

Trade before Civilization
Long Distance Exchange and the Rise of Social Complexity

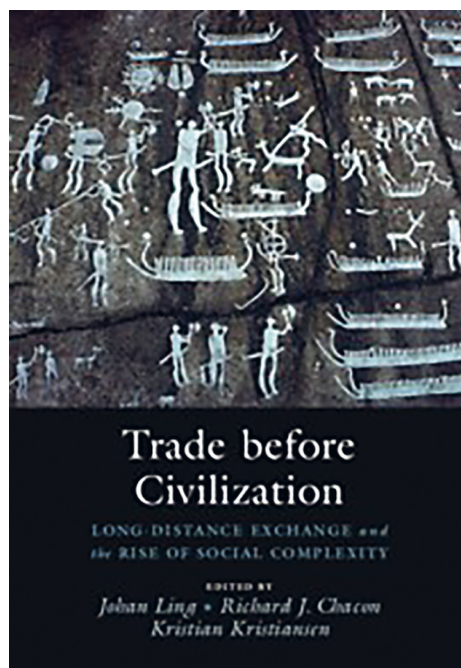
Rüdiger Krause

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Rüdiger Krause

Introduction and Line of Inquiry

In the culture history of ancient Europe questions pertaining to its diverse relationships to advanced civilisations in the Mediterranean sphere look back upon a long tradition. Varyingly different single finds and groups of finds have repeatedly provided the prospect and scope for investigating the character and extent of contacts and influences as well as the consequences for cultural developments north of the Alps. In discussions on the genesis and significance of the Bronze Age in central and northern Europe, the perceived linkages between the eastern Mediterranean and the Carpathian Basin and via the Danube River as far as areas north of the Alps have played an important role. Without question, the Danube River represented a crucial axis of communication ever since the Neolithic period and in following times. Recent interdisciplinary studies, however, have broadened the scope and shown that further important communication routes existed along the Ionian-Adriatic Sea to Upper Italy and beyond the Alps, and via the Rhône valley and the West Alps to the North. Thereby, impulses of varying economic nature could be discerned, which were consequential for many aspects of the cultural development of the Early and Middle Bronze Age in Central Europe.

In the history of research on the Bronze Age in Europe, studies concerning connections between “advanced civilisations” of the Mediterranean and the populations of central and northern Europe have held a prominent place, for they have been indispensable for the temporal assignment of cultural groups of the Bronze Age as well as for the construction of a sound absolute chronology. Sophus Müller and Oscar Montelius recognised the significance of these relationships for the Nordic Bronze Age, and, hence, already at the end of the 19th century pursued this thematic area with great attention (Müller 1897/1898; Montelius 1899; see Schauer 1985, 125–126). These scholars postulated ancient Italy, on the one hand, and the Mycenaean sphere in the Aegean, on the other, as the agents of important impulses for developments, whose effects reached until the Nordic Bronze Age. Paul Reinecke, too, was concerned with these questions of trade relations and as early as 1911 with regard the blue and green glass beads found in graves of the Nordic Bronze Age, period II. This question of trade relations came into focus again only later in 2015 and included scientific analyses (Varberg et al. 2015). Despite the lack of such analyses at his time, Reinecke proposed that the glass beads were Egyptian productions, and that they arrived in northern Europe via trade routes of the Cretan-Mycenaean cultural sphere (Reinecke 1911).

The topic of exchange relations between the Bronze Age North and the eastern Mediterranean was taken up in the 20th century by numerous scholars in northern and central Europe within their respective disciplines. Thereby, the genesis and derivation of double axes, axes with a semi-circular cutting edge, shaft-hole axes, hilted or spike-grip swords, and bronze vessels were the topic of countless studies. One exemplary work is Rolf Hachmann’s study in 1957 on the early Bronze Age in the Baltic Sea area and the connections from there with central and southeastern Europe (Hachmann 1957a). In particular, he drew the chronology of the Shaft Graves in Mycenae into association with the North.

This comprehensive discussion and history of research were pursued again in 1985 by Peter Schauer in an encapsulating work. He examined the “traces of Oriental and Aegean influences on the Nordic cultural sphere”

and systematically compiled the numerous groups of finds with southeastern roots, so as to present them in an explicit distribution map (Schauer 1985). Thus, Schauer could write in a brief yet concise résumé that “the Nordic sphere rapidly adopted the offered impulses and modified the foreign influences to suit their own wishes” (Schauer 1985, 195). One outstanding example of this adoption is surely the 18 collapsible or folding stools of Nordic period II, which Karl Kersten maintained were produced in the North according to eastern Mediterranean or Egyptian prototypes, an opinion that is still accepted today in theoretical archaeological research (Kersten 1936, 92; Schauer 1985, 158 ff.; Fabian 2009).

The case of the presence of blue and green glass beads found in graves of the Nordic Bronze Age in Denmark differs: their origin in Mesopotamia and Egypt is supported by scientific analysis of 20 beads, according to which they arrived in the North indeed as finished products or as necklaces (Varberg et al. 2015). Further direct imports from the Mycenaean cultural sphere are exemplified by two small Mycenaean votive pendants in the form of a double axe and made of bronze (Fig. 1). The artefacts were discovered together with a biconical amber bead in the tree-coffin grave of a male, dated to Period II, in Kirke Værløse near Copenhagen, Denmark (Randsborg 1967; Schauer 1985, 162 fig. 36). Another import from the Mycenaean sphere in northern Germany – more or less on the southern periphery of the extent of the Nordic Bronze Age – is the Mycenaean bronze cup, an occasional find without context near Dohnsen, co. Celle, in 1955 (Sprockhoff 1961, 11 ff.; Matthäus 1980, 226 no. 344). Relatively new in the discussion are by contrast Nordic razors with handle, dated to periods II and III. According to Flemming Kaul their prototypes are in the Mycenaean culture, and in view of this group of artefacts he deduces close trade and economic connections (Kaul 2013).



Fig. 1. Kirke Værløse, Denmark. Two small Mycenaean double-axe pendants with an amber bead, from a grave of the Nordic Bronze Age. Without scale. Photo: National Museum Copenhagen.

Present state of the art

Today we have achieved a stage of knowledge, which enables us to distinguish the multi-faceted contacts and influences between the central European Early and Middle Bronze Age and various regions in the eastern Mediterranean that occurred since the end of the 3rd millennium BC. Thereby, the question as to direct contacts with Mycenae and, moreover, their influence in Central Europe are still a controversial topic.

The question concerning the political and economic systems behind these contacts is far less a subject of discussion. As an exception, in his studies on culture change in the Aegean-Greece during the 3rd millennium BC, Joseph Maran could distinguish two areas of interaction in the eastern Mediterranean during the phases Early Helladic 1–3: the area of the Aegean-Asia Minor and the Ionian-Adriatic area (Maran 1998, Pl. 71A). In the course of the 3rd millennium BC, specifically as of 2500 BC, these areas are characterised by the development of a mosaic of many small trading networks and large settlements in advantageous locations, in the sense of trading centres. Of special significance with regard to the development of the Early Bronze Age north of the Alps are Maran’s observations, that a shift in power occurred in the Adriatic-Ionian area as of 2200 BC, that is, at the transition from phase Early Helladic II (Maran 1998, 443 ff.). A very active engagement in trade and exchange developed in the course of this change, and Maran assumes that by the end of the 3rd millennium BC the trade relations had expanded considerably (Maran 1998, 445 f.).

In the area of central European, Early Bronze Age groups, an increasing influence from the Southeast, from the Carpathian Basin as far as the eastern Mediterranean, are visible as of ca. 2000 BC. This concerns the transfer of objects as well as ideas and technologies, which were adopted in different ways or modified. To name here as an explicit example are the four Atlantic daggers from the Early Bronze Age cemetery in Singen (southern Germany), which represent an early link with the Early Bronze Age Armorico-British domain in the West, and particularly with the tin-ore deposits in Cornwall (Krause 1988, 56 ff., Fig. 18-21).

Influences from the eastern Mediterranean during the Early and Middle Bronze Age in Central Europe were not restricted to single, sporadic artefactual objects or spiritual religious concepts. Indeed, they caused a stimulus, in particular, on technical advancements in metallurgy. Testimony to this is the appearance of complicated techniques in casting, such as casting with bivalve moulds, techniques that were already known in Anatolia since the middle of the 4th millennium BC. In the Carpathian Basin they are substantiated by the production of shaft-hole axes in bivalve moulds during the 1st half of the 3rd millennium BC, during a new cultural florescence in the Balkans. This advancement is further demonstrated in the prime of bronze metallurgy of the Early Bronze Age Únětice culture in central Germany around 2000 BC (Krause 2003, 243 ff., fig. 240). Yet, what were the circumstances and the socio-political conditions through which these technical achievements came to reach Central Europe?

In expounding upon this theme, first some representative objects and outstanding artefacts should be pointed out here, which should throw light upon the religious, social and political situations at that time and can be considered explicit examples of interconnections and transfer of technical know-how.

The hoard of the Únětice culture, Melz II, found in Mecklenburg-Vorpommern, contained – among others – a Danubian crested shaft-hole axe (Nackenkammaxe), which was mounted in the manner of a halberd on a metal shaft (Schoknecht 1972). The axe stems from the Carpathian Basin and, thus, represents an import in the northern Únětice groups. The context is indeed noteworthy in that the shaft-hole axe was affixed according to the local manner: like a halberd, and treated as such in its meaning and function (Schoknecht 1972). The well-known Únětice hoard from Kyhna in Saxony (Coblentz 1986), one of the oldest central German series of hoards, lay in a vessel together with artefacts of copper as well as amber beads. One remarkable artefact thereby is a somewhat thick blade with two vertically parallel slits on the body and a wide out-curving base. These features link it with blades or spearheads of the Cyclades islands. The Kyhna blade, however, was locally made of a copper that is typical for the Únětice culture. Unlike the slender, elegant Cycladic blades, the Kyhna example has a stout form and obviously imitated Cycladic blades (Krause 2003, 247, fig. 225).

A further category of objects is likewise representative of the transfer of technology, which was convincingly presented by Stefan Schwenzer in a revised work with new arguments on Early Bronze Age solid hilted daggers (Schwenzer 2004). He understands these daggers as a special technical and cultural phenomenon. Namely, within their broad distribution area from southern France and middle Italy as far as southern Scandinavia, Schwenzer could discern different types and their particular distribution on hand of formal and technical analysis (Schwenzer 2004, fig. 4). Here to note exemplarily is the range of daggers of the Rhône type with a west Alpine distribution, and the scope of the Baltic-Padan type, which extends from upper Italy to the confluence of the Oder River in the Baltic Sea (Schwenzer 2004, fig. 39). A crucial technical innovation thereby lay in the use of the bivalve mould with clay core and core holders. Also of importance are Schwenzer's observations about technical casting groups, which show that the technique of clay-core casting to produce one or two-part dagger handles as in Upper Italy and the western Alps reached the North through daggers of the Baltic-Padan type (Fig. 2).

The idea of the solid hilted dagger as well as the innovation casting with a clay core and holders can be traced to the eastern Mediterranean, and the above observations enable its path to be followed via Italy to the North to groups of the Únětice culture at the turn of the 3rd to 2nd millennium BC. Its further significance lay in the wide use and development of new casting techniques, which led to the flourish of Únětice bronze metallurgy.

These few but elucidative examples of the Early Bronze Age should illustrate how multifaceted and diverse the character of the various influences transmitted through contacts and linkages was during the first half of the 2nd millennium BC. During the second half of the 2nd millennium BC contacts and exchange relationships intensified between the Bronze Age in areas north of the Mediterranean and those in the eastern Mediterranean, foremost the Mycenaean realm, which acted as mediator to regions farther east in the Near east and Egypt.

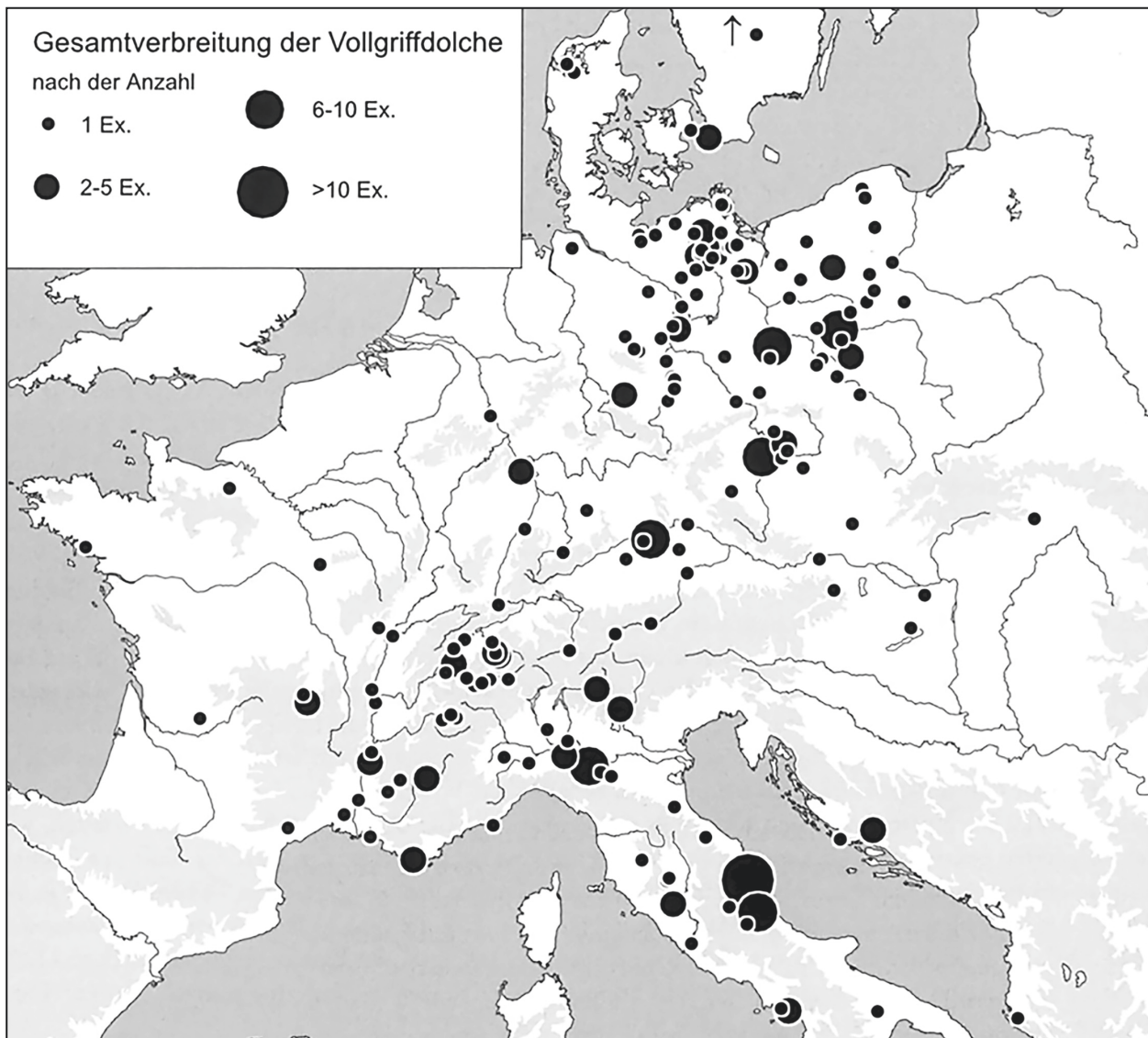


Fig. 2. Distribution map of Early Bronze Age solid hilted daggers. Map: Schwenzer 2004, Abb. 4.

These examples now lead to the focal question of the Gothenburg conference: investigations on aspects of the social, political and religious economies in the varied populaces of that time

- coincidences, convergences or a 'mutualism' of ideas,
- need – procurement – production – distribution and supply – and the organisation behind these steps/stages/aspects.

Copper ore resources and amber

From the perspective of the central European Bronze Age, the wealth in Baltic amber found in graves of the Middle Bronze Age Tumulus Grave culture (*Hügelgräberkultur*) in southern Germany was evidently associated with the great demand for copper in the Nordic Bronze Age.

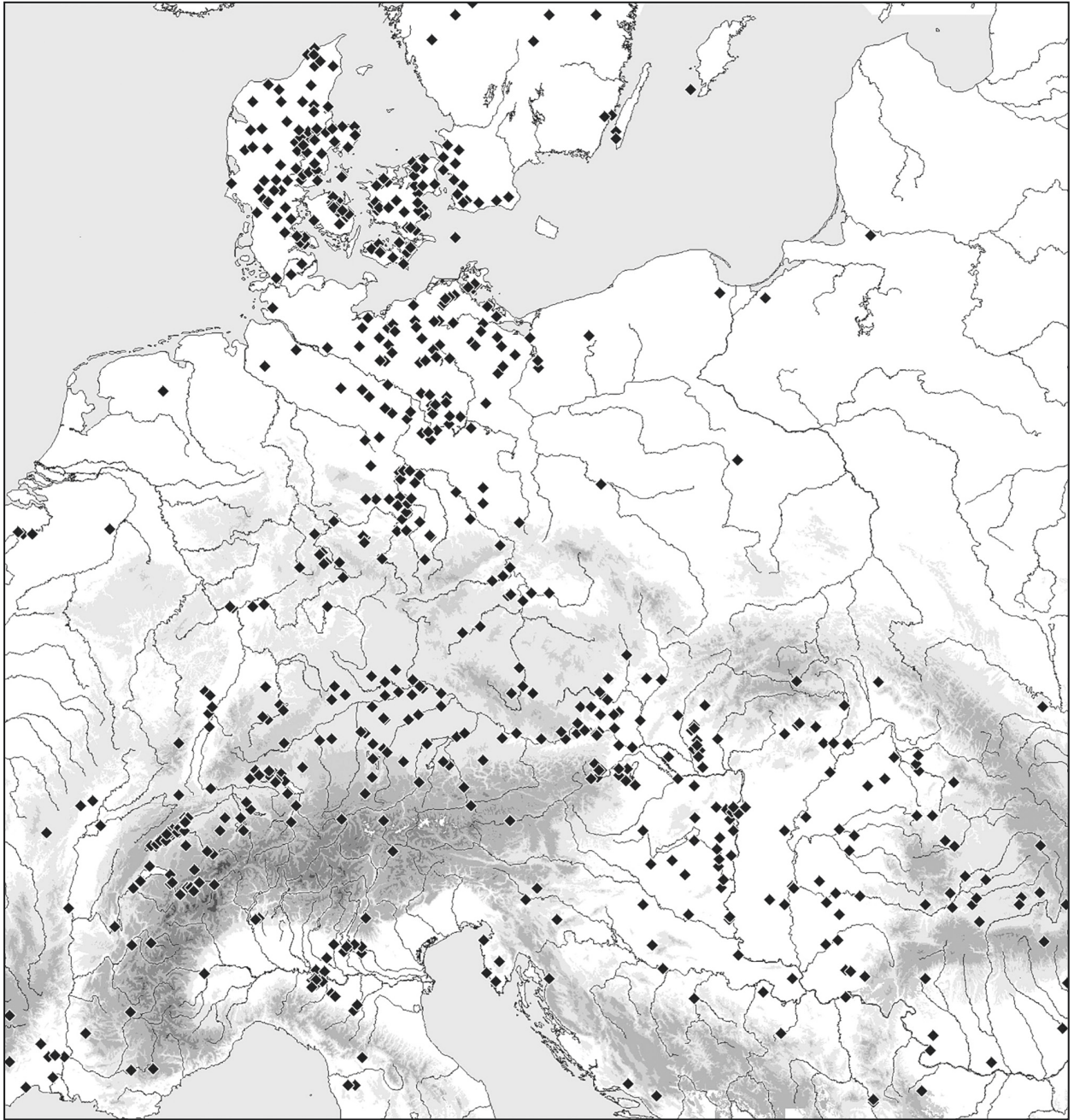


Fig. 3. Distribution of so called East Alpine copper in all artefacts, from the Stuttgart databank (see Krause 2003, 27 ff.).
Map: Krause 2003, Fig. 138.

As copper ores that could have been exploited during the Bronze Age do not occur in southern Scandinavia, large amounts of copper must have been imported into that area ever since the 17th century BC, periods I to IV, for several centuries' time. The origins and flow of imports changed through time; current research by a group of Scandinavian colleagues around Johan Ling has opened new viewpoints and possibilities for determining the origins of the metal import (Ling/Stos-Gale 2015). One important resource area was copper-ore occurrence on both sides of the Danube River in the eastern and southern Alps and the Slovakian Ore Mountains. There the typifying kind of copper ore of the younger Early Bronze Age and Middle Bronze Age is the so-called east Alpine or *Fablerz* copper in all of its variations, whose artefactual distribution can be traced in large amounts as far as

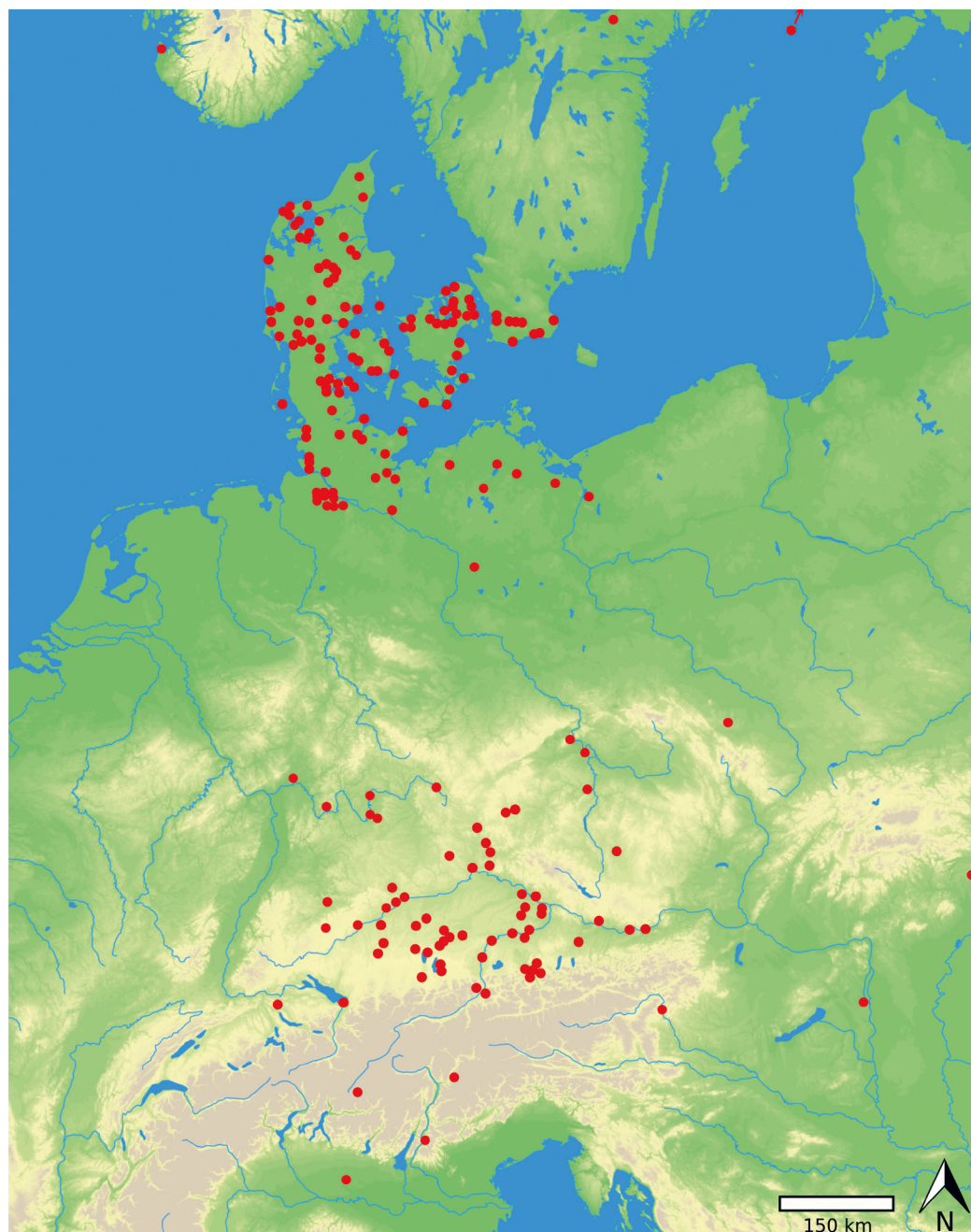


Fig. 4. Distribution of the octagonal hilted sword of the Middle-Bronze-Age South German type. After v. Quillfeldt 1995, Pl, 122, with modifications. Map: D. Knoll, Goethe University, Frankfurt/Main.

Denmark and southern Sweden (Krause 2003, 166 ff. fig. 136–138). Apparently, the course of material transfer to the North went via southern Germany (Fig. 3).

The picture of the exchange and transport of artefacts and metal between North and South becomes even more distinct when viewing the distribution of Middle Bronze Age solid hilted swords with decorated octagonal grip, whose origin is southern Bavaria (v. Quillfeldt 1995, 51 ff., Pl. 112 ff.). By traversing the Central German Uplands these artefacts arrived as imports in the Nordic Bronze Age in periods II/III, 15th/14th century BC. There they were re-melted and cast in new forms. Yet, a large gap is noticeable in the distribution map of the octagonal-grip swords (Fig. 4) between southern Germany and southern Scandinavia, the reasons for which are

yet unsolved. There are many possibilities, indeed, some perhaps due to diversities among the different cultural environments. The basis for and forms of which the varied economic exchange system between North and South might have functioned cannot be clearly and conclusively explained. Nonetheless, when observing the distribution of Tumulus Grave Culture groups in southern Germany (Wels-Weyrauch 1989, fig. 1), in specific the geographic location of the Fulda-Werra group along the Rhine-Main rivers, it comes to mind that this Tumulus Grave group might have had a mediating function for groups settled farther north, for example, the Lüneburg group on the southern periphery of the Nordic Bronze Age.

Baltic Amber from the North for the South

With the exception of tin-ore from southern England, until now the question of the character of this particular exchange system has not been addressed here, nor has the question as to what aspects of the North might have been of interest to the South, and to what extent.

Aside from different agricultural goods, among which wool and textiles surely played an important role (frei et al. 2017), so-called Baltic amber from the Baltic seacoast, especially southern Sweden (Simris) as well as the coast of Mecklenburg-Vorpommern and far into the Baltic area, was a much sought-after commodity. Amber from the cultural sphere of the Nordic Bronze Age increasingly reached the South, foremost as of the 17th/16th century BC and during periods I/II. Indeed, it was an attractive material, whose value and importance evidently corresponded exponentially with the increased distance from its origin. This was likely the case of trading based upon the pragmatic premise of the exchange of copper for amber (and other goods), even though the number of documented amber finds may seem comparatively low. Nonetheless, it can be assumed that the amount of easily transportable amber was originally far greater.

During the Early Bronze Age in Central Europe the frequency of amber in graves and hoards was still modest, whereas during the Middle Bronze Age its occurrence and spatial distribution multiplied greatly, and the distribution routes changed as well (Stahl 2006). Consequently, the region of the Alps apparently became increasingly significant as a transfer zone, as indicated by diverse sites there of amber finds. This is testified by amber spacers found in the Bronze Age hillfort of Kadel near Koblach in the Alpine Rhine river valley (Fetz 1998, pl. 2,2): Perhaps they were components of the amber necklace found in a hoard in the Bronze Age settlement on Padnal Hill in Graubünden, in the inner Alpine settlement chamber of Savognin (Rageth 1976, 173 fig. 41), and further comparable find sites on the perimeter of the southern Alps, as in Trentino (Bellintani 1997; Bellintani 2002).

Still to mention for the Late Bronze Age are 51 amber beads from a hoard found in Montlingerberg near St. Gallen in the Swiss Alpine Rhine valley (Steinhauser/Primas 1987, 204 fig. 1), and the amber beads from the Finail pit in the Schnals Valley, southern Tirol (Putzer 2012). Likewise evidence for trans-alpine exchange system are amber spacers with simple perforation, found in the Etsch Valley in southern Tirol (Bellintani 2002, fig. 2 and 3, 40). South of the Alps, in the lower course of the Po River, a workshop that finished amber beads was discovered in the large Late Bronze Age settlement of Frattesina (Bellintani 1997). Direct Mycenaean influence becomes tangible for the 12th/11th century BC in the imported ceramic daily ware found in the 16-hectare large Late Bronze Age settlement of Fondo Paviani in the Po plain (Cupito 2011).

Now, when directing our attention to the necklaces or colliers of amber, with spacers with simple or complex perforation, a conspicuous distribution appears in the southern German Tumulus Grave Culture between the Alps and the Main River (Fig. 5), and also in the late Wessex culture in southern England, as well as in the Mycenaean Shaft Graves and other find spots on the Peloponnese (Hachmann 1957b; Maran 2004). Grave Circle A in Mycenae, from the time after 1550 BC, yielded alone at least 1650 amber beads and spacers, either disengaged or still in order. They underscore the association of amber with persons of high ranking, also designated 'warrior princes' or 'war lords', who were interred in the Shaft Graves in the 17th/15th centuries BC (Maran 2004, 48 ff.).

It has been statistically noted that the value and the significance of amber increased even more, the farther it reached in the eastern Mediterranean. The sensational shipwreck find, a merchant vessel that sank near Uluburun on the southern coast of Turkey at the end of the 14th century BC (Uluburun 2005), clearly demonstrates



Fig. 5. The magnificent amber collier from a Middle Bronze Age hoard found in Ingolstadt on the Danube River.
Photo: Stadtmuseum Ingolstadt.

the proportionate relationship of the varied cargo from diverse origins as compared to the value of amber. Besides large amounts of copper in the form of 'keftiu' or oxhide ingots (10 tons), tin ingots (1 ton), 175 (raw) glass ingots (c. 350 kg) and other goods were thousands of beads made of different materials, there amongst at least 41 amber beads, six of which were perforated but not yet finished (Uluburun 2005, 82, Fig. 35). The glass ingots display great similarity with glass finds of the 18th dynasty of Egypt. Noteworthy in this association are countless Egyptian finds such as gold plated figurines /statues of Egyptian goddess and a gold scarab inscribed with the name of Nefertiti, from the 14th century BC (Uluburun 2005, 66 f., Fig. 19; Fig. 39). The diversity and quality of the luxurious goods allow the interpretation that the ship's cargo was destined for royal houses and comprised different trade articles, raw materials and finished products. The presence of Mycenaean weapons could be indicative of high-ranking persons on the ship, who might have been officials of a Mycenaean king and kept guard over the valuable luxury cargo.

Farther to the East amber is found only as a few exceptional artefacts in Syrian-Levantine kingdoms on the Levantine coast, but exclusively in the context of palaces and noble residences, for example, in Byblos (Pfälzner/Roßberger 2009, 213 ff.). Extraordinary products made of amber include the 6-cm large lion head and other amber beads, and the more than 50 amber beads found in the royal graves in Qatna, of the 14th century BC. The last were discovered only in 2002 underneath the palace and form the most comprehensive complex of amber found in the Near East (Schätze des Alten Syriens, 2009).

The lion head was locally produced out of a large imported piece of raw amber. The special exclusivity of this material underscores its association with the highest elites in society. This exceptionality reaches a peak in the presence of amber in pharaonic Egypt, in the grave of the Tutanchamun (d. 1323 BC) in the Valley of the Kings in Thebes West. In an antechamber of the main grave chamber, a necklace composed of 60 biconical amber beads was found (Fig. 6), lying in a magnificently ornate chest that belonged to the funerary treasures of the deceased pharaoh.¹ The necklace represents the most southeastern find spot of amber bead necklaces in the eastern Mediterranean until now. No analyses have been undertaken on the beads, so the provenience of the amber is unclear.

Luxury goods of diverse origins found in ship wrecks or in palaces and residences allow the conclusion that trade in the eastern Mediterranean during those centuries' time was indeed efficiently structured and well organised, and conducted in the form of trading in stages within a globalised network in the eastern Mediterranean (Fig. 7) (Uluburun 2005, 20 ff.; Pfälzner/Roßberger 2009). Commodities and objects as well as special gifts between elites were transported via several stations and disseminated through contact places in different cultural regions. Thereby, the Mycenaean I realm surely played a crucial role in the expanse of amber.

Political and religious economy

The gold and amber found on the Bernstorf Hill

Let us return to north of the Alps in southern Germany. There we encounter two spectacular complexes of finds, which were discovered between 1998 and 2000 in the remains of a large fortress of the middle Bronze Age, on Bernstorf Hill near the community of Kranzberg in upper Bavaria, north of Munich. The fortress lies south of the Danube River in the Bavarian tertiary uplands, high above the Amper Valley on a mountain spur. Today larger parts of the site have been destroyed through the exploitation for sand and gravel. Nevertheless, it



Fig. 6. Necklace composed of 60 red amber beads, from the tomb of Tutanchamun, mid 14th century BC. Photo: Harry Burton, Griffith Institute Oxford.

¹ See online-archive Howard Carter, The Griffith Institute Tutankhamun <<http://www.griffith.ox.ac.uk/>> (accessed on 13 August 2016): Anatomy of an Excavation. The Howard Carter Archives. Carter No.: 021dd, Burton photograph: p0240.

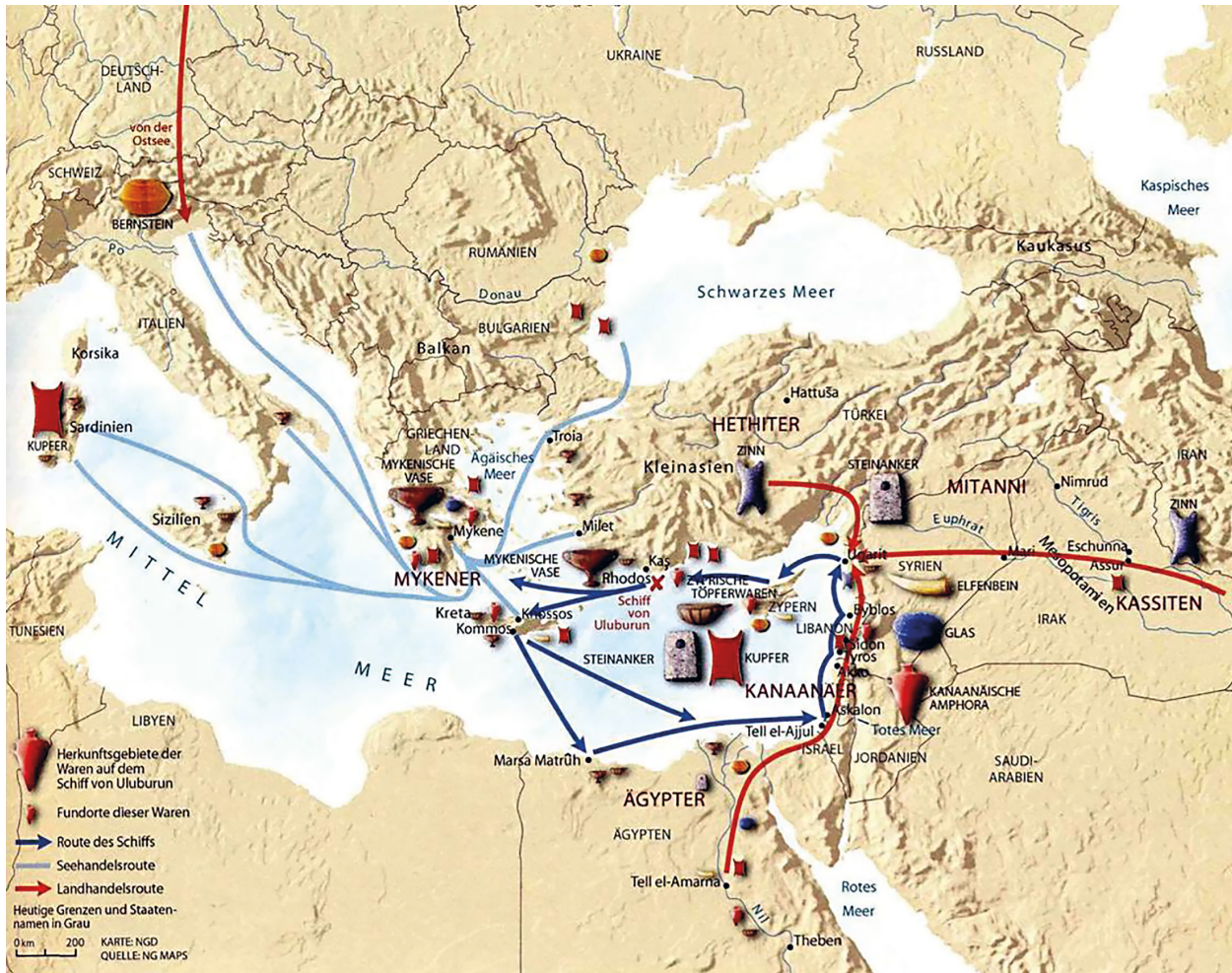


Fig. 7. Map of trade relations in the eastern Mediterranean, with goods from the shipwreck of Uluburun on the southern Turkish coast. National Geographic: Uluburun 2005, 23, Fig. 4.

is recognisable that the fortress differs from other similar strongholds in many aspects. The hitherto recovered finds and find complexes substantiate that this was an extraordinary Bronze Age site, just in view of its expanse of 12.6 hectares and its enclosure by a completely burnt wood-earthen defence wall (Bähr et al. 2012). Exceptional finds to name are highly unusual objects made of gold sheet and amber. They were discovered by amateur archaeologists, while clearing the surface of tree roots and brush. Systematic excavations were carried out later by the State Office for the Protection of Monuments 2002-2005 and by Goethe-University Frankfurt 2007-2014 (Bähr in press). The aforementioned unusual objects made of gold sheet and amber and their find situation could be convincingly authenticated (Gebhard/Krause 2016, 53 ff.). The gold finds comprise 21 differing pieces of gold sheet, some twisted or folded together (Fig. 8). The sheet is extremely thin (Dm. 0.16 mm, total weight 103.4 g), made of very pure gold (99.7 – 99.9 %) (Gebhard/Krause 2016, 65 ff.; 73 ff.). The ensemble is composed of one long, folded artefact, similar to a pin with racquet-shaped head, seven pendants, a piece of gold sheet with pointed ends and six components of a belt of gold sheet. The ornamentation of concentric circles and triangles filled with slanted lines are especially noteworthy: it is well known in the Early and Middle Bronze Age in southern Germany. This décor is found on the most impressive piece in the Bernstorf gold ensemble: a diadem, found in a folded-together state (Fig. 9).

In addition to the unusual gold sheet objects, the significance of the Bernstorf site is underlined by two small pieces of amber with incised lines (Gebhard/Rieder 2002; Gebhard/Krause 2016, 71 ff.). The amber piece labelled 'object A' has incisions on the front and the back: a stylised face with chin beard and ears depicted on



Fig. 8. Bernstorf. Selected pieces of gold sheet, found in the Middle Bronze Age fortress of Bernstorf Berg near Kranzberg, Upper Bavaria. Inv. No. 2002.5, 2002.6a-g, 2002.4a-f (Gebhard/Krause 2016, 65-66). Photo: Stefanie Friedrich, State Archaeological Collection, Munich.

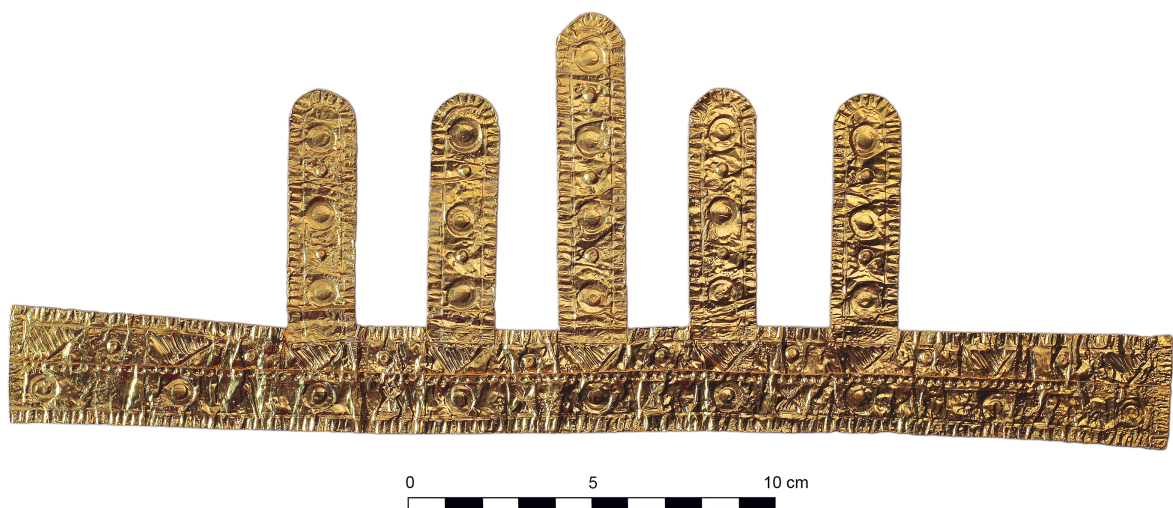


Fig. 9. Bernstorf. So called diadem made of thin sheet gold, from the find complex of Bernstorf Berg near Kranzberg, Upper Bavaria. L. 429 mm. Inv. No. 2002.11 (Gebhard/Krause 2016, 68-70). Photo: Stefanie Friedrich, State Archaeological Collection, Munich.



Fig. 10. Bernstorf. Amber 'object A' with incisions on the front and the back. Front: a stylised face with chin beard and ears. 32,1x30,5x10,8 mm. Inv. No. 2004,344 (Gebhard/Krause 2016, 71-72). Photo: Stefanie Friedrich, State Archaeological Collection, Munich.



Fig. 11. Bernstorf. Amber 'object B' with a perforated grip and four script signs, which according to Richard Janko (2015) are a Linear B script standing for ti-nwa-to. 31x23,9x21 mm. Inv. No. 2004,345 (Gebhard/Krause 2016, 72). Photo: Stefanie Friedrich, State Archaeological Collection, Munich.

the front, and three as of yet unidentifiable signs on the back (Fig. 10). The amber piece labelled 'object B' is a seal with a perforated grip, in the form of the Mycenaean Malia-steatite group. It displays four script signs and below – an image, perhaps of a diadem-like crown. According to Richard Janko the signs are Linear B script, standing for ti-nwa-to (Janko 2015) (Fig. 11). The dating of the objects could be achieved basing on the find context, the proof of Linear B script, and dendrochronological datings from the burnt wood of the defence wall. Accordingly, the objects were likely deposited in the earth after 1340/1330 BC, that is, during the Middle Bronze Age (phase BA C).

Seen against the background of the multifaceted relationships and wide-ranging exchange systems as well as organised trade in stages (at least in the eastern Mediterranean), the gold sheet objects from Bernstorf stand in an interesting area of interactions between North and South. The Bernstorf Hill is the largest fortified site of the Middle Bronze Age in the 14th century BC, located north of the Alps. Moreover, due to its geographically central, strategic location on the Amper river valley in the Alpine foothills, and together with neighbouring Isar river valley, the site could control and guard important trade routes into and out of the Alps, thus, goods coming and/or going South as well as North. The large amounts of amber present in the southern German Bronze Age obviously represent the counterpart to the large amounts of copper, which reached the North from the Slovakian Ore Mountains and the eastern Alps.

It is thus quite imaginable that the fortress on Bernstorf Hill in the Amper valley and its surroundings could have organised and controlled the flow of trading goods between North and South during the 14th century BC. Correspondingly, this would imply the presence there of a hierarchical social structure and of elites. The latter were presumably interred in the tumulus graves; however, this is difficult to deduce from the archaeological context. Nevertheless, the erection of such a large fortification is not conceivable without the presence of guiding persons, organised structures such as labour force, and hierarchical infrastructure. We assume that elites can be recognised in the unusual pieces of gold and amber, which we view as prestigious objects – also like the gorgeous amber collier from Ingolstadt at the Danube coming from a deposit (Bankus 1998) (Fig. 5)

A total of 56 objects and fragments of amber, including the two decorated pieces, are known from this large Middle Bronze Age fortress (Gebhard/Krause 2016, 62 ff.; Bähr in press). It is the most copious discovery of amber found in a settlement in southern Germany and probably far beyond. Originally there must have been many more pieces of amber, taking into account the decrease in number through the filter of fragmentary documentation of finds. As mentioned above, large parts of the fortress had been destroyed, and only comparatively small trenches have been excavated (Bähr et al. 2012; Bähr in press). Thus, most of the amber objects are occasional stray finds that were collected from surfaces cleared of trees and roots, in preparation for exploiting gravel.

The Bernstorf Hill hillfort, unique in its size, can be understood as a trading centre for amber from the North. The extent to which amber in Bernstorf was worked at the site – as in Frattesina – and raw amber formed to beads and spacers can only be conjectured in view of the small fragments and the sources. The aforementioned amber pieces that are perforated but not worked any further, found together with the gold sheet objects in 1998 (Gebhard/Krause 2016, 70 f.), would seem to support this proposal.

The question as to the origin and dissemination of the extremely thin sheets of pure gold can be answered at the moment only by means of analogies from the eastern Mediterranean, since comparable artefacts with such a high gold content are quite unusual in Europe and thus very rare. In the eastern Mediterranean sphere or the Near East the purification of gold is a widely known and frequently employed form of refining gold to (Paoletti 2016). Until now only a few individual objects of fine gold quality are known in Europe, among these the gold disc found in Moordorf, near Aurich, which was discovered in 1910 in East Friesland (Fig. 12) (Wegner 1996, 414–415 fig. 111). It measures 14.5 cm in diameter and is likewise made of extremely thin gold sheet (thickness 0.14 mm). Later excavations in 1927 at the same spot could prove that this disc was quite probably part of grave furnishings, namely a grave whose mound was destroyed. The disc underwent a turbulent time on its way to the collections of the Museum of Lower Saxony. It was a topic of debate as to whether or not it was a fake, on one hand, because of its initial appearance on the art market, and on the other because of its extremely high-purity gold, almost like the purity of the Bernstorf gold sheet. The results of spectral analysis of the object conducted and presented by Axel Hartmann in 1970 and 1982 show that the Moordorf disc is made of a very pure gold, comparable to the purity of one of the Bernstorf gold sheets.² At that time Hartmann interpreted this as refined gold; later he placed the few comparable analyses of gold in Europe in the context of far-reaching connections between the eastern Mediterranean and northern Europe (Hartmann 1982, 35–36 Tab. 36). Hartmann presumed the origin of the technique of purifying gold and the origin of these relevant gold objects to be in the eastern Mediterranean and the Near East. These conclusions were made with great farsightedness and pertinence. Namely, with the Bernstorf gold sheet and likely the gold disc from Moordorf too, we may assume a similar way of identifying the origin of the gold itself. Moreover, a comparison of the ornament on the Moordorf disc and on the strips of gold sheet from Bernstorf reveals great similarities in the individual decorative zones and ornamental elements (Fig. 8, 9 and 12). Noteworthy are the radially arranged decorative zones, which are composed of hatched triangles and zones of bosses and incised ladder motifs. These ornamental motifs have been compared and discussed in depth (Gebhard/Krause 2016, 110 ff). Analysis confirms that these pure gold artefacts could not have been made of gold refined in modern times, that is to say, they cannot be dismissed as contemporary fakes – as it has been propounded (Pernicka 2018). The explanation for the process involved in producing this gold needs a more comprehensive analysis of all factors, like that undertaken by Rupert Gebhard and Rüdiger Krause (Gebhard/Krause 2016; Krause/Gebhard 2019).

The varied examinations and studies have shown that the purification gold from the Near East was a common and widespread procedure used – for instance, to produce thin ductile gold sheet for gilding (Paoletti 2016). Observations on the normed and uniform gold strips in Bernstorf gold sheets lead to a further important thought: it is quite conceivable that for trade activities they were in a rolled-up like a scroll and transported (Gebhard/Krause 2016, 68–70). Due to the state of research today, hardly any convincing arguments can be proffered as to the origin of the Bernstorf gold and its itinerary via the above described exchange system from the eastern Mediterranean or even Egypt and over the Alps to Bernstorf.

The form of the gold sheets, especially the strips of the so-called diadem, do indeed recall the comparative gold strips in the Mycenaean shaft graves; however, they are not identical in form and decoration. The Bernstorf

2 Hartmann 1970, analysis no. Au 1122; Hartmann 1982, 35–36.



Fig. 12. Moordorf, Aurich County, Niedersachsen. Disc made of gold sheet. Dm. 14.5 cm. With different decorative zones, which are directly comparable with decorative elements on pieces of gold sheet found in Bernstorf. Dm. 14,5 cm. Photo: R. Krause, Goethe University, Frankfurt/Main.

gold strips diverge from the Mycenaean ones and may be ascribed to the category of imitations. Furthermore, it appears that they were not produced within the Mycenaean domain. The decorative elements and zones point far more to a local place of production. Compared to the actually more robust gold sheet found in Mycenae, the Bernstorf gold sheets are thinner, too thin for real use, although they are perforated and evidently were originally sewn onto an organic material.

In our opinion, there are two possible explanations for this situation:

Either,

- there was a great misunderstanding and far too many gold sheets were produced for use; or,
- these thin sheets made of 'foreign gold' from foreign lands were used to make special objects, owing to their distinctive reddish hue.

Further contemplations as to by whom and under whose guidance the gold sheets were produced will be addressed in the following together with the amber seal.

Exchange or trading in stages

Still little is known about the form of exchange or trade in amber, metals or metal objects, and other materials (for example, glass beads) as well as goods in Central Europe. Maran proposes far-reaching trade relations and the exchange of goods between Mycenaean Greece and the North at the beginning of the Middle Bronze Age (16th century BC) (Maran 2004, 60–61). The shipwreck Uluburun in the eastern Mediterranean and convincing written sources in the near East offer substantial evidence for a similar reconstruction in the younger Bronze Age. Organised trade or exchange in stages via various stations – perhaps somewhat comparable with conditions in the eastern Mediterranean – might be present in regions north of the Alps, reaching as far as areas of the Nordic Bronze Age. Exchange via several stations would, however, require organisation and management, which could only come from centres holding political and economic power. Such a socio-political centre could have existed in the region of Bernstorff Hill in the 14th century BC. A future task for archaeological research is to seek corresponding regions and/or individual located fortified sites on the route to the North.

Inferences to the question as to how exchange relations might be interpreted, and the context in which these exchanges took place, are possible through closer examination and categorisation of the amber seal found in Bernstorff and its Linear-B inscription. Seals in the form of the so-called grip-seal of the Malia-steatite group are made of other materials, and examples are also known that display engravings. Hence, the Bernstorff seal can indeed be drawn in comparison. Of significance for the Bernstorff seal are the Linear-B characters, which have been read and interpreted anew by Richard Janko (Janko 2015). Janko proposes the reading of the signs as: *ti-nwa-to*. In the search for corresponding parallels he points to a bone seal found in Medeon (Phokis), which is similar in form and displays similar signs. The direction in reading as well as the interpretation of the characters (for example, as persons or place names) are difficult, contrary to longer groups of words or entire sentences known from the same epoch. Drawing forth different epigraphic sources (foremost, tax lists), Janko favours the identification of *ti-nwa-to* as the name of a Mycenaean settlement in southern triphylia on the west coast of the Peloponnese. This reading seems to be confirmed, basing on evidence in the Mycenaean archives in Pylos and perhaps also in Knossos.

In association with the place of the discovery of the amber in south Bavarian Bernstorff, Janko considers several other possibilities, all of which, however, must remain hypothetical due to the insufficient sources (Janko 2015). One suggestion, for example, that the amber would contain a message that the place named *ti-nwa-to* in Mycenaean Greece would need more amber from the North and therefore a delegate and business partner from Mycenae delivered a Mycenaean gold diadem to Bernstorff. According to Janko, the diadem could just as well have been a diplomatic gift, in an effort to gain new business partners in the North, or as a kind of payment for mercenary soldiers from southern Bavaria in *ti-nwa-to* itself, who took the object back to Bernstorff after the combats had ended.

Janko's suggestions allow various possibilities for interpreting the Bernstorff seal and its inscription. One is of special significance: the identification of the name in the Mycenaean archive in Pylos and thus the localisation of the name on the western Peloponnese. The hypothetical assumption that Mycenaean could have travelled as far as Bernstorff, or that mercenaries could have returned to Bernstorff from the Peloponnese, opens a new range of alternatives for explaining and placing the gold sheet and the decorated amber in a plausible archaeological and culture historical context, and thereby – in regard to discussions on systems of exchange and communication – for now developing the idea of them as the basis of a 'historical' documentation.

The basis for broad communication systems was formed by structured social patterns with 'directing' groups or persons, who may be designated as 'elites'. They can be recognised in richly furnished graves, in corresponding hoards (like Ingolstadt see fig. 5), and especially in symbols of prestige and status, such as solid hilted daggers and halberds and later swords (Krause 2002; Bertemes 2004). Far-reaching contacts enabled the rapid dissemination of spiritual concepts and cognitive innovations throughout vast parts of Europe. The Bronze Age

was in any case a time of intensive contacts and exchange relations in distant regions, which thus lead to and allow different deliberations. Kristian Kristiansen and Paulina Suchowska-Ducke recently emphasised again the immense dynamic in trade and exchange during the Middle Bronze Age (Kristiansen/Suchowska-Ducke 2015). And lately Helle Vandkilde even referred to conditions in the Bronze Age as “pre-modern globalisation” and introduced the stimulating term “bronzization” (Vandkilde 2016).

The fact that local concentrations of power in cyclical appearance must still be assumed in the Early Bronze Age, is demonstrated by the find context in the northern Únětice groups with so-called “princely graves” and their short-lived existence. For only with the end of Early Bronze Age development, at the transition to the Middle Bronze Age, were social and economic bases sufficiently secure so that then metallurgy became a firm and enduring component of social structure. This is demonstrated at the transition from the Early to the Middle Bronze Age above all by fortified settlements of the Mad’arovce culture on the lower Danube River, where remains of metalworking are recognisable (David 1998; Krause 2003, 261 f.). Only after this time may we assume that stable social structures existed, so that an upper class could become established in the central European Bronze Age. The extraordinary finds of gold and amber in Bernstorff or the amber neckless from Ingolstadt, might reflect such social elites, who conducted long-distance exchange systems during the Middle Bronze Age. On this foundation inventions and innovations from the Mediterranean sphere could be adopted and transformed into local cultural structures, and then transferred over great distances, as far as the Nordic sphere of the Bronze Age. Thereby, the speed and intensity of these activities increased, and the structural basis changed, developing into an ever more differentiated society.

In summary, using a few but explicit archaeological cases, and referring to specific coeval analogies in the Mediterranean and Near East, as well as studies in other fields of science, the discussion above has endeavoured to circumscribe aspects of and evidence for stages in the genesis and development of economies based on trade-and-exchange during the Early to Late Bronze in Central Europe.

Thereby, from a substantivist point of view and basing on archaeological material as well as other interdisciplinary studies, the activities in trade and exchange of various sites, as well as the importance of the position held by the respective sites in these activities are recognisable and explainable. These actions can be seen as components of the respective political, social and religious economies of communities.

The advancement from a local supply and demand on an individual, self-provisioning level

to responding to ever greater demand and supply, involving deliberated measures in procurement, and continuing to in production of the demand, can all be traced in the various sites discussed above. The issue of procurement can lead to actions outside of the local environment and beyond, to a greater involvement in long distance trade and exchange, transport and transfer.

Perhaps except for individual, local self-providing households or small villages, organisation and leadership are inherent in these economies, in a social, political and religious sense.

For example, meeting the demand for copper ores, involves:

- **Demand** → procurement → prospection for ores, exploitation, transport, preparation, etc. and includes organisation of work force (also slaves, forced labourers)
- **Production** → of the objects in demand, also includes organisation of work force (also slaves, forced labourers)
- **Supply** → locally and beyond->transport of objects in demand, including organisation of work force
- **Trade and exchange** → includes organisation of traders, merchants, delegates

These actions may be viewed as aspects of a political economy, with a varyingly hierarchical structure involving authorities who organise and decide at each of the aforementioned steps and a leader or chief, priest or king at the top with ultimate command. This structure can be envisioned at larger fortified settlements like Bernstorff.

Aspects of a social economy are likewise recognisable. The aspect of social stratification becomes increasingly visible through – for example – the size and location of dwellings (as in Bernstorff on the hill opposite a hamlet or a single farmstead), the variety and value of finds, where and in what amount they were found, the difference indicating the social position of the bearers/owners.

Members of a work force – whether voluntary or not (slaves, prisoners) – in mining opposite delegates for trade and exchange are on contrasting social levels.

The discovery of hoards and graves that are richly furnished (or not at all) are aspects of the religious economy. Here the use of material in ritualistic activities overlaps with social hierarchy and the organised production of special objects.

That is to say, aspects of the economies in the Early to Middle Bronze Age in the geographic area under study here are recognisable in the archaeological material. Furthermore, in many respects they overlap or coincide to varying extent.

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