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Hillforts and Weaponry in the Early and Middle Bronze Age

Introduction

Hillforts were an innovation of the Central European Bronze Age. They can be interpreted as the infrastructure of dominance and warfare. Hillforts were unknown in the third millennium BCE in Central Europe, but a well known phenomenon in the Mediterranean.¹ And yet, a network of hillforts had already been installed in Central Europe during the Early Bronze Age in the first half of the second millennium BCE. Hence, this makes it necessary to think about the real processes behind these defensive structures. Peter Ettel pinpoints the sudden construction of hillforts in the Bronze Age A2/B1 period.² It is important to stress the fact that many of the Bronze Age hillforts are not well dated, but as a tendency their Early/Middle Bronze Age beginnings have become more and more evident in field research. It is noteworthy that in the past few years Bronze Age fortifications in southern Italy and the Adriatic have come into focus. Sites like Roca, Coppa Nevigata³ or Monkodonja⁴ must be taken into account when seeking models for Central European hillforts. Whereas Spišský Štvrtok in central Slovakia, with its impressive rampart made of countless thin stone slabs and a wide gate flanked by two bastions, probably should be dated to the Iron Age,⁵ the hillfort at Maszkowice in the Polish Carpathians with its stone architecture is a good candidate as evidence for influences from the Adriatic.⁶ In this respect also the *tavolette enigmatiche* or enigmatic tablets (*Brotlaibidole*) should have played

an important (yet still inexplicable) role in the communication between the Adria, northern Italy and the Middle Danube region. Their discovery in hillforts is highly significant.⁷

For the understanding of the history of Bronze Age violence it is necessary to also include the weapons of that time. The most surprising result of the re-evaluation of Early Bronze Age weaponry is its rapid distribution into most parts of Europe and the parallelism in the distribution of the sword and spearhead. Here a clear pattern is visible. The distribution of the weapons was not random, but likely embedded in a system. If a certain set of weapons was distributed within a relatively short period of time during which also a new type of architecture and infrastructure was built up to control the landscape and the road network, then something more than the traditional “exchange of goods and ideas”, which is normally used as an explanation, stands behind the distribution maps. Alternatively we should instead consider a historical process of violent colonization or permanent war. Needless to say, more research is necessary to underpin this hypothesis. Research on the relations between Mycenaean Greece and Bronze Age Italy can be used as a model for further research.⁸

Studies on Bronze Age warfare have been intensified in the last 15 years.⁹ The phenomenon of Bronze Age hillforts has been in the centre of new empirical work in many places.¹⁰ Recent excavations have changed the picture in each of these places, indicating the necessity of new field research. The combination of LiDAR scanning, geophysical prospection, metal detection and excavation has been very efficient in the evaluation of several hillforts in the last years.¹¹ The evidence of violence such as burnt walls, arrowheads in

¹ Israel: Amiran/Ilan 1992; Greece: Kostoula 2004; Televantou 2008; France: Arnal/Martin-Granel/Sangmeister 1963; Coularou *et al.* 2008; Spain: Arnold/Kunst 2011; Lull *et al.* 2014; the Balkans: Ivanova 2008.

² Ettel 2010.

³ Jung 2013; Cazzella/Recchia 2013; Scarano/Maggiali 2014; Recchia/Cazzella 2019.

⁴ Hänsel/Mihovilić/Teržan 2015; 2019.

⁵ Jaeger 2014.

⁶ Przybyła 2016; Jędrzyk/Przybyła 2019.

⁷ Bartík 2012.

⁸ Jung/Mehofer 2013.

⁹ Cf. Vandkilde 2006; Link/Peter-Röcher 2014; Horn/Kristiansen 2018 with extensive bibliography.

¹⁰ Cf. Hansen/Krause 2018.

¹¹ Uhnér *et al.* 2018.

the walls or clay balls as sling missiles is surprisingly intensive. The biggest problem seems to be the dating of the hillforts. In several cases older fortifications have come to light underneath Late Bronze Age walls. In many cases the dating of the hillforts is only tentative and not confirmed by finds.

In the last three years we were able to build up a data base for hillforts located between the Taunus Mountains in Hesse and the Carpathian Basin, which offers for the first time a complete picture of this region.¹² The map combines the “western” hillforts in southern Germany, Bohemia and the western parts of Austria with the “eastern” hillforts in Moravia, Slovakia, Hungary and Romania. Until now we have been able to document nearly 1000 hillforts noted in research literature. The data base and the distribution maps (Figs. 1-4) mirror the state of the art in many different regions with local traditions and only a few modern research excavations. The data base is far from being complete. The Sängersberg in East Hesse, for example, was identified through research of the LOEWE project.¹³ Another example is a recently detected hillfort in the Palatinate mountains near Annweiler.¹⁴ Yet, our knowledge about Bronze Age hillforts is far from comprehensive, and this is all the more awkward as we have only a hazy idea about one of the most impressive phenomena of the Bronze Age in Europe.

The beginning of the hillfort phenomenon in the Early Bronze Age (Fig. 1) has been figured out in the last years and will be intensified in the future. Until now its western extension does not reach the Rhine River and is concentrated in the mountainous regions. A hotspot of hillforts is already visible at the Moravian Gate (*Mährische Pforte*), the most important route between the Danube and the Oder rivers.¹⁵ Communication between the Carpathian Basin and the Baltic Sea had to follow this communication route. Obviously, it was necessary to protect this important corridor.

The second phase of hillforts (Fig. 2) starts with the Early Urnfield culture (Bz D/Ha A). The newly identified hillfort Sängersberg is the westernmost

hillfort of this period.¹⁶ Surprisingly, there seems to be a decline in hillforts at this time. This period is known for its innovative weaponry. Quite a number of new types of swords and spearheads, not to forget armament with helmets, cuirasses and greaves, was developed.¹⁷ The number of single depositions of weapons and hoards is most significant. The battlefield in the Tollense Valley belongs to this time period.¹⁸ However, there is a certain need for further research in order to check the validity of this picture. It is of course possible that the younger remains cover the remains of the older period.

In the Ha B1 period (Fig. 3) – contemporaneous with the Early Iron Age in the Mediterranean – there is a visible intensification of hillforts, which continues into the 9th century BCE (Late Urnfield period; Ha B3) (Fig. 4). The increase in hillforts could be the result of the better visibility of the latest occupation phase of these sites. Nevertheless, the high density of sites reflects the increasing need for protection. Since each hillfort was an enormous investment, these building activities were hardly of mere symbolism. Here especially the Carpathian Basin seems to have been in conflict with groups from northwest. It was furthermore the borderline between different archaeological cultures, which is also visible in the weaponry. The map of the hillforts leads us to historical processes in Central Europe, which obviously were not locally isolated but embedded in larger networks or structures. The point here is not the distribution of a certain type of knife or pottery decoration; concerned here are rather political action, military organization, long term conflicts and the defence of territories. The Bronze Age and the Early Iron Age as historical époques become manifest. Hence here to stress is the long lasting tradition of hillforts in Central Europe, from the Early Bronze Age until the Late Iron Age of the Latène period.

The distribution of swords is not congruent with the distribution of the hillforts (Fig. 5). There are many swords during the phase Bz D and Ha A1 in the western part of our area of work. This shows a similarly great investment in ritual activities. Of interest here is the decrease in the number of swords in the eastern part of our study area (Fig. 6). This can hardly be interpreted as ‘disar-

¹² Cf. distribution map in Rind 1999.

¹³ Blitte/Verse/Krause 2019; see Krause this volume.

¹⁴ Bentz 2017.

¹⁵ Swieder 2013.

¹⁶ Blitte/Krause/Verse 2019; see Krause this volume.

¹⁷ Hansen 1994, 11-81.

¹⁸ Jantzen *et al.* 2011; 2014; Terberger *et al.* 2018.

mament'. It probably reflects the introduction of the sword made of iron, which in the beginning was not part of the traditional manner of communication with the imagined powers.¹⁹

As ever, the Bronze Age is viewed as the first epoch in which trade and exchange played a major role. The support with metals had consequences: increasingly more regions with copper ores were included in transregional networks. The production of tin bronze may have compelled the expansion of these networks in order to gain access to the rare tin mines. The importance of transregional networks involved in the supply of the raw material has been emphasized in a number of studies.²⁰ Unfortunately, there is little empirical evidence, especially for close trade connections between the Carpathian Basin and the Mycenaean world. In particular, scientific analyses of metal objects from the Mediterranean sphere are lacking. The spectacular find of the Ulu Burun shipwreck at the Turkish south coast provides a surprisingly good example of what was on board, which we otherwise would never have imagined: a bronze sword from southern Italy, two Aegean swords, one Canaanite sword, a stone sceptre from the western Black Sea area, Central European spearheads etc.²¹ Furthermore, the huge dimensions of Bronze Age trade in the 14th century BCE became evident: namely the Ulu Burun ship contained ca. 10 tons of copper and one ton of tin.

Andrew Sherratt discussed a Bronze Age world system in a logic of centre and periphery.²² But the recent experience of a globalized world with processes of globalization seems to provide a more open model for describing Bronze Age connectivity, which includes not only economic, but also cultural aspects. Helle Vandkilde recently spoke of "Bronzization", characterising a pre-modern globalization that did not enfold the entire globe, but had limits in geographical reach: "Bronze was the transculture of the Bronze Age. In the shape of both raw material and objects, bronze easily crossed boundaries between different techno-economic systems, social solutions, and cultural groupings".²³ Bronze as a raw

material and an exchange medium, as material for objects of war and peace, was in the centre of an Afro-Eurasian world from around 2000 to 1200 BCE. In this concept globalization is an open process, which is not only equivalent to the economic system. In the same open-minded perspective Karl Marx and Friedrich Engels already described the direction of the very early globalization of the mid 19th century: "The need of a constantly expanding market for its products chases the bourgeoisie over the entire surface of the globe. It must nestle everywhere, settle everywhere, establish connexions everywhere. The bourgeoisie has through its exploitation of the world market given a cosmopolitan character to production and consumption in every country. To the great chagrin of Reactionists, it has drawn from under the feet of industry the national ground on which it stood".²⁴ Marx and Engels not only described the economical process, but also the dissolution of old traditions and customs, the ties between people. They were not sentimental and did not criticize globalization itself, but rather analysed it as an open process.²⁵ This is exactly the problem of our present age: What could be a chance is also a matter of fear among many people concerning social decline and the cultural unknown.

Since 15 years the picture of Bronze Age cultural connectivity created by trade has been beclouded by new interpretations of the Bronze Age as a martial epoch. The pan-European dandy in his bright armour has become a bloody warlord.²⁶ The word "war", banned for years from the archaeological table of terms, has been brought back to prehistory.²⁷ Rightly also the other side, conflict resolution, has been emphasised.²⁸ Nevertheless, the dynamics of the hillforts (**Figs. 1-4**) forces us to rethink the way of connectivity and the modes of exchange during the second millennium BCE. The LOEWE data base is a tool that is possible to use for large scale resolution, while it also enables regard for regional details in the close surroundings of the hillforts, since graves, settlements and hoards are already partly included.

¹⁹ Hansen 2019.

²⁰ Hänsel 1982; Metzner-Nebelsick 2013.

²¹ Yalcin/Pulak/Slota 2005.

²² Sherratt 1993.

²³ Vandkilde 2016, 106.

²⁴ Marx/Engels 1847/48.

²⁵ Mergel 2009.

²⁶ Harding 2007.

²⁷ Vandkilde 2011; Meller/Schefzik 2015.

²⁸ Peter-Röcher 2010.

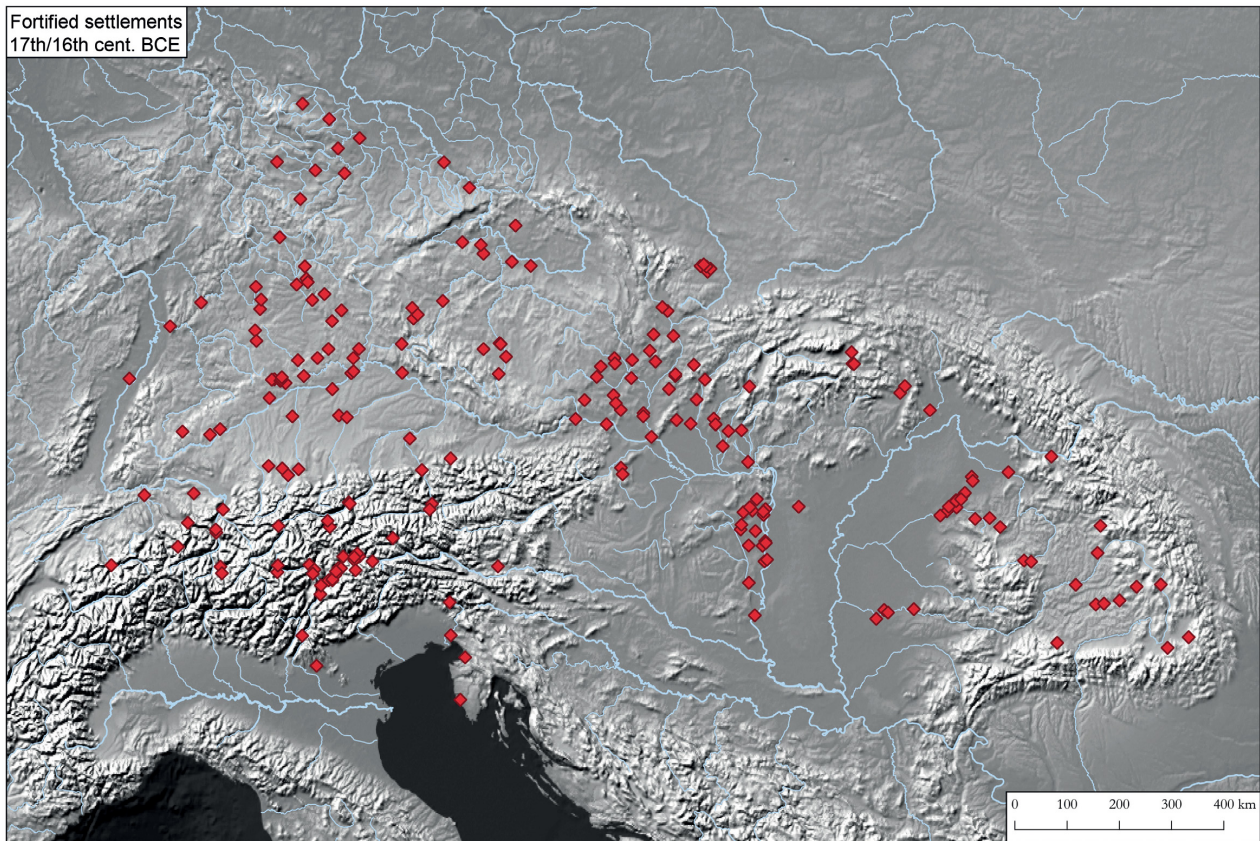


Fig. 1 Distribution of hillforts during 17th/16th century BCE (data base LOEWE-Projects; realization F. Becker)

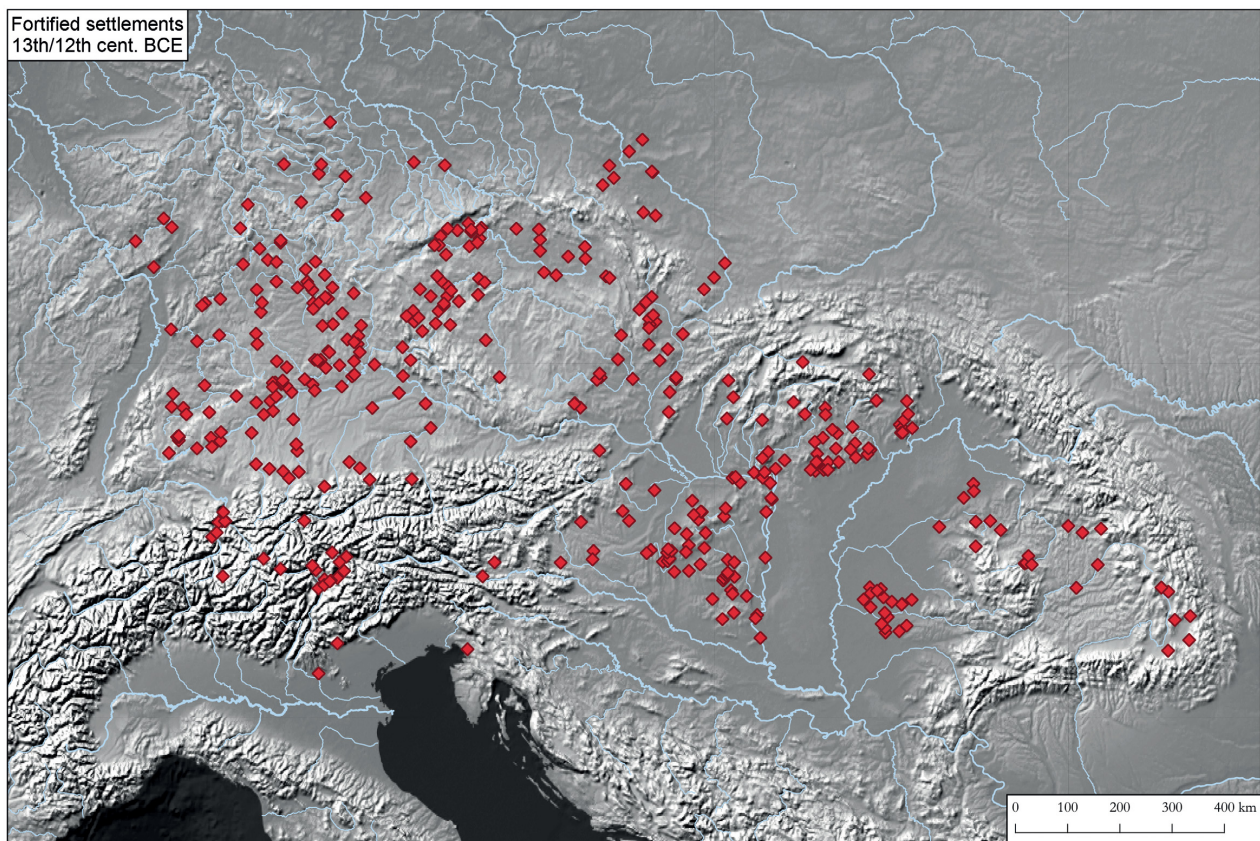


Fig. 2 Distribution of hillforts during 13th/12th century BCE (data base LOEWE-Projects; realization F. Becker)

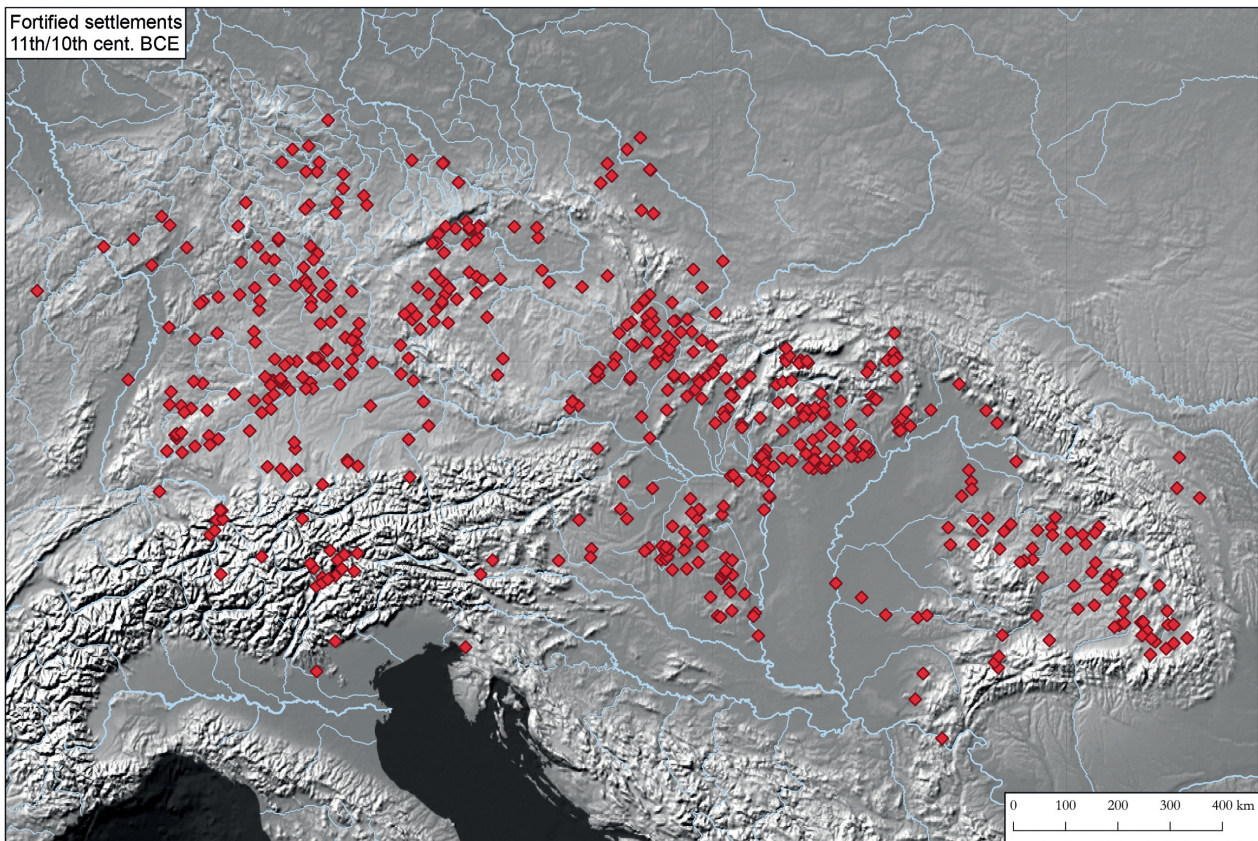


Fig. 3 Distribution of hillforts during 11th/10th century BCE (data base LOEWE-Projects; realization F. Becker)

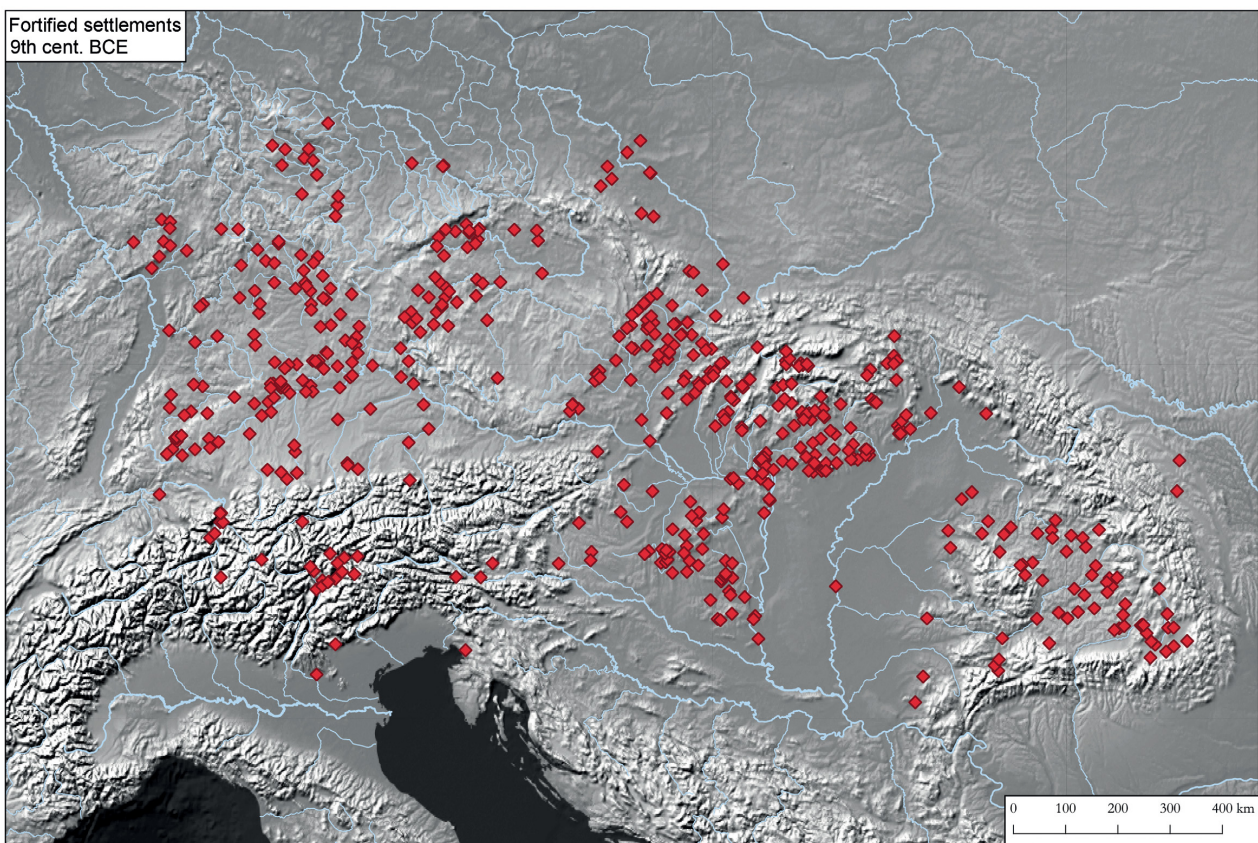


Fig. 4 Distribution of hillforts during 9th century BCE (data base LOEWE-Projects; realization F. Becker)

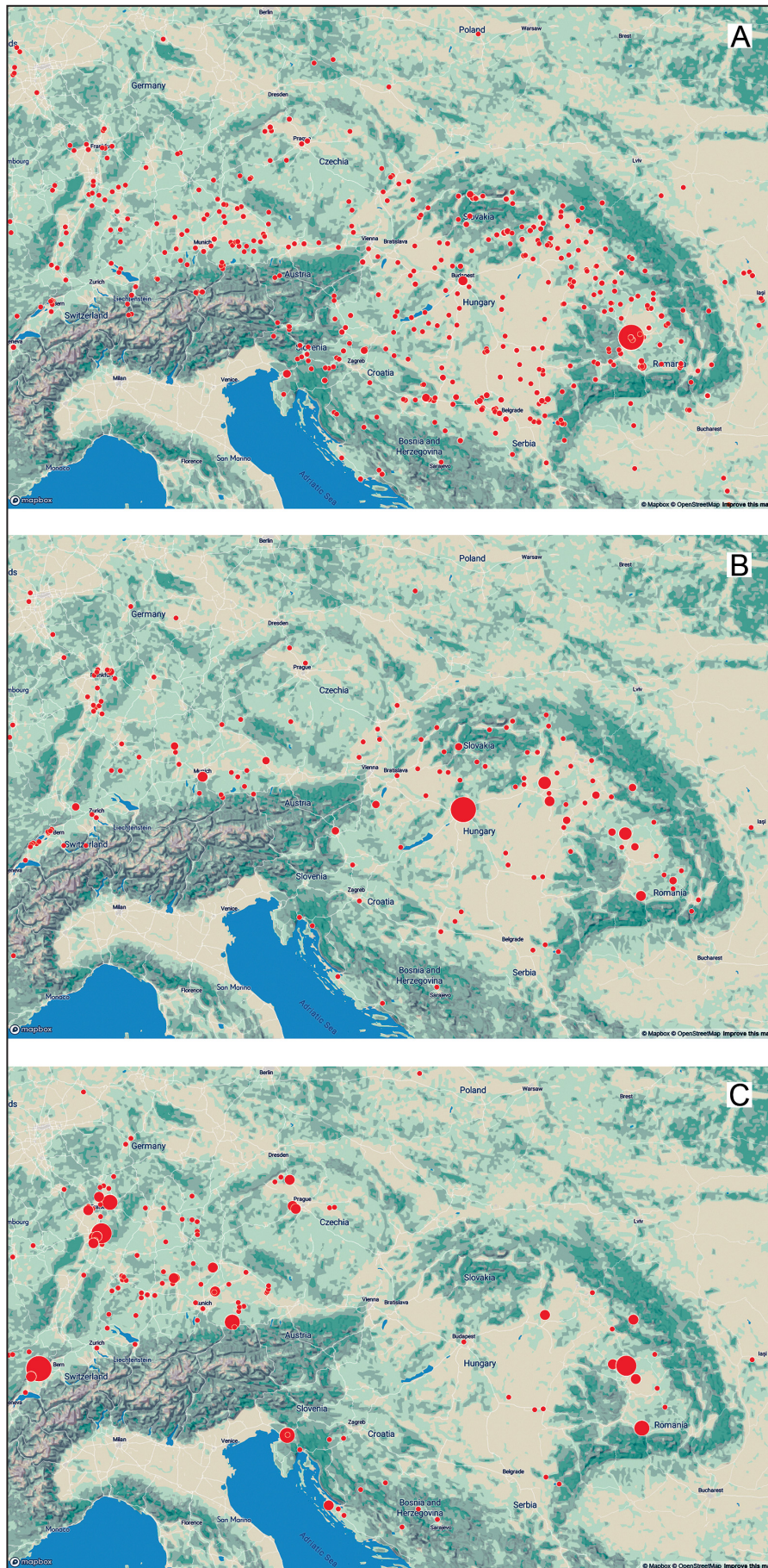


Fig. 5 Preliminary distribution maps of swords (A: Ha A1; B: Ha B1; C: Ha B3). Big dots represent not localized finds “Carpathian Basin or similar” (Digital Atlas of Innovations)

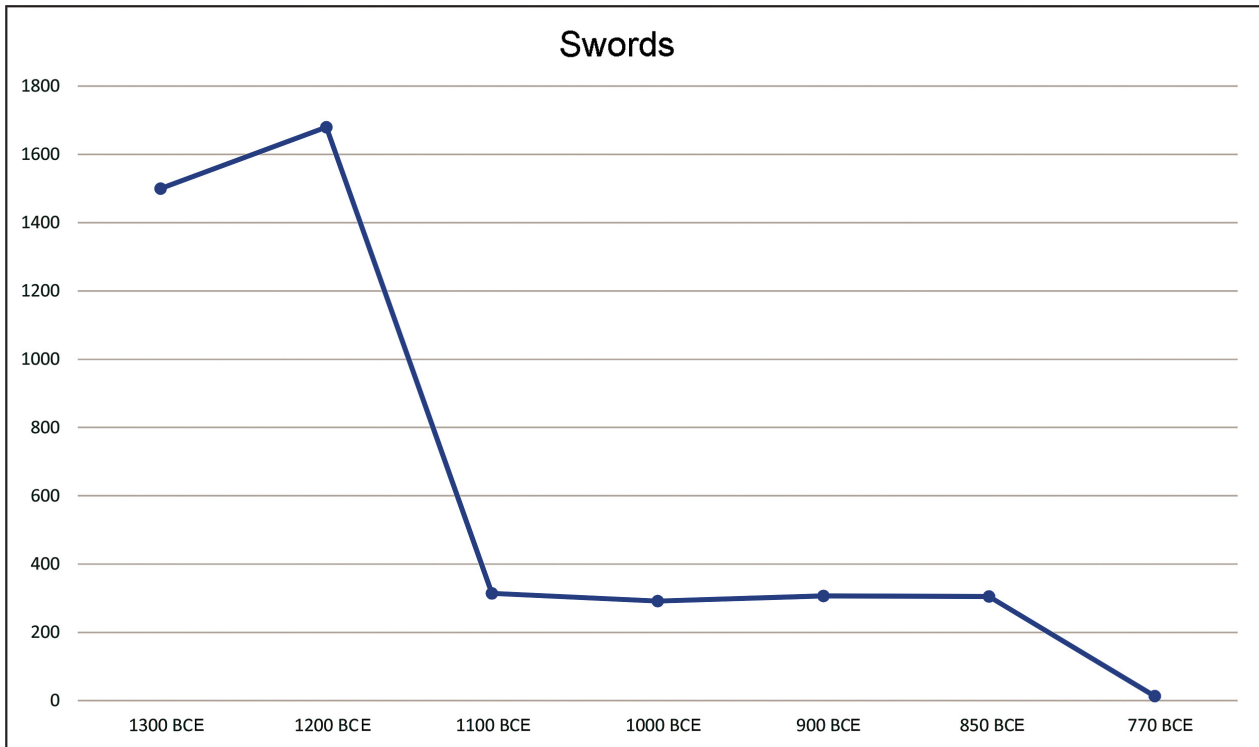


Fig. 6 Preliminary number of swords during the Late Bronze Age in Central Europe (Digital Atlas of Innovations)

The prelude of bronzization: technical innovations and the techniques of authority in the fourth millennium BCE

In Central Europe the Bronze Age starts in the very late third millennium and covers the second millennium and the beginning of the first millennium BCE. The traditional definition of the Bronze Age thereby is based on copper-tin alloys. In Southeast Europe and in East Europe the Bronze Age already starts in the early third millennium or even the fourth millennium BCE. Here the copper arsenic alloy is decisive. The chronological dimensions of the Bronze Age became clear only after the radiocarbon revolution and the calibration of the data. Furthermore, the radical change of chronological synchronisms became necessary. The Maikop grave, for example, was not coeval with the royal graves in Ur, but more than 1000 years earlier.²⁹

A closer study of innovations, however, was long hindered by the lack of a reliable absolute chronology. Only through the establishment of ¹⁴C chronology can a precise description be made today of the development and dissemination of these technical accomplishments. Likewise, the

interrelationship between technical innovations and social conditions has now come increasingly into view. Did new techniques enable a growth in production and with that surplus manufacture and concentration of economic power in only a few hands? Or did innovations amass under the protection and the strong hand of a ruler? Did innovations promote rulership, or did rulership support innovations?

The outstanding role of techniques for the survival and evolution of mankind has been included in archaeology from its very beginnings. The Three Period System of Christian Jürgensen Thomsen: Stone – Bronze – Iron, can be regarded as the sequence of technical stages.³⁰ It was V. Gordon Childe who later called the bundle of innovations in the Stone Age, including the domestication of animals, pottery-making, building houses and polished stone tools, the “Neolithic Revolution”.³¹ Further, he considered the sailing boat, the wagon, the plough and metalworking as prerequisites for the “Urban Revolution”.³² Childe stressed the importance of certain technologies for the emergence of cities and states at the end of

²⁹ Govedarica 2002.

³⁰ Thomsen 1836; Childe 1944.

³¹ Childe 1936.

³² Childe 1950.

the fourth millennium BCE. Of course, he never claimed that the pure existence of the sailing boat, wagon, plough and metalwork would necessarily open the pathway to state building in all parts of the world. Childe's analysis rather identified specific technologies, which enabled people to enlarge their production and distribution of goods. Childe's concept was obviously influenced by the Industrial Revolution. Technical innovations like the steam-engine, the spinning machine and the power loom completely changed the way of production in coal mines, in weaving mills and, moreover, in many other spheres of daily life. But this holds true not only for the innovations of the 19th century.

One of the traditional views on the development of technical innovations is the belief that all innovations or most of them were developed in the centres of the ancient civilizations in Mesopotamia and Egypt, and that they subsequently were dispersed into the cultural peripheries. Radio-carbon dating shows a much more differentiated picture. Metalworking, for example, was practiced long before the Oriental civilizations emerged. The first use of wagons cannot be determined yet. Records are dispersed between Mesopotamia and the Atlantic Sea in the middle of the fourth millennium BCE. One central question in research on technical innovations is whether the success of cities founded upon their own developments, or upon the appropriation of innovations from many different regions and the ability to transform and to combine them for new purposes.

During the fourth millennium BCE a number of key innovations were developed, such as the ox-drawn cart and the plough.³³ Different alloying of copper with arsenic or antimony was a precondition for the production of metal weapons like daggers. The introduction of lost wax casting allowed the production of completely new forms of objects. The woolly sheep was the source of a textile revolution, which was the basis of the wealth in Mesopotamia.³⁴ Horse riding enabled people to surmount long distances within a short time. Indeed, a number of innovations of the fourth millennium BCE were in use until their replacement during the Industrial Revolution.³⁵

The fourth millennium BCE was not only coined by so many basic innovations, but also by social reorganisations. In Egypt a process of concentration over several hundred years' time discharged into the rulership of a mighty king.³⁶ The Egyptian king was considered to be a divine creature, the guarantor and keeper of order and of the country's unity and prosperity, and the mediator between ordinary mortal people and the gods.³⁷ In cities of northern Mesopotamia like Tell Brak, Hamoukar and Tepe Gawra, the first steps in state building and the rulership by strong leaders also date back to the first half of the fourth millennium BCE. Gil Stein sees evidence for the development of early forms of powerful leaders – possibly kings – in the context of emerging urban centres and centralized administrative systems in the early- to mid-fourth millennium BCE.³⁸

Far away, yet not isolated from these centres of later civilizations, in Maikop in the northwestern Caucasus mountain region, a king was buried under a huge grave mound with lavish grave goods like silver and bronze vessels, silver and gold bull figurines, a set of tools and weapons, and thousands of beads made of gold, silver, turquoise and carnelian.³⁹ This potentate also used, for the first time, the iconography of the lion to legitimate his rulership.⁴⁰ This iconography arose roughly at the same time in northern Mesopotamia, too.⁴¹

The most significant characteristic of the Early Bronze Age in Eurasia was the emergence of the state during the fourth millennium BCE.⁴² This type of sovereignty required control over the whole of society, it demanded the superiority of one lineage over all others, and it claimed the monopoly of power. The king was directly linked to the imagined powers, the gods, and he executed their will. It is furthermore the characteristic of the Eurasian development. Only 80 generations, 2500 years, after Neolithisation did pristine states emerge and regulate the development of ever more parts of the former Neolithic world. The subjection under the will of one ruler was far from being a matter of course. The early state was en-

³³ Sherratt 1981.

³⁴ Liverani 2006.

³⁵ Hansen 2011.

³⁶ Andelković 2011; Friedman 2011.

³⁷ Bárta 2013.

³⁸ Stein 2012.

³⁹ Govedarica 2002.

⁴⁰ Hansen 2017.

⁴¹ McMahan 2009.

⁴² Herzog 1998; Breuer 2014.

gaged in permanent battle against “enemies” from inside or outside. The brutal violence against enemies as visualized in a couple of depictions seems to be a general characteristic of the early states.⁴³ In Egypt and Mesopotamia state societies could stabilize themselves under changing ideological paradigms in general for the next 2000 years.⁴⁴

Other regions underwent a different development. At the beginning of the third millennium BCE the Maikop system was transformed into a different economic and political system by unknown causes. Thereby, it is important to keep in mind the 1500-years’ long history of state societies, the use and refinement of basic innovations, the development of techniques and social institutions in the Near East and Egypt, when the Mycenaean civilization emerged later at the beginning of the second millennium BCE. Long-distance trade had already been established for a lengthy time, and the exploitation of copper and silver mines in the peripheries of state centres is well documented, for example on the Cyclades.⁴⁵

Swords in the fourth and third millennia BCE

In the fourth millennium BCE metal weapons, the sword, the halberd and the lance head, were developed. Their production was enabled by technical achievements, especially copper - arsenic alloying. By adding arsenic, copper gains a silvery colour, whereas the addition of tin to copper lends a golden hue to the object. By means of the corresponding alloy, the otherwise soft copper gains hardness, while brittleness and elasticity can be altered. The flow of the molten metal is greatly improved, because the additional elements serve as antioxidants that reduce the formation of bubbles in the metal, and in this way help to produce a homogeneous, solid object. Arsenic has, in principal, the same effect as tin.

The earliest swords known so far came to light during excavations in a collapsed official building in Arslantepe near Malatya. It was part of level VIa and can be dated to the time between 3300 and 3000 BCE.⁴⁶ A few other similar swords have been recorded as well, but they do not contribute

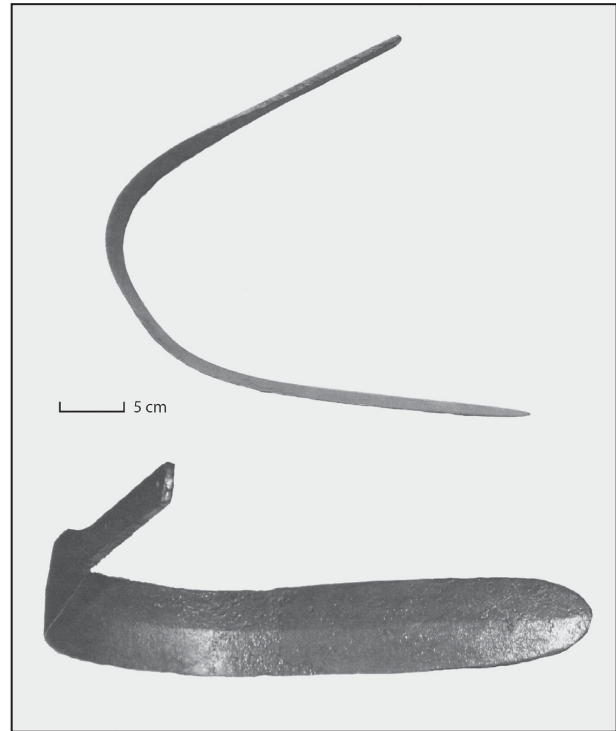


Fig. 7 Novosvobodnaya Klady. Sword (after Rezepkin 2012)

to the dating.⁴⁷ Another fourth millennium sword was a gift in a burial in the cemetery of Novosvobodnaya Klady.⁴⁸ The sword had been ritually destroyed (Fig. 7). In the Levant as well, swords were produced already in the fourth millennium BCE.⁴⁹ Large daggers and sword blades also found their way to the west or were produced in the west. The recently published hoard from Ivan’ky, Mankivka District, region Tscherkassy in Ukraine is most spectacular. The hoard contained a copper axe without arsenic and five swords or long daggers (Fig. 8) made of arsenic bronze (1.862–4.529%). The swords, 28.3 to 41.5 cm long, can be dated to the third quarter of the fourth millennium BCE, contemporaneous with Usatovo.⁵⁰ A similar piece from Mariánka in western Slovakia has been recently published. The blade is 39.4 cm long and made of arsenic bronze.⁵¹

After a gap in evidence, swords are recorded again in the royal graves in Alaca Höyük and other findspots in Anatolia.⁵² A further sword of the first half of the third millennium BCE was found in

⁴³ Weniger 2003; Risch 2015.

⁴⁴ Gundlach 1998.

⁴⁵ Sherratt 2011.

⁴⁶ Frangipane 2004; Gernez 2017, 38-43.

⁴⁷ Zimmermann 2011.

⁴⁸ Rezepkin 2000.

⁴⁹ Klimscha 2018, 100 Fig. 7.7.

⁵⁰ Klochko/Klochko 2013.

⁵¹ Bartík/Bača 2015.

⁵² Koşay 1951; Müller-Karpe 1994.

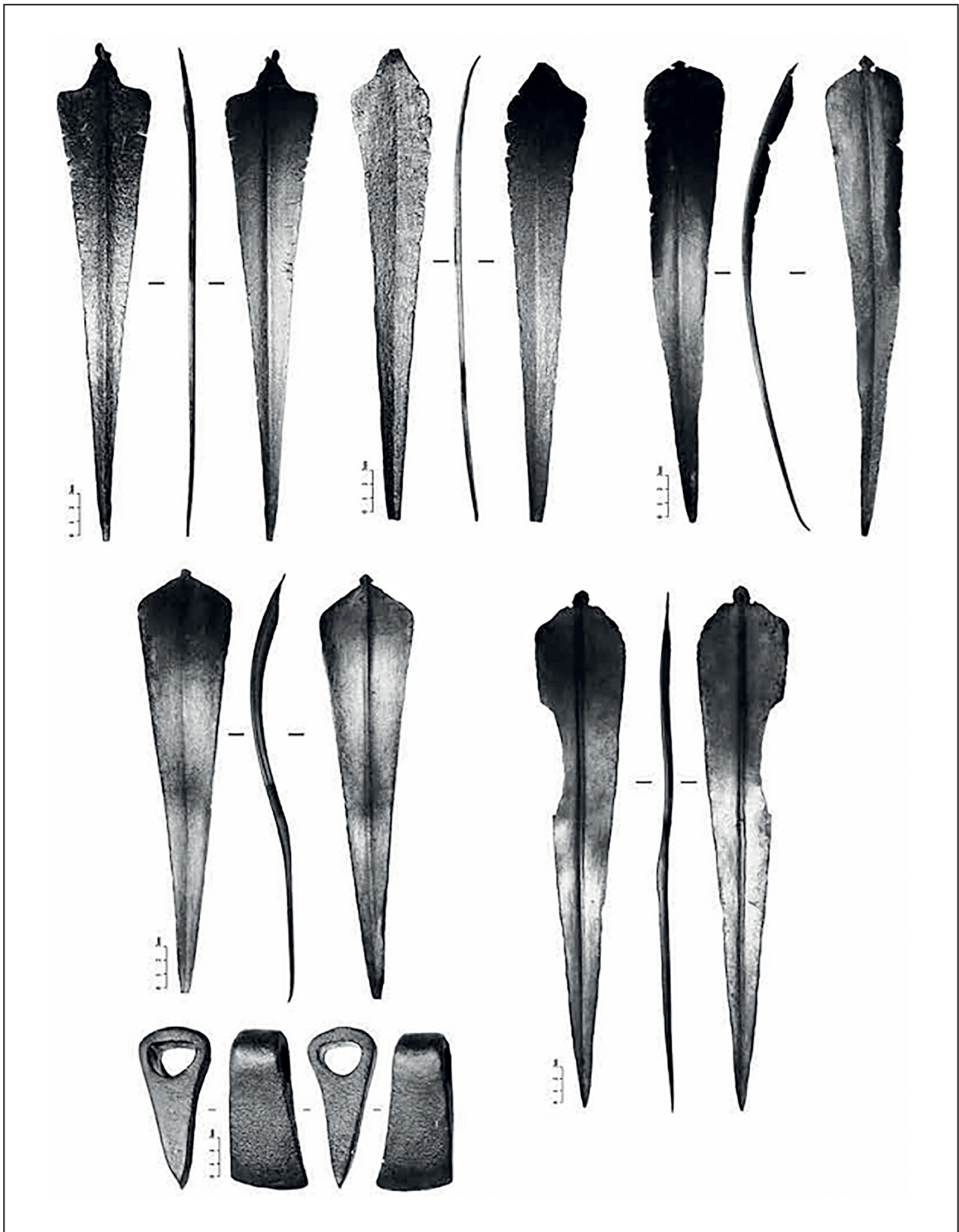


Fig. 8 Ivan'ky, Mankivka District. Hoard with copper axe and five swords/long daggers (after Klochko/Klochko 2013)

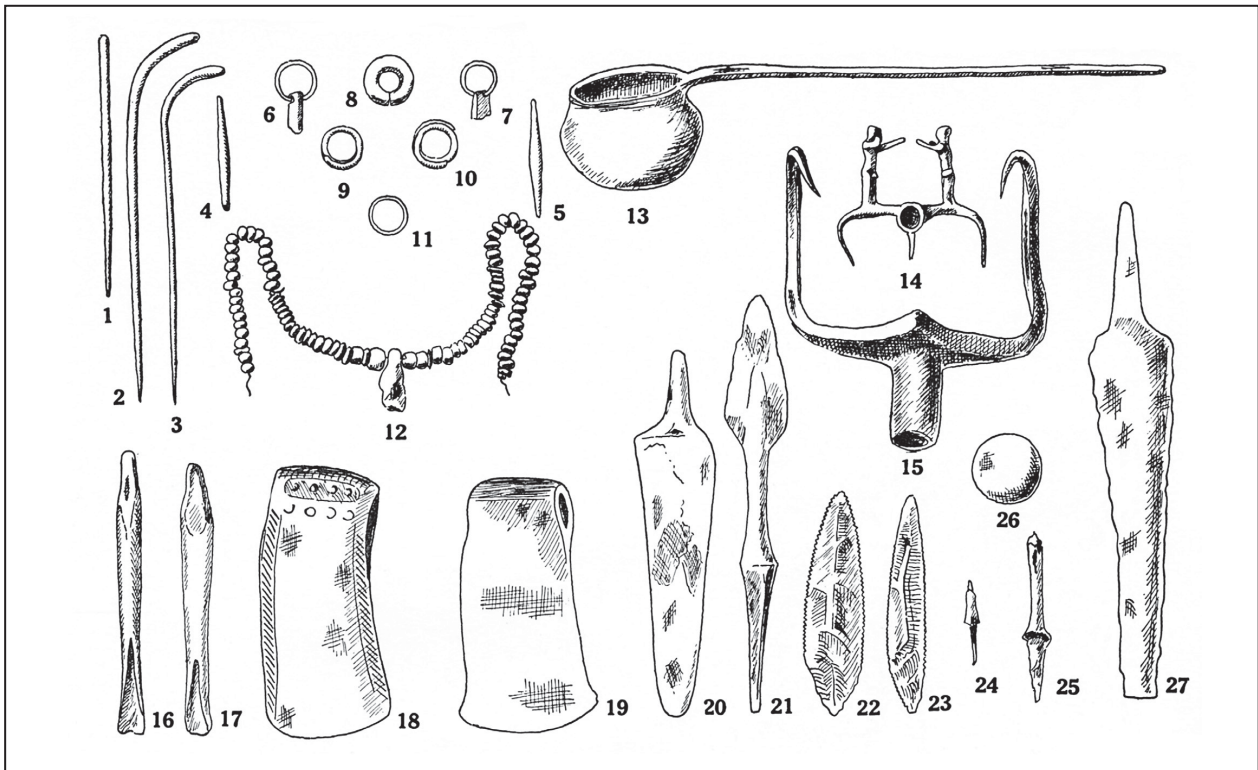


Fig. 9 Finds from Kurgan 1, 1898 in Tsarskaya (now Novosvobodnaya) (after Gimbutas 1956)

the Nidri graveyard on Levkas, Greece.⁵³ There, in grave R7, eight fragments of a ritually destroyed sword made of copper were part of the grave gifts. The sword can be compared to other swords from the islands of Amorgos, Kos and Naxos in the Cyclades (Early Cycladic II). Swords are known from several other find spots in the southern Caucasus, which date to the early second millennium BCE.⁵⁴ A long sword from Beth Dagan in Israel belongs to a group of similar short swords and can be dated to the local Middle Bronze Age of the late third or early second millennium BCE.⁵⁵ At the turn from the third to the second millennium BCE the sword was distributed throughout a large geographical region of the eastern Mediterranean.

Spearheads in the fourth and third millennia BCE

The Early Bronze Age spearheads are quite parallel with the swords. The earliest spearheads were found together with the swords in Arslantepe, room A113 in level VIA. A similar spearhead was part of the

inventory in Kurgan 1, 1898 in Tsarskaya (now Novosvobodnaya) in the western Caucasus (Fig. 9). This confirms again the date to the last quarter of the fourth millennium BCE. Similar examples with similar dating are recorded in the Levant.⁵⁶ The famous hoard of Kfar Monash containing spearheads with a tang should be dated to the third millennium BCE, but the details are still under debate.⁵⁷

Another type of shafting was present during the third millennium BCE in the Cyclades and Anatolia; one example also found its way to Central Europe into the Early Bronze Age hoard of Kyhna in Saxonia.⁵⁸ At the time around 2000 BCE also tanged lances (daggers) could have likewise found their way into the western part of Europe.⁵⁹ They have been mostly interpreted as modern imports by soldiers or tourists, but a closer look would be worthy. I would suggest that some of them including one piece from the Zihl River in Switzerland could be original imports.⁶⁰

⁵³ Kilian-Dirlmeier 2005.

⁵⁴ Abramishvili 2001.

⁵⁵ Shalev 1988.

⁵⁶ Montanari 2011.

⁵⁷ Hestrin/Tadmor 1963; Ben-Tor 1971; Philip 1988.

⁵⁸ Coblenz 1986.

⁵⁹ Brandherm 2000.

⁶⁰ Reinecke 1933 with doubts on the original find place. Innerhofer (2013, 448-450) compared a pin from Hilterfingen, Kt. Bern with Cypriot pins.

Hence, there is no evidence for any weapon transfer in the third millennium BCE between the Mediterranean and Central Europe. In Central and Western Europe the halberd was the predominant weapon during the late fourth and the third millennium BCE.⁶¹ The hoard from Hofkirchen-Unterschollnach (Fig. 10) contained an impressive collection of halberds, all made from arsenic bronze.⁶²

The (Late) Bronze Age of the second millennium BCE

In Central Europe the second millennium BCE is defined as ‘Bronze Age’ in view of the increasing number of objects made of copper-tin alloys. The breakthrough of tin bronze occurred during a developed phase of the Early Bronze Age and in a large geographical area. Helle Vandkilde recently argued for pinpointing the close connection between the Carpathians and the Nordic Bronze Age. She emphasises: “Rather, a *koiné* was glued together by something that was likely more than what would, strictly speaking, be implied by ‘transculture’. A *koiné* may thus have emerged through a common interest in certain desirable transcultural objects and the cultural capital with which they were associated”.⁶³ A closer look at the details of this diffusion of new objects and new techniques will also help to understand the social mechanisms behind this new Carpathian-Baltic connection. If the bronze objects can be regarded as representative for this process, then the role of the weaponry must be emphasised. Swords, spearheads and axes are the objects with which we have to work.⁶⁴ The “Bronzization” of Central Europe was obviously not driven by ornaments as gifts for women or the exchange of exotic objects. Instead the “Bronzization” was in an armament never seen before in Europe.

The social organization behind these cataclysms is not clear yet. The Near Eastern Bronze Age states were slaveholder societies, which rested upon the control and exploitation of peoples’ labour. The same holds true for the Mycenaean palaces of the second millennium BCE, where we

know of slaves through the Linear B-texts.⁶⁵ The Mycenaean word for ‘slave’ – “do(h)elos” – is connected with the word *doulos* in later Greek language. A system based on slave ownership has also been proposed for the Early Bronze Age El Argar culture in southeastern Spain on the basis of archaeological data.⁶⁶ The Mycenaean palace system in Greece was probably destroyed around 1200 BCE as the result of a revolution against the ruling class, which is indicative of social tensions.⁶⁷

Many researchers have pleaded for cultural influences from the Mediterranean and the Near East on the development in Central Europe. Bernhard Hänsel stressed the Mycenaean influence on Europe in many different aspects.⁶⁸ Kristian Kristiansen and Thomas Larson have even discussed the transfer of institutions from the South to the North.⁶⁹ The material evidence is scanty, if one is looking for imports from the Levant or Mycenae. Yet they do indeed exist in the material culture, for example, the oxhide ingot found in Oberwillingen in southwestern Germany,⁷⁰ or the knife with a bird-shaped handle from Balatonfüzfő in western Hungary.⁷¹ The Rešef-statuettes are even found on the periphery of the Bronze Age world, in Šernai in western Lithuania.⁷² And conversely, in the Mycenaean world objects from the North can be listed, for example, the horse-bridle piece from Mitrou,⁷³ a wheel-headed pin (*Radnadel*) in Mycenae,⁷⁴ and amber beads in shaft graves III and IV in Mycenae.⁷⁵ Recently, details that would link architecture of the defensive system in Monkodonja with Greek prototypes were discussed.⁷⁶

Another question is the reconstruction of the social system in Central Europe. A number of researchers have spoken of ‘chiefs’ or ‘kings’. Recently, the model of small segmented societies in Central Europe was favoured. It was criticized that “narratives of elite control over production and exchange” were allegedly misled by elabo-

⁶¹ Horn 2014.

⁶² Neumann 2018.

⁶³ Vandkilde 2014, 604.

⁶⁴ For details see Sicherl 2004.

⁶⁵ Fischer 2011.

⁶⁶ Lull *et al.* 2011.

⁶⁷ Jung 2016.

⁶⁸ Hänsel 1988.

⁶⁹ Kristiansen/Larsson 2005.

⁷⁰ Primas/Pernicka 1998.

⁷¹ Ilon 2012.

⁷² Čivilytė/Duberow/Pernicka 2015.

⁷³ Maran/van de Moortel 2014.

⁷⁴ Ruppenstein 2010.

⁷⁵ Maran 2004.

⁷⁶ Hänsel/Mihovilić/Teržan 2015.

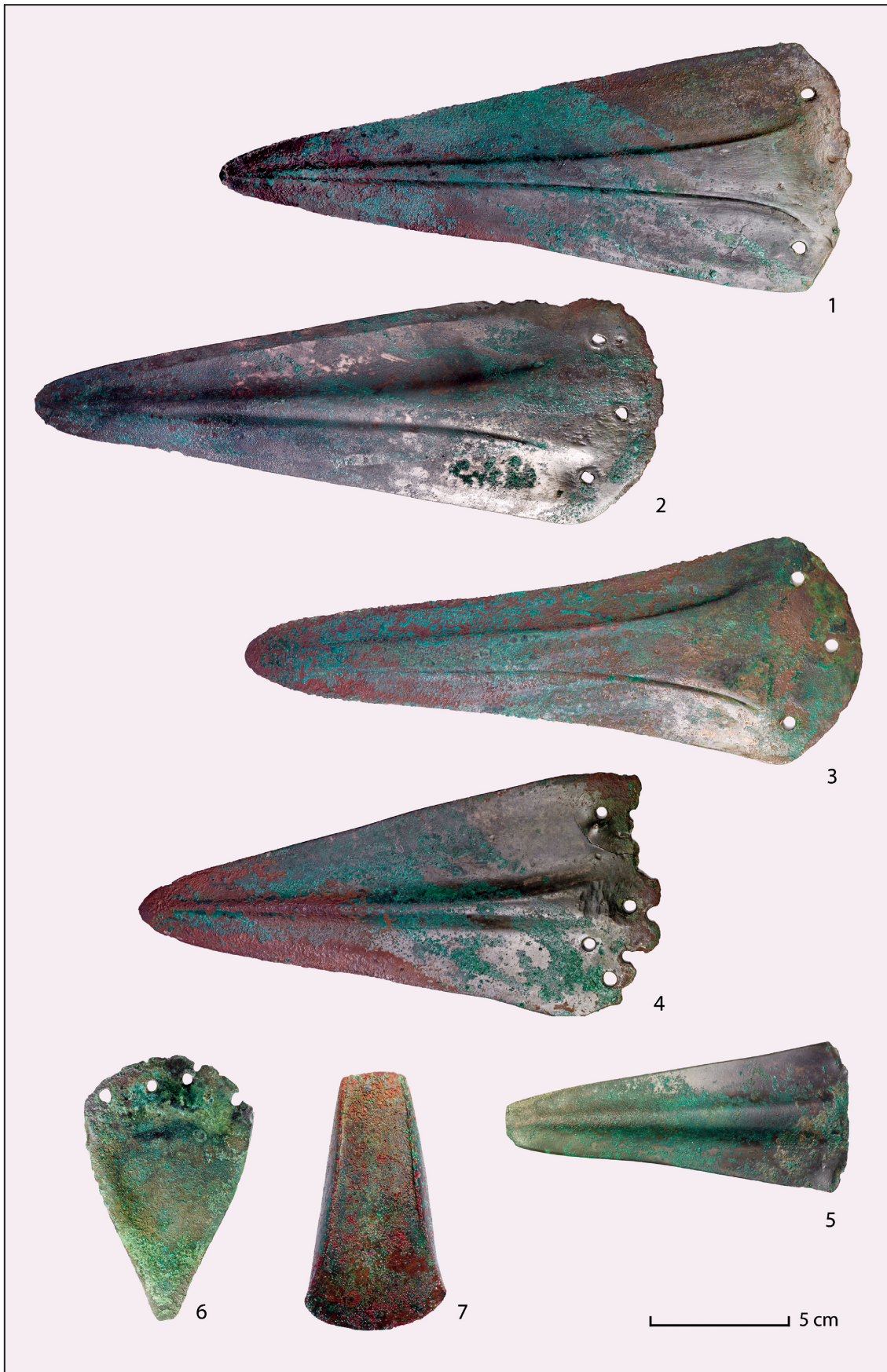


Fig. 10 Hoard from Hofkirchen-Unterschöllnach. Halberds (photos by S. Friedrich, Archäologische Staatssammlung München; graphics by A. Reuter)

rate metal products, “which we cannot imagine ‘ordinary’ people were capable of crafting (...)”.⁷⁷ Here I will not go into detail about the term “‘ordinary’ people”, which is not common in social theory. However, the concept of small segmented Bronze Age societies in Central Europe tends to ignore a number of indications of large scale structures, like hillforts or copper mining in the Alpine region etc.⁷⁸ The opposite viewpoint was recently outlined by Harald Meller, who speaks of a Únětice state and discusses a regular army.⁷⁹

The armament of Europe

In the following I wish to throw some light on the process of armament. First, it should be noted that this process is visible in graves and hoards, in which weapons were presented as gifts to the imagined powers, the gods and spirits.⁸⁰ These objects are not the direct remains of military conflicts, like weapons from a battlefield or war booty or sacrifices.⁸¹ They were selected secondarily by principles, which we however are unable to reconstruct. We may but assume that the weapons were deposited either as the booty from the defeated enemy or the pride of their owners. Further, the numerous weapons found in Greek sanctuaries are representations of military conflicts in the Greek world of the Late Geometric and Archaic Period.⁸²

From the viewpoint of chronology, the time period between 2000 and 1500 BCE has been under debate for more than 50 years and is still not at an end. One should remember that 40 years ago the Corded Ware and Bell Beakers cultures were pressed into the 19th and 18th centuries BCE. But then the famous graves of Helmsdorf and Leubingen were dated through dendrochronology, and it suddenly became clear that the Central European Early Bronze Age was much older than previously thought. Moreover, the early dates for Leubingen and Helmsdorf destroyed a historical conception: The emergence of early rulership in Central

Europe was not based on the emergence of Early Mycenaean civilization (the shaft graves), as hitherto believed, but was evidently an “independent” development. It may be noted that in a globalized world nothing is really independent, and this is true also for the early Únětice culture.

Even if the major framework of chronology seems to be stable, some synchronisations are still under a debate that goes back to the 1960s. Here, however, I shall follow the chronological schemes of Bernhard Hänsel,⁸³ Sabine Gerloff,⁸⁴ Florian Innerhofer,⁸⁵ Wolfgang David⁸⁶ and Reinhard Jung.⁸⁷ The so-called Koszider hoards are not understood here as a chronological phase or period, but as a special model of deposition, which became visible during Middle Danubian (MD) phase I and was adopted also in southern Germany, but lasted longer.⁸⁸ The hoard of Piller is a good example of this new type of hoard and surprising proof of its existence during the Middle Bronze Age.⁸⁹ The general problem behind relative chronology-systems is the evaluation of hoard finds. Do they represent a short time period, or were they accumulated over a larger span of time, as it is obvious in the Piller hoard? This is extremely relevant, if we wish to trace the real processes in the invention of weapons and the general armament in Europe during the first half of the second millennium BCE. In general, the connection between metalwork and radiocarbon dates remains problematic.⁹⁰

In the case of absolute dating of the phases, a stable frame of radiocarbon dating is still lacking. The beginning of the Middle Bronze Age phase B1 seems to be confirmed in the mid of the 16th century, around 1550 BCE.⁹¹ The radiocarbon dates from the region around Augsburg (Germany)⁹² should be discussed in comparison to existing radiocarbon dates in the Carpathian Basin.⁹³ Florin Gogâltan provided a detailed overview about the existing situation of chronological frame-

⁷⁷ Kienlin 2010, 4; 2012, 123; 2013, 415; 2014, 466; 2016, 132.

⁷⁸ Stöllner *et al.* 2006.

⁷⁹ Meller 2017; Meller/Michel 2018.

⁸⁰ Hansen 2005.

⁸¹ Mörtz 2010.

⁸² Baitinger 2011.

⁸³ Hänsel 1968.

⁸⁴ Gerloff 2010.

⁸⁵ Innerhofer 2013.

⁸⁶ David 2006.

⁸⁷ Jung 2013.

⁸⁸ Bühl/Ackenbach: Rittershofer 1983; Pfakofen: Mösllein 1998; Hansen 2005.

⁸⁹ Tomedi 2016.

⁹⁰ Gävan 2015, 23-24.

⁹¹ Müller/Lohrke 2009.

⁹² Stockhammer *et al.* 2015; Schwarz 2016.

⁹³ Kiss *et al.* 2015.

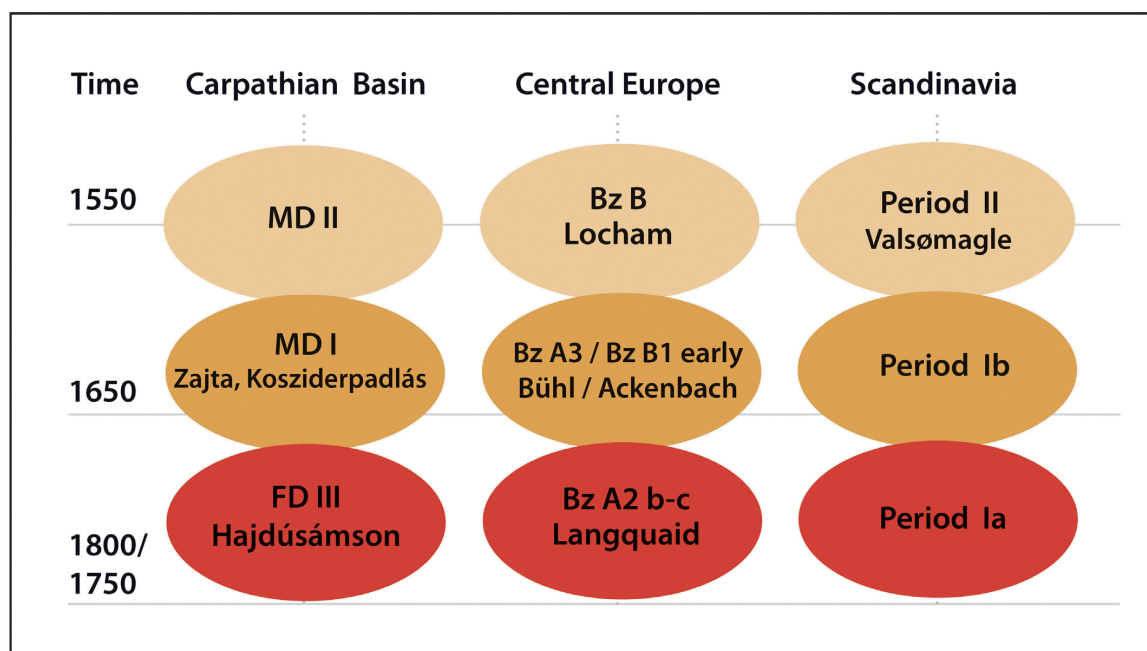


Fig. 11 Chronology of the 18th to 16th centuries BCE (graphics by A. Reuter)

work in the eastern part of the Carpathian Basin. He stressed the missing connection between the radiocarbon dates and “a unitary horizon of metal artefacts deposits, specific to stages MBA II⁹⁴.” But new data from the Bronze Age cemetery in Sebeş/Mühlbach give a consistent time span of the Early Wietenberg culture between the 20th and the 18th centuries BCE. The younger Wietenberg culture, which can be paralleled with Bronze Age phase A2, should start in the 18th century BCE.⁹⁵ In the following discussion of the relevant finds I shall work with the rough scheme illustrated in **Fig. 11**.

Swords in the second millennium BCE

The development of the earliest swords in Europe has been object of intensive research for more than 100 years. In the centre are the interdependencies of sword production in the Aegean, the Carpathian Basin and Central Europe.⁹⁶ In Greece during the Middle Helladic period long rapiers of the so called Type A, according to Georg Karo, were produced. The blades can be more than one meter in length. They have a prolonged grip tongue and

a grip made of wood with an ivory or a crystal pommel. Two swords from the palace in Mallia were found in a room, which was in use during Middle Minoan I and II; they should be considered the earliest pieces of this type.⁹⁷ Swords with such long blades were in use until LH II or even LH IIIA. The long time period of their use already shows that they were indeed functional weapons.⁹⁸ Most of the swords are known from the Peloponnese. Especially the famous blades from the shaft graves in Circle A in Mycenae are worth mentioning (**Fig. 12**).⁹⁹

Central Europe did not take part in this development, for which several reasons might have been decisive. It seems most plausible to me that the technical aspect of casting such long blades was crucial. For certain reasons the Central European casters of the third and early second millennia BCE were not able to produce long blades. Furthermore, the halberd was an established weapon in Central and Western Europe during the third and early second millennia BCE.¹⁰⁰

In the second millennium BCE the copper-tin alloys replaced the copper-arsenic alloys, which had been used in the fourth and third millennia BCE for making weapons, especially dag-

⁹⁴ Gogáltan 2015, 79.

⁹⁵ Bălan/Quinn/Hodgins 2017, 188.

⁹⁶ E.g. Naue 1903; Holste 1953; Cowen 1955; 1966; Schauer 1971; Kemenczei 1988; 1991; von Quillfeldt 1995; Čivilytė 2009; Pabst 2013.

⁹⁷ Kilian-Dirlmeier 1993, 26.

⁹⁸ Molloy 2008; 2010.

⁹⁹ Karo 1930.

¹⁰⁰ Horn 2014.

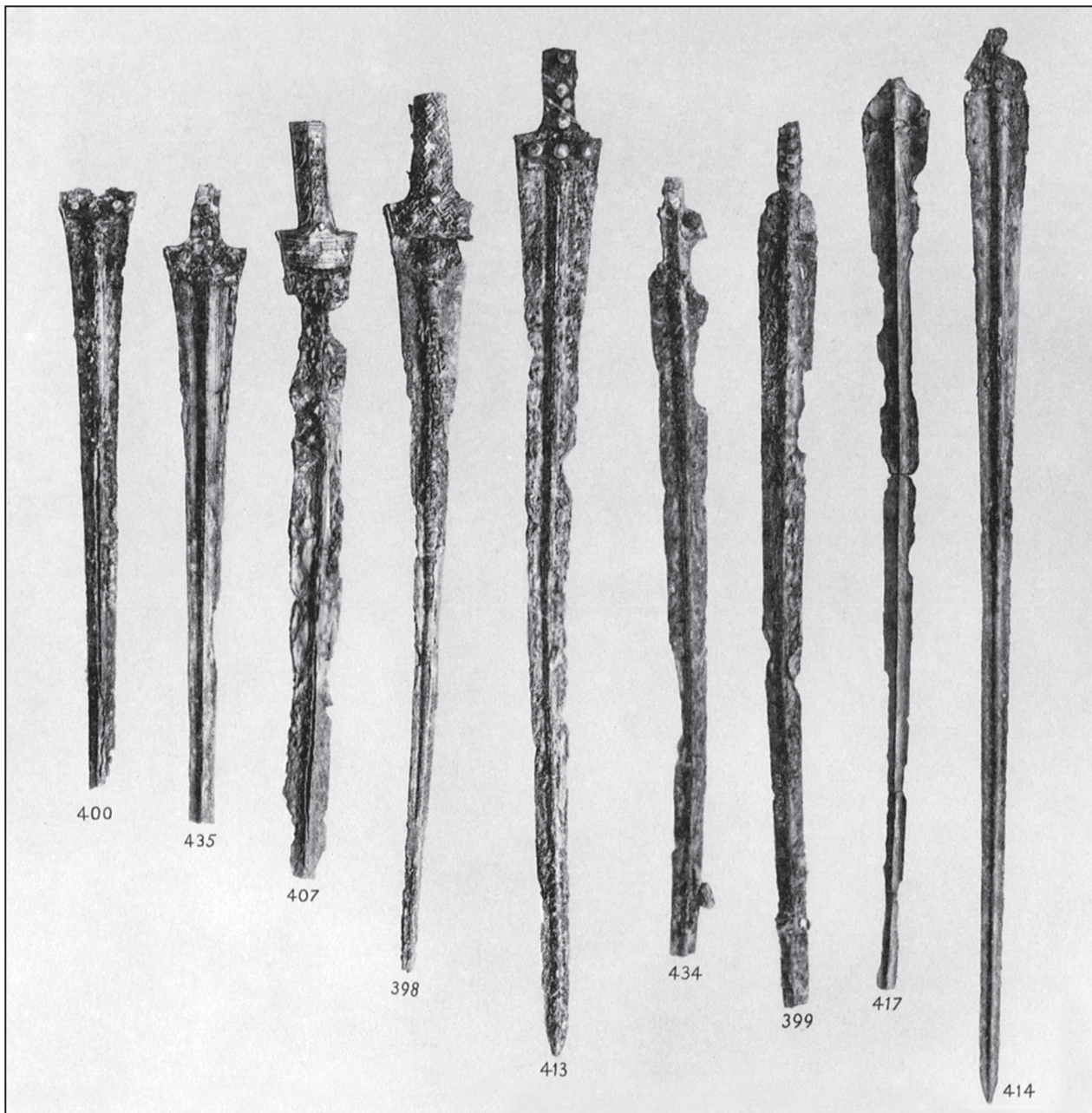


Fig. 12 Mycenae. Swords from shaft grave 4 (after Karo 1930)

ger blades. The supply of tin had become stable during the developed Early Bronze Age (Bz A2). There is an obvious relationship between the improvement of the tin alloys and the production of swords and spearheads. Sword production called for highly skilled craftsmanship, with the casting of the blade in the centre. Additionally, casting forms had to be produced, the cast blade had to be reworked, the grip had to be connected, and eventually the blade had to be decorated. The time invested for the production of one sword is difficult to estimate; 20 days have been suggested.¹⁰¹

¹⁰¹ Jockenhövel 2004/2005.

Nonetheless, there were obviously structures of a supra-regional production and distribution of weapons, as is visible in the distribution of the solid hilted daggers of the Early Bronze Age. This is probably the starting point too for many symbolic aspects, which were connected with the sword as an individual.¹⁰² The European dimension of the “triangular solid hilted dagger” (*trianguläre Vollgriffdolche*) was first shown by Otto Uenze¹⁰³ and recently discussed by Stefan Schwenzer.¹⁰⁴ From

¹⁰² Pearce 2013.

¹⁰³ Uenze 1938.

¹⁰⁴ Schwenzer 2004.

the viewpoint of techniques of war it should be emphasized that the large daggers of the Oder-Elbe type with blades up to 41 cm in length were already dangerous weapons.¹⁰⁵ From a cultural point of view I have already discussed elsewhere hoards that contained a great number of daggers.¹⁰⁶ Such hoards are known from Bohemia and Italy, amongst others, Lušnice, okr. Mlada Boleslav with 14 daggers,¹⁰⁷ Praha 6-Suchdol (7 daggers),¹⁰⁸ Loreto Aprutino, Prov. Pescara (10 daggers)¹⁰⁹ and Ripratansone, Prov. Ascoli Piceno (25 daggers),¹¹⁰ which can be seen as the forerunners of homogeneous sword depositions in later phases of the European Bronze Age.¹¹¹

The archaeological definition of dagger and sword is, of course, artificial and probably has nothing to do with definitions of the people of the second millennium BCE. In their internal view the step between the solid hilted daggers and the first swords was probably appreciated, but it was a step in the same category. Normal daggers as we know them from the second millennium BCE had only little in common with the solid hilted daggers. In any case, the complete length of the swords from Apa with 62 and 56 cm was a great advantage and doubled the distance between the combatants. Hajdúsámson/Apa swords are different in detail. Each one is an individual. The Hajdúsámson/Apa swords (**Fig. 13**) were widely distributed throughout Central Europe, as far as Jutland. This process was described many times according to the work of Rolf Hachmann.¹¹² The most recent find of local imitations of Apa swords was found in Dystrup in southern Jutland. The eight swords (ca. 45–47 cm) were deposited under a large stone.¹¹³ It is clear that the weapon industry and armament of Europe was a highly interconnected process.

The length of the comparable blades of the Sögel type of sword, which were hafted with organic grips, ranges between 34–40 cm.¹¹⁴ A considerable

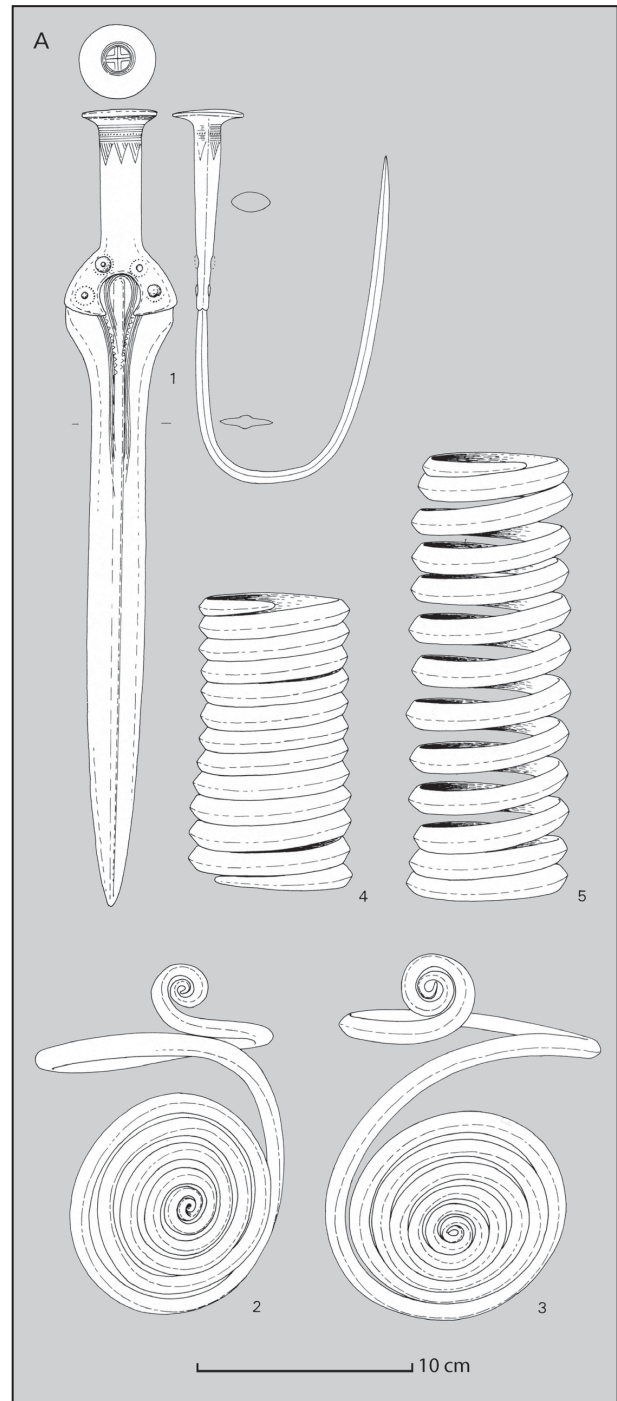


Fig 13 Vajska, Gde. Bač. Hoard (after Harding 1995)

number of such blades have been found in Central Germany and Lower Saxony as grave goods.¹¹⁵ They belong to the Langquaid phase of the Early Bronze Age, but were still in use during the Early Middle Bronze Age (Bz B1). The grave of Drouwen in the Dutch province of Drenthe was covered by a grave mound that measured 9 m in diameter. The grave was in a building erected with four posts. It contained one Sögel blade, a flanged axe, a razor, nine

¹⁰⁵ Laux 2009, 16.

¹⁰⁶ Hansen 2002.

¹⁰⁷ Uenze 1938, 80 Nr. 68.

¹⁰⁸ Divac/Sedláček 1999.

¹⁰⁹ Bianco Peroni 1994, 49.

¹¹⁰ Bianco Peroni 1994, 49.

¹¹¹ Brandherm 2007.

¹¹² Hachmann 1957; Sicherl 2004, 47-51; Bunnefeld 2016, 20-21.

¹¹³ Wincentz Rasmussen 2000; Wincentz Rasmussen/Boas 2006.

¹¹⁴ Meller 2013, 505-508 Abb. 14-15.

¹¹⁵ Kubach 1973.

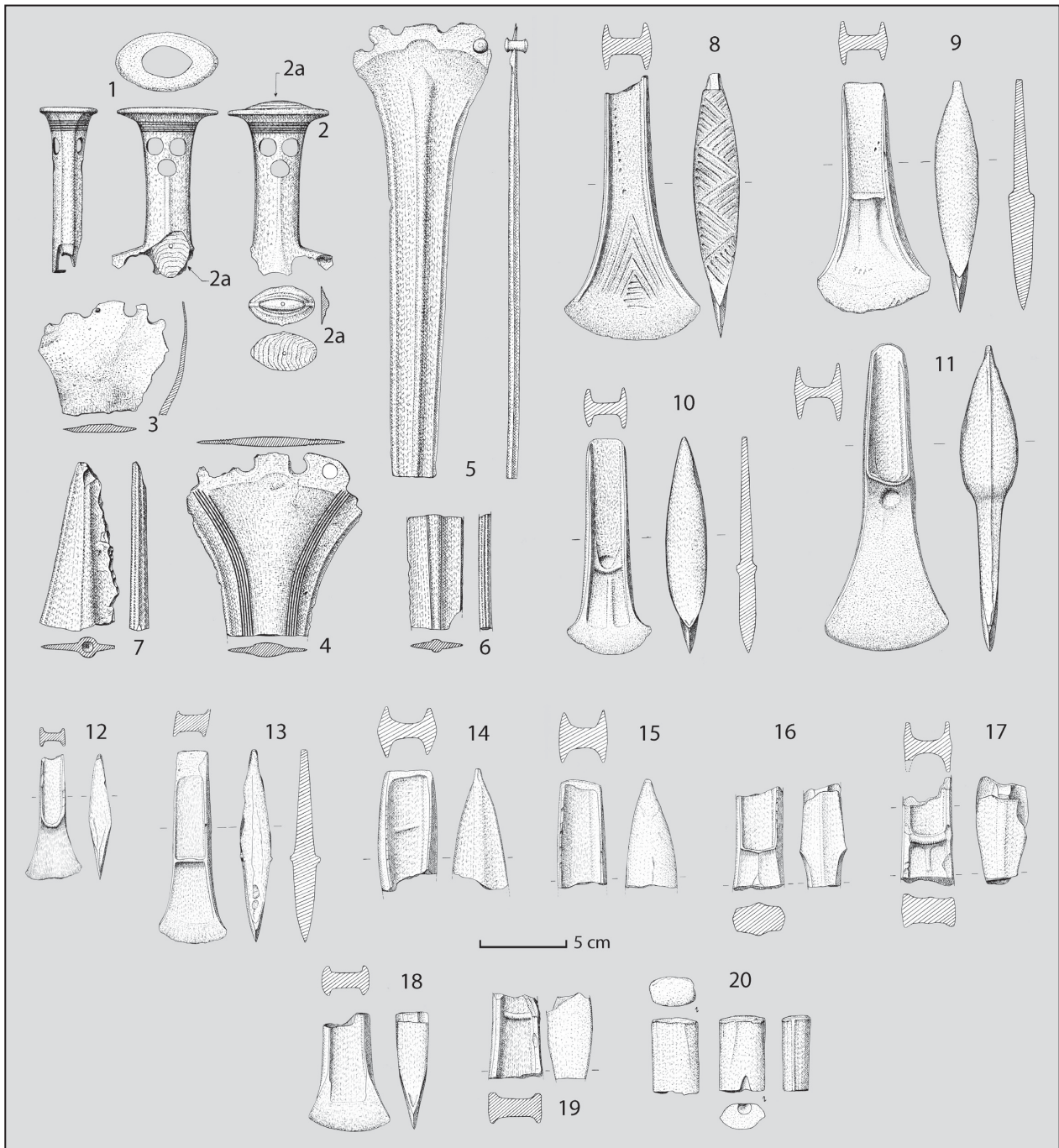


Fig. 14 Kermengouès near Plouvorn, Dép. Finistère. Hoard (after Briard/Peuziat/Onnée 1976)

flint arrowheads, a whetstone and a pair of gold coils. The grave goods are in accordance with the “international” standard of a chiefly Bronze Age burial.¹¹⁶ The Drouwen grave is comparable with the grave in Bockel, dist. Soltau-Falingbostel.¹¹⁷ In the Netherlands the “ceremonial” swords of the Ommerschaans type should be mentioned in this context.¹¹⁸

¹¹⁶ Hansen 2016.

¹¹⁷ Laux 2009, 22 Nr. 14 Taf. 70B.

¹¹⁸ Fontijn 2001.

Farther west the daggers and swords of the types Saint-Brandan and Tréboul must be noted. In Brittany they represent a new tradition of sword development, as the Early Bronze Age long daggers/swords stood in the Bell Beaker tradition. A distinction between long daggers and swords of the Brandan/Tréboul type is nearly impossible. The dagger blades are up to 48-cm long, while the sword blades are 57 to 65-cm long.¹¹⁹ The Brandan/Tréboul swords, daggers and spearheads were

¹¹⁹ Gallay 1988, 14.

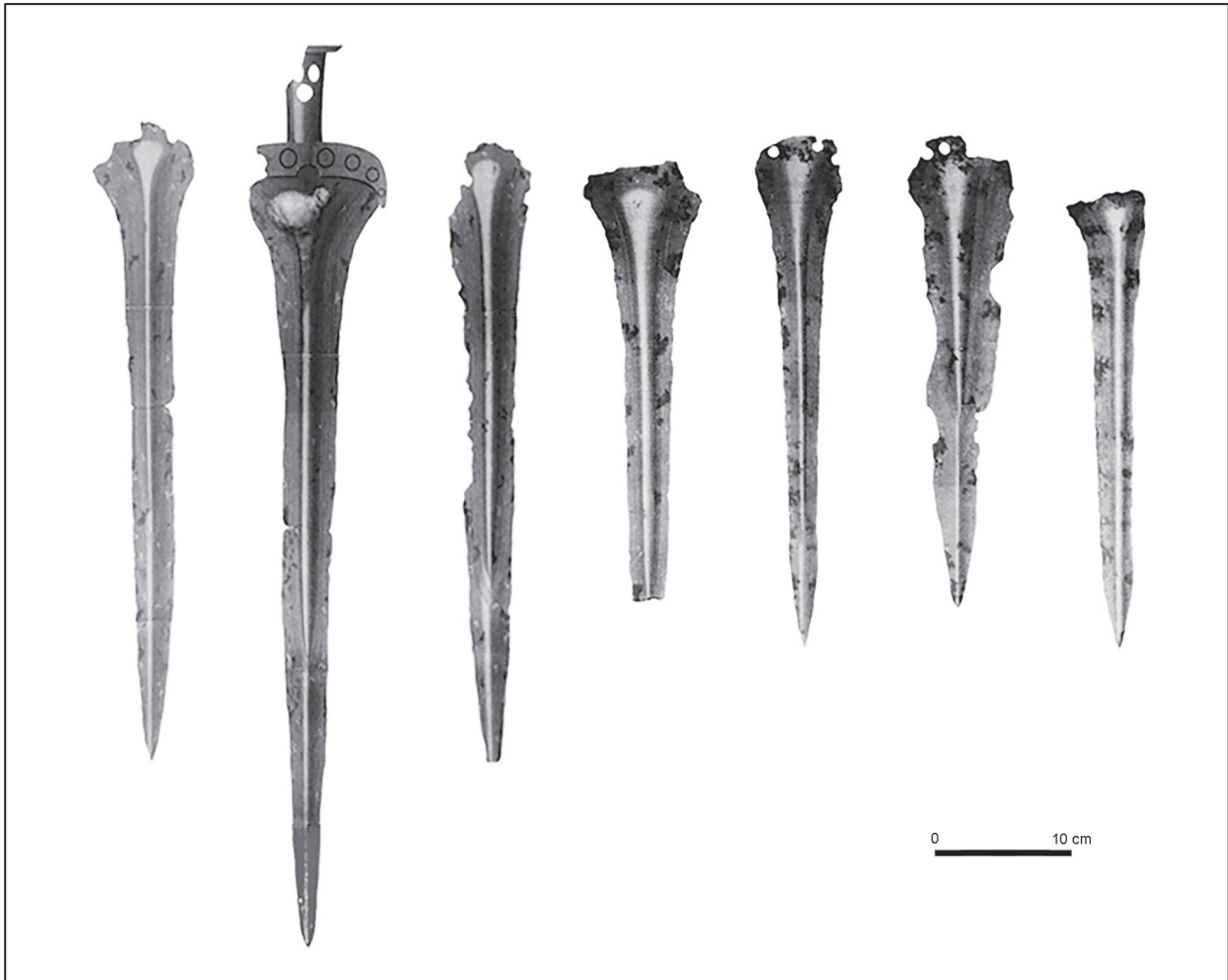


Fig. 15 Saint Brandan, Dép. Cotes du Nord. Hoard with two swords and six daggers (after Trésors 1886 Tab. 13-14).

mostly deposited in hoards, as manifested in the hoard of Kermengouès near Plouvorn, dép. Finistère (Fig. 14).¹²⁰ The hoard of Saint Brandan, dép. Cotes du Nord (Fig. 15), containing six daggers and two swords, was deposited under a large granite stone. Some single votive offerings are known, too. Burials are not known. Hoards of the Tréboul type contain only fragments which corresponds to the earliest hoards with fragments in Central Europe (Dunaújváros, Bühl, Ackenbach). The eponymous hoard from Tréboul, dép. Finistère contained fragments from 2 palstaves, 12 flanged axes, 38 axe fragments, 19 spearheads, 58 sword fragments, and one pin.¹²¹ The fragments were found in a linen sack, which produced a radiocarbon date (Lyon 196: 3330+/-55, which is 1748–1497 calBC).¹²² A date for Tréboul in the 17th century BCE seems plausible and would let it overlap with

Sögel and Hajdúsámson blades.¹²³ The easternmost blade of this type was found in the Main River near Frankfurt-Höchst (Fig. 16).¹²⁴

At roughly the same time swords appeared in the Circum Alpine region. The *Griffplattenkurzschwerver* (sword with trapezoidal hilt plate) of the Sempach, Broc and related types can also be dated to the 16th century BCE. They have many characteristics that are common with solid hilted swords. This is also true for the Sögel sword blades, recently discussed in the context of the Nebra find.¹²⁵ The metal hilted sword of type “Le Cheylounet”, which is mainly distributed in southwestern France, can be dated slightly later to the 16th century BCE.¹²⁶ The *Griffplattenschwert* is

¹²⁰ Briard/Peuziat/Onnée. 1976.

¹²¹ Briard 1956; Briard/Bigot 1989.

¹²² Briard 1998.

¹²³ Bz A2/A3; Lagarde-Cardona 2012. There is still a contradiction between absolute chronology and relative chronological synchronism (Lagarde 2008, 44-46).

¹²⁴ Schauer 1972.

¹²⁵ Turk 2007.

¹²⁶ Daugas/Vuaillet 2009.

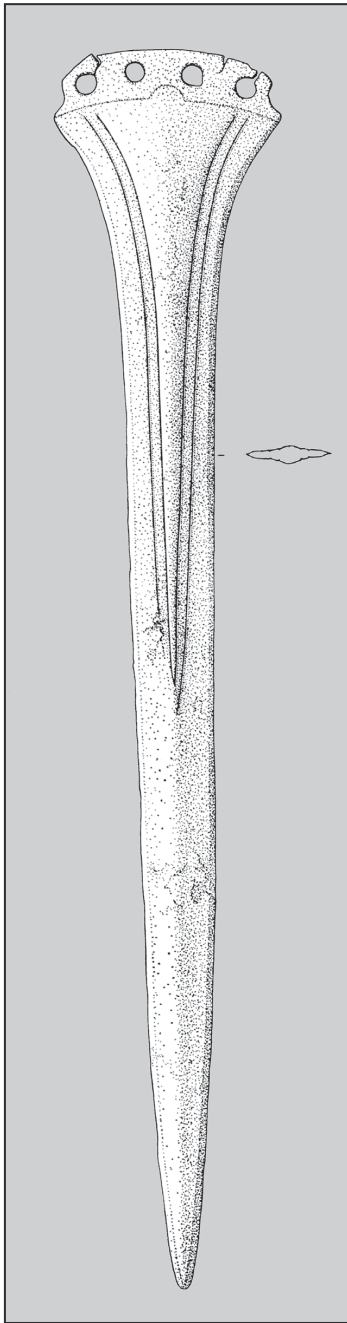


Fig. 16 Frankfurt-Höchst. Tréboul sword from the Main River (after Schauer 1972)

thus the dominant and widely distributed sword in the Middle Bronze Age Bz B (Lochham horizon), although the Boiu type swords with tongue and flanged hilt should be mentioned, too.¹²⁷ Further, the swords with a solid grip from Au, Cascina Ranza and Valsømagle are good examples of transregional connections in the production of weapons.

¹²⁷ Neumann 2009.

Spearheads in the second millennium BCE

In the Near East metal spearheads were constantly produced ever since the fourth millennium BCE. At the end of the third millennium BCE the socketed spearhead appeared and replaced the tanged spearhead.¹²⁸ The socket was open (or 'split') and hammered around the wooden shaft.¹²⁹ The earliest spearheads of this type are assigned to the Mycenaean period.¹³⁰ During the Middle Helladic time smaller spearheads with shaft shoe were in use.¹³¹

Around 2000 BCE the lancehead with cast socket was developed – according to find records – in the northern Carpathian Basin. Two examples were discovered in the cemetery of Hernádkak, northeastern Hungary: in graves 39 and 122.¹³² One spearhead was found still embedded in the left pelvis of the interred individual. The socket of the Hernádkak spearheads displays one perforation, from front to back, for the pin holding the clay core for the socket inside the lost-wax form in place. This thus indicates that the Hernádkak spearheads were made in the lost-wax casting method. Other finds from Hungary were discussed by Tibor Kovács.¹³³

This technical innovation was also known in Central Europe, as a spearhead recently found in the hillfort of Dobřežovice in southern Bohemia shows (Fig. 17,1).¹³⁴ The pottery collected thereby belongs to Bz A2. In addition to the spearhead, a socketed chisel and two socketed arrowheads were collected. Even though the metal objects had no clear context and were not associated with pottery, it seems plausible to date them to the Early Bronze Age (Bz A2), too. Comparable spearheads with a hole in the socket from front to back were found in Dětenice, okr. Jičín (Fig. 17,2).¹³⁵ Another find from Bohemia (Jince) can be added.¹³⁶ A spearhead with curved socket and vertical hole was part of a hoard found in Dyje (Milfron), okr.

¹²⁸ Gernez 2007; 2017.

¹²⁹ Gernez 2007; for technical details El Morr/Pernot 2010; El Morr/Mödlinger 2014.

¹³⁰ Höckmann 1980; Avila 1983.

¹³¹ Kilian Dirlmeier 1997, 24–27.

¹³² Schalk 1992, 143–149 Abb. 56,1.4; Grab 39: 130 Abb. 50,2. 331 Taf. 10.1; Grab 122: 130 Abb. 50,3. 363 Taf. 24,1. 31,1; other examples: Kovács 1975.

¹³³ Kovács 1975; see also Leshtakov 2015, 255–258.

¹³⁴ Chvojka/John/Šálková 2008.

¹³⁵ Hájek 1953, 206 Fig. 3. 9; Moucha 2005, 104 Pl. 152,10.

¹³⁶ Sicherl 2004, 183 Pl. 12,1.

Znojmo, which contained an axe and six ring bars.¹³⁷ A surprisingly high number of these early spearheads is known from the Central Balkans.¹³⁸

The chisel from Dobřejovice is comparable with an object from Bullendorf, B.H. Mistelbach in Lower Austria, which can be dated to Bz A2, and a chisel in the inhumation grave in Vedrovce-Zábrdovice in Moravia.¹³⁹ Oliver Dietrich has discussed this type of chisel as forerunner of the socketed axe.¹⁴⁰ One similar chisel was found together with an Apa type sword and an arm spiral in the cave near Rimetea, jud. Alba (Fig. 18). These long elaborate chisels probably belonged to the weaponry, too. This can also be assumed in the case of the chisels (*Knickrandmeißel*) in the hoards of Nebra, Central Germany,¹⁴¹ and Smedrov and Lužice in Bohemia.¹⁴² The long chisel in grave B75 from the Füzesabony cemetery of Tiszafüred-Majaroshalom was combined with a long dagger, a shafthole axe and a flanged axe.¹⁴³

It is not clear yet whether any connection existed between the contemporaneous spearheads of the Seima-Turbino metalwork complex in the Trans Urals and western Siberia.¹⁴⁴ This possibility was discussed recently with reference to socketed axes.¹⁴⁵ Namely, spearheads with either cast or hammered sockets are known in the Seima Turbino complex. Cast sockets also appear around the same date in the Sintashta culture of the Southern Urals.¹⁴⁶ The Borodino hoard in western Ukraine contains three socketed spearheads made of silver.¹⁴⁷

However, a new step in the production of spearheads was made by using bivalve moulds. The spearheads were perforated laterally below the blade, the hole for the pin used to stabilize the clay core for the socket. One could assume that this technical improvement made it possible to

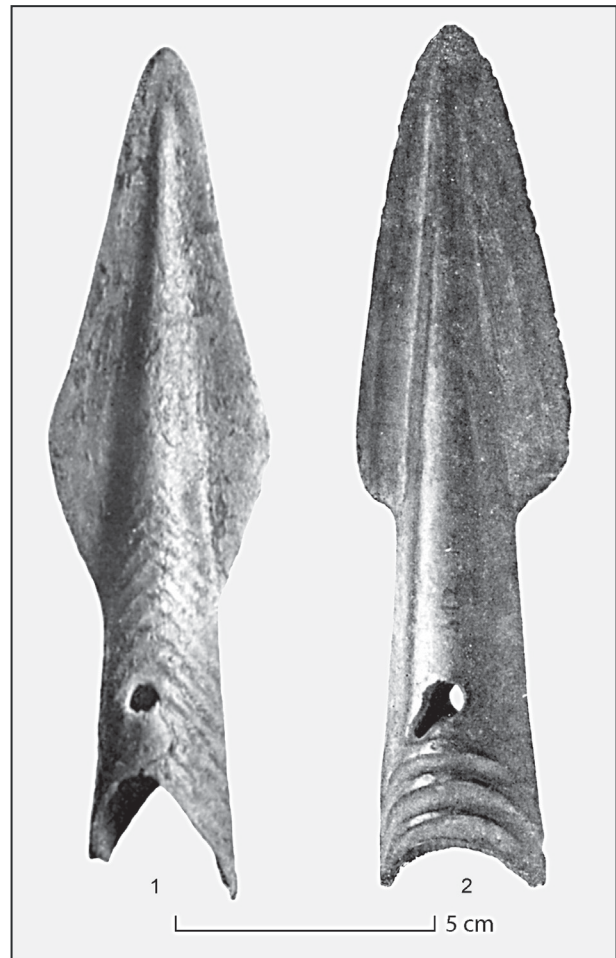


Fig. 17 Spearheads. 1 Dobřejovice, Southern Bohemia; 2 Dětenice, okr. Jičín (after Moucha 2005)

produce more items compared with the lost-wax casting method in the case of the Early Bronze Age pieces from the Carpathians. Spearheads are probably the most underestimated Bronze Age weapons. They are seldom the subject of studies, and in important regions no complete publications are available. Nonetheless, the enormous number of finds marks their importance. For example, some 703 spearheads have been published just from Lower Saxony,¹⁴⁸ more than 1000 spearheads are known from Switzerland.¹⁴⁹

If these finds are indicative of the earliest products, then spearheads were widespread in Europe since ever Bronze Age A2. They are spread from the Carpathian Basin to southern Scandinavia and from Brittany to Poland. There is in fact no region without any spearheads, as was claimed in the early 20th century.¹⁵⁰ However, the archaeological

¹³⁷ Hájek 1953, 206 Fig. 4,2; Říhový 1996, 25 Nr. 1 Taf. 1,1.

¹³⁸ Vasić 2015 Nr. 2. 24. 25. 113. 113A. 114. 115. 116. 117 with figures. The spearhead from Gamzigrad (No. 113) was found together with pottery of the Vatina- and Verbicoara group.

¹³⁹ Mayer 1977, 220 Taf. 119C (Bullendorf); Hájek 1953, 203 Fig. 1,1-3 (Vedrovce-Zábrdovice).

¹⁴⁰ Dietrich 2010 with distribution map (p. 130 Fig. 4).

¹⁴¹ Hansen 2010, 81 Fig. 3.

¹⁴² Čujanová-Jilková 1970; Hansen 2010, 82-83 Figs. 4-5.

¹⁴³ Kovács 1982, 293 Fig. 3.

¹⁴⁴ Chernykh 2008; Hanks/Epimakhov/Renfrew 2007.

¹⁴⁵ Dietrich 2015.

¹⁴⁶ Koryakova/Epimakhov 2007.

¹⁴⁷ Kaiser 1997.

¹⁴⁸ Laux 2012.

¹⁴⁹ Tarot 2000.

¹⁵⁰ Holste 1934, 53.

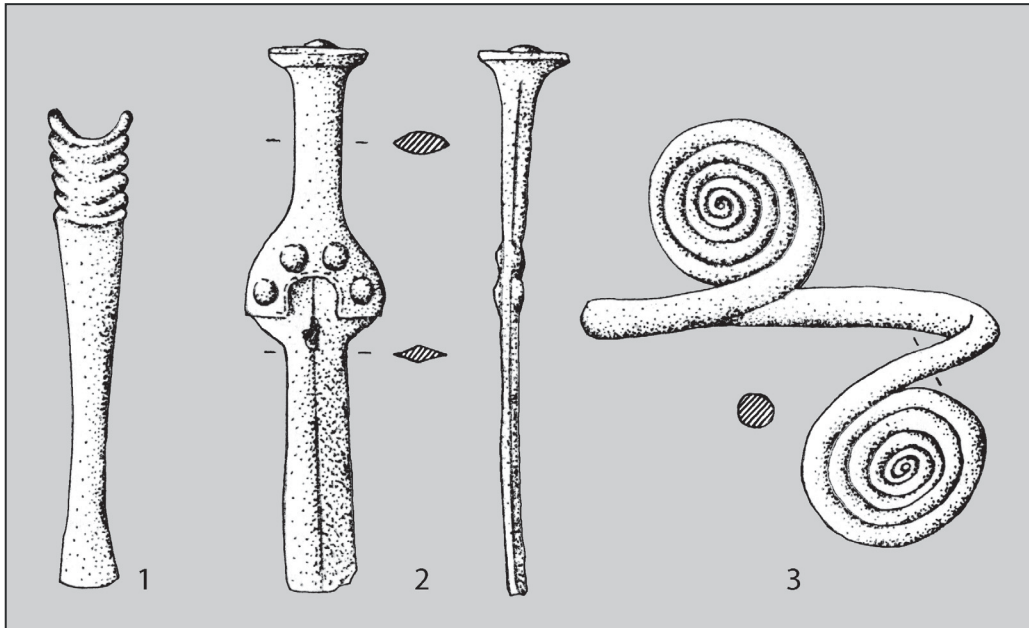


Fig. 18 Rimetea, jud. Alba, Hoard (after Petrescu-Dimbovita 1977)

evidence of spearheads depends upon regional customs in deposition. Because of this Early Bronze Age spearheads (Bz A2) are more numerous in Central and Northern Europe than in Southeast Europe. This picture changed dramatically in the Late Bronze Age (Bz D/Ha A).

Early Bronze Age spearheads are generally small and by shape quite uniform. Although they do not differ greatly in size and shape, they can nevertheless be distinguished typologically much better than otherwise thought.¹⁵¹ The remarkable point here is the “standardization” of the new weapon, whereby one would also expect a great variety of different attempts and solutions at the onset. Between 1700 and 1500 BCE the spearhead became part of the weaponry of Central Europe as well as in Scandinavia and at the Atlantic facade. Huge quantities must have been produced, as demonstrated by Danish depositions such as in Torsted with 40 spearheads.¹⁵² Remarkable is also the decoration of many of these early spearheads.¹⁵³ The same decoration allows supra-regional connections to be traced, e.g. the spearheads from Halle in Westfalen, Markbronn, Kr. Blaubeuren and Cascina Ranza near Milano.¹⁵⁴

In Central Europe spearheads with lateral holes became a component part of hoards in Bz A2.¹⁵⁵ Here the hoard from Nitriansky Hrádok in Slovakia with one spearhead and several axes should be mentioned.¹⁵⁶ Also in the hoard from Langquaid, Kr. Kelheim, one spearhead was combined with seven axes, nine pins and some other objects.¹⁵⁷ In Neuhof a. d. Zenn two axes and one spearhead were found.¹⁵⁸ Pure spearhead hoards, that is, hoards containing solely spearheads, are known from Saint Nic, Dép. Finistère (**Fig. 19**) with four spearheads,¹⁵⁹ Rederzhausen, Kr. Aichach-Friedberg with two spearheads,¹⁶⁰ and Ohlendorf, Kr. Harburg with five spearheads.¹⁶¹ Pure spearhead hoards are quite rare in later periods. In the next horizon spearheads were found in most of the hoards which can be assigned to this phase. In Forchheim Serlbach four spearheads were found together with 26 axes.¹⁶² Spearheads appear in the hoard of Bühl,¹⁶³ Ackenbach and Dunaújváros-Kosziderpádlas. A spearhead was recently retrieved from the Main River at Volk-

¹⁵¹ Hansen 1991, 27-54 Taf. 16-22.

¹⁵² Becker 1964.

¹⁵³ Jacob-Friesen 1967.

¹⁵⁴ Jacob-Friesen 1967 Taf. 18,1.5; 19,5-8.

¹⁵⁵ Cf. Brandherm 2004.

¹⁵⁶ Novotná 1970 Taf. 49B5.

¹⁵⁷ Menke 1978/79, 54 Fig. 31.

¹⁵⁸ Menke 1978/79, 139 Fig. 99; 289 Nr. 99 (perhaps even more spearheads).

¹⁵⁹ Briard/Peuziat/Onnée 1976, 23-25 Figs. 1-2.

¹⁶⁰ Menke 1978/79, 137 Fig. 98.

¹⁶¹ Laux 2012, 10 No. 1-5 Pl. 1,1-5.

¹⁶² Menke 1978/79, 116 Fig. 86.

¹⁶³ Menke 1978/79, 121 Fig. 90.

ach, only 750 m northeast of the Bronze Age fortification “Vogelsburg”.¹⁶⁴ The wooden shaft in the socket can be dated to the 15th century BCE. However, authors argue that the shaft was reused. The shape of the spearhead might be slightly older. Generally, bronze spearheads could have been used over a long period of time, since only the wooden shaft had to be replaced after a while.

In Western Europe as well the production of spearheads (type Tréboul) started at the latest at the beginning of the Middle Bronze Age in Brittany, which should be contemporaneous with Bz A2/A3.¹⁶⁵ Spearheads of this type are very characteristic. The socket already ends in the middle of the blade. The upper part of the blade is solid with a midrib. Namely, in most other types of spearheads, the socket ends only a few centimeters below the tip of the blade. In this case the wooden shaft would be nearly completely connected with the metal blade, which is the best technical solution. A solid connection between wooden shaft and metal point would be necessary in the case of fencing with lance and not just throwing it away. The technical solution of the Tréboul spearheads was in a functional aspect disputable for the fighter. For the caster it minimized the risk of an adjustment of the core and an insufficient flow of metal between core and mould. Further, the oval shape of the dabber below the blade shows that these metal workers had problems in adjusting the core. The technical skills limited the lengths of spearheads. Very long spearheads of 50 cm and more must be considered as masterpieces, and these were achieved only in the Late Bronze Age.

The technical problems of the metalworkers render spearheads typologically easy to distinguish and to date even single finds quite firmly. The center of their distribution is Brittany, where they were regularly a component part of hoards with fragments. These spearheads are also decorated with triangles and zigzags. Tréboul spearheads are much more widely distributed, whereas in other regions they are known only as single finds. An initial compilation of finds was offered on the occasion of the presentation of a Tréboul spearhead retrieved from the Rhine River at Mainz (Fig. 20,1).¹⁶⁶ The spearhead from Rùthen, Kr. Soest in Westfalia (Fig. 20,2) was found in a morass. This piece has

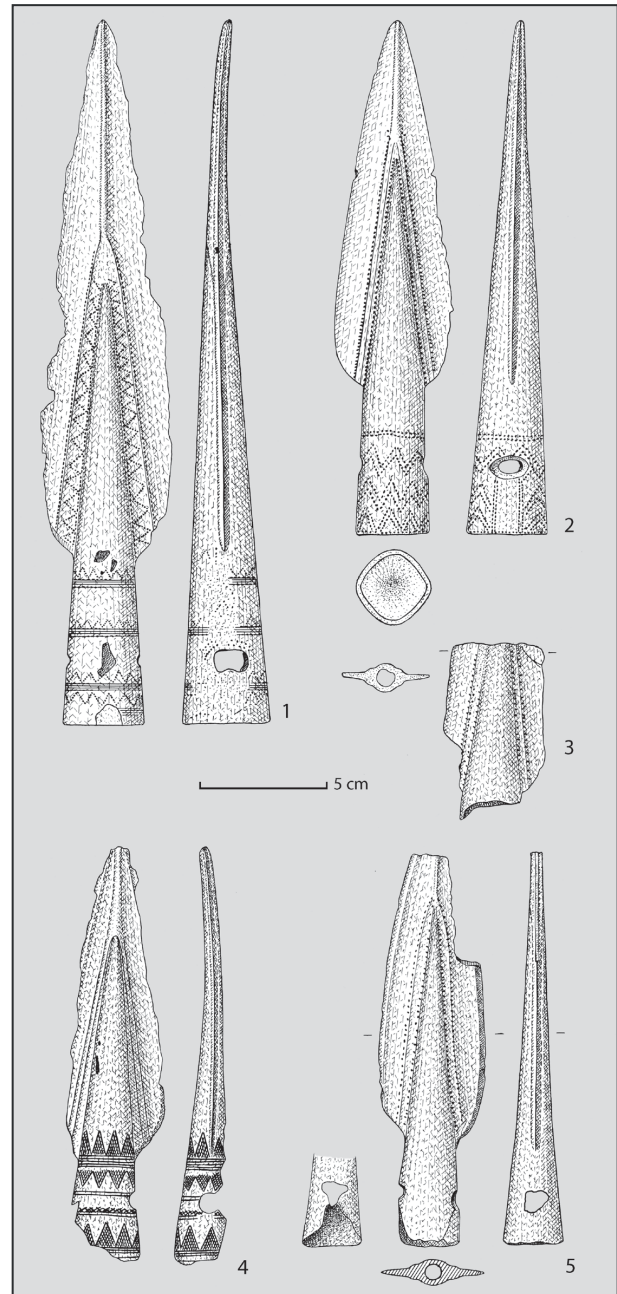


Fig. 19 Saint-Nic, La Chapelle Saint-Come, Dép. Finistère. Hoard (after Briard/Peuziat/Onnée 1976, 23-25 Figs. 1-2)

oval holes below the blade, which is often the case in Brittany. The finds from Westfalia were recently collected.¹⁶⁷ Tréboul spearheads from the Loire river valley and the Aquitaine were presented by Christophe Maitay, José Gomez de Soto and Muriel Mélien.¹⁶⁸

The spear was a multifunctional weapon. It was a weapon that could be thrown over larger distances. Most effective was to throw it into the back of flee-

¹⁶⁴ Falkenstein *et al.* 2017.

¹⁶⁵ Hansen 1990; Baales/Cichy/Schubert 2007.

¹⁶⁶ Hansen 1990.

¹⁶⁷ Cichy 2008; Bunnefeld 2012, 134 Nr. A13-A15.

¹⁶⁸ Maitay/Gomez de Soto/Mélien 2013.

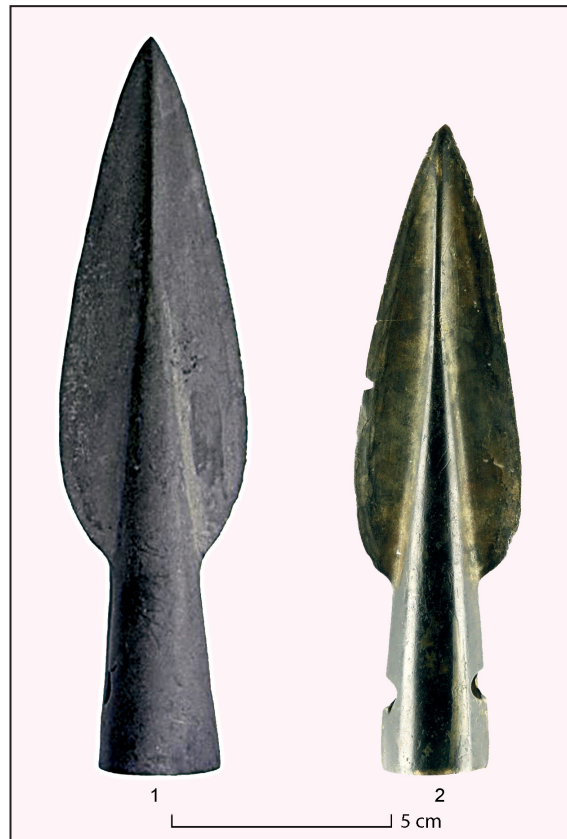


Fig. 20 Spearheads. 1 Rhine River at Mainz; 2 Rùthen, Kr. Soest in Westfalia (photo courtesy author; courtesy LWL, Außenstelle Olpe)

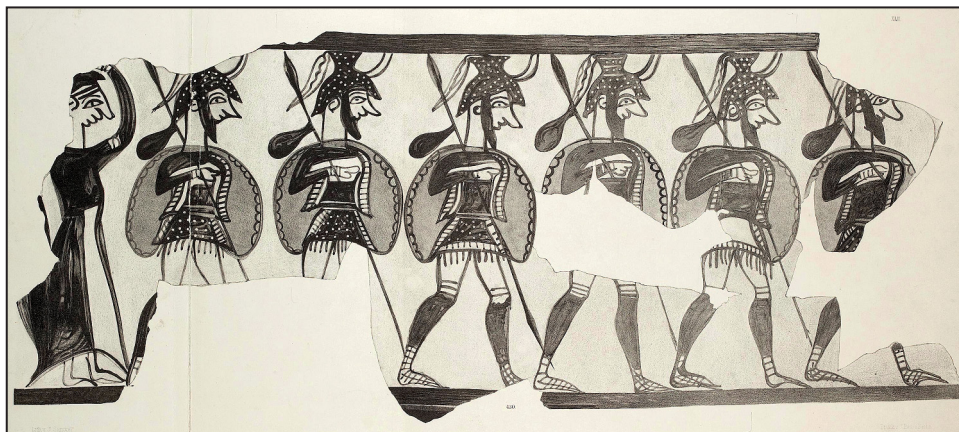


Fig. 21 Warrior vase from LH III C Mycenae showing a group of warriors (after Furtwängler/Loeschke 1886)

ing combatants.¹⁶⁹ Examples of Bronze Age victims of lances have been discussed by Marianne Mödlinger.¹⁷⁰ One could use the spear for fighting in a similar way as sword fighting. Especially the longer spearheads of the Late Bronze Age were used

in this manner.¹⁷¹ Finally, the so called warrior vase of LH III C Mycenae depicts a group of warriors (Fig. 21), each with one lance, which illustrates the idea of the lance as the weapon of the people.¹⁷²

¹⁶⁹ E.g. Ilias VIII, 85 ff.; Ilias XI, 485 ff. where Odysseus is throwing the spear in the back of Sokos.

¹⁷⁰ Mödlinger 2011.

¹⁷¹ Spearhead from the Rhine River at Mainz: 55 cm long and weighing 764 g: Hansen 1991 Taf. 6,1; Long spearheads from northern Germany and southern Scandinavia: Hansen 2013, 186-189 Fig. 12.

¹⁷² Furtwängler/Loeschke 1886.

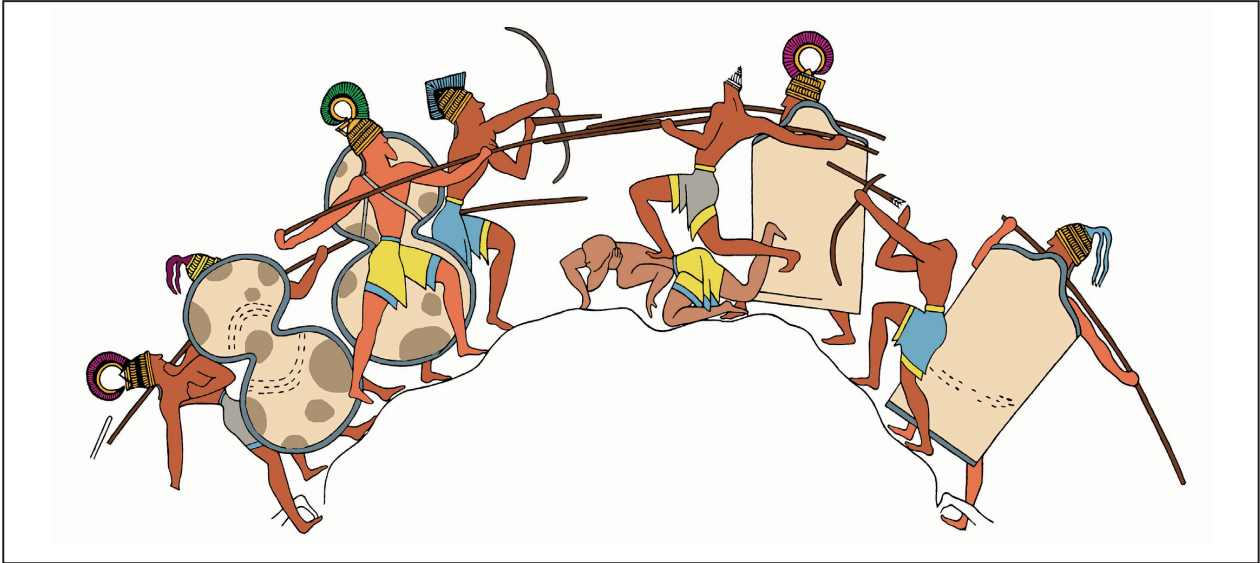


Fig. 22 Illustration of a combat after the drawing of a silver vessel from Mycenae (free illustration by A. Reuter after the original drawing by Sakellariou 1974)

Bow-and-arrow

In combination with the spear the sword replaced the axe, which did not play any remarkable role after 1500 BCE. Both were weapons for close combat. Armament of sword and lance was completed by the bow-and-arrow. More than 500 of the Armorican flint arrowheads have been found in a number of Early Bronze Age graves in Brittany (2150–1700 BCE).¹⁷³ The raw material is a high-quality, yellow translucent flint, which was brought from the Cher valley, over 400 km away. The arrowheads show a great mastery of retouch by pressure-flaking. They are extremely thin (up to 2.5 mm) and have very long barbs (up to 25 mm long). At the eastern end of Europe in the Southern Urals arrowheads were part of the grave goods of the Sinthashta culture.¹⁷⁴ Bifacially retouched flint arrowheads are also known from the younger graves of the Sögel sword type.¹⁷⁵ Also between MH II and LH II bifacially retouched arrowheads made of Melian obsidian belonged to the upper-class burials in Greece.¹⁷⁶

According to Bernhard Sichell socketed arrowheads made of bronze first appear in the transition from Early Bronze Age IV to Bz B1,¹⁷⁷ although Bronze Age A2 bronze arrowheads have recently been reported in southern Bohemia.¹⁷⁸ They were produced until the Early Iron Age, without any recognizable development in form. They can only be dated in graves, where they normally were deposited in small (symbolic) quantities. In Bronze Age hoards arrowheads are very uncommon. The Bronze Age battlefield of Tollense shows, however, the importance of the bow.¹⁷⁹ Also in the Heunischsburg a large variety of arrowheads is documented.¹⁸⁰

The bow was not only used for long distance fighting, but also in close combat, as is shown on a silver vessel found in shaft grave IV in Mycenae and which we present here in a colourful free illustration (Fig. 22).¹⁸¹ Depicted there are two groups of men, armed with lances and large shields, and fighting each other. Between them two archers are shooting their arrows. They are clearly positioned between the lance fighters and together with them serve as a kind of sniper.

¹⁷³ Nicolas/Guéret 2014.

¹⁷⁴ Genning 1979; Gening/Zdanovič/Gening 1992.

¹⁷⁵ Hansen 1994, 82-94 Fig. 94.

¹⁷⁶ Kilian-Dirlmeier 1995.

¹⁷⁷ Sichel 2004, 166.

¹⁷⁸ The Early Bronze Age arrowheads which are mentioned by Chvojka/John/Šálková (2008, 72) belong according to Stuchlík (2006, 211) to the Middle Bronze Age.

¹⁷⁹ Jantzen *et al.* 2011.

¹⁸⁰ Abels 2002.

¹⁸¹ Sakellariou 1974.

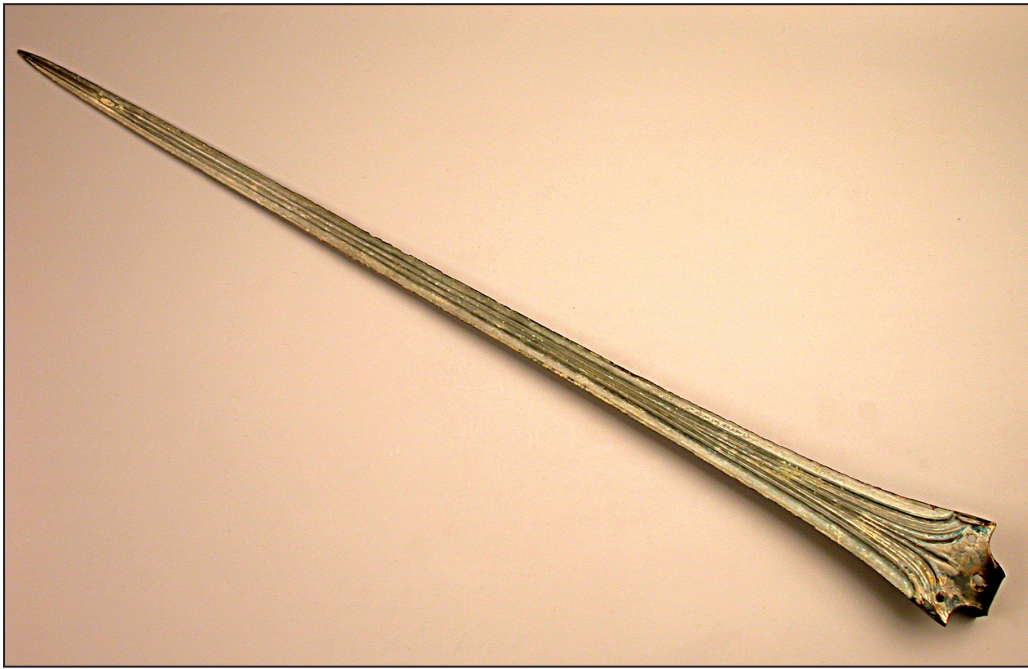


Fig. 23 Sword from Hattusha (after Ertekin/Ediz 1993)

New bodies, new mentalities

The rapid distribution of the new weapons must be seen in the light of power, violence and war with a number of consequences. The new weapons caused a new concept of the human body.¹⁸² The male body had to be trained to handle the weapons. The sheer number of spearheads (ca. 3 or 4 times more than swords) makes clear that many people were involved in warlike combats. Thus, the picture of the lone solitary sword bearer is out of date. Probably many more persons became involved in armed conflicts. It was a challenge to organize groups of men as warriors or even soldiers, who were not only trained for combat, but also who were willing to fight. In contrast to Treherne, who stressed the beauty of the warrior, I would emphasize the lack of empathy and some sort of unscrupulousness, which could have been an advantage for the Bronze Age warrior.

This is precisely what Max Horkheimer and Theodor W. Adorno had in mind, when they stated in the case of rulers in ancient Greece and in medieval feudalism, that the relationship to the body was coined by personal “*Schlagfertigkeit*” (‘wit’). In German this is a play on words, meaning quick responsiveness as well the ability to strike someone as a precondition of rulership.¹⁸³ The readi-

ness to fight at any moment for what they thought to be their right and their property with weapons probably required the development of a kind of *esprit de corps* between the young elite men and created the *life style* of the warrior.

The *esprit de corps* and other models of collective training were likely necessary in order to decrease the inhibition to kill. There is a dimension of brutal violence, which normally is never regarded in archaeological contexts. Violence, overlooked behind the typological order of the Bronze Age weaponry, has become a centre of research on conflict. Jan-Philipp Reemtsma differentiates several kinds of violence: *lozierende*, *raptive*, *autotelische Gewalt*.¹⁸⁴ Klaus Theweleit pinpoints that killing is never an abstract procedure nor is the learning of killing either.¹⁸⁵ It touches the body and the mind of the warrior. As Theodor W. Adorno and Max Horkheimer stated: “Der Mörder aber, der Totschläger, (...) die Lyncher und Klanmitglieder, (...), alle die Werwölfe, die im Dunkeln der Geschichte existieren und die Angst wachhalten, ohne die es keine Herrschaft gäbe: in ihnen ist die Haßliebe gegen den Körper kraß und unmittelbar, sie schänden was sie anrühren, die vernichten, was sie im Licht sehen (...).”¹⁸⁶ The body is not only beauty; it is a matter of love-hate.

¹⁸² Treherne 1995.

¹⁸³ Horkheimer/Adorno 1944, 247-248.

¹⁸⁴ Reemtsma 2008.

¹⁸⁵ Theweleit 2015.

¹⁸⁶ Horkheimer/Adorno 1944, 248.

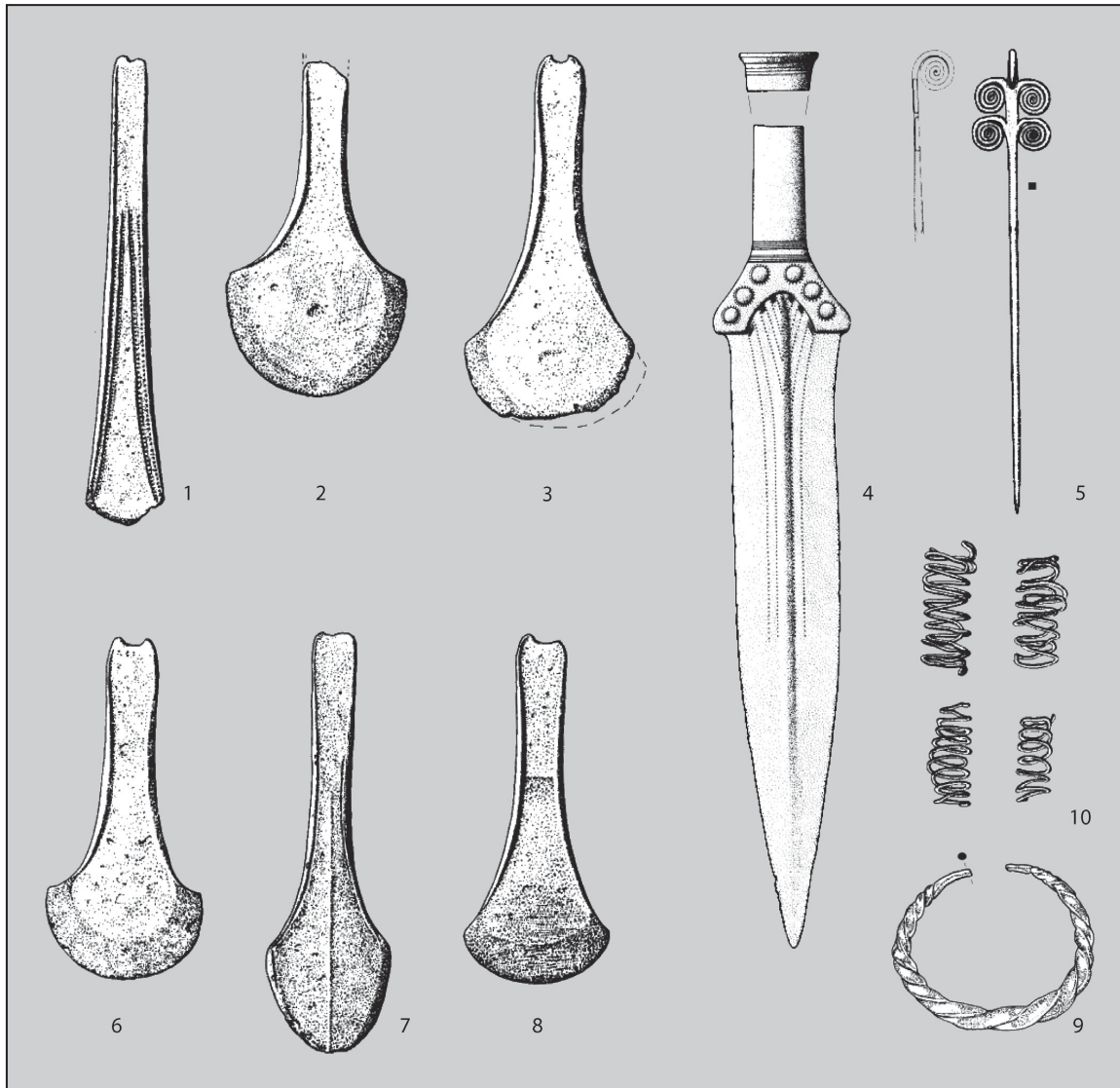


Fig. 24 Hoard from Trassem (after Hoffmann 2004, rearranged)

New rituals

The new weapons became important also in symbolic contexts and religious rituals, which holds true for the Bronze Age and for later periods until the Middle Ages.¹⁸⁷ In the last 20 years it has become evident that the preserved swords were mostly given as offerings to the spirits and the gods. In one case this is certain. Discovered in the vicinity of the Hittite capital Hattusha was a 79-cm long rapier with an inscription (Fig. 23), which read: “When king Tutlhalija destroyed the land of Assuwa, he offered these swords to the god of the weather, his lord.” The sword can be dated to 1420 BCE.¹⁸⁸

¹⁸⁷ Soroceanu 2011; Pearce 2013.

¹⁸⁸ Ertekin/Ediz 1993; Müller-Karpe 1994, 435-436.

Swords and spearheads as grave offerings are significantly fewer than the number of weapons in hoards and in rivers and lakes.¹⁸⁹ Their depositions were dependent upon several factors, such as the individual willingness to make a donation, on the economic potential, on regional practices and many other aspects. The custom of deposition was much older, reaching back to the fourth millennium BCE. Since that time dagger blades had been integrated in the value system of hoards.

The deposition of the early swords in Central and Western Europe is minted by “pure” hoards, in which solely swords were deposited.¹⁹⁰ We find them in southern France (Chusclan, dép. Gard),¹⁹¹

¹⁸⁹ Hansen 1991, 5-54 for the Late Bronze Age.

¹⁹⁰ Brandherm 2007.

¹⁹¹ Vital *et al.* 2014.

western France (Cissac in Medoc; Saint-Brandan in Bretagne¹⁹²), Denmark (Dystrup) and Germany (Gau-Bickelheim).¹⁹³ Another typical form of deposition was the combination of swords with highly prestigious objects in hoards, which Tilmann Vachta has called 'Prunkhorte' (parade hoards).¹⁹⁴ Here to mention are the hoards from Hajdúsámson, Apa, Nebra, Cascina Ranza or Trassem (Fig. 24).¹⁹⁵ They clearly show the great value of the sword.

Conclusion

The combination of hardware infrastructure (hillforts) and software (sword and spearhead, and bow-and-arrow in combination with horse-riding) is a strong indicator of warlike conflicts, probably over resources such as copper or salt. The hillforts are often located near copper resources, which were perhaps in use for only a short period until the ore sources were depleted. The find spot of one Hajdúsámson sword in northern Hesse was already set in a context with copper mining several years ago.¹⁹⁶ This connection should be investigated in detail in the near future.

The empirical data speak for a process, which was driven by larger political units rather than by small segmented societies. It was an organized process directed by those who controlled the metal, who controlled labour and economic activities in general and the weapons production in particular. The rapid militarisation of Central Europe was obviously not the teamwork of small-scale units or the result of the individual armament of an "egalitarian upper class with a consciousness of tradition".¹⁹⁷ The battlefield in the Tollense valley 400 years later provides for the first time empirical evidence that thousands of people could be mobilized in warlike conflicts.

Alltogether the "Bronzization" of Central Europe seems to have been compelled by military conflicts. Already V. Gordon Childe stated: "So the possession of costly bronze daggers, swords,

and rapiers consolidated the positions of war-chiefs and conquering aristocracies as did the knights' armour in the Middle Ages."¹⁹⁸ Globalization was as ever ambiguous. It opened chances and perspectives for one part of the population, whereas other parts were losing their material assurance. Globalization was never solely global connectivity, but also global conflict.

The spear and the sword were widely distributed throughout nearly the whole European continent during the 17th and early 16th century BCE. In certain regions, especially in the eastern Carpathian Basin, the axe remained an important weapon until the Late Bronze Age.¹⁹⁹ Because of the current chronological frame, in which we cannot date the finds precisely, it is impossible to make a valid estimation about the pace of the distribution of these two innovative weapons. It was probably a time span of less than 100 years. It seems necessary to mention that this picture is deduced from the metal depositions in hoards and graves. The real distribution of swords and spearheads may have already taken place earlier, but did not find access to deposition practices. Theoretically a phase of sword and spearhead production might have taken place earlier. The time period of the earliest weapons is precisely the time, during which the first hillforts were built in Central Europe. Even though we have to predate the given absolute datings by more radiocarbon datings, the parallelism of the armament with spearhead and sword within the first hillfort horizon seems valid.

Acknowledgements

The research on hillforts and weapons was made possible by the cluster of excellence "Prehistoric conflict research. Bronze Age hillforts between Taunus and Carpathian Mountains", which is sponsored by the government of Hesse.²⁰⁰ I especially wish to thank Eszter Bánffy for hosting the project in the Römisch-Germanische Kommission during the last four years. Heiner Schwarzberg I have to thank for the permission to use the pictures from Hofkirchen-Unterschöllnach and Michael Baales for his permission to use

¹⁹² Micault 1882; Trésors 1886 Tab. 13-14.

¹⁹³ Hachmann 1988.

¹⁹⁴ Vachta 2016, 48-49.

¹⁹⁵ Hajdúsámson, Apa, Nebra (Meller 2013), Cascina Ranza (Castelfranco 1888) or Trassem (Behrens 1916; Hoffmann 2004 Tab. 48).

¹⁹⁶ Hänsel 2000.

¹⁹⁷ Sperber 2005.

¹⁹⁸ Childe 1941, 133.

¹⁹⁹ E.g. Váczi 2015; east of the Carpathians: Klochko 1995.

²⁰⁰ See <https://www.uni-frankfurt.de/61564916/LOEWE-Schwerpunkt>.

the picture of the Rüethen spearhead. Franz Becker provided me with the maps from our LOEWE data base, Nils van der Straeten with maps from the Atlas of Innovations Data Base. Anke Reuter was responsible for the graphics. Emily Schalk proofread the English text.

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Svend Hansen, Hillforts and Weaponry in the Early and Middle Bronze Age

During the advanced Early Bronze Age two innovative weapons – the sword and the bronze lancehead – became widespread or were regionally produced in vast parts of Europe. The rapid dispersion of these new weapons implies the corresponding necessity for defence measures and the supply of raw materials, as well as the presence of metalworkers, who possessed technical know-how. The ability to handle a sword or a lance required in turn specific training, which was not limited to only a few persons. The appearance of these weapons occurred around the same time as the construction of fortified settlements in elevated locations in Central Europe.

Svend Hansen, Burgen und Bewaffnung in der frühen und mittleren Bronzezeit

In der entwickelten Frühbronzezeit wurden zwei innovative Waffen, das Schwert und die bronzene Lanzenspitze, über weite Teile Europas verbreitet bzw. regional gefertigt. Die rasche Verbreitung der neuen Waffen setzte einen Bedarf und eine entsprechende Rohstoffversorgung sowie die technischen Fertigkeiten der Metallhandwerker voraus. Die Verwendung von Schwertern und Lanzen erforderte wiederum ein Maß an Training, das nicht nur auf Wenige beschränkt war. Zur gleichen Zeit setzt in Mitteleuropa auch der Bau von befestigten Höhensiedlungen ein.