connect people and the material-social worlds between which they circulate. There are different forms of mobility and some are more relevant to archaeology than others: migration, professional travelling, exploratory travels, military campaigns, travelling within a diaspora, work commuting, and visiting friends and family within a network. Furthermore, movements occur within a historically constituted system in which people are networked with ‘machines’; namely their transport animals and vehicles and the objects being transported. In short, movement always involves systems. In the Bronze Age, this would be traffic on foot, riding, sailing and driving combined with immobile structures like paths, passages, landing places, roads and bridges, in addition to expert knowledge about routes across land, sea, lakes, and rivers. In short, mobility systems make repetition possible and reduce the definite risks involved in moving short- or long-distances (Urry 2007). Although most of this may appear to be common sense, it constitutes quite a challenge to identify these different elements when studying Bronze Age ‘mobilities’.

*Towards an archaeology of mobility: Insights from archaeological science*

Collaborations between archaeology and the natural sciences have long brought a deeper and broader understanding of the human past. This has particularly been the case with regards to investigations of the origin of materials and objects. Scholars studying the Bronze Age cannot have been in doubt that metals moved from the mining areas to European communities near and far, as this was the clear implication of the trace-element programmes involving both copper-based alloys and gold which were particularly widespread in the 1960s and 1970s (Hartmann 1970; Junghans *et al.* 1960, 1968-74;). Amber is another famous case (Beck *et al.* 1964). There are numerous other composition-based analyses of provenance, for example concerning Bronze Age storage and transport vessels (Day 1988, 1995). The precision of provenance information has generally been rather crude and has also been dependent on the scale and material of the items investigated<sup>3</sup>. It is, perhaps, for this reason that such studies have not seriously undermined the predominant paradigm of cultural autonomy or pushed diffusion and world system studies towards authentic mobility studies with a footing in the local realities of culture (see however Roberts S. *et al.* 2008).

Over the past few decades, progress in isotopic science has allowed for the development of significant nuances in the analysis of geo/bio materials. Isotopic science has thereby been another key factor in bringing cultural mobility to the fore as a theme within archaeological research. Breakthroughs have been accomplished in terms of stable-isotope signatures in bones, tooth enamel and indeed all substances and fabrics of biological origin as well as in elemental and compound matters from metals to glass: the group of stable isotopes including carbon (C), nitrogen (N), sulphur (S) strontium (Sr) and oxygen (O) are relevant to the investigation of biological substances; thus far, the stable isotopes of lead (Pb) and tin (Sn) are relevant to studies of geologically-derived matters and amalgams.

New scientific findings based especially on strontium isotopes strongly support the idea that people moved around on both small and large scales in the remote past. For the Bell Beaker period and the Bronze Age, 10-40% in-migration rates have been estimated on average for Central Europe and South Scandinavia (cf. Fitzpatrick *et al.* 2011; cf. Fitzpatrick *et al.* 2011; Müller 2013c; Price *et al.* 2004; Price pers. comm. 2013; Wahl and Price 2013). These values are higher than those recorded for Funnel Beaker and Corded Ware societies. They are only broadly comparable to the relatively high number of Linear Pottery non-locals at the very onset of farming economies in temperate Europe.

Despite the generally high average presence of non-locals in the Bronze Age, variation has lately been noted at some

sites which revealed apparently no or little in-migration, notably the EBA cemetery of Singen in southwestern Germany (Oelze *et al.* 2011) as well as in the LBA cemetery of Vollmarshausen in Hessen (Taylor in this volume; in prep.). The ongoing Beaker-People Project of the British Isles has recently released analytical outputs suggesting a very similar variability in the degree and scale of movements when assessed from a local perspective in terms of burials and cemeteries (Jay *et al.* 2012). It is important, however, to remember that sampling for isotopes (i.e. in cemeteries) will be unable to detect second or third generation immigrants. In addition, debates regarding the precise procedures for sampling, the production of background measurements for the calculation of local geologies and the precise value of individual isotopes and their optimal combination in the quest to reveal patterns of movement in the past are ongoing (Bentley 2006; Montgomery *et al.* 2007). Different isotope ‘fingerprints’ might still reflect particular strategies within a local or sub-regional social-spatial environment (Knipper 2004), which means that the ‘non-local’ label does not necessarily have to be associated with supra-regional mobility. Whereas undeniable success has been achieved in answering the question of local versus foreign, it has hitherto proved more problematic to determine migrants’ places of origin. As a discipline, archaeology should rise to the challenge of producing more finely-tuned data concerning for instance age at movement and to also attempt more nuanced social interpretations of the reasons and impacts of these relationships. Overall, the potential of this branch of research seems considerable, as is reflected by the marked increase in publications about human migration based on isotope analyses. The greatest challenge will be to combine the socio-cultural methods of burial archaeology with the range of available methods from chemistry, as it is precisely in this intersection that genuine insight may appear about such crucial issues as the gender, age and rank of those who moved and those who did not.

The results of isotopic analyses performed on metal objects can easily be matched against the results obtained in the isotopic analysis of organic materials. Variations of trace elements in gold and especially copper can reveal the general picture of the movements of metals as well as their reception (recycling) on a local scale. By comparison, laser ICP-MS isotopic analysis has the capacity to deliver information concerning the exact ore of origin (e.g. Höppner *et al.* 2005; Ling *et al.* 2014; Stos-Gale *et al.* 2009). The most reliable results are in fact obtained when confronting conventional trace element data with the datasets for three or more lead isotope ratios using multivariate analysis. In any case, the degree of recycling should be continually assessed from trace element compositions, as the information provided by isotopes cannot stand alone. Recent applications of isotopic methods reveal that the potential for new insights is huge, although the method still has a good bit of room for refinement in many cases. However, overall, it is becoming increasingly clear that gold, copper and tin were often traded in from remote places, even in

<sup>3</sup> The aims of these studies were variable (e.g. to investigate ceramic local versus non-local production).

cases where nearby resources could have been more conveniently utilized. Exoticism seems part of the attraction.

The combined results of isotopic and metal-analytical investigations prompts Pernicka (2010, 732) to suggest that the copper of the Nebra disc and the accompanying items (c. 1600 BC) originated in the Mitterberg region of the eastern Alps, despite rich indigenous resources closer to Nebra. While a Mitterberg origin would be in tune with current knowledge, the scatter diagram showing lead isotope values (Pernicka 2010, 732, Fig. 11) does not reveal a complete match between Nebra and Mitterberg. Rather, the isotope values of the Nebra items are situated in-between Erzgebirge and Mitterberg and at the outskirts of the latter region. This may perhaps suggest that a third, as-yet unidentified region delivered the copper for the Nebra assemblage.

In Southern Scandinavia, numerous manned long-ships carved into rock and bronze reflect the fundamental importance of water-borne mobility in the region and how this was integrated in myth and religiosity. A new Scandinavian lead-isotope case study (Ling *et al.* 2014) is currently providing an improved platform for understanding the nature of metal trading in Scandinavia and across Europe. Perhaps not very surprisingly, analyses of copper-based items from the entire duration of the Nordic Bronze Age (Sweden and Norway) show no signs of the exploitation of indigenous Scandinavian ores. What is genuinely new, however, is the European scale of metal-transport. Every bit of metal was transported from the mining areas of distant copper sources to Scandinavia: isotopic signatures from the Alps and the British Isles were expected and did manifest. Surprisingly, during the period from 1600-900 BC, an astonishingly large ingress of 'Scandinavian' copper seems to have been mined in the Iberian Peninsula and even Sardinia and Cyprus (Ling *et al.* 2014). While these conclusions may stand, isotopic data from southeast Central European and Carpathian metal sources are still widely missing. Their provision may nuance current suggestions of metal trade routes by the various teams working with isotopic datasets. The distribution of Nordic flint daggers, amber and metal object styles may notably point to a southeast Central European origin of at least some of the copper used early on in Southern Scandinavia. Besides, the provision of tin must have been crucial. However, this subject area is still relatively underexplored. Furthermore, the presence of lead in the Tollense tin rings may suggest the use of caution when interpreting lead isotope data in bronze objects, due to the fact that the lead could derive from both the copper and the tin, or either one or the other (Krüger *et al.* 2012: 40).

In recent decades, traditional archaeological data – metalwork styles and tin percentages testifying to alloying procedures – have been utilised to study the ever-important 'tin routes' of the Bronze Age. The question was more specifically posed when this trade in tin commenced and whether it changed over time (cf. Gerloff 2010; O'Connor

2010; Rassmann K. 2010). According to these studies, Central European bronze artefacts may point to an initial small-scale exploitation of regional tin sources in the Erzgebirge and nearby mountain ranges already during the pioneering phase of bronze technology around 2200 BC. This would have enabled the establishment of an exchange network which reached into Southeastern Europe. Comparatively, according to traditional estimates, the exploitation of Cornish tin – the largest tin source in Europe – began after 2200 BC. From 2000 BC, tin may have been transported between Cornwall and the Aegean via Central Europe. From 1800 BC, tin may also have moved along the Rhône-Alpes route to the Mediterranean (cf. Gerloff 2010; O'Connor 2010). From 1600 BC, Cornish tin may well have formed part of the Atlantic maritime route by which metals were transported to/from the Mediterranean (cf. Ling *et al.* 2014). The two tin rings from Tollense (c. 1200 BC) highlight the fact that tin is generally invisible as raw material and object of trade while it at the same time tends to appear in unusual discoveries or otherwise extraordinary contexts (Krüger *et al.* 2012). The new method of tin isotopy (Haustein *et al.* 2010) will enable scholars to reveal further nuances within these views and thereby throw new light onto the old questions about Bronze Age tin sources, exploitation and trade. The first results are highly surprising because of the vast scale they may imply in the transport of tin. Again, Nebra figures centrally as study object. When comparing tin isotope values, the Nebra Sky Disc fits well with tin from remote Cornwall whereas the nearby sources of the Erzgebirge, Graupen and Vogtland are mostly deviating (Haustein *et al.* 2010: 829, Fig. 4).

While archaeological and scientific datasets jointly support Europe-wide long-distance transport of copper, tin and gold from c. 2000 BC onwards, local production conversely played a key role in making creative use of these metals of different origins, properties and colours. The period around 1600 BC especially exhibits such a cultural blending of disparate traits in the quest to make extraordinary items. The Nebra hoard is iconic in showing such creative combinations on several levels. However, several other pieces of metalwork across Europe display a similar trend. Even the gold sheet applied to the Nebra objects fits such a picture of local practices of combining gold from various different European sources (Borg 2010). Although remarkable, the threefold hybridity of the Nebra hoard is hardly unique for the time period: the mixed style of the objects, the variety of metallurgical techniques involved – notably 'painting in metal' – , and the disparate origins of the three metals. This may well touch upon what might be the very essence of the Bronze Age as both epoch and wide-ranging geographical spread (cf. Ambruster 2010; Hansen 2010b; Meller 2010; Pernicka 2010; Vandkilde 2010, 2014). Much of the transculture which literally made the Bronze Age acquired what one might call both overt and concealed qualities of bricolage as it became creatively transformed on a local scale by means of processes which are sometimes traceable in geographical space.

In summary, isotopic science has recently provided new support for long-range movements in the Bronze Age. By implication, this traffic must have been expertly supported by effective mobility systems at sea and presumably also river-riding with appropriate ships and landing places. A solid ground has thus been prepared for future breakthroughs in the research area of Bronze Age mobility based on a combination of datasets from archaeology and the natural sciences. So far, a fundamental openness towards exogenous culture has transpired as a chief characteristic trait of Europe's Bronze Age. Within the metal ages, such permeability became intrinsic to European communities as a strong tradition in and of itself.

#### *Cultural mobility as archaeological research area*

Cultural mobility can be condensed into the following theory-based statement of potential value for archaeological studies aiming to explore this timely theme: Culture is mediated, received and transformed when people move small-scale within and around their home region as well as when they undertake long-distance travels across different landscapes and seas. While encounters with different geographies, cultural values and social organizations are especially tied to long-range and cross-regional traffic, most types of movement link up with means and systems of mobility (such as ships or wheeled transport), but also with particular reasons for journeying and identities based on age, gender, rank, class, and culture. Three basic categories of mobility emerge: The corporeal movement of people and animals, the physical movement of objects and the transfer of intangible knowledge and culture. A fourth category of imagined journeying lies outside of the scope here as it forms part of cosmological narratives and religiosity. These categories are not mutually exclusive; rather, they may have overlapped in the concrete practices of Bronze Age movements.

Aside from the fact that mobility and exchange *were* present in the Bronze Age, there are more questions than answers as to how travel and transport were organized. Interestingly, in today's globalized world, money and goods are still more mobile than people (Hirst and Thompson 1996). As a general guideline, this state of affairs would suggest that material mobility was also in the Bronze Age more voluminous and frequent than human mobility, although interdependency between the two categories must also be assumed. Indeed, the mobility of valuables, raw materials and knowledge seems difficult to exaggerate in the connected world of the Bronze Age. Long-distance human mobility – such as water-borne trading expeditions – could have principally involved exclusive or otherwise professionalized segments of society. Large-scale human migrations (*per se*) entailing numerous individuals may not have been the norm in Bronze Age Europe, but could nonetheless have formed in relation to the key historical turning points, especially those periods around 1600 BC and 1200 BC during which the formations of new socio-cultural realities were finally completed across large parts of Europe.

Several specific questions could likewise be posed: Who managed the production and transfer of goods? What was the role of fortified settlements and mobile military units in controlling the routes and the development of resource exploitation? Bronze Age warfare was of no little social significance throughout the Bronze Age (Hansen 2013f; Vandkilde 2013b) and must have impacted mobility patterns. During certain times of rapid change and social upheaval, war and its agents would presumably have restricted the above average mobility which generally characterized the Bronze Age as distinct from the Neolithic. The high mobility of specific military units can now be inferred from isotopic data extracted from the adult males buried at Neckarsulm in South-Western Germany around 1200 BC in the early Urnfield period (Ha A1)(Wahl and Price 2013). Linking this to the hubs of fortified hillforts, it is quite possible that military power customarily or at certain times formed part of civilians' short- and long-range movements to guarantee their safe realization. Homer's epic tales from a Bronze Age realm would further suggest fluid boundaries between warfare, trade and economy (Wees 1992; Vandkilde 2013b). Standardised military support for cross-cultural traffic could have stretched back at least to c. 1700-1500 BC in Central and Northern Europe, where the MBA coalesced from the particular conjuncture of circumstances which were present at the end of the EBA.

Merely to place mobility and the ensuing connectivity and coherence among the machine parts of what one might call the engine of the Bronze Age is a further step in the direction previously pointed out by Childe (1930), Sherratt (1994), Demakopoulou *et al.* (1998), and Kristiansen and Larsson (2005). The above review of the history of research demonstrated that, until recently, mobility *per se* has been widely absent from, or been a minor item on, the exploratory agenda. When one considers how much interpretation depends on an adequate understanding of what and who moved in the past and by which means, it is clear that theorization and methodology within the world of current archaeology are still within a general pioneering phase. This book displays this deficiency as well as the progress recently obtained. The globalized background of today's archaeology is one factor which drives both current interest in mobility as well as this book. Other factors which are equally as important include the achievements within the discipline of archaeology, both through traditional material culture-based approaches and in archaeological science.

#### **Forging Identities – The Mobility of Culture in Bronze Age Europe: Project Incentives, Aims and Results**

Over a four-year period, the Forging Identities (FI) team explored how European Bronze Age societies became linked with the introduction of the new pliable alloy of bronze. Mobility was used as the overarching research topic by which the team addressed both concrete movements on the ground as well as cultural responses to such movements and their socio-economic backgrounds and

possible effects. As stated above, the FI project was initiated at a time when research was little concerned with questions of mobility. The project's research into Bronze Age mobility was conducted from the perspective of both archaeology and select natural sciences with the accompaniment of questions with a sociological twist in order to gain insight into the connected world of Bronze Age Europe<sup>4</sup>. Over the project period, many nuances within this major theme were both found and often unravelled. The sundry inquiries were enhanced by an interdisciplinary approach which combined archaeology with bio/geochemistry when relevant or possible. This also included cooperation with and input from outside research teams, which proved very valuable<sup>5</sup>.

### *FI incentives and aims*

The main incentive behind the FI project was to craft an understanding of the Bronze Age in and of itself. At the outset and as a presupposition, the FI project proposal sprung from the idea that the Bronze Age was influential in the making of the Europe we know today by having provided deep-rooted traditions and key cultural seeds. Following up on this thread one might say that the Bronze Age was the first era in which macro-scale convergence frequently prevailed over divergence in a socio-cultural sense. During the Bronze Age, cultural and social formations of an entirely new kind and magnitude came to characterise Europe. Intense and dynamic relations between local and large-scale processes of change seemed to coincide with increased mobility in different domains and forms. Perhaps stemming from such processes, new identities could be forged – sometimes literally in bronze – and Europe emerged as a distinct cultural zone.

Further incentives of the FI projects were linked to contemporary organizations, conditions and developments of archaeological research. The Bronze Age was a time of both close-knit local cultures and porous boundaries. In spite of this, in the early 2000s, archaeological knowledge production was still linked to research defined by national borders. During the last decades of the 20<sup>th</sup> century, new knowledge

<sup>4</sup> The cultivation of excellence on both PhD and post-doctoral levels was a real priority. This is in accordance with the Marie Curie Initial Training Network grant scheme which makes it a chief aim to educate young researchers to a high level of excellence. While expected, supervisors' contributions to the common was not prioritized at the same level. Accordingly, the Forging Identities ITN aimed to enhance the career prospects of young scholars from across Europe through a cross-disciplinary training scheme dealing with Europe-wide questions of cultural mobility and social identification. The research outcome was thus mainly achieved on a more junior level. Naturally, this means that, perhaps more than would usually be the case, the results of this project must end on a "to be continued" note. The PhD and postdoctoral fellows' projects cover a wide array of subject matters within the Bronze Age and rely on archaeological methods and/or metallurgical and isotopic analyses.

<sup>5</sup> Cooperation notably took place with the following projects: the Gothenburg ERC team of 'The Rise Project, the DAI-Eurasien Abteilung and RGK with the Carpathian Basin projects, the DFG Excellence Initiative TOPOI in Berlin and the CAU Kiel Graduate School 'Human Developments in Landscapes'

had mostly arisen from settlements and environmental data as well as from innumerable rescue excavations. In addition, material culture-based knowledge had developed into a substantial resource over the decades, although it was not particularly geared towards the question of mobility. Together, these various sources and circumstances had built up a good local and regional database including extensive data, analyses and results with great research potential to explore what linked European societies together through the movements of goods, ideas and people. Furthermore, there were revolutionary developments in a number of natural sciences applicable to archaeology, such as geo/biochemistry. In combination with archaeological data, each method had begun to produce thought-provoking results, particularly on the site or regional level, but also in some measure beyond. Clearly, this formed an advantageous setting for the FI project but will also be beneficial for future transnational research initiatives.

What immediately springs to the mind of any Bronze Age researcher are the enormous variation, specialization and elaboration of bronze objects. Their wide assortment of purposes, functions, symbolic meanings and advanced metallurgical techniques constitute state of the art archaeological datasets with an immense research potential. Such rich expressions of culture inspired the basic hypothesis of the FI project: that the movement of people, goods, and ideas across the European continent was a prerequisite for this explosion of development and creativity, which in turn stimulated the demand for more raw materials and hence more mobility, and so forth in a positive feedback mode. Undoubtedly, the necessity to explore spatially-restricted metallurgical sources for copper, gold, and especially tin was an underlying factor behind Bronze Age mobility. On a local level, there might well have been other 'push' mechanisms of a social and cultural character that enabled bronze objects and associated technologies and ideas to become mobile and to spread across Europe. However, Bronze Age enterprise was hardly restricted to the domain of metalworking.

The highly innovative and explorative strategies which were employed within the realm of metals and metalworking were arguably also utilized and invigorated by other forms of material culture which demonstrated similarly innovative advances, particularly in the field of craft production (i.e. in ceramics, amber, glass and woollen textiles). It is entirely possible that there were several parallel systems and channels of movement as well as a pooling of both expertise and cultural norms linked to particular mobility systems. Another component of this phenomenon may have been new 'management' strategies with regard to central economic resources, such as specialized breeding and trade in cattle and sheep for wool production. Furthermore, a change in emphasis on the horse is notable in terms of both practical and symbolic uses. In addition, the adaptation of new varieties of plants for agriculture (like millet) may also have been essential in broadening the economic basis of local communities, thus enabling them to

specialize and thereby create new types and degrees of collaborations and dependencies between communities.

From the beginning, the FI project has worked from the overarching hypothesis that societies across Europe became linked in new ways during the Bronze Age while at the same time also witnessing the formation of regional traditions and histories: opposing trends which continued into historical times. Supporting evidence and details were necessary in order for this assumption to be accurately assessed. Inherently involved thereby were a flexible cross-disciplinary, IT-supported methodology and rigorous theoretical perspectives concerning the duality of mobility/movement and receptivity/reception, as already outlined above.

Three ambitious questions have particularly guided our research. They were given increasing emphasis in the interpretation of analytical patterns as the project progressed:

1. How did people, animals, things, ideas, and knowledge travel and on what scale?
2. How did increased cultural mobility impact social and economic life?
3. How were social and cultural identities on various levels forged in response to interaction?

The research agenda thus comprised three items that mutually shaped this remarkable period we call the Bronze Age: First, cultural movement, and next the day-to-day socio-economic life framing, conditioning and reacting to movement, and finally the overall responsive forging of European, regional and local identities. Intrinsic to this trio is, of course, a concern with the direct socio-economic impacts of – as well as reasons for – increased transcultural flows within and between marginal communities, gateway societies and economic hotspots. How the new metal of bronze became integrated has naturally been at the forefront of each main question while simultaneously bringing to light the ways in which humans interacted with each other and with material cultures other than that of metal. To embrace the entirety of Europe would not have been realistic: A transect from Southern Scandinavia over Central Europe and Greece was defined as the primary research area from which case studies chose their footing and momentum. At the time of writing, articles and dissertations are progressively appearing. Overall, the FI project has provided a palette of results, insights and interpretations which have a good chance of making a discrete impact on the archaeology of Bronze Age mobility. As shown by the brief report below, it is also very much a story ‘to be continued’.

#### *Outline of FI results 1 – How did people, things, ideas, and knowledge travel and on what scale?*

By targeting questions of movement, modes and systems of mobility FI subprojects have contributed with new data and analytic results. Pooling a number of results both internal and external to FI allows for the statement that cul-

ture in the form of raw materials, things, ideas, techniques, knowledge and people moved small-scale over short and medium distances and within confined areas (e.g. Nørgaard 2013), but also large-scale over considerable distances and, at certain times during the Bronze Age was likely to have directly connected Northern and Southern Europe (e.g. Aslaksen 2013; Kristiansen 2011; Ling *et al.* 2014; Vandkilde 2014). The emerging picture is nevertheless varied and even seems to be contradictory at times.

In the Central European region of Silesia, a surprisingly high level of human mobility was revealed for the EBA when the archaeology of the region was analytically combined with a plethora of natural sciences (Pokutta 2013, this volume). This pattern of high mobility emerged from strontium isotope levels and their co-variation with other isotopes showing systematic variations in human bone and teeth dating to 2000-1700 BC: males, females, adults, and children regularly immigrated to Silesia from neighbouring regions. By contrast, the use of the same methods revealed that the population buried at the EBA cemetery of Jelšovce on the other side of the Carpathians was subjected to only moderate in-migration rates on a regional level (Reiter 2013, 2014; Reiter and Frei this volume). Human movement in the EBA should probably, therefore, be understood as a quite variable phenomenon when measured against both time and geography. Moreover, we should keep in mind the fact that it seems as if it was smaller groups of migrants rather than whole populations on the move in the Bronze Age.

Metallurgical and typological data from Scania demonstrate the routine transport of metals and thus a combination of material and human mobility during the same period (c. 2000-1700 BC). Trace element, lead isotope and typological analyses of metal objects (Vandkilde in prep.) testify to long-distance maritime trafficking across the Baltic Sea and then, probably on an occasional basis, river travel into the heart of Central Europe. Object styles and a coast-bound distribution in Scania simultaneously imply that maritime coast-hugging circulated the new metal locally. Such a systemic separation of short-range and long-range transport may be quite typical for the modes and systems underlying movement in Bronze Age Europe as regards people and things and (thereby) knowledge and ideas as well. Shipping across the open sea has recently been proven in a number of case studies of Late Neolithic and earliest Bronze Age Northern Europe: flint from the isle of Helgoland was utilised for pressure-flaked flint daggers on the mainland (Müller 2013b) and flint daggers manufactured for trade were transported from the flint mines in the Danish Limfjord region of northern Jutland across the Skagerrak directly to the Norwegian Stavanger area (Prescott 2009; Sarauw 2006). Classifiable under local modes of travelling, the well-known notion of the itinerant smith first launched by Childe (1930) now seems substantiated for the period 1500-1300 BC in Southern Scandinavia through elaborate macroscopies and fine-grained typological methods (Nørgaard 2013).

As mentioned above, warfare and military organization could well have been integrated with Bronze Age cross-cultural trafficking in a more systematic manner than has been previously thought. Indeed, warfare does emerge as a frequent and previously unrecognised form of human movement over both land and sea (cf. Vandkilde 2013b, 2014). Based on spearheads, a new study suggests that mobile sea-borne raiding targeted the coastlands of Southern Scandinavia at the breakthrough of the MBA 1600-1500 BC (Horn this volume); this stands as a qualified hypothesis until substantiated by other kinds of data. The period around 1600 BC could be considered the first full Bronze Age across much of temperate Europe; it generally encompassed a new focus upon superior forms of warriorhood, weapons and fighting and a plethora of attached social values and novelties. Quite evidently, this period also saw increased long-distance movement of people as well as goods and new ideas in particular from the Mediterranean to temperate Europe. The Eurasian Steppe zone can simultaneously be sustained as a main passageway through which culture travelled into the Carpathian Basin and thence to other parts of Europe (Kristiansen 2011; Vandkilde 2014). Overall, this may strengthen the notion of the close relationship between warfare and trading on the regional and super-regional scales. While the system may perhaps have begun around 1700 BC, it only became firmly established from c. 1600 BC.

Macro-scale movements and connectivity can furthermore be substantiated for the LBA, which is a term used here synonymously with the so-called Urnfield phenomenon. Based on typological arguments (and ranging from Scandinavia to the Aegean) the outline of a virtually pan-European network of mobility emerged 1300-1100 BC (Suchowska-Ducke 2015, this volume). Hypothetically, this could reflect mobile mercenary warriors, all similarly equipped with specific sword types (flanged-hilted Naue II type of swords) and huge, round shields (*Hertzprung* or related types) (Vandkilde 2013a). Prior to and around 1200 BC, this military-based movement and the flagging of new styles of weaponry and fighting coincided with ongoing pan-European socio-religious transformations, all of which concluded with the firmer establishment of a reformed socio-cultural world. Overarching forms of military-supported mobility were, however, not necessarily directly reflected in the local small-worlds of the Urnfield period of Northern Europe. At Vollmarshausen in Hessen, in-migration seemed to have been present on a moderate scale. However, investigation on and around this site demonstrates for the first time that, from the outset of the LBA, Urnfield societies relied on a novel and more stable social system based upon separate local as well as regional identities as well as on the exercise of power (Taylor 2013).

In its entirety, the assessment of socio-cultural change at the threshold of the LBA is very much a question of both the factual scale of change in the Bronze Age and the analytical perspectives taken when said change is addressed. The cremation ritual (generally central to changes in religi-

osity overall) was variously adopted in many small-worlds in temperate Europe from around 1400 BC onwards (e.g. Sørensen and Rebay-Salisbury 2009). This would suggest a gradual process of change within religion and cosmology. In turn, this ties in with the other rhythms of change in identification, economy and politics which brought the Urnfield phenomenon into full maturation around 1200 BC. Eventually, it did also mean the downfall of existing political hierarchies and in the Aegean, palace-organized civilizations literally collapsed in a sweep of violence.

*To conclude:* although more knowledge is required in a number of areas, it is now clear beyond much doubt that human mobility included people of all ages and genders and was engaged by apparently variable (and hence socially-regulated) ratios (Pokutta and Frei 2011; Price pers. comm.). In Scandinavia and the Aegean, ship-borne traffic constituted the core of the mobility system due to the ubiquitous seascapes by which those regions are characterized (Vandkilde 2014b; Kotsakis 2011). River travel must have been a main mode of long-distance transport elsewhere in Continental Europe, supplemented by wheeled vehicles in presumably mainly close-range transport. Movement was both peaceful and warlike, included humans as well as material goods and ideas and went over land and across seas, as stated above. The magnitude and interrelationship of such movements is still unclear: As regards human movements, it is still uncertain whether they occurred on an individual level, or if small groups were predominantly involved. We can probably safely assume that exotica and raw materials were considerably more mobile than people, but proper investigation of this issue has yet to be satisfactorily completed. Similarly, we do not know the degree to which nor by what means the various kinds of movements were socially organized. On the basis of the current state of data, however, we may suspect that the organization of mobility was in the hands of the few rather than the many. Social encounters were surely framed by the objects and ideas that moved: metals and metallurgy, weaving tools and techniques, amber and flint, swords and fighting concepts.

#### *Outline of FI results 2 – How did increased cultural mobility impact social and economic life?*

An array of data has emerged regarding movement-related local reception which cannot be completely isolated from movement in and of itself. Strategic responses to in-going and out-going cultural movement may range from sheer resistance and creative translations to close copying of the exogenous material. A number of FI case studies demonstrated different strategies for coping with mobility and exogenous culture in Northern, Central and Southern Europe (Aslaksen 2012, 2013; Hansen 2012c; Hansen and Müller 2011; Karlsson and Isaksson 2010; Kneisel *et al.* 2012; Kristiansen 2012b; Müller 2012; Pokutta and Frei 2011; Rassmann 2013 and this volume; Reiter this volume, 2014; Sofaer 2011, 2012, 2014; Sofaer-Derevenski and Sørensen 2002; Sørensen T. 2012; Sørensen M. 2010a,

2010b; Taylor 2013a, 2013b). These studies show that identity formation was often complex and multi-layered.

At some sites, non-mobility and the assumption of foreign identities were far more common than was previously thought. At Jelšovce in Slovakia c. 1700-1500 BC and at the site of Vollmarshausen in northern Germany c. 1200-700 BC, power and status stemmed from bringing the world to one's doorstep through trading in the exogenous and exotic and most likely also through a culture of hospitality. Interestingly, the strontium isotope results from human bone and teeth suggest that in-migration was not a factor in the expression of identities (Reiter 2013, this volume; Taylor 2013b, this volume). In other cases, however, the data are strongly in favour of the importance of travelling abroad in order to encounter other Bronze Age worlds to then later return with new practical, discursive and/or esoteric knowledge (Hansen 2010b; Vandkilde 2014). Alternatively, human in-migration also took place, such as in Early Bronze Age Silesia. The latter, more active strategies potentially affected local life more radically and introduced social change and foreign innovations in a more direct manner.

It could be argued that the production of ornaments, tools and weapons of bronze made the Bronze Age. This copper-tin alloy was the primary transcultural commodity, supplemented by exotica such as amber, gold, flint, and blue glass. Metallurgical and archaeological data suggest that bronze items were most often locally produced, but were manufactured from raw materials which ultimately derived from a few major European mining areas. This implies, as was also argued above, that such raw materials were not only traded macro-regionally, but were also circulated within more local spheres of interaction. In many cases, a local 'mark' appeared in this metalwork, albeit simultaneously adopting overriding features of European 'fashion'.

In southern Central Europe, fortified domestic sites functioned as central nodes within the exchange networks on local, regional and supra-regional scales (Uhnér 2012, this volume). A northern parallel can be found in the fortified EBA settlement of Bruszczewo in Greater Poland, which was the node around which local settlement organization changed over time (c. 2200-1600 BC). Bruszczewo received a stable influx of knowledge and raw materials crucial to organising supra-regional *Werkstattkreise* and to controlling amber exchange between settlements around the Baltic Sea coasts and EBA societies in the Carpathian Basin (Müller *et al.* 2010). This wide-ranging network seems to have sustained the powerful position of Bruszczewo's inhabitants, and vice-versa. Labour division and surplus production are attested by the poorly preserved human remains at the site as well as in the extramural 'princely' tombs at nearby Łęki Małe (Kowiańska-Piaszykowska 2008). The reorganization of links with eastern Central Europe and an environmental crisis could figure among the reasons for the weakening and disappearance of Unětician cultural traditions prior

to 1600 BC (Kneisel 2012) and hence to the rise of the Nordic Bronze Age as a robust and affluent cultural koiné c. 1600 BC (Vandkilde 2014).

Three sub-projects demonstrated ways in which the new technology of bronze-working was both highly mobile and more freely available than was previously believed (Kuijpers 2012, this volume; Nørgaard 2011, this volume; Sørensen T. 2012). At the onset, the availability of a unique new material technology enabled cultural strategies which had not previously been possible. However, actions were soon taken to control the specialized crafts of master smiths; a tendency clearly seen from 1600 BC onwards. At all times throughout the European Bronze Age, it was the settlements with their households of individual actors who framed mobility and responded differentially to in-migrating people, things and ideas (Dörfler and Müller 2008; Earle and Kristiansen 2010; Hansen and Müller 2011; Kotsakis 1999; Sofaer and Budden 2009; Sørensen M. 2010a; Sørensen and Vicze 2013; Uhnér 2012, this volume).

The general insights referred to above were further fertilized by three FI summer school excavations undertaken at the LBA hillfort of Teleac in Transylvania (directed by Horia Cigudean, Nick Boroffka and Claes Uhnér), at the early MBA tell site of Százhalombatta in the Middle Danube (directed by Magdolna Vicze, Joanna Sofaer and Marie Louise Stig Sørensen), and at the Jutlandish burial mound of Borum Eshøj from the mid fourteenth century BC (directed by Mads Holst, Helle Vandkilde and Paulina Suchowska-Ducke). The results of the archaeological investigations at these sites accentuate the ways in which Bronze Age transcultural flows enriched local customs and material culture in different ways, but also how these same flows were made possible through local settlement organizations and the networks they engaged in.

*To conclude:* Studies of movement-related local reception and change have enabled new perspectives on Bronze Age small-worlds uniting the micro- with the medium- and macro-scale. Small-worlds such as Bruszczewo, Jelšovce, Százhalombatta, Eshøj on the Borum Plateau and Teleac can be said to be sites of in-betweenness or of intermittent movement, which was only momentarily slowed down. To different degrees and in locally-regulated ways, these sites are structured by the in- and out-movement of materials, ideas and people. Cultural inflows were incorporated and responded to in creative ways, which were not devoid of degree of imposed control. Creativity and tradition may be potent resources on which local identification strategies could capitalize, especially when coupled to transculture and the exogenous. Control was the next step in a quest for social power, but the maintenance of control demanded a stable transculture influx, as was forcefully demonstrated by the case study at Bruszczewo. Much depends on the questions which are asked as well as the availability of data. Nevertheless, this seems a very promising field of research.

### *Outline of FI results 3 – How were European and regional identities forged through interaction?*

The seminal question which emerges is how the Bronze Age should be understood as an era different from the preceding Neolithic and the succeeding Iron Age. Supra-regionality is often associated with the Bronze Age as phenomenon. However, it is, in fact, already recognizable during Europe's Neolithic and Chalcolithic. Macro-level transculturality can be understood overall as being rooted in movement and in local responses to innovations and novelties on the move (cf. Vandkilde 2014). Prominent among the early cases of long-range moving culture were farming strategies and copper metallurgy. With the advent of the period traditionally labelled the final Chalcolithic (c. 3000-2300 BC), interconnectivity in temperate Europe significantly changed in character, becoming differently fashioned in terms of the socio-cultural content, intensity and forms of networking and the extensiveness of geographical coverage. Besides, these 'cultures of contact', as we may call them for lack of a better name, tended to dissolve and re-form in renewed shapes with fairly regular intervals during the 3rd and 2nd millennia BC. The first in this series of overarching contact-cultures – the Corded Ware – comprised a macro-scale dispersal of (what was very likely) a new language as well as ideas, people and culture tied to a new and strictly gendered form of social order which essentially persisted on into the Bronze Age. In addition, the use of metals became more frequent. Hence, the Bronze Age had emerged in temperate Europe in an embryonic form with the establishment of the Corded Ware contact-culture, whilst in Mediterranean Europe the Early Bronze Age likewise commenced around 3000 BC.

How then was the Bronze Age different from the preceding epoch? Underlying structures and mechanisms seem widely similar, but the scale and complexity of connectivity multiplied in large parts of Europe shortly after 3000 BC. This new and complex interconnectivity incorporated several features that matured during the Bronze Age proper. At 2000 BC a full metal culture permeated most aspects of human life in Europe (excepting the polar zone). In addition, panoplies of objects depended on the addition of tin to obtain colour and/or to improve utility. These two factors made a crucial difference. Engagement in wide-ranging networks was no longer merely an option. It had become a necessity to the functioning of the Bronze Age world both at home and abroad. Copper and most especially tin were only available from a restricted number of places in Europe. The Bronze Age truly was – both quantitatively and qualitatively – different from what had come before.

Two sub-projects particularly spoke to the way divergence competed with convergence as well as how these forces maintained cultural traditions while also incorporating exogenous trends in culture over the long term. In the Bronze Age, Central Macedonia became increasingly cosmopolitan by connecting Balkan societies with Mycenaean states in the Aegean while simultaneously culturally

identifying more closely with the former rather than the latter (cf. Aslaksen 2013, this volume; Hänsel 2002b; Kotzakis and Andreou 1999; Mauel 2012, this volume). Similarly, it could be shown that northeast Central Europe and the Carpathian region (c. 2000-1500 BC) were intimately linked by transregional movements while they nevertheless maintained very different social organisations rooted in strong local and regional traditions (Uhnér 2012, this volume). Opposing processes of commonality and diversification are recognizable in other parts of Europe as well.

A historical synthesis can be tentatively formulated on the background of the starting hypothesis of the FI project and through a compilation of the various sub-project results: In Bronze Age Europe, the opposing processes of cohesion ('Europeanism') and divergence (regionalization) began around 3000 BC and can be tracked throughout the period. Cohesion came to prevail over divergence around 2000 BC and again after c. 1600 BC; two points in time in which the use of metals became decisively more paramount. These reverse processes may have constituted historical forces that, at certain turning points, fuelled the downfall of old European and regional regimes and identities while new ones were formed. Two such periods of movement-related radical change stand out from the record:

*The period around 1600 BC:* The mature EBA 2000-1700 BC was characterized by stability grounded in strong regional traditions such as Únětician societies in Central Europe, Nordic LN II communities, or the El Argar on the Iberian Peninsula. From around 1700 BC, societal disintegration and some form of crisis can be discerned over much of temperate Europe. Nevertheless, there were also configurations of new routes of long-distance connectivity and innovations in bronze metallurgy, weaponry and likely also in wheeled vehicles and horses. The breaking point at 1600 BC saw macro-scale change in a differential fashion, ultimately linking Scandinavia with the Aegean. This can be exemplified by paralleling the profound kick-start of the Nordic Bronze Age c. 1600-1500 BC in Southern Scandinavia with the culmination of the crisis in the formerly wealthy Únětician region and with the societal 'stasis' characterising the cultural crucible and crossroads represented by the Carpathian Basin. Here creative crafting traditions (Koszider metalwork with Hajdúsamson-Zajta styles) emerged, which were dependent on Aegean material style and craft traditions known especially from the shaft grave circles at Mycenae. In the later part of the 16<sup>th</sup> century BC, however, Carpathian fortified settlements were widely abandoned. These events largely coincided with the appearance of the Tumulus contact-culture occupying or impacting large parts of Central and Northern Europe from c. 1550 BC (cf. Müller and Lohrke 2011). From 1600 BC, the sword-carrying elite warrior was a socially powerful and celebrated figure in many European societies; new plank-built ships appeared in the North and merged with reformed ideas of the constitution of the cosmos which had a distant southern origin. The precise timing of change and what might be called the 'trigger'

represented by the volcanic eruption of Thera are currently under investigation (Meller *et al.* 2013; Vandkilde 2014).

*The period comprising the 13-12<sup>th</sup> centuries BC:* The long period 1300-1100 BC once again saw clear signs of changing socio-cultural units, which can be loosely linked to the Urnfield contact-culture. Prevailing belief systems and hierarchies at that time came under austere pressure. Prior to 1200 BC, they were pushed beyond the brink of transformation. Human migration and military campaigns can be located to a certain degree within the web of causes and effects. It was nonetheless a prolonged process of change which was influenced by other socio-cultural traits and practices introduced at different points in time. Cremation rites and the belief systems thereto attached were already introduced in the 14<sup>th</sup> century BC (even earlier in some regions) while their impact accumulated over time (Sørensen and Rebay 2005). In addition, the fact that these various in-coming traits and practices occupied positions in different societal sectors could have been significant regarding their potential for promoting change either in qualitative or quantitative terms. Around 1200 BC, however, mundane parts of the material inventories definitely saw a great increase in volume and new iconographic elements emerged. At the same time, weaponry was entirely renewed with for example new sword types. Much of this material reinforcement was apparently linked to an increasingly standardized, efficient and hierarchical military sector as well as to an expansive economic sector. Some societies in temperate Europe seem to have reacted to new transcultural trends by emphasising regional particularities. Indeed, some thrived on this strategy (e.g. the Nordic zone, which never became truly ‘Urnfield’). In the Aegean, the 13<sup>th</sup> century BC flourished with Mycenaean commerce and colonial expansion. Towards 1200 BC, however, the powerful palace-organised hubs and states disappeared in a blast of raids, social upheaval and violence; a forerunner of this was described by Homer in his Trojan War epics. Mobile armies and warbands rooted in temperate Europe seem to have been involved in the destruction of the civilizations of the eastern Mediterranean. A new historical era emerged through these mobility-driven events that would eventually lead to the Iron Age.

*To conclude:* The European Bronze Age emerges as manifestly coherent when compared to both the Neolithic, Chalcolithic and the Iron Age in spite of the fact that this coherence was challenged by opposing forces of fragmentation, crisis and change. A marked growth in the scale and complexity of connectivity is observable from c. 3000 BC with the Corded Ware contact-culture, which epitomized the first true turning point in the making of Bronze Age Europe. Metallurgically and in terms of routine and creative uses of metals, the period around 2000 BC constituted another milestone. Furthermore, 1600 BC stand as a significant breaking point characterized by linked Europe-wide socio-cultural change, which resulted in renewed connectivity following a period of fragmentation and crisis. The uniqueness of the Bronze Age was founded on the

combination of two determining circumstances: First, the fact that metals soon came to permeate all aspects of social life, and secondly the fact that copper and especially tin sources are geographically restricted. The Bronze Age was the first genuinely European epoch which was shaped not only by increased mobility but also by a hitherto-unprecedented creativity and variation in social strategies of reception which eventually formed both regional and supra-regional identities in some sort of dynamic rivalry. With the collapse of Mycenaean palace-states (c. 1200 BC), the more fragmented world of the Iron Age had already made an appearance in the south. However, the Bronze Age survived in various forms elsewhere till 800-600 BC. The tight coherence of Europe’s Bronze Age then came to a stop with the emerging Iron Age in the 1<sup>st</sup> millennium BC during which macro-regional trends of inclusion and inter-connectivity were not absent but of a more limited scale and comparable to time periods prior to the advent of the Bronze Age. With the expansion of Rome, Europe became reunited once more, but this time in a manner dictated by state and tribe power relations.

Below follow short descriptions<sup>6</sup> of the individual PhD subprojects and postdoctoral research subprojects funded by the FI project as well as the main preliminary results recorded *primo* 2013. In addition, senior research projects of the group of network partners are summarized.

*PhD project: Ole Christian Aslaksen, Gothenburg University, Sweden ‘A Landscape of Confrontation. Contact Networks in Central Macedonia’*

*Aim:* The project aimed to explore the impact of new objects and ideas in the region of an interconnected Bronze Age world, exemplified by central Macedonia. Bronze Age assemblages in various regions (like central Macedonia) include materials in large numbers from across Bronze Age Europe in the period between 1700-1100 BC. Looking at connectivity in central Macedonia anticipated the unravelling of new sides of the emergent interconnected Bronze Age world as part of what is currently referred to as a new mobility paradigm.

*Analytical process and methods:* The project pursued a synthesis of material objects to assess the influx of new objects, new knowledge and novel tastes to the region as a result of increases in the mobility of people between 1700 and 1100 BC. In addition, regional receptivity was explored in relation to the arrival of new material objects and ‘the ways of the world’. As an underlying premise, mobility and receptivity were thought to be rooted in (or at least related to) the development of settlements and their position in the landscape of central Macedonia. The investigation comprised an innovative and very detailed stylistic analysis of the main decorative elements on pottery with

<sup>6</sup> Descriptions of all individual sub-projects in this introductory chapter are authored by the respective researchers concerned

the aim of uncovering *how* an interconnected Bronze Age World impacted local communities on the ground.

*Results:* The results of this project concern the formation of social groups and the modelling of inextricable local/global relations, yielding information on the impact of the overriding Bronze Age world on central Macedonia in particular. The results are based upon an updated synthesis of finds and sites in this region, comprising: A new model of the dynamics between loosely aligned communities and the European Bronze Age world approached through pots, houses and tell distribution maps. An updated account of central Macedonia as a multi-cultural Bronze Age region and its dynamics. Imports (style, ideas and knowledge) fuelled local competition and alliance building, but also allowed the tell dwellers to connect with both Balkan and Aegean traders, crafters and warriors with whom they traded staples, metal and dyed garments. It was a cosmopolitan society, characterized by openness to strangers from 1700-1100 BC. In fact, this structure of central Macedonian society was dependent on long distance connections. It is posited that a cultural mode of hybridization existed in the region of study and may even have been fundamental to the Bronze Age world as such.

*Perspectives:* Having successfully defended the dissertation, Aslaksen will continue to publish articles and is planning on an edited volume on mobility in the eastern Mediterranean. Additionally, he aims to apply for a post-doctoral project aimed at understanding warrior mobility and the spread of material culture in the Late Bronze Age by means of ethnographic methods by which he will move his research focus from a specific region to a group of travellers by which to further understand Bronze Age mobility and its impacts.

*Key references:* Aslaksen this volume, 2012, 2013.

*PhD project:* Vanessa Guyot, *Deutsches Archäologisches Institut (Eurasien Abteilung), Berlin, Germany* 'On the Co-movement of People, Objects and Techniques in Early Bronze Age Central Europe'

*Aim:* The project aimed at obtaining an improved understanding of the physical displacements of bronze objects, raw metals and ideas during the Early Bronze Age of Central Europe. In particular, it concentrated on the relations between northeastern Únětician communities and the Danubian cultures of the Alpine region. The degree of human movement underlying the movement of goods was a secondary aim pinpointing such issues as scale, intensity, possible origin, and socio-economics.

*Analytical process and methods:* Classic typological methods were employed largely supplemented by the processing of available scientific data. The extant large corpus of archaeo-metallurgical data (trace elements) was taken into account in order to detail the circulation of selected copper and bronze objects and the raw metals from which they

were made. The still restricted number of strontium isotope analyses of human bone and teeth were also considered. Moreover, anthropological and sociological theories were also employed.

*Results:* Thus far, Guyot's studies confirm earlier findings by Pernicka, Krause, Rassmann, Vandkilde and other scholars. Metallurgical data suggest that raw copper moved both short-distance and long-distance in the Central European Early Bronze Age, whereas the ornaments, tools and weapons made locally from this circulating raw material often retained a local mark while also adopting to overriding features of European 'fashion'. The so-called Ösenhalssringe, however, moved across wide distances from their region of production in the Eastern Alps: from the Danube to the Elbe-Saale region and beyond. These simple but characteristic rings seem to be more genuinely cross-cultural than most other items as their frequency and (almost) pan-European spread must have effectuated the transport of Ösenring copper across great distances through varying degrees of human movement. As this research is still in progress, these results are of preliminary nature.

*Perspectives:* It will be possible to further substantiate the results of this study through extended archaeological and scientific analyses.

*PhD project:* Christina Karlsson, *University of Southampton* 'Diet and Food Culture as Indication of Human Interaction at a Bronze Age Tell'

*Aim:* This study aims to examine the food culture of the Bronze Age tell-site of Százhalombatta-Földvár in Hungary. The site is located on the west bank of the River Danube, thirty kilometres south of Budapest. It is one of the best-excavated and understood tell-sites in temperate Europe with a well-documented pottery chronology and typology as well as a meticulous collection of archaeobotanical and archaeozoological material. Through analyses of organic residues absorbed in ceramics, pre-existing datasets from the collected organic material can be compared with new results and shed light not only on what the ancient inhabitants were eating, but also how food was consumed. As no large-scale analyses of organic residues has been performed thus far on Hungarian Bronze Age ceramics, this pilot study also provides a base of comparison for further work.

*Analytical process and methods:* 151 ceramic samples were chosen from a wide array of vessels of different types and sizes. The samples came from houses (both inside and outside) and from both burnt and unburnt contexts (several houses were burnt down). Samples were analysed through the use of Gas Chromatography-Mass Spectrometry.

*Results:* The results have indicated that the wide array of vessels may have been part of an elaborate table culture in which different types of food were served from larger vessels. The presence of animal fats in fineware jugs suggests

that fatty liquids (possibly sauces) may have been served from these vessels. The medium sized bowls, however, showed a much more varied use, indicating they may have been used as individual plates. The sum of this data would imply the need to rethink the interior of the Middle Bronze Age Vatya houses as well as the way human interaction took place at home during the intake of food. Furthermore, it questions the use of the fineware jugs as utilised for the commonly assumed 'drinking culture'.

*Perspectives:* As this investigation is a pilot study, no significant comparative material from the Bronze Age in the Carpathian Basin exists. It is hoped that the work will provide the basis for further studies. Comparative studies of Vatya material and material from the other tell-building cultures within the Carpathian Basin would contribute to an understanding of inter-cultural relations. Aside from being published as a PhD dissertation, it is hoped that the results will be used in an experimental public dissemination project in co-operation with Matrica Múzeum and Archaeological Park in Százhalombatta during which a Bronze Age feast would be presented on replica vessels used for subsequent analyses.

*Key references:* Karlsson and Isaksson 2010; Karlsson this volume.

*PhD project:* Maikel Kuijpers, Cambridge University, United Kingdom, 'The Identity of the Bronze Smith'

*Aim:* The project aimed to explore how skill built identity. The wider development of the technology of metalworking in the Early Bronze Age profoundly affected the course of European history while also posing a number of seminal questions: Who were these craftspeople who had the skill to work metal? How did they become skilled metalworkers? Was the knowledge of metalworking widely available, or was it confined? What can this tell us about prehistoric (Early) Bronze Age society?

*Analytical process and methods:* The analytical processes and methods can be divided into several branches. Firstly, the study concentrated on creating an understanding of those quotidian (craft) objects which have previously been little theorized (as opposed to art). Second, contemporary craftsmanship was studied in order to provide a suitable theoretical framework (i.e. craft theory). Moreover, a hermeneutic phenomenological method was developed and applied, thereby enabling detailed quantitative scientific data to be linked with qualitative questions on the level of human experience (i.e. perceptive categories). As a concrete basis, the data recorded of around 300 axes were analysed by means of these perceptive categories to find out: a) which sensory cues were used to build skills b) the level of this skill and c) the variability in (levels of) skill. The latter was subsequently used to investigate the initial question (whether the metalworking knowledge system was closed or open).

*Results:* A large variability in skill appeared indicating an open knowledge system in which skill and knowledge were more freely available than previously assumed. Metalworking may have played important roles in Europe as an innovative technology exactly for the reason that (at least for 'simple' tools such as axes) it was widely available and readily employed. Current models in which the 'specialist' is used to argue in favour of craft specialization are problematic; they do not take into account this availability and the variability of knowledge and skill. Moreover, they do not distinguish between economic and material specialization. The 'craftsperson as a specialist' model is re-defined more precisely as apprentice – craftsperson – master – virtuoso. Other results include the fruitful application of craft theory to understand prehistoric material and the development of the method of perceptive categories with other scholars.

*Perspectives:* A model which re-defines the term 'specialist' appears to be widely applicable. A focus on craft objects and craft theory may help in the shift away from predominant theories that see objects as text. The idea of perceptive categories is currently being worked out in an article and will perhaps be followed by an edited volume.

With regards to skill (craft) and identity, the relation between producer and material is clearly a dialogue, which is both extremely complicated and intriguing. This is currently being explored in a 45 minute documentary on (young) craftspeople who have chosen to follow a career in crafting rather attend university. The contemporary social climate in Europe and the forces of globalization appear to drive these people as they see craft as a route leading to a more vocational (and less fragmented) life, as a means to create smaller communities in which reciprocity plays a pertinent role and, interestingly, to eschew capitalism. Craft appears to give them a sense of autonomy and self-respect and thus strongly influences the identity of the persons involved there. Kuijpers' *viva* took place in 2014 after which he transferred to Leiden University.

*Key references:* Kuijpers 2012, Kuijpers 2014, Kuijpers this volume.

*PhD project:* Sascha Mauel, Thessaloniki University, Greece 'Cultural Interaction and Textile Technologies in the Bronze Age Balkans'

*Aim:* The aim of this project was to investigate aspects of identity and individuality of Bronze Age textile craftsmanship in present-day central Macedonia, Greece. Additionally, this investigation was intended to elucidate the development of textile handicraft customs in this supposedly culturally lesser-developed region when juxtaposed to the sophisticated state of art in the archaeological records of synchronous cultural spheres further south, such as the Minoan archipelago around Crete as well as the succeeding Mycenaean societies on the Greek mainland and the Peloponnese.

*Analytical process and methods:* Due to very remote preservation conditions for organic material in northern Greece, no spun or woven remains have survived the millennia. Furthermore, no iconographic, sculptural or administrative written sources have been handed down from this region, leaving us with no means of access to this fascinating topic other than the innumerable clay tools associated with the production of textiles. Scatter plot diagrams based on measurement, weighing and other cortical observations – including qualified estimations regarding a great number of fragmented objects – facilitate comparisons with respective results deriving from other, more extensively investigated regions and reveal considerable technological features, such as the lack of interrelated similarities as well as aspects of regional identity and individuality.

*Results:* The physical properties of the textile tools analysed are basically identical with any of its kind insofar as they are subject to the same laws of physics – i.e. momentum in relation to spindle whorls and tension in relation to loom weights. However, the analysis of the specific dimensions of these so-called textile tools not only provides appreciable insight into the otherwise invisible prehistoric textile production in the area of investigation, it also suggests that the technological conditions and identity-establishing aspects associated with this old craft bear a much stronger resemblance to the neighbouring regions of the northern Balkan Peninsula than to the civilisations of the southern Aegean. As the research is still ongoing, these results should be considered preliminary.

*Perspectives:* In order to increase the value of the outcomes of this research, a logical continuation would expand the investigation into the Balkan Peninsula.

*Key references:* Muel 2012.

*PhD project:* Heide Wrobel Nørgaard, Aarhus University, Denmark ‘Craftsmanship, Production and Distribution of Metalwork in the Early and Middle Northern Bronze Age’

*Aim:* Regional preferences for decorative elements and the existence of crafting mistakes and how they were rectified in the production process may reveal the ‘individual’ in Bronze Age craftsmanship. Identifying the individual craftperson constitutes the primary objective of the project, which further aims to link specific crafting sequences visible in the recorded data with each other in order to explore if, and how, they formed patterns that may be interpreted as workshops. The production of bronze neck collars or belt plates was the main focus area of this investigation. There is, in fact, a high probability that several such workshops were active within a given regional culture group. In addition, the identification of different organisational forms of craftsmanship – notably full-time metalworking, itinerant craftsman or part-time craftsman with a large customer area of delivery – were of high priority, as they should be expected to reveal themselves in the recorded data. Furthermore, from the micro-level structures, infer-

ences concerning the macro-regional structures, including mobility, trade and exchange are not far.

*Analytical process and methods:* Combined with the expert knowledge of an educated goldsmith (the researcher), traditional archaeological methods of visual and metric examination were put to work together with specific metallographic studies and the processing of metallurgical data and x-ray photography. Elaborately decorated female jewellery was selected for study, particularly bronze neck collars and belt plates. This multiple-method strategy promises to reveal individual craftspeople in Bronze Age Europe as well as their social ties. Next to the traditional archaeological way of investigating craft through detailed operational sequences, the project was based on scientific investigations. The possibility to investigate craftsmanship with the combination of different archaeological and scientific methods is still underrepresented in archaeological research. The project was able to combine macroscopic examinations of the magnificently decorated bronze objects of the Early and Middle Bronze Age with selected scientific methods (like metallographic investigation), hence obtaining for the first time a comprehensive picture of the different levels of craftsmanship which once existed in the world of the Nordic Bronze Age c. 1400-1200 BC.

*Results:* With help of metallographic investigations, old questions concerning the crafting of these sophisticated objects can now be answered and new conclusions drawn. In summary, the crafting of high status female objects turned out to be an intricate combination of model making, casting skills and the reworking of the metal. Every regional group within the Nordic Bronze Age shows a different focus on one of these three main techniques with the result that the objects produced differ in stylistic details and stand out as regionally specific. The metallographic examination of bronze artefacts has substantiated the importance of the combination of traditional archaeological methods and scientific methods.

In a case study in Niedersachsen, it was possible to demonstrate the regional importance of forging during the crafting of typical Nordic Bronze Age ornaments for the female body. In opposition to northeast Germany – where jewellery were mainly shaped first as models and then cast through the lost-wax method – Northwest European items seem to have been cast first as raw models and thereafter decorated and formed into their final shape with the help of punches and hammers. This regionally-specific technical behaviour is an important tool by which to analyse Bronze Age society. Currently the Danish material is under investigation. Similar differences between Jutland, Funen and Zealand are expected to appear.

*Perspectives:* Modern scientific methods allow for the investigation of minute technical traces which is far more thorough than that permitted by the naked eye. In the future, extended examination (aided by x-ray pictures) will help to identify how e.g. the pointed thorn is attached to

the belt plate and how common this technique really was. Furthermore, information can be gathered about the position of neck collars (*etc*) in the mould (assuming a lost-wax technique), the techniques used to repair broken items as well the degree of overall underlying uniformity or variation. While this may seem a minute level of detail to research, the point is that such details contain crucial information about the organization of a key Bronze Age craft and its changing significance in Bronze Age society.

*Key references:* Nørgaard 2011, Nørgaard 2013, Nørgaard this volume; Reiter *et al.* 2014.

*PhD project:* Dalia Anna Pokutta, Gothenburg University, Sweden 'Population Dynamics, Diet and Migrations of the Early Bronze Age Únětice Culture in Poland'

*Aim:* This project dealt with population dynamics in the Early Bronze Age Únětice culture c. 2100-1600 BC. Population dynamics can be defined as knowledge about the biological growth of a population and the factors involved in its maintenance, decline, or expansion. It can usually be understood with reference to mathematical models and as a branch of palaeodemography strongly related to human fertility, mortality and migration. The research was carried out in the Silesian and southwestern territories of Poland in the Early Bronze Age.

*Analytical process and methods:* Research was designed to combine a number of different methodological parameters, notably 'traditional' archaeology, paleopathology, isotopic analyses ( $\delta^{13}\text{C}$ ,  $\delta^{15}\text{N}$ ,  $^{87}\text{Sr}/^{86}\text{Sr}$ ) and the radiocarbon dating of human skeletal materials. The main core of the research lay within the field of bioarchaeology and included the examination of human bones and teeth for indications of dietary and migratory patterns using isotopic fingerprinting from bone and tooth enamel.

*Results:* The multi-method strategy allowed for tentative as well as firm conclusions in a number of research fields which have traditionally been much debated. Firstly, the introduction of manuring constituted a major agricultural advance c. 2000 BC which perhaps allowed for a demographic expansion of the Silesian population (also dating to the Classic phase after 2000 BC) with the formation of multiethnic communities: In fact, the existence of several ethnic entities – including indigenous Únětician populations – inhabiting western Poland in this period can be sustained. There was a very high level of mobility among the population with immigrants into Silesia from the neighbouring regions of Germany, the Czech Republic, Hungary and even from Sweden. Over time, there were fluctuations in the scale of migrations, according to the refined chronology which was established. A new sub-group of the Únětice culture was discovered in western Ukraine. The project also managed to isotopically pinpoint the first unequivocal case of long-distance overseas migration – excluding the somewhat unclear case of the Amesbury Archer.

Some criteria for group formation processes and associated societal changes can be outlined for the multiethnic reality of Únětician Silesia, while also identifying possible forms of leadership and political organization. The existence and exact location of major communication routes were furthermore delineated for Early Bronze Age Central Europe and how they formed the trajectories of human migration. The project also outlined possible factors for the final collapse of the Únětician cultural formation and societal transformation in the later Br.A2 around 1700-1600 BC. Separate case studies were outlined which targeted specific segments of society: children, the elderly, the tribal elite and one case of prehistoric homicide. In addition, a local isotopic ecology for prehistoric Silesia was reconstructed using a significant volume of animal data (96 samples) resulting in number of new information, e.g. the migration of salmon to/from the Baltic Sea along the flow of the prehistoric Oder. Moreover, a new  $^{14}\text{C}$  sequence for the Early Bronze Age was established by which all currently known barrows were dated.

*Perspectives:* This palaeodemographic study produced strong results, making it feasible to continue along this route of investigation in future research projects.

*Key references:* Pokutta and Frei 2011, Pokutta 2013, Pokutta this volume.

*PhD project:* Constanze Rassmann, Aarhus University, Denmark 'How many Chieftains? How many Smiths? Artefacts as a Reflection of Socio-political, Economic and Cultural Structures of the European Bronze Age'

*Aim:* The purpose of this project was to assess the interconnectedness of MBA Europe by investigating the so-called octagonal-hilted swords datable to the period c. 1450-1300 BC. These bronze swords with their long blades and eight-faceted bevelled hilts were previously thought to have been produced in southern Germany although they also appear quite frequently in Southern Scandinavia. Furthermore, this bipartite distribution pattern has been argued to have been rooted in direct and intensive long-distance traffic routinely carried out by sword-carrying elites. By questioning the validity of these assumptions, the project set out to qualify and to nuance the kinds of traffic involved as well as local responses to that traffic.

*Analytical processes and methods:* In pursuit of the above objectives, all swords were investigated according to three major strategies. First, they were investigated in terms of the inherent technology involved (as reflected in trace element analyses of the bronze, metallographies and x-ray photographs). Secondly, the style of the swords was examined through the features of sword form and sword decoration. Thirdly, the cultural meanings and variations therein affiliated with these spectacular swords were analysed through cultural-depositional practices, artefact combinations and anthropological data – where available. These three different analytical parameters were first statistically

analysed at the internal level and were then examined in combination before the resulting patterns were linked to geographies 'on the ground' with the help of GIS (geographical information systems). Subsequently, the data was interpreted within social and cultural contexts.

*Results:* The results of these investigations strongly suggest that interconnectedness in the MBA was a highly complex process with in-built space-time changes and entanglements of the local and the super-regional. Although the geographically bipartite distribution is doubtless rooted in the mobile world of Bronze Age Europe, there is no simple or straightforward explanation to the phenomenon in question. Long-distance movements doubtless took place that involved these particular swords. However, responses and interactions on a local and regional level also formed those patterns observable by modern research. We should not underestimate the socio-cultural changes over the c.150-200 years during which such swords were manufactured and circulated. Whereas the same bronze alloys were clearly in use in producing these swords in Southern Scandinavia and southern Germany, other techniques (such as the way in which the hilt was hafted to the blade) systematically differ, as do preferences for decoration and form. Similarly, it can be observed that octagonal-hilted swords and the way they are culturally handled within Scandinavia were translated into local customs of deposition in a funerary context; they formed part of the warrior's material-cultural entourage in life and death. This translation sometimes even included the re-decoration of the sword in a local fashion. To sum up, we can assume that the octagonal-hilted swords provide indications of the ways in which pan-European Bronze Age trends – such as the production and use of swords – ran parallel to the ongoing regional translation of artefact styles and (in all likelihood) co-occurred with smaller-scale movements.

*Perspectives:* The application of statistical analyses means that the results can easily be expanded both diachronically as well as geographically. Additionally, it would be desirable to compare this picture to the work of fellow FI member Heide Nørgaard, as she is working on different material on a more regional level. This would make it possible to assess whether the described results may hold true for artefact groups other than swords. Rassmann has continued her career as director of the archaeological investigations in central Jutland's *Museum Midtjylland* in Denmark

*Key references:* Rassmann 2013, Rassmann this volume; Reiter *et al.* 2014.

*PhD project:* Samantha Reiter, Aarhus University, Denmark 'Being, Doing and Seeming: Identity, Mobility and Culture Change at the Early Bronze Age Cemetery of Jelšovce, Southwest Slovakia'

*Aim:* The purpose of this project was to investigate the formation and manipulation of socio-cultural identities in an Early Bronze Age cemetery in southwest Slovakia.

The graves were excavated in the 1980s and generally held well-preserved human and material remains. The thematic focal point was upon the period of radical change around 1700-1500 BC – the so-called Mad'arove period which is crucial for understanding the subsequent emergence of the Middle Bronze Age Tumulus culture and related groupings in the Carpathian Basin and Central Europe.

*Analytical processes and methods:* In pursuit of the above, archaeological, osteological and isotopic analyses were applied both separately and in concert. The cemetery population of Jelšovce was investigated in terms of social status (investigated via estimated living stature in relation to grave volume and the richness of grave goods), mobility (examined through femoral robusticity and strontium isotopes), genetic diversity (examined through estimations of structural body plan and non-metric traits) and the life course (determined by means of age/sex associations within the grave goods). To place these processes in their appropriate social and cultural context, Reiter implemented a new theoretical model of identity and identity formation.

*Results:* The general result of these investigations into late Early Bronze Age Jelšovce indicated that identity formation at the site was complex and multi-layered. However, it appears that non-mobility and the assumption of foreign identities were far more common than was previously thought. Power and status, it seemed, stemmed from bringing the world to Jelšovce rather than either travelling away to see the world or in-migration from abroad. This result is somewhat surprising in light of the social transformations which took place at the threshold to the MBA, especially as regards evidence for increasing warfare. It is also quite surprising in the light of the findings of previous isotopic migration studies, which tend to show a fairly high mobility in the Bell Beaker period continuing into the Early Bronze Age.

*Perspectives:* The advances of science, particularly in isotopic measurement could have great impact on the line of academic inquiry put forth by this project. The above results could be expanded into some previously untouched (but very rich) cemetery material within Slovakia and they could additionally be refined in terms of specific timespans in which migration occurred. Some of the more simple tests employed – i.e. employing estimated height as a control against which grave volume and status are measured – could be applied to older cemetery material (particularly in Austria and southern Germany) in order to determine whether previous status conclusions still remain once the biological directive has been removed. Reiter has continued her research career and is currently employed by the Romano-German Commission of the German Archaeological Institute in Frankfurt am Main.

*Key references:* Reiter 2013, Reiter 2014, Reiter this volume; Reiter *et al.* 2014.

*PhD project: Nicole Taylor, Christian-Albrechts-University, Kiel, Germany 'Burning Questions: Identity and Late Bronze Age/Early Iron Age Cremation Cemeteries'*

*Aim:* There were three main aims of this project: First, to develop an archaeologically-relevant definition of identity which would aid our understanding of meaningful past burial practices. Secondly, to generate a reflexive and integrated interdisciplinary methodological-theoretical approach designed to study this specific new definition. Thirdly, to evaluate this definition and approach through their application to Late Bronze Age/Early Iron Age cremation cemeteries in Germany, thereby also challenging existing assumptions of Urnfield uniformity in the period c. 1300-700 BC as well as assumptions regarding the relative lack of information obtainable from cremation burials. Cremation was a new form of burial rite appearing c. 1300 BC across Europe together with novel religious and social ideas, which often seem to have been rapidly adopted and translated locally. These novelties formed part of the macro-regional Urnfield phenomenon, which is usually assumed to have included human migrations and enlarged scales of warfare.

*Analytical process and methods:* This project used interdisciplinary social theory regarding identities, Geographical Information Systems (GIS), descriptive and multivariate statistics, significance testing and strontium isotope analyses.

*Results:* The results of this project were both diverse and wide-ranging. In addition to the developed definition and approach (results in and of themselves), the evaluation case-studies produced new results regarding the diversity of identity expression in the Late Bronze and Early Iron Ages in Germany through cremation burials. The strontium isotope results suggest that mobility was not a factor in these different expressions, and also demonstrate that cremated tooth enamel can still provide valid results. Finally, the results also encompassed insights into how more unusual burial practices might best be comprehended, how they can be interpreted and what these interpretations and archaeological studies of identities might discover about archaeologists themselves and their own identity negotiations.

*Perspectives:* This project serves as the basis for future interdisciplinary research into identities, but also provides a first case study for the application of strontium isotope analyses to cremated remains; a field which is likely to expand greatly in the coming years. Taylor is currently post-doctoral researcher at the Christian-Albrecht University in Kiel, Germany.

*Key references:* Kneisel *et al.* 2012, Taylor 2013a, Taylor 2013b, Taylor this volume.

*Postdoctoral project: Christian Horn, Gothenburg University, Sweden 'Warfare as a Factor of Homogenization in Early Bronze Age Europe'*

*Aim:* This research project aimed to examine the possibly homogenizing effects of warfare and fighting in the widest sense, e.g. by means of weapon technology, fighting styles and even wider social institutions. Weapons are material remains of warfare and they feature quite prominently in the archaeological record, especially in Period I of the Early Nordic Bronze Age (1700-1500 BC). This established the material, spatial and chronological framework for the project.

*Analytical process and methods:* It was determined that the best method would be to examine the objects directly via the close-up approach of use-wear analysis. As this is a new method, it was supplemented by microscopy for which a microscopic camera (XLoupe G20) was purchased, enabling photos with up to 300 times magnification. This allowed for better observation of corrosion and other taphonomic processes. The weapons and the observed features were thoroughly documented by written descriptions, drawings and photographs. For analysis, the results were entered into a database. A second database was established in which all specialized weapons were entered in order to control the sample and contextualize the results. Analysis included statistical, spatial and contextual methods.

*Results:* Many of the weapons show use-wear. By taking the results of the examination of taphonomic processes into account, the kind and statistical occurrence of use wear appears to be quite similar across the different weapon forms. The use wear observed points towards a fencing style which employed both slashing and thrusting. It can be suggested that fighting styles may initially have been diverse and experimental, but were gradually homogenized, as the most efficient style was adopted during the recurrent violent encounters in which sword fighters and spear fighters engaged with one another. Based on this investigation, warfare emerges as a frequent form of human mobility. Given the necessity of maritime communication in Scandinavia, much of this warfare may well have been conducted as ship-borne raids on coastal settlements.

*Perspectives:* The project requires chronological expansion in order to explore what possible effect warfare had on social change and what role weaponry as material culture played in this change. Over the course of a three plus two year post-doc position within the 'Human Development in Landscapes' Graduate School at the Christian-Albrechts-University in Kiel as part of the 'Johanna Mestorf Academy' the FI-ITN project will be developed into a diachronic study. The results will be published in peer-reviewed articles. The whole study will ultimately take the form of a monograph.

*Key references:* Horn 2011, Horn this volume.

*Postdoctoral project: Paulina Suchowska-Ducke, Aarhus University, Denmark 'Understanding Long-Distance Communication in the European Late Bronze Age'.*

*Aim:* The research carried out under the auspices of the Forging Identities ITN was primarily concerned with examining and interpreting the archaeological evidence of cross-cultural exchange between the Mycenaean culture and other societies of the European later Bronze Age. This connection has always been hotly debated on the basis of selected data. This body of research was based on a more complete and representative sample of materials and objects that travelled between Northern and Southern Europe from c. 1700 BC to c. 1100 BC, with a focus on the later period of contact, c. 1300-1100 BC.

*Analytical processes and methods:* Suchowska-Ducke made use of research tools and methods from a number of disciplines. All of the data were recorded and mapped utilising a GIS (Geographic Information System), enabling the reconstruction of major communication lines across Europe between the Aegean and temperate Europe. The result provided a base for further research and interpretation using concepts and methods from the field of network analysis. In addition, a particularly interesting and disputed object, the so-called Dohnsen Cup – bronze drinking vessel of Aegean style of much debated origin recovered from Dohnsen in central Germany – was subjected to a new metallurgical analysis.

*Results:* The compiled database contains more than 1400 bronze artefacts including weapons, tools, jewellery and dress fasteners. In particular, nearly 1100 swords of the pan-European type known as Naue II-swords were recorded. They can be considered transcultural items which were, nevertheless, manufactured locally in many cases. A communication network which stretched across Europe in the Bronze Age was reconstructed based on sites with high frequencies of Naue II finds and other metal weaponry, dress fasteners and jewellery. Furthermore, the results of the isotope analyses carried out on metal samples from the Dohnsen cup will soon be published and promise to shed new lights on the origins of this important find.

*Perspectives:* During the project, excellent opportunities were provided to exchange data and ideas with colleagues both inside and outside of Aarhus University and the FI project. Furthermore, there was ample opportunity to prepare publications and to improve teaching and organizational skills. Suchowska-Ducke is presently employed as associate professor for Mediterranean Archaeology at Adam Mickiewicz University in Poznań, where she will be able to further pursue her research.

*Key references:* Suchowska-Ducke 2014, 2015, Kristiansen and Suchowska-Ducke in prep., Suchowska-Ducke this volume.

*Postdoctoral project: Tim Flohr Sørensen, Cambridge University, United Kingdom 'Identification and Materiality in the Age of New Technologies'.*

*Aim:* The aim of this project was to shed light on the social and ideational mechanics of early metal technology at the beginning of the Bronze Age. This era marked the first instance in Southern Scandinavia in which artefacts could be reproduced by recycling moulds and models in the casting of bronze artefacts. As a consequence, the spread and increasing use of the technology gave rise to new ideas about originality and authenticity.

*Analytical process and methods:* In order to explore early metalwork from a cultural – rather than a technical or scientific – point of view, bronze artefacts were approached as cultural statements and as a means of cultural reflection in the societies which produced them. Hence, the investigated artefacts were systematically analysed by looking at their internal details and mutual deviations. Departing from this analytical process, the remainder of the work rested on classic humanistic interpretation by incorporating theoretical perspectives from aesthetics and philosophy into the reading of the artefacts.

*Results:* The research results suggest that people in the Early Bronze Age realized a new set of potentials in the formulation of material culture; a realization that emerged as a consequence of technological explorations, cultural critique and creative dialogues between existing and emerging modes of expression. The interface of technology and cultural creativity through metalwork gave rise to new notions of 'objecthood', or, in other words, new notions of how an artefact could be defined and conceptualized.

*Perspectives:* Sørensen's research suggests a need for making closer connections between archaeology and philosophy in the sense that archaeology in general has a rather weak set of tools for understanding how people relate to the ontology of artefacts. While very strong in its approach to technical, quantitative and methodical studies of objects, archaeology faces a number of challenges in conceptualising different understandings of objecthood in the prehistoric past. This project does not claim to resolve this inadequacy, but has demonstrated the relevance of bridging rigid, empirical analyses of archaeological artefacts with more abstract and philosophical approaches which provide a platform for appropriate cultural critique. Sørensen is presently assistant professor at Copenhagen University.

*Key references:* Sørensen T. 2012, this volume.

*Postdoctoral project: Claes Uhnér, Deutsches Archäologisches Institut, Berlin, Germany 'Interaction and Social Power in Bronze Age Central Europe'.*

*Aim:* The overall aim of the project was to study and analyse the control and use of various local resources (such as agrarian products and salt) within the political economies

of Únětician societies in eastern central Germany and in contemporaneous tell-building cultures in the Carpathian Basin. Furthermore, this work was coupled to a study of high-ranking graves, settlements and settlement structure in order to comprehend more precisely the organization of society, including the scale and set-up of both local communities and overriding political units. This analysis formed a background against which the ongoing interaction and exchange in both a local and larger regional setting could be better understood. In turn, these factors influenced both indigenous political conditions and social organization.

*Analytical process and methods:* The conducted work has been based on published material pertaining to tell-building cultures in the Carpathian Basin, the Únětice culture and literature of a more theoretical nature from the fields of archaeology, anthropology and sociology. As such, it counts as a classic humanistic interpretative study in which information on several topics was synthesized and incorporated.

*Results:* The intrinsic difficulties and possibilities were ample when attempting to control and employ the key resources within the political economies characterising the two study regions during the Early Bronze Age. The scale of local Únětice communities in eastern Germany matched the scale and make-up of Únětice political units in the same region. The economic, social and political conditions within Úněticean societies were systematically compared with the contemporary situation in the Carpathian Basin. The results show that societies in these two regions shared the same basic economic conditions to a large extent. Yet, they were organized quite differently.

*Perspectives:* The publications resulting from the project will provide useful background information for future studies on Bronze Age interaction, as social organization influences the nature of interaction within as well as between societies. A direct result of the project, moreover, is a joint research programme of Bronze Age settlement systems and social organization with colleagues from the Römisch-Germanische Kommission in Frankfurt and Northwestern University in Illinois, USA.

*Key references:* Uhnér 2012, this volume.

*Senior researcher project:* Svend Hansen DAI Eurasien Abteilung Berlin, Germany 'European and Regional Cultures of Hoarding'

*Aim:* The aim of Hansen's participation in the Forging Identities project was to track the ways in which new and innovative styles of culture – associated with the movement of people, animals, plants, things, knowledge, and techniques – became widespread. Particular emphasis was placed on accounting for the means and directions of culture transmission across Europe. One of the most interesting media through which movement of things and

knowledge can be investigated are hoards. The deposition of metal objects – most often for ritual reasons – was an essential feature transgressing individual Bronze Age communities in Central and Northern Europe.

*Analytical processes and methods:* Whereas hoard studies in the past were limited to smaller regions and certain time periods, today it is possible to describe the ideas governing hoard deposition from a much wider perspective by systematically pursuing the underlying structures and concepts behind hoard compositions from the Carpathians to Southern Scandinavia or the British Isles. Furthermore, if one assumes a *longue durée* perspective, the history of deposition stretches from the 4th to the 1<sup>st</sup> millennium BC. This also involved the full documentation of a Transylvanian hoard with the investigation of the findspot.

*Results:* The investigation demonstrated that certain landscapes were repeatedly coined and reproduced over centuries (or even millennia) though long-term depositional practices. The macro-scale perspective was able to produce a sharper outline of the hoard phenomenon in both time and space.

*Perspectives:* To understand these phenomena, it is necessary to develop a theoretical framework enabling the comprehension of the ways by which certain kinds of social knowledge were transmitted to subsequent generations as well as how such knowledge was passed on to other social groups and regions. Additionally, this calls for detailed research focussing upon differences between Mediterranean and Central European depositional practices.

*Key references:* Hansen 2010a, 2010b, 2012a, 2012b, Hansen 2013a-f.

*Senior researcher project:* Kristian Kristiansen, Gothenburg University, Sweden 'Geo-political Configurations and Mobility in Bronze Age Europe'

*Aim:* The aim of Kristiansen's participation in the Forging Identities project was to analyse geo-political configurations and their impact upon cultural boundaries and social transformations.

*Analytical processes and methods:* Two approaches were employed: firstly, the identification of social institutions and their distribution, including language (the macro-perspective, as in Kristiansen 2011, 2012a and 2012b) and, secondly, the identification of small-scale variations and transformations at the household and regional levels as well as how they may have built up to a transformation (the micro-perspective, as represented in Earle and Kristiansen 2010, Holst *et al.* 2013). The identification of social institutions was mainly based upon distinct and recurring combinations in grave finds across Europe (Kristiansen 2011) and the introduction of new, complex technologies, such as the chariot (Kristiansen 2012a). The identification of social transformation was based upon long-term analyses

of high quality settlement and environmental data (Kristiansen 2013; Holst *et al.*, 2013)

*Results:* It could be demonstrated that Bronze Age communities were highly complex entities able to operate with parallel institutions that took care of divergent political and economic needs. Thus, Nordic full-hilted swords defined a Nordic cosmology and identity, while flange- and octagonal-hilted swords defined a pan-European identity of travelling and trading warriors. The chariot and its impact across western Eurasia were also traced. At the local level, high quality data and their quantification allowed for the demonstration of the onset of a crisis and subsequent transformation of society which took place between the Early and Late Bronze Age in Southern Scandinavia.

*Perspectives:* The results can suggest that Bronze Age societies were based on a decentralised (but complex) social organisation with institutions and political alliances that permitted safe travels and commodity trade (e.g. of metal) over long distances. The theoretical implications of these findings are now being analysed and are in press.

*Key references:* Earle and Kristiansen 2010; Holst *et al.* 2013; Kristiansen 2011, 2012a, 2012b, 2013, *forthc.*

*Senior researcher project:* Johannes Müller; Christian-Albrechts-University, Kiel, Germany 'Economics, demography and socio-politics during the EBA and MBA'

*Aim:* Müller participated in the Forging Identities project in order to facilitate the analytical scrutiny of the domains of demography, economy and socio-political units and the investigation of their entanglement, development and constitution in the European Early and Middle Bronze Age. Broadly speaking, this field of research is crucial to assessing how settlements and their organisational framework shaped – and were in turn shaped by – the mobility of culture. Population size, for example, is an important variable in the reconstruction of the formation and institutionalization of socio-political identities and how the networks associated therewith were forged. The research focus furthermore includes estimates of both the drives behind and the consequences of the rise and maintenance of social inequality over the Bronze Age as a whole.

*Analytical processes and methods:* The basic methods employed to promote economic perspectives on Bronze Age social archaeology were as follows: (1) the translation of social theory into hypotheses which could be verified (or rejected) by archaeological means, (2) the statistical evaluation of data on material culture, constructed space and environmental conditions from different spatial scales and (3) fieldwork on key domestic sites with well-preserved 'archives' which enabled verification.

*Results:* Aided by fieldwork on Bronze Age sites on the North European Plain, it was possible to reconstruct aspects of Early Bronze Age social practices. In the region of

Greater Poland, it became clear that the appearance of status positions was linked to both control of communication and the supra-regional exchange of valuables and knowledge. Moreover, it became clear that Bronze Age societies were vulnerable; the collapse of EBA Únětician societies around 1600 BC in northeastern Central Europe lines up with the advent of economic and ecological difficulties. Population sizes of the various groups involved were no different from those which characterized the Neolithic or the Iron Age. The following results can be listed:

Re-evaluation of EBA and MBA chronology in Central Europe (Ernée *et al.* 2009; Müller and Lohrke 2011).

Detailed estimate for the economic, political and social development of Bruszczewo, an EBA fortified settlement in Greater Poland, on the basis of environmental change 2200-1600 BC (Müller *et al.* 2010; Müller and Kneisel 2010).

Reconstruction of Bronze Age population sizes in Europe (Müller 2011 [2013]; Müller 2013c).

Evaluation of demographic and socio-political differences between MBA societies.

*Perspectives:* Future work will address the transformation and translation of social practices in prehistoric societies.

*Key references:* Ernée *et al.* 2009 (2012); Dörfler and Müller 2008; Geschwinde and Müller 2013; Hildebrandt-Radke *et al.* 2012; Müller 2002b, 2011 (2013), 2013a-d; Müller and Kneisel 2010; Müller *et al.* 2010; Müller and Lohrke 2011.

*Senior researcher project:* Joanna Sofaer; University of Southampton, United Kingdom "Knowledge, Craft and Social Identity"

*Aim:* The aim of Sofaer's participation in the Forging Identities project was to explore the ways in which social identities were created and articulated at local and regional levels through a series of specific case studies. A particular concern was to investigate how the relationship between novelty in material culture and established 'ways of doing' expressed a dynamic between local social identity and wider regional interaction. Her particular focus was on selected ceramic types drawn from settlement and cemetery material. She used these to think through the ways in which materials, manufacturing techniques, decoration, use, and reuse of pottery reflect the transfer of knowledge over time and space. Sofaer was interested in the role of interaction in the development of new creative practices, including the transfer and modification of practical 'ways of doing' as well as ideas (such as cosmological notions). The transfer of knowledge and local-regional dynamics was investigated at several levels including the construction of the person (human ontogeny), the household, settlement, and broader regional cultural settings.

*Analytical processes and methods:* The analytical processes and methods used included 1) The development of theoretical concepts related to a) human ontogeny, b) creativity in material culture and the role of interaction in the development and expression of creativity, 2) The detailed analysis of ceramics including the application of scientific methods such as ceramic petrology and geochemical analyses to characterize fabrics and materials (e.g. decorative inlays in encrusted ceramics) and 3) Fieldwork, including excavation at the important tell site of Százhalombatta, Hungary which has a rich and complex ceramic assemblage from exceptionally well-preserved house contexts. This has enabled analysis with close chronological and spatial control.

*Results:* The research resulted in new archaeological frameworks through which to understand the relationship between material culture, the exchange and transfer of discursive and non-discursive knowledge and the construction of social identity through ‘doing’ (human ontogeny). Detailed analysis of ceramics (including the composition of decorative inlays on encrusted wares from a range of cultural groups in Central and Southeast Europe) has revealed that vessels that look the same may have been made by means of using different local recipes. Conversely, vessels that look different may actually have been made in a similar fashion. This work has gone beyond established typological notions to shed light on the role of interaction for local creativity in terms of the transfer of knowledge between communities through the articulation of local ceramic practices. Work at Százhalombatta has revealed how shifts in domestic material culture and in the use of domestic space produced altered developmental experiences for people living on the tell from the Early to Middle Bronze Age. These changes produced qualitatively different kinds of people at different points in time.

*Perspectives:* Future work will further explore the complexity and sophistication of Bronze Age creativity.

*Key references:* Sofaer 2011, 2012, Sofaer and Budden 2012, Sofaer *et al.* in prep.

*Senior researcher project: Marie Louise Stig Sørensen University of Cambridge, United Kingdom, ‘Construction of Identity in Changing Bronze Age Societies’*

*Aim:* The aim of Sørensen’s participation in the Forging Identities project was to theorise the construction of identity and its materialization with respect to changing Bronze Age societies and to explore household communities through continued involvement with the Százhalombatta field project (with M. Vicze and J. Sofaer). With regard to the former, the core challenges were to clarify the different levels of identity involved (ranging from individual to collective) and to scrutinize the theoretical and methodological claims commonly made about multiple and fluid identities. Or, in other words, what do we say when we use such phrases and on what basis can we make claims about

Bronze Age people’s notions of identity? Various theoretical models for the construction of identities were explored with particular attention towards the three aspects which follow: First, the necessity of understanding the difference between claims on individual versus group-based levels of identity and the importance of the life-cycle for the former were explored. Secondly, the construction of group identity was investigated using ideas from social psychology. Thirdly, new methodological approaches to the study of the materialization of identities (and body ideologies in particular) were developed. With regard to the nature of the Bronze Age household, participation in the ongoing excavation at Százhalombatta furthered insight into the composition of household assemblages, the emerging distinctions between ‘private’ and public areas of space within the excavated part of the tell and into the varied life-histories of individual houses.

*Analytical processes and method and results:* During the research period, the analytical structure proposed in Sørensen 1997 was further developed in Sørensen 2013 and the methods of ‘body maps’ was introduced (Sørensen 2010b) as a means of deconstructing the compositional schemes behind the dressed and decorated Bronze Age person. This allowed for a dissection of where and how distinctions between people were visualised and materialised.

The analysis of the household at Százhalombatta showcases the use of ‘small-finds’ (material from the sieving and flotation) to detect changes in activity areas and the spatial location of different stages of plant processing and food preparation. This has bearings on labour divisions and thus on lived identities and social relations.

*Perspectives:* The changing status of the individual, temporal and spatial variations in body ideologies are key to an in-depth understanding of the Bronze Age and the changes that were wrought during that time. These dimensions also form substantial aspects of how communities responded to the ‘Other’. Further research should pursue the interrelation between different aspects of identity and utilise new kinds of science-based knowledge about people to bridge the gap between the biological and the social body.

*Key references:* Sørensen M. 2010a, 2010b, 2013; Sørensen and Vicze 2013.

*Senior researcher project: Helle Vandkilde, Aarhus University, Denmark ‘Encountering the Exogenous 2000-1500 BC’*

*Aim:* The aim of Vandkildes’s participation in the Forging Identities project was threefold: First, to theorise cultural movement and reception by adapting anthropological globalization theory to be on speaking terms with a Bronze Age world, secondly, to clarify maritime routes and modes of transfer of raw materials across the Baltic Sea and lastly, to explore the breakthrough of the NBA as a cultural zone

in its own right and to investigate how this was linked to a much wider European world which reached as far as the Aegean.

*Analytical processes and methods:* The study relied on comparative methods of compiling data and pursuing long-term cultural trends, social change and turning points across the period between 2000-1500 BC. In terms of theory, the concepts of travelling cultures, creative translations, transculture and hot societies stood in the foreground bolstered by an examination of the Bronze Age as a period of tightly knit histories which stretched across Europe.

*Results:* Two modes of maritime trafficking could be outlined in Southern Scandinavia's coastal communities 2000-1700 BC (LN II). Conclusions were based on metalwork style, metal analyses and a few lead isotope analyses. The first of these maritime travelling traditions (local coast-hugging) was the means by which the first metal objects, metallurgy and other innovations spread along the coasts of Southern Scandinavia, possibly by means of small dug-out canoes. The second maritime tradition was over longer distances and was the means by which Únětician objects were routinely transported long-distance across the Baltic Sea, presumably in larger, plank-built vessels. The target area for this mode of transport especially covered the Oder estuary. However, the whole journey was made on occasion to the heart of Central Europe by means of river travel. While this first metalworking also involved British axes and metal, it is still not clear how this latter connection was organised.

The breakthrough of the Nordic Bronze Age took place c. 1600 BC, when it materialized as a cultural koiné within Bronze Age Europe. Its formation was directly linked to a Carpathian socio-political network of fortified settlements, conspicuous Koszider type (Hajdúsámson-Zajta) metalworking styles and a novel form of religion-infused warriorhood. Through the Carpathian crossroad, the Nordic turning point c. 1600-1500 BC (NBA IB) became linked to emergent Mycenaean hegemonies in the Aegean in which the Thera eruption seems to have played a part.

*Perspectives:* It is pertinent to pursue the timing of events that lead to a Europe-wide transformation c. 1600 BC in greater detail, i.e. to include the role of crisis (warfare, etc.) as well as new forms of superior warriorhood and changes in cosmology and religious beliefs. Likewise, transcultural flows and their reception in Bronze Age Europe will be explored on the basis of an ethnographical fieldwork-based model on pre-modern globalization developed by Vandkilde.

*Key references:* Vandkilde 2013a, 2013b, 2014, in prep.

#### *Summary of project incentives and results*

A major objective of the Forging Identities project has been to enhance understanding of cultural mobility and related

social identification in Bronze Age Europe. The project further wished to boost the career prospects of young scholars from all over Europe through a cross-disciplinary research training scheme. Using an interdisciplinary research procedure, the combined result of ten full PhD projects, four post-doctoral projects and senior contributions demonstrates that the mobility of culture was of fundamental importance in the European Bronze Age. The mobility of culture was of such importance primarily because of the increasing, pan-European dependence on bronze as a material which both sustained everyday life and acted as a resource which stimulated the forging of identities through social interaction. At the same time, innovations and movement of other materials, commodities and techniques cannot be ignored as they occupied parallel (and even rival) sectors. People, ideas, techniques and materials moved small-scale over short distances and within confined areas, but also large-scale over great distances. At certain times – particularly after c. 1600 BC and again c. 1300-1200 BC – Northern and Southern Europe became directly connected in the formation of a Europe-wide sphere of interaction. In this historical process, new regional and super-regional identities formed, while previous formations ceased to exist and, sometimes, even collapsed.

The project results testify that several different avenues were available to appropriate the foreign in Bronze Age Europe. One way was to travel short- or long-distance using maritime and riverine routes, as well as cross-country. Another way of laying claim to the exotic was to confine movement to the local community, making creative use of foreign culture flows by means of local-foreign cultural *bricolage* which was often both tangible and intangible at the same time. The appropriation of the foreign in the Bronze Age was about crafts, table culture and everyday economy. It was also about identification, control, social ambition and religiosity. Interactions and mobility were likewise both peaceful and warlike, overland and across seas. They also included people of all ages and genders as well as tangible things and intangible ideas. Social encounters were negotiated through a variety of materials and on a plethora of different social stages: metals and metallurgy, weaving tools and techniques, amber and flint, swords and ideas of fighting, etc.

The mechanisms of cultural movement – and indeed the manifold responses to a world literally in motion – recall our own globalised era, despite differences in scale. In particular, it is worth noting that Bronze Age Europeans over two and half millennia continued to cope with strong exogenous influences in varied, often highly creative and non-predictable ways. The knowledge provided by the Forging Identities project involves our own heritage. Thus, it carries a general relevance, since it is a tale of how mobility can not only drive great technological and social achievement, but also foster periods of hardship, war and radical change. The postscript finalisation of individual junior projects has revealed numerous additional details of great value to future research.

## About this book: Cultural Mobility in Bronze Age Europe<sup>7</sup>

The development of the FI project, its various offshoots and the conference were guided by the following question:

- What kind of mechanisms embedded new material culture and enabled technologies and ideas to become widespread across Europe in the Bronze Age?

As is the case with the articles included within this volume, the conference presented various insights from the humanities as well as the natural sciences on mobility, movement, and the concomitant socio-cultural and even biological responses to these phenomena. The principle aim of the conference was to unpick the nuances within those social and cultural movements which are currently being abundantly documented and published across the discipline. The subtleties of these interrelations are explored, examined and explained within the papers as they debate new results in terms of the broader field of Bronze Age mobility. In brief, the book presents current trends in the archaeology of movement in general as well as in the study of the Bronze Age in particular. The articles very broadly cluster within the following four axes of the conference<sup>8</sup>:

- Reception of foreign culture with emphasis on identity and materiality
- The foundations of mobility and receptivity as especially revealed by the small-worlds of settlements
- The modes and channels of mobility and transfer and how these were issues of societal and cultural importance
- The geo-political and historical implications of increased mobility from the micro- to the macro-scale

This book accordingly comprises four parts emphasising these different, but also complementary and entangled aspects of mobility. Each of the four book parts is separately and briefly introduced by the two session leaders in charge. This fourfold organisation naturally reflects

<sup>7</sup> All conference abstracts as well as individual article manuscripts were anonymously peer reviewed

<sup>8</sup> The conference's fifth session "The Nordic Bronze Age & Europe" formed part of the 12<sup>th</sup> Nordic Bronze Age Symposium. Those papers which originally belonged to this session have been incorporated into the other sections of this book. The Nordic Bronze Age session of the conference welcomed contributions dealing with the Nordic Bronze Age in its full geographical range between 2000-500 BC, either alone or in relation to the rest of Europe. The session included papers broadly dealing with the Nordic Bronze Age and especially encouraged papers presenting exciting new finds and promising new investigations that helped to locate future research agendas within the major field of Nordic Bronze Age archaeology. Session leaders and discussants were Mads Kähler Holst (Aarhus University) and Johan Ling (Gothenburg University).

the architecture of the conference, but also replicates the thematic division of the research conducted within the FI project. Both the numerous very active conference participants and, not least, the articles submitted – often by young scholars in an early stage of their careers – display the keen interest in and progress recently made on the subject of mobility as a research topic.

## Postscript

The FI project and this book may, it is hoped, enable the final breakdown of the erroneous idea that people in the remote past stayed at home and successfully chose to ignore the exogenous flows of culture which we currently refer to as 'transculture'. The Bronze Age in Europe between 3000 BC and 500 BC was a highly creative, innovative and international era which has a wider significance today: a scientifically-supported history of past entrepreneurship and mobility across cultural borders.

The mechanisms of cultural movement in Bronze Age Europe and, indeed, the manifold responses to a world variously in motion may recall our own globalised era, despite the differences in scale. In particular, it is worth noting that Bronze Age people in Europe continually coped with strong exogenous influences in varied, and often highly creative, ways. The data and knowledge provided by the FI project is useful not only to archaeology and its practitioners, but could also be relevant to citizens all over Europe. It addresses cultural heritage in a historic tale of how mobility engendered great technological and social achievements but definitely also brought about periods of hardship, rife with war and radical change.

In future research, we may both ask and address how Bronze Age connectivity was different from today's global reality. Headings notwithstanding, what can be learnt from Europe's Bronze Age? The Bronze Age was a particular era of entangled history. While it was historical, it is also shrouded in the mythology surrounding those first literary records and tales. However, the Bronze Age was also very much a period in which people once lived, travelled, believed and transferred their knowledge of life, of success or crisis and indeed their culture both near and far as well as to subsequent generations.

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