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## The Western Globular Amphora Culture. A New Model for its Emergence and Expansion

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# The Western Globular Amphora Culture. A New Model for its Emergence and Expansion

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The Western Globular Amphora culture is an integral component of a widespread cultural complex, which occupies larger parts of Central and Eastern Europe at the turn of the 4th to the 3rd millennium BC. The application of multivariate statistics and GIS-based analysis allowed for two results, of which the first one is a spatial and chronological differentiation. In addition to that, the individual consideration of cultural contacts is held to be conducive to a model for the emergence and expansion of the Western Globular Amphora culture.

Globular Amphora Culture; Northern Central Europe; Late Neolithic; Spatial and Chronological Differentiation; Cultural Contacts.

Die Westliche Kugelamphorenkultur ist integraler Bestandteil eines großräumigen Kulturkomplexes, der sich an der Wende des 3. zum 4. Jt. v. Chr. über weite Teile Mittel- und Osteuropas erstreckt. Mit einer Kombination aus multivariater Statistik und GIS-basierten Analysen gelingt es nicht nur, eine räumliche und zeitliche Differenzierung vorzunehmen, sondern auch unter individueller Berücksichtigung der kulturellen Kontakte ein konkretes Modell zur Entstehung und Ausbreitung der Westgruppe der Kugelamphorenkultur zu entwickeln.

Kugelamphorenkultur; Nördliches Mitteleuropa; Spätneolithikum; raum-zeitliche Differenzierung; Kulturkontakte.

## I Introduction

The Globular Amphora culture is one of the prehistoric cultural complexes which are spread over a vast area. It expands between the coastal areas of the Holstein Baltic Sea in the West and the Dnieper River in the East during the transition from the 4th to the 3rd millennium BC. Based on individual characteristics a central group in present-day Poland, an eastern group in Ukraine and Moldova as well as a western group in the areas west of

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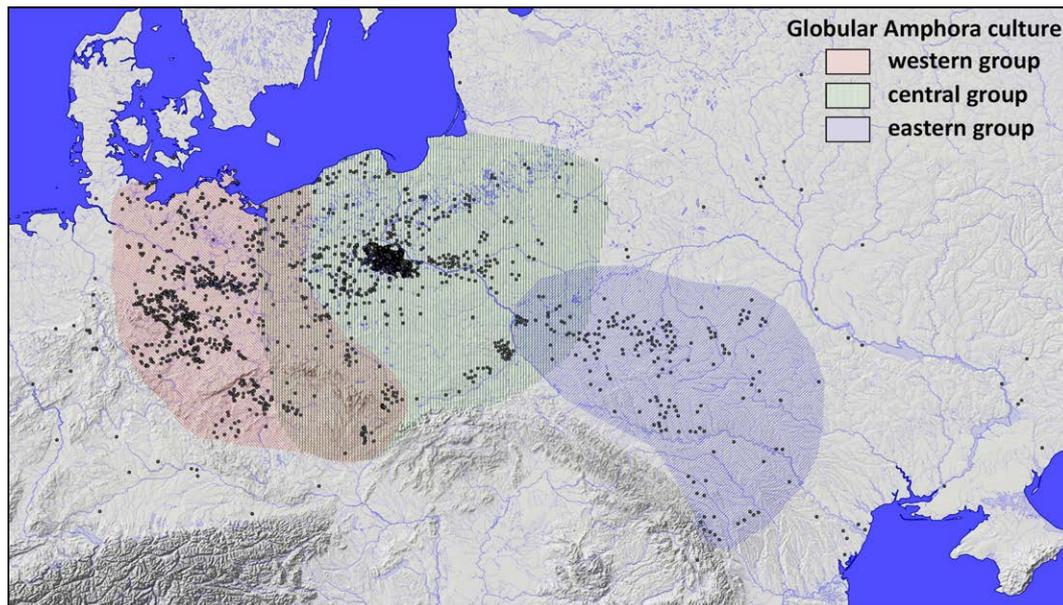


Fig. 1 | Spatial distribution and territorial differentiation of the Globular Amphora culture.

the river Oder can be discriminated (Fig. 1). The last supraregional study of the Western Globular Amphora culture dates back to 1938.<sup>1</sup> Subsequently regional material studies<sup>2</sup> covering the entire distribution area have been published, which has brought forth the opportunity to reinvestigate the Western Globular Amphora culture in its entirety.

The available PhD project was supported by the Excellence Cluster Topoi at the Free University of Berlin and embedded in the research group A-II, which was dedicated to explore the spatial effects of technological innovations and the impact of changing ways of life. The compilation of all material remains is the foundation of the study presented in the following. On its basis, the author applies a methodological approach of combined multivariate statistics and GIS-based analysis being able to suggest a new spatial and chronological differentiation of the Western Globular Amphora culture. In addition to a social-archaeological perspective, the study focuses on the characterization of various cultural contacts to pin down a number of possible answers to questions of origin, expansion, and decline of the Western Globular Amphora culture.

## 2 State of research

Although the knowledge on settlement patterns and lifestyle of the Western Globular Amphora culture is still unsatisfying, a number of individual aspects is well known. Finds in settlements of 'foreign' cultural contexts regularly occur in addition to small independent settlement areas in the border areas to neighboring cultural groups (Fig 2).<sup>3</sup> Furthermore, two types of settlements exist: relatively small permanent settlements and even smaller seasonal camps, which point towards a complex subsistence strategy. An economy specialized on intensive animal husbandry enabled these communities to colonize previously unsettled areas where soils only allow for marginal grain cultivation.

The burial customs of the western group are rather heterogeneous despite a general tendency towards isolated individual graves and the predominance of inhumations in

1 Priebe 1938.

2 E. g. Weber 1964, Nagel 1985, Beier 1988, Meyer 1993, Kirsch 1993.

3 Bernburg culture, Řivnáč-culture, Elb-Havel-culture.

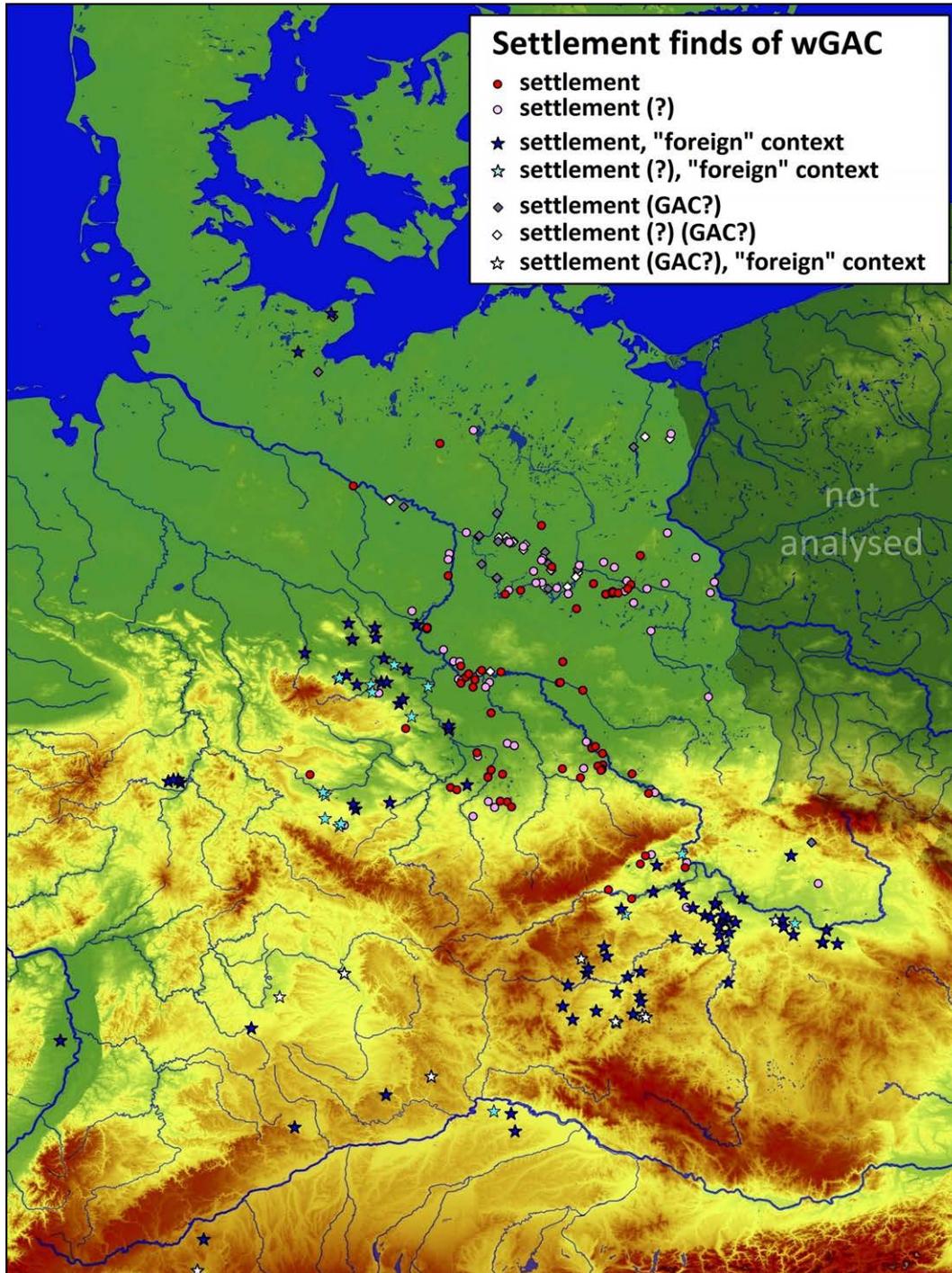


Fig. 2 | Spatial distribution of settlement sites of the Western Globular Amphora culture.

crouched positions. There is a significant difference in the burial traditions of the northern zone compared to the central to southern distribution areas (Fig. 3). The megalithic tombs of the northern Funnel Beaker culture were continuously used or re-used in the northern zone, from the southern Baltic Sea area to the Lueneburg Heath. Evidence for shallow pit graves can be found in all other regions. Additionally, there are regional phenomena: burials in stone cists are mainly concentrated in the area around the Harz Mountains. Graves below monoliths or stone packing supplemented the range of burial constructions in Brandenburg.

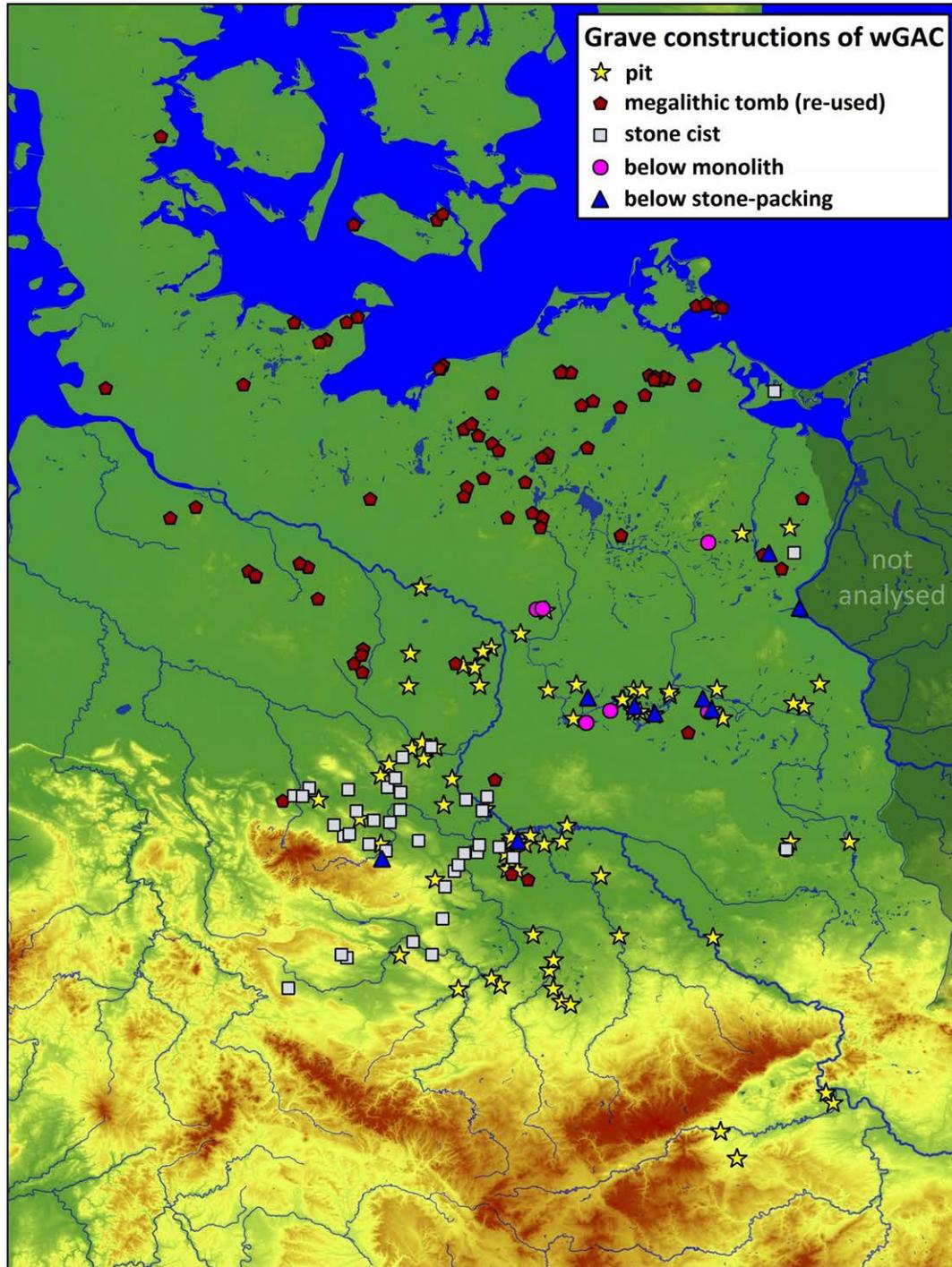


Fig. 3 | Spatial distributions of the most frequent grave constructions of the Western Globular Amphora culture.

Cattle depositions are a relatively heterogeneous phenomenon. In the study area they can be mostly associated with the Globular Amphora culture. Both archaeological contexts<sup>4</sup> and features<sup>5</sup> are very diverse. The cattle depositions allow a fragmentary insight into the spiritual-religious sphere of the Globular Amphora communities. The symbolic

4 Direct or indirect connection to burials, in settlements or sacrificial sites.

5 Single-, double- or multi-depositions, fragmented or in pieces.

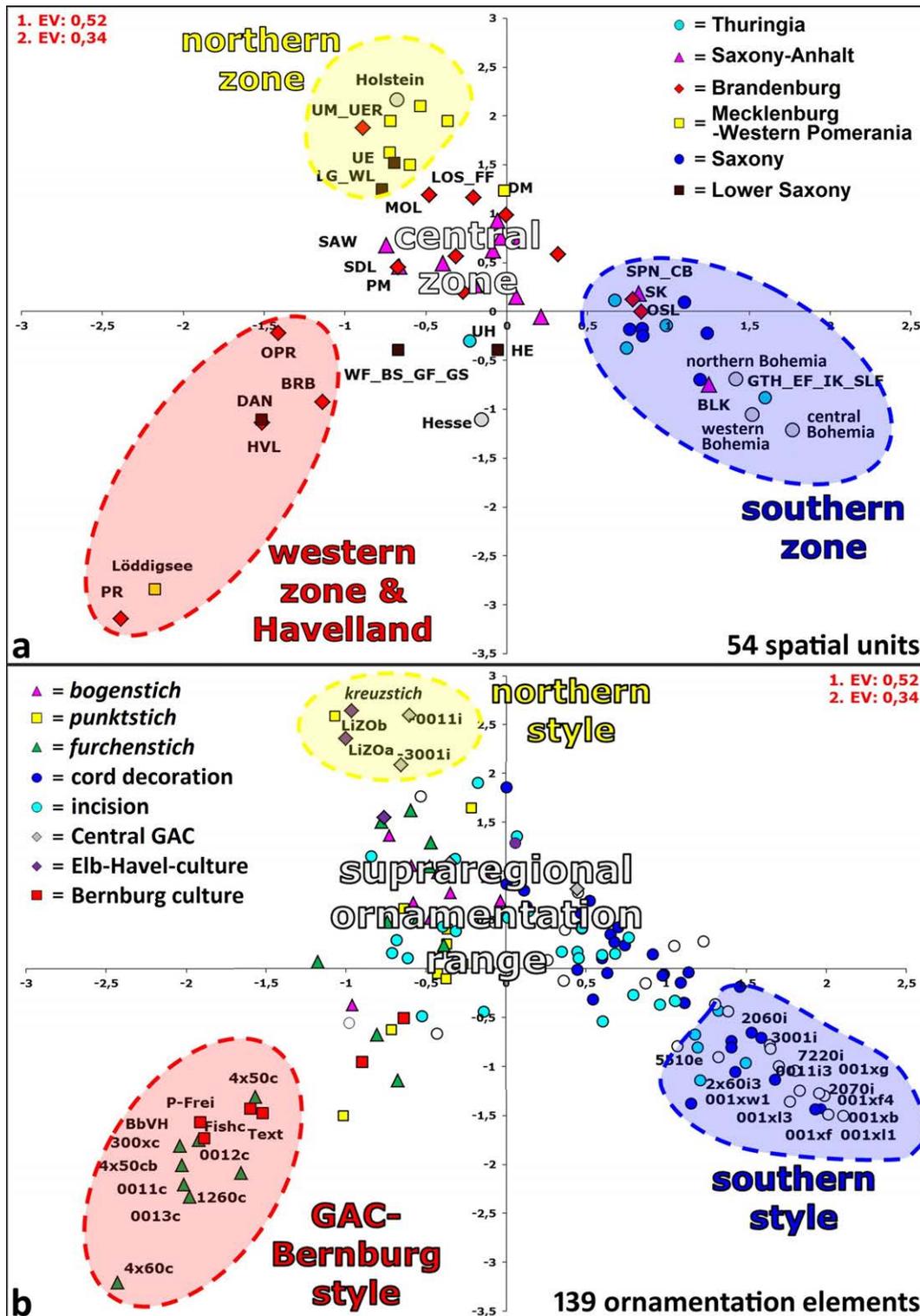


Fig. 4 | Determination of regional and supraregional ornamentation styles using correspondence analysis: a. imaging of spatial units, b. imaging of ornamentation elements.

meaning of these animals seems to have played an important role, which is especially visible in the arranged bovine couples interpreted as harnessed teams.

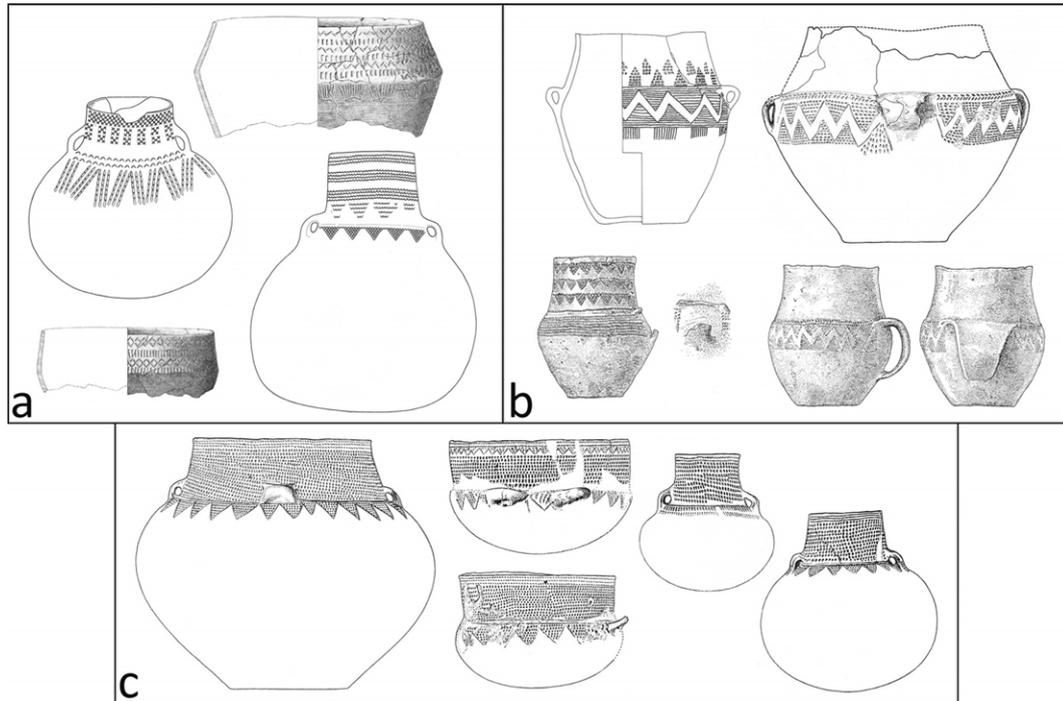


Fig. 5 | The regional ceramic styles of the Western Globular Amphora culture: a. northern style (after Kirsch 1993, Nagel 1985), b. globular amphora-bernburg style (after Beier 1988, Meyer 1993), c. southern style (after Weber 1964).

### 3 Differentiation in Space and Time

For the spatial differentiation of the Western Globular Amphora culture a methodological approach was adopted combining multivariate statistics with GIS-based analyses. The application of correspondence analyses allowed for investigating the spatial variability of ornamentation through the examination of spatial units with distinctive pottery ornaments. This resulted in clusters of spatial units<sup>6</sup> with similar ranges of motifs as well as the regionally distinct decorative elements (Fig. 4). In addition to the transregional ceramic decoration range of the Western Globular Amphora culture three regional ornamentation styles were distinguished (Fig. 5). The regional style of the northern zone is represented by only few ornaments which are closely linked to the Elb-Havel-culture and the central group of the Globular Amphora culture respectively. The Globular Amphora-Bernburg style is distributed in the western zone and in the Havelland. Besides some *furchenstich* motifs the style is characterized by typical elements of the Bernburg culture. The southern style which can be found in Bohemia, Saxony and Thuringia, includes a wide range of motifs. Decorations with single punctures covering the whole neck of the vessels are particularly characteristic.

The spatial differentiation was completed by a GIS-based density analysis to specify the relatively large-scaled basic division of the study area. Thereby, the former results of the correspondence analysis were not only confirmed, but also distribution zones and core areas of the regional ornamentation styles could be precisely determined (Fig. 6).

The exclusion of these three regional ornamentation styles from the chronological analysis permitted to reduce the spatial factor as far as possible. The common development of ornaments in the Western Globular Amphora culture was recognized on the base on supraregional motifs. Two approaches were pursued to generate a chronological

<sup>6</sup> Mainly the modern counties (*Landkreise*), rarely larger regions.

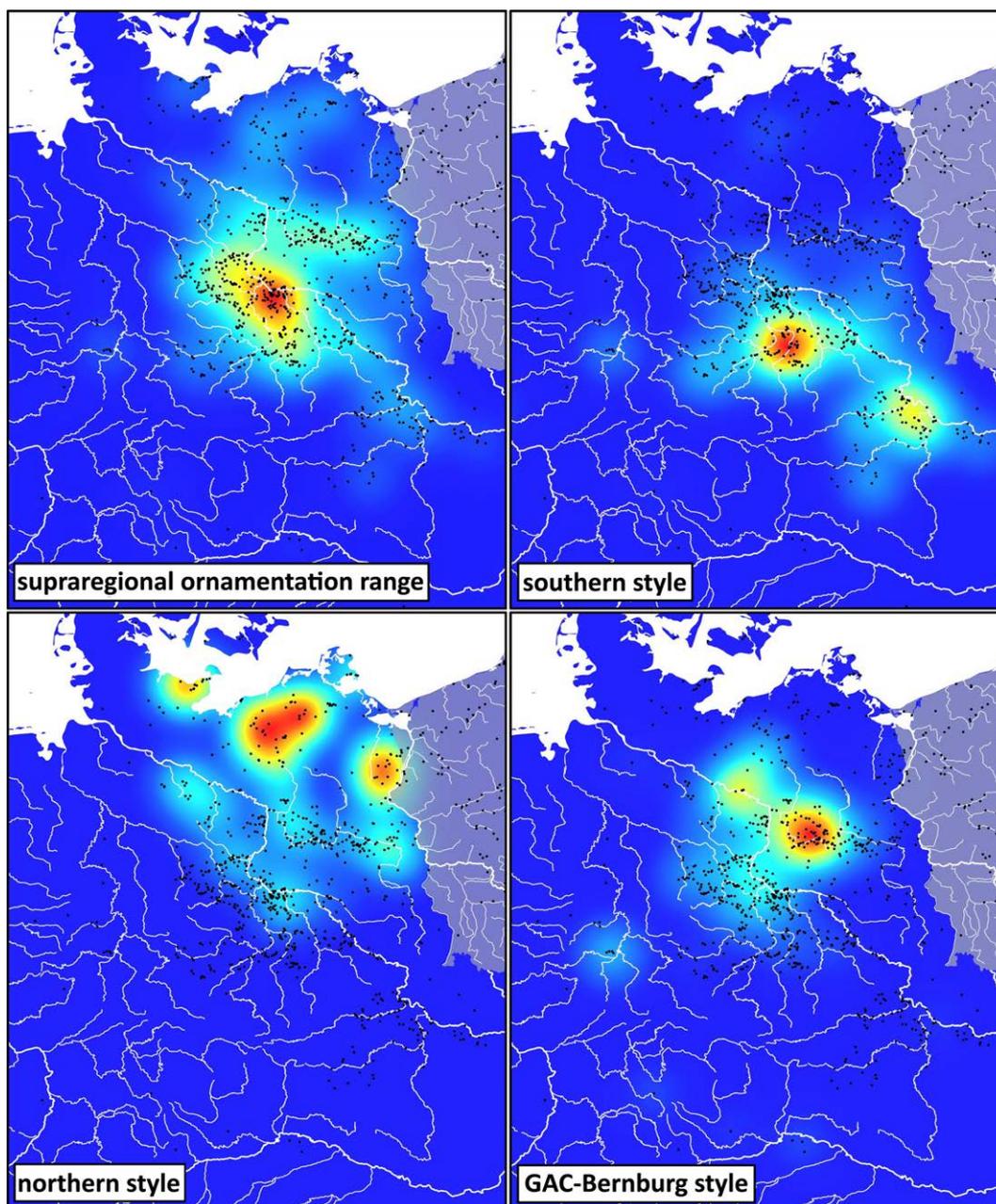


Fig. 6 | Density analyses of the supraregional ceramic decoration spectrum and the regional ceramic styles of the Western Globular Amphora culture.

sequence of decoration elements. In both analyses ornaments and their locations on the vessels were taken into account. Grave inventories as well as the individual vessels were examined with respect to their combinations of motifs. The analysis of the pottery units based on much more data resulted in a continuous sequence of ornament development (Fig. 7). The duration of the usage of each motif was taken into consideration when examining the grave inventories (Fig. 8). Both analyses showed that *bogenstich* motifs on the one hand and cord decorations on the other hand characterized the ends of the ornamentation sequence. Furthermore, there is evidence of these two decoration techniques existing simultaneously for a certain period. One hint is the sporadic appearance of vessels combining *bogenstich* and cord imprint motifs. Another hint is the wide transition horizon

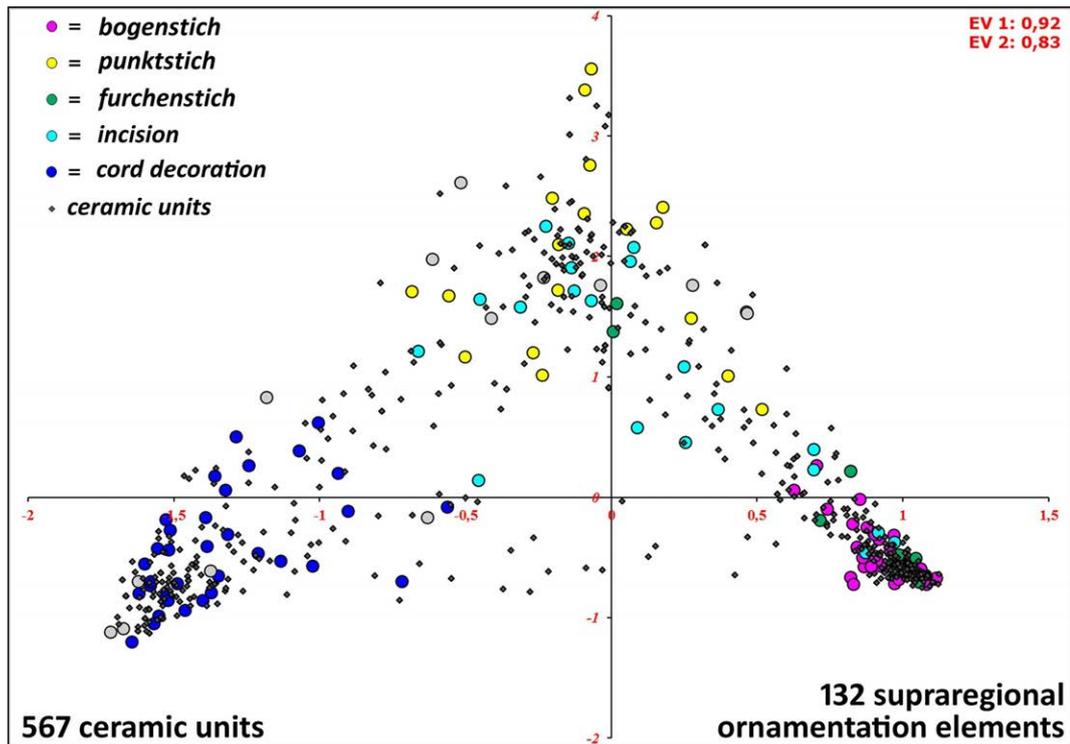


Fig. 7 | Density analyses of the supraregional ceramic decoration spectrum and the regional ceramic styles of the Western Globular Amphora culture.

between grave inventories of a *bogenstich* stage and a cord decoration stage in the seriation matrix.

The beginning and the end of the transregional ornamentation sequence were determined by associating the stages with absolute radiocarbon dates as well as by relative chronological linking. Both the oldest and solid  $^{14}\text{C}$  dates (3100–2900 calBC) and the cultural contacts to the Middle Neolithic Walternienburger culture are connected to the *bogenstich* stage. A series of the younger radiocarbon dates (2900–2700/2600 calBC) derived from inventories with cord ornaments. In addition, the grave of Weißandt-Görlzau 3 which contained a cord decorated globular amphora together with a corded ware mug, provides a direct evidence for a certain temporal coherence with the Corded Ware culture. It can be suggested that there is a gradual transition from a stage characterized by *bogen-* and *furchenstich* ornaments to a pure incision and cord imprint ornamentation. As a consequence, a chronological differentiation into a pre-cord decorated and a cord decorated stage seems to be the only reliable model for the Western Globular Amphora culture (Fig. 9).<sup>7</sup>

## 4 Social-archaeological perspective

An internal hierarchy of social identity of male individuals had been recognized through the evaluation of the burials with individually assignable inventories. Significant quantitative differences between the sexes in the addition spectrum indeed tempt the author to adopt the idea of a patriarchal social structure. Possible filter effects due to the preservation conditions may not be neglected. The existing, stereotypical interpretation of a seniority

<sup>7</sup> Cf. Wiślański 1966, 8.

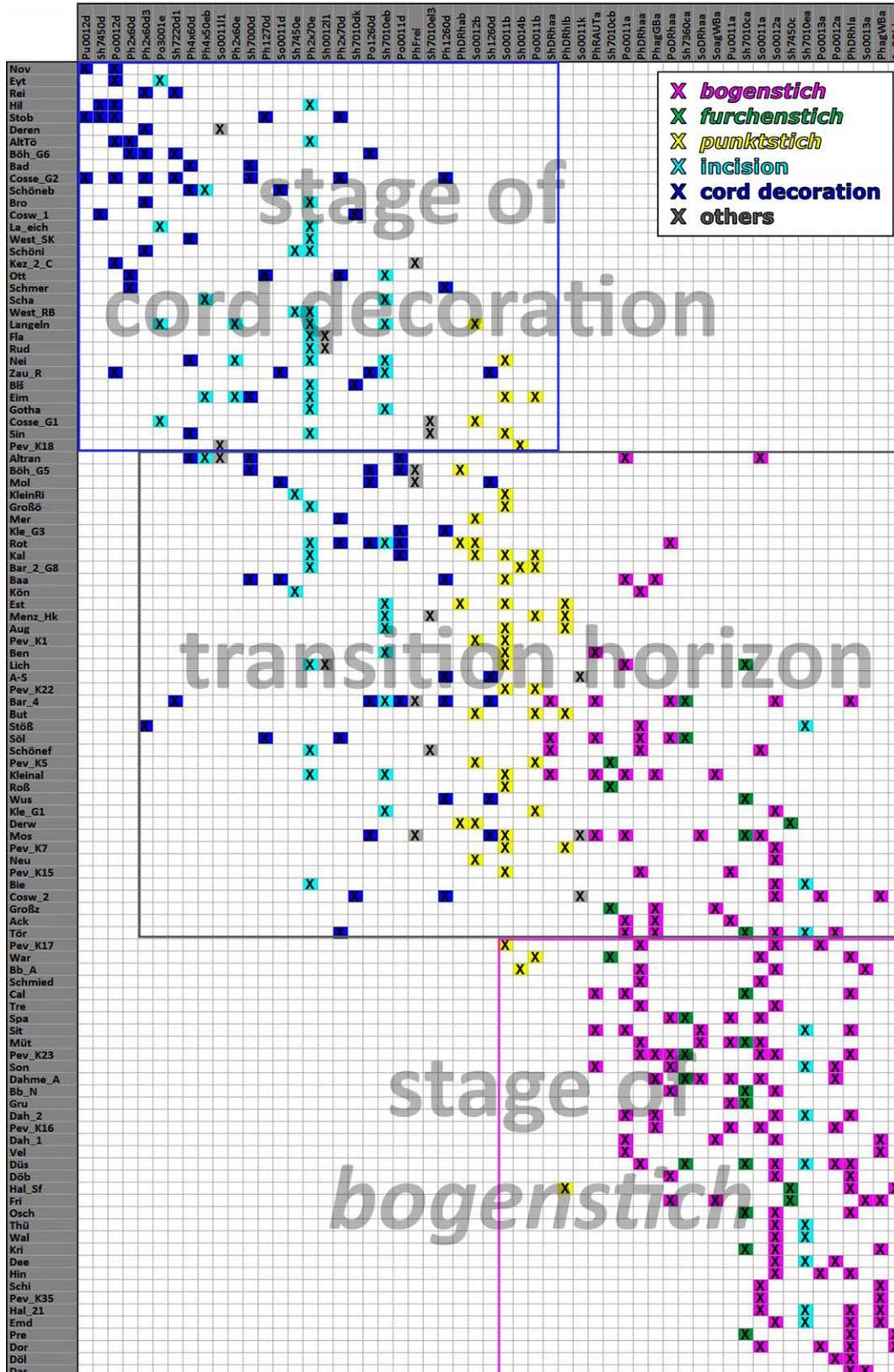


Fig. 8 | Seriation matrix of the grave inventories with supra-regional ornamentation elements.

principle should be discarded due to the lack of distinct differences between early adult and older male burials.<sup>8</sup>

8 Cf. J. Müller 2001, 370–381.

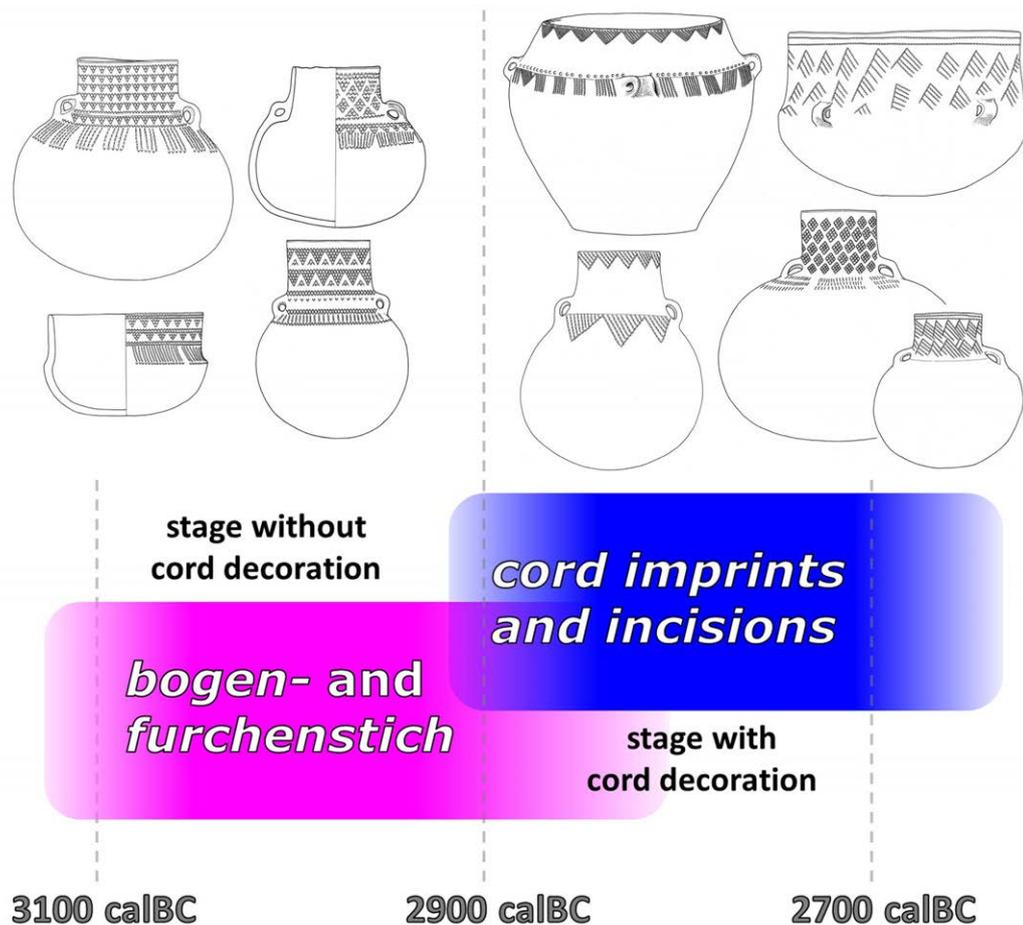


Fig. 9 | Proposal for the chronological differentiation of the Western Globular Amphora culture (images after Kirsch 1993).

Furthermore, there exists a supraregional range of male prestige objects<sup>9</sup>, which can be traced from Elbe River in the west to the Dnieper River in the east. Together with the other spacious distributed cultural elements<sup>10</sup> these common artifacts are references for a supraregional communication network and might even reflect a transregional Globular Amphora identity (assertive style)<sup>11</sup>. Simultaneously, the spectrum of male status symbols, which is comprehensible on a larger scale, was indeed enhanced by prestigious objects from local tradition.<sup>12</sup> Together with the regional styles of ornamentation this could be the expression of small-scale identity units (emblemic style).

The concept of a society operating in families or kinship communities developed on the Kujavian regional group<sup>13</sup> seems to offer also the best explanation for the archaeological facts in the western group of the Globular Amphora culture.

9 Polished rectangular flint axes and chisels longitudinal split boar tusks, pig mandible and wheel-shaped amber discs.

10 Type fossils of the ceramic, individual burials in crouched position, cattle deposits.

11 Wiessner 1983, 257–259; see also Zeeb-Lanz 2006, 90–95.

12 Transverse arrowheads, flint fire striker sets.

13 Szmyt 2002.

## 5 Genesis and expansion process of the Western Globular culture

At the end of the 4th millennium BC the Globular Amphora culture spanned swaths of Central and Eastern Europe, which shows up in various spheres of the material and immaterial culture. Traceable supraregional elements are ceramic type fossils<sup>14</sup>, the flint industry, masculine status symbols and ritual activity<sup>15</sup> along with a certain settlement strategy<sup>16</sup>. These form the content of the ‘Globular Amphora cultural package’. In contrast to those supraregional cultural characteristics, a range of distinct differences on a local and regional level can be found. The key to understanding this complex situation of internal heterogeneity provided the assessment of the cultural contacts to the particular local cultural substrate. According to that, the spatial variability of the Globular Amphora complex results from the interaction with the local communities. This interaction manifests itself in different regions in different ways – including the formation of mixed cultural groups. Remarkably enough, the cultural interaction itself is again a spaciouly observable phenomenon of the Globular Amphora culture.

Combining the results in the spatial and chronological differentiation with insights of the cultural interactions it was possible to reconstruct a cascading expansion process of the Western Globular Amphora culture. The established structure in three territorial entities, the Western, the Central and the Eastern Globular Amphora culture, had been interpreted as the reflection of a cultural expansion process within a monocentric formation model. In addition to clear stratigraphic evidence,<sup>17</sup> mainly the currently oldest solid radiocarbon dates<sup>18</sup> are favoring the genesis of the Globular Amphora culture in the Kujawy region. Both relative and absolute chronology suggests its existence in that region from about 3400 BC on, well before the oldest records of the western group.<sup>19</sup> Due to the spatial location and the presence of numerous decoration elements of the central group, the region at the lower reaches of the Spree River might have been a first ‘bridge head’ in the cultural expansion crossing the Oder River to the West. Moreover, there seems to be a separate settlement area of the Globular Amphora culture in the southeastern periphery of the Brandenburgian Elb-Havel-culture<sup>20</sup> (cf. Fig. 2). Influenced by the interaction with the local cultural entity, the Globular Amphora culture inherits the new motifs and techniques<sup>21</sup> of the older phase. Finally, the Elb-Havel-culture is the only potential antecedent of this characteristic range of ornamentation of the western group. Hybrid pottery<sup>22</sup> combining the typical vessel shapes of Globular Amphora culture with ornaments that follow the standards of the Elb-Havel-culture, can be considered as the first evidence of a cultural fusion process between the westward spreading Globular Amphora culture and the local Elbe-Havel-culture. Original vessel forms, the flint tools and status symbols of the Globular Amphora culture remain integral component of the material culture despite the subsequent emergence of a new ornament canon<sup>23</sup>. The appearance of hybrid ceramics, of finds of the Globular Amphora culture and of cattle depositions at local cult<sup>24</sup> and burial<sup>25</sup> sites could be interpreted as an expression of an ongoing cultural

14 Globular Amphorae, wide-mouth pots and Kujavian amphorae and hemispherical bowls.

15 Depositions of cattle and bovine harnessed teams.

16 Small settlements (agriculture) and camp sites (semi-nomadic cattle husbandry).

17 Krusza Zmkowa 13, Zarębowo 1 and Podgaj 6A.

18 Kołuda wielka 13 (feature 3) and Kuczkowo 1 (feature C2).

19 Szmyt 2001; cf. J. Müller 2001, 243. 434; fn. 72.

20 Kirsch 1981.

21 *bogenstich, kreuzstich, furchenstich* (?).

22 E. g. Kirsch 1993, Fig. 43, 205 (1); 48, 223.2 (2); 194, 1181 (1); 215, 1254.1 (1).

23 Nortmann 1985, 26.

24 Falkenwalde 50 (Lehmkuhl and Nagel 1990), Zachow 12 (Kirsch and Plate 1990).

25 Wartin 1 A (Bakker 1992, 76–77; Fig. 29–31; pl. 26), Buchow-Karpzow 8 (Kirsch and Plate 1984).

integration process. In the subsequent expansion henceforth carries the pottery of the Globular Amphora culture this Brandenburgian heritage in its decoration spectrum. This integrated ornamentation style distinguishes the communities west of the Oder River from the local Polish groups, which peaks in the formation of the Western Globular Amphora culture.

A similar substantial effect followed on the contact to the Bernburg culture, which achieved also a cultural fusion process in the Middle Elbe-Saale region. This process manifests itself in the creation of a regional ornamentation style (GAC-Bernburg style), the introduction of new vessel types<sup>26</sup> into the existing repertoire and again in the formation of a hybrid ceramic style. Finds of the Globular Amphora culture can be documented regularly in settlements of the Bernburg culture (cf. Fig. 2). By contrast, independent settlements of the Globular Amphora culture are almost unknown within the territory of the Bernburg culture. Only at its eastern periphery independent settlement areas of the Globular Amphora culture have developed. Since the burial sites of the Globular Amphora culture (cf. Fig. 3) cover the entire territory of Bernburger culture, a presence of the Globular Amphora culture must be expected in the Bernburg core zone, too. Not only is the close entanglement evident in a series of culturally mixed inventories<sup>27</sup>, but also in the joint use of cemeteries.<sup>28</sup> Additionally, other symptoms of the cultural fusion process occur in the collective graves of the Bernburg culture.<sup>29</sup> These include hybrid pottery, characteristic findings of the Globular Amphora culture, in pairs arranged cattle depositions and isolated individual burials. It is very likely that other cultural traditions and impulses<sup>30</sup> from the Middle Elbe region<sup>31</sup> have played a role in the formation of the Globular Amphora-Bernburg-hybrid group.

Sustainable contacts to the Bohemian Řivnáč culture are indicated in the southern zone of Western Globular Amphora culture. Due to the lower information level they are significantly less characterized. Again there exists an independent settlement area of the Globular Amphora culture on the northern periphery of the Řivnáč culture. To which extend the influence of the Bohemian culture participated in the formation process of the regional southern ornamentation style in the younger phase of the Globular Amphora development must remain open at this point.

Obviously, other mechanisms led to the expansion of the Globular Amphora culture in a northward direction. Only a part of its range of characteristics occurs in this zone, pottery sometimes even appears in a kind of degenerated shape. Furthermore, this region is characterized by the absence of individual burials of the Globular Amphora culture. Instead, a continued use of the collective megalithic tombs of the Funnel Beaker culture can be observed. Hence it seems that only selected elements of the Globular Amphora culture had been adopted by the local cultural environment with a gradually decreasing intensity towards northwest. The regional, northern decoration style is mainly represented by elements of the Elbe-Havel-culture and the central Globular Amphora culture. The older stage with *bogenstich* ornaments is well-documented in the southwestern Baltic Sea region. In contrast, the motifs of the younger cord decoration horizon are barely detectable. For these reasons, the process of influence towards the north might have started relatively soon after the cultural opening of the Havel region. A second possible spreading route should be considered, too. Additional cultural impulses might have been communicated directly along the coastal zone from the eastern Pomeranian region to the Uckermark.

26 Jars, cups of type Meseberg.

27 Beier 1988, 78–79.

28 E.g. Pevestorf 19 (Meyer 1993), Barby 2 (Beier 1988, 102–104).

29 E.g. Derenburg 1 (Döhle and Stahlhofen 1985; D. Müller 1994, 93 Abb. 8, 14), Gotha (Spießbach 1932), Remlingen 6 (Dirks 2001), Wandersleben (Gall et al. 1983).

30 Flat burial necropolises, extended supine position, transverse arrowheads, flint fire strikers.

31 Walternienburg culture, Elb-Havel-culture.

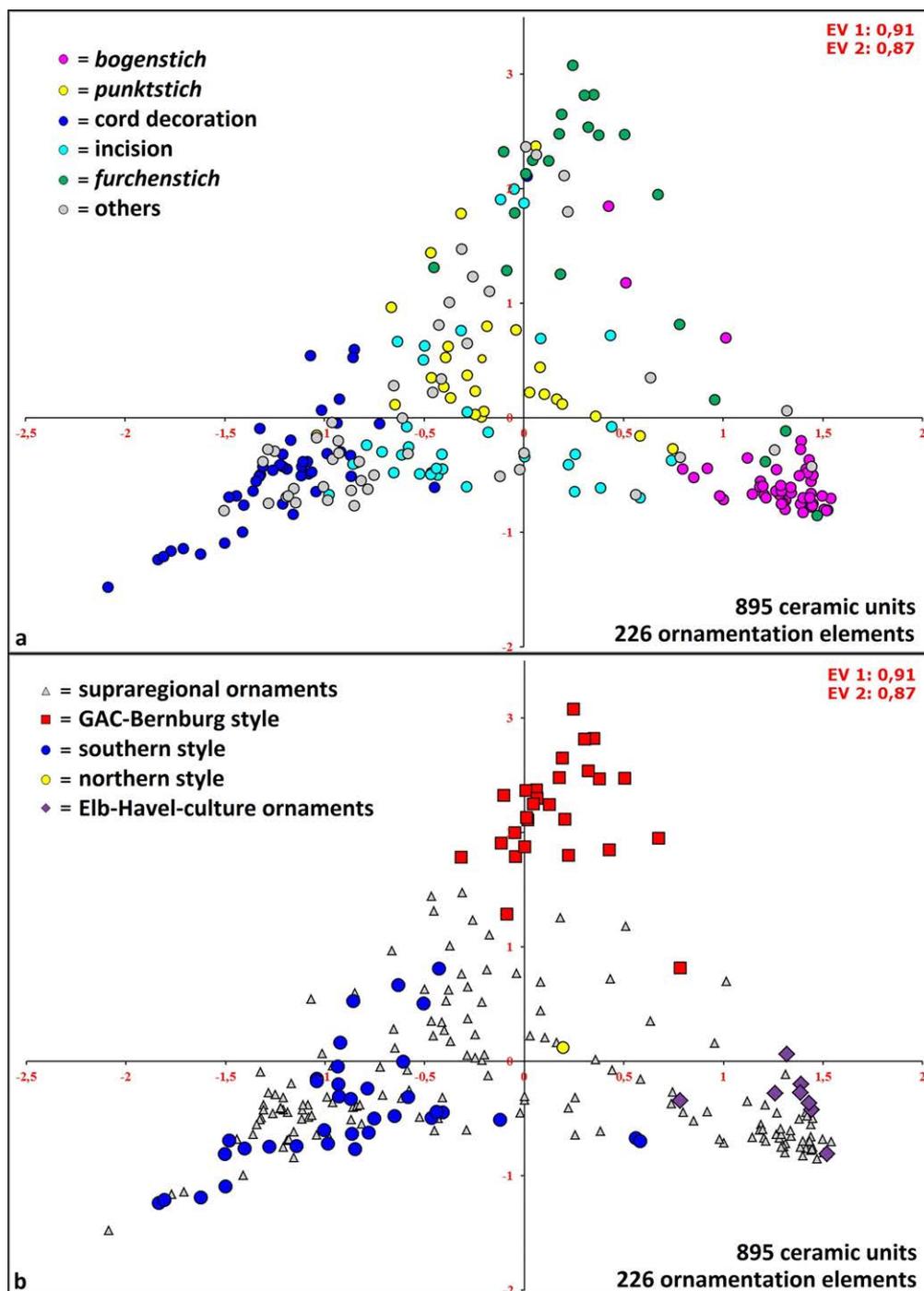


Fig. 10 | Correspondence analysis of pottery units with all ornamentation elements to determine the integration timing of regional styles within the known supraregional ornamentation sequence.

This could have manifested itself in the peculiarity of the Globular Amphora culture in the Uckermark. Various phenomena, which emerge in the western Baltic Sea region from about 3100 BC on, led to the assumption of an agricultural and social crisis.<sup>32</sup> Finally it seems that the adaptation of intensive animal husbandry organized in small groups from

32 Cf. J. Müller 2011, 20–21; revival of foraging way of life (e. g. Ostorf, Löddigsee), reforestation of former settled areas, increased development of local ceramic styles, reduction of construction output volume relating megalithic tombs, an increasing number of weapon offerings in graves.

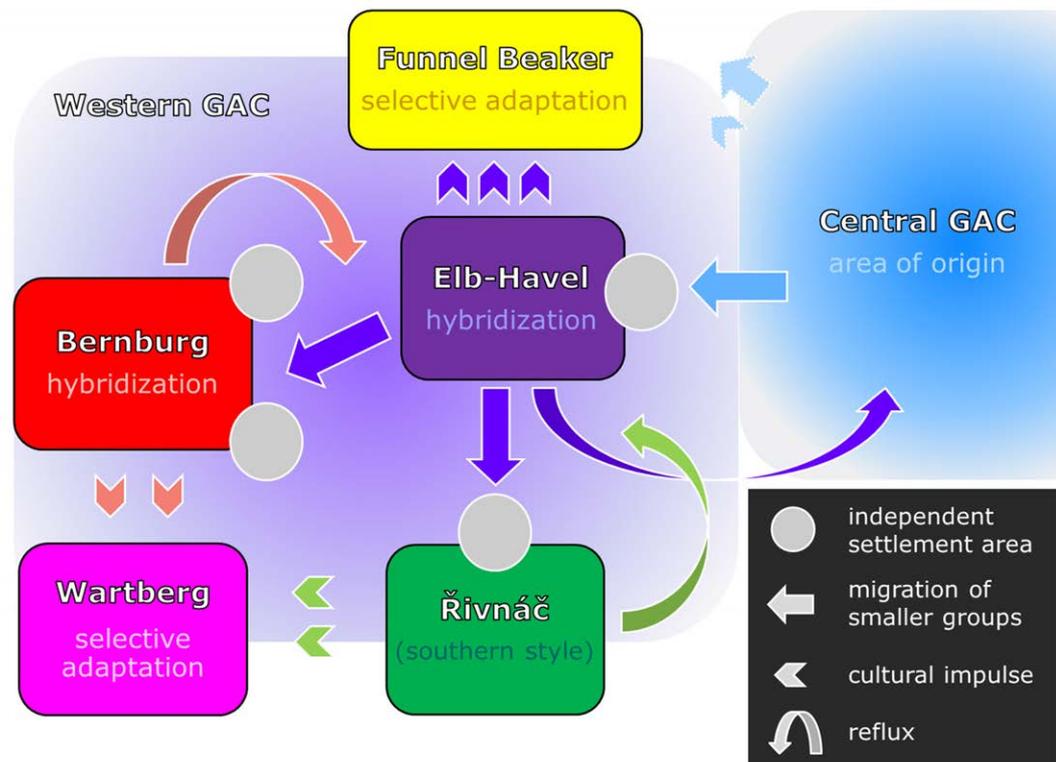


Fig. 11 | Model of a cascade-like expansion of the Western Globular Amphora culture.

the south offered a carrying concept of subsistence to the communities in the north in order to overcome this complex crisis situation. In addition, there is growing evidence that especially the local transformation of cultural impulses from the Globular Amphora culture<sup>33</sup> initiated the genesis of the Single Grave culture in the peripheral zones of the northern Funnel Beaker culture.<sup>34</sup>

These hypotheses are supported by the results of a correspondence analysis regarding the ceramic units and the complete range of ornamentation of the western group. In this way, each regional style was linked within the known supraregional decoration sequence by the reintegration of regional elements of ornamentation which had previously been excluded (Fig. 10). The characteristic motifs of the Elb-Havel-culture on the hybrid ceramics are closely connected to the older *bogenstich* ornaments. Typical Bohemian-Saxon motifs of the southern style are obviously associated with the younger cord decoration horizon. The sector mainly characterized by *furchenstich* motives is connected to the Bernburg culture. This exogenic impulse from the Middle Elbe-Saale region on the common decoration spectrum of the Globular Amphora culture manifests itself in a clearly visible boundary position of these motifs related to the known supraregional ornamentation sequence. As a result, the contact to the Elb-Havel-culture might have existed already before a massive influence of the Bernburg culture led to a second cultural hybridization.

Thus, the migration of smaller groups, the selective adaptation of cultural impulses and the cultural hybridization are the spreading mechanisms within the model of a cascade-like expansion of the Western Globular Amphora culture (cf. Fig. 11). This model is supported by the hypothesis of a way of living mainly based on intensive animal husbandry and the individual participation of the local cultural substrate. During its

33 Individualism, subsistence strategy, cattle depositions.

34 Cf. Furholt 2011, 31–32; Johannsen and Lauersen 2010, 27–28.

expansion to the West, the Globular Amphora culture interacted with a number of cultural units. Their specific influence on different spheres of material culture contributed to the development of local variations and thus the heterogeneity of the whole cultural complex. The continuity of regional burial traditions and the hybridization of the ceramic styles suggest a strong involvement of local communities in the expansion process. The spacious distribution of the younger cord decoration horizon and the exchange of raw materials<sup>35</sup> prove the continuity of contacts among the local and regional groups of the Globular Amphora culture.

## 6 Decline of the Western Globular Amphora culture

The replacement of the Globular Amphora culture by another supraregional cultural complex—the Corded Ware culture—is already indicated by the trend towards cord decorations in its younger stage of development. The transition thereby did not occur abruptly but rather within a gradual process. This process is reflected both in culturally mixed inventories<sup>36</sup> and in transformation phenomena<sup>37</sup>. In the second quarter of the 4th millennium the Corded Ware complex spreads successively into all regions occupied by the Globular Amphora culture. The Corded Ware culture might have benefited from the established large-scale communication network between the Dnieper region in the east and eastern Holstein in the west during its expansion. Interestingly, cultural units with unique character traits originated exactly in those areas with formerly sparse presence of cord decoration in the Western Globular Amphora culture in the subsequent period. This applies to the region between Altmark, Havelland and Magdeburger Börde, the core region of the subsequent Schönfelder culture. Similarities in pottery<sup>38</sup>, contact finds<sup>39</sup> and continuity of sites indicate that the Schönfelder culture developed from the Globular Amphora-Bernburg hybrid group.<sup>40</sup> Also in the southern Baltic Sea area cord ornaments occur only rarely. There is evidence that the Globular Amphora culture had an impact on the formation of the Single Grave culture in the border area of the northern Funnel Beaker culture.<sup>41</sup>

35 Amber, Krzemionki flint.

36 Weißandt Gölzau 3 (Bär 1969).

37 E. g. Złota culture (cf. Furholt 2009, 20–22).

38 Hollowed angle-bands, textile ornamentation.

39 Peulingen 1 (Beier 1988, 81).

40 Wetzlar 1979, 70–76.

41 Individualism, subsistence strategy.

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