CORDED WARE, BELL BEAKERS AND THE EARLIEST BRONZE AGE IN THE HEGAU AND THE WESTERN LAKE CONSTANCE REGION

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Abstract: Based on new radiocarbon dates of Corded Ware and Bell Beaker sites this study aims to explain the chronological sequence of settlement pattern between two nearby landscapes: the Hegau and the western part of Lake Constance in southwestern Germany. It will be discussed whether there are indications of temporal overlap of different clearly defined Neolithic groups. By comparing chronological data, settlement pattern and typology, it will be argued that the archaeologically defined cultures of Corded Ware and Bell Beaker, but especially those of Bell Beaker and Earliest Bronze Age are connected closely within the area of our research.

Key words: Corded Ware, Bell Beaker, Earliest Bronze Age, settlement dynamic, chronology

1. Introduction

The district of Constance (GER) is primarily characterised by two contrasting landscapes: the Hegau and the western part of Lake Constance and its glacial basin (*Fig. 1*). Based on first examinations, this contrast is also reflected by Neolithic finds and their distribution (*Schlichterle 1991*). While old and middle Neolithic settlements (c. 5500–4500 BC) were located around the volcanoes that dominate the landscape of the Hegau, the shores of Lake Constance were only occupied during Late Neolithic times (c. 4000–2400 BC). At that point settlement activities shifted towards the lakes, where lake dwellings were lined up like pearls on a string along the shore. The Neolithic record of the direct hinterland[1] and the Hegau region is significantly scarce during that period (*Lechterbeck – Merkl 2014*).

Nevertheless, evidence of all Neolithic periods is documented in the area of research (*Fig. 2*). For that reason, our ongoing research project analyses whether the shift in the use of different landscapes in different times can be explained by cultural or economic changes or if it is rather a case of dissimilar preservation conditions in the two areas.

In addition to compiling and analysing all available Neolithic data, one focus lies on the settlement dynamics during the 3rd millennium BC. At the end of the first half of the 3rd millennium BC lake dwellings disappeared, but approximately at the same time graves with Corded Ware pottery and Bell Beakers appeared. When Jürgen *Hald* and Christian *Strahm* (*2008*) summarised the settlement pattern of both Corded Ware and Bell Beaker cultures they recognised connections between Bell Beaker and Earliest Bronze Age settlement pattern. It is now possible to include new radiocarbon measurements from those sites[2]. Using that database, the following paper aims to answer two questions concerning the temporal sequence of Corded Ware, Bell Beakers and Earliest Bronze Age sites[3]:

[1] The present study uses the term "hinterland" in order to specify the region of the western Lake Constance region, which is not the immediate coast line. The sites of the hinterland are not features which are permanently or seasonal under water today and, therefore, not interpreted as lake dwellings, in general. The hinterland is chiefly characterised by the deltas of the two rivers Radolfzeller Aach and Stockacher Aach, as well as the mountains called Schiener Berg and Bodanrück.

[2] In the course of our DFG-founded project, ten bone samples were analysed that produced new radiocarbon data. The new radiocarbon dating was carried out by the Curt-Engelhorn-Zentrum Archäometrie in Mannheim (GER).

[3] Within this project the definition of the Earliest Bronze Age is closely linked to the cemetery of Singen "Nordstadtterrasse" and its associated finds. Based on these finds and features Rüdiger Krause classified a Singen group (*Krause 1988*). This Singen group is considered as a regional specification of what Emil *Vogt* (*1948*) and Birgit *Lissner* (*2004*) characterised as *Blechkreis*.

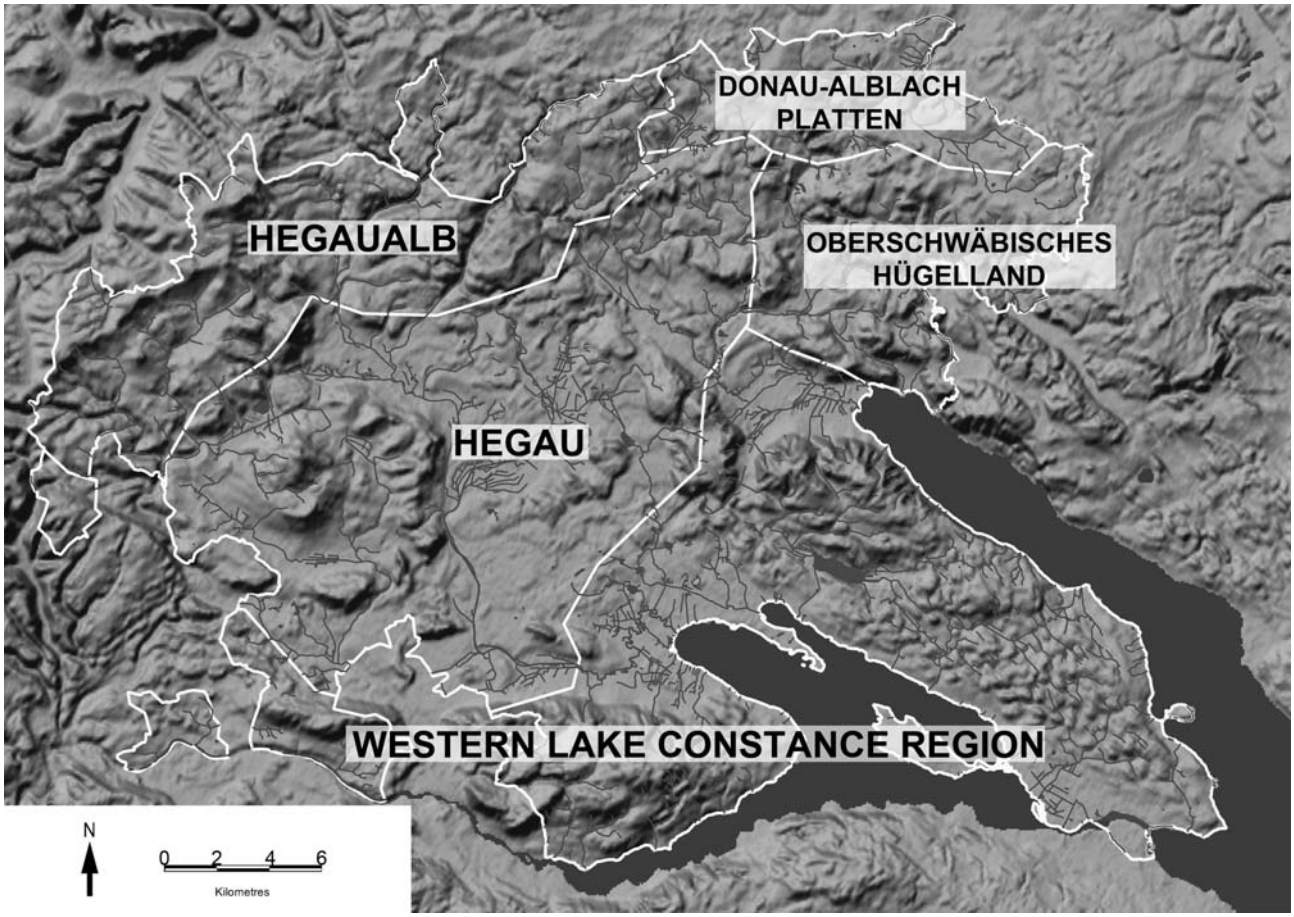

Fig. 1. *Classification of landscapes in the district of Constance.*

1. Firstly, did lake dwellings with Corded Ware finds exist at the Lake Constance contemporaneously with the Corded Ware graves in the Hegau?

2. Is there any evidence of synchronism or temporal overlap of Corded Ware, Bell Beakers and the earliest Bronze Age sites (esp. the cemetery of Singen) in the area of research?

Due to the new radiocarbon data our area of research can probably be considered as the best dated region of the 3rd millennium BC in Southern Germany. Since Corded Ware, Bell Beaker and Earliest Bronze Age sites are known from a rather small area the paper tries to draw conclusions on the relationship between these archaeological phenomena.

2. The archaeological record of the 3rd millennium BC

In our area of research the archaeological evidence of the Pfyn and Horgen culture is dominated by dwellings found along the shores of Lake Constance. This picture, however, starts to change when evidence of the Horgen culture disappears at around 2800 BC (*Billamboz – Köninger 2008*, 323nn.). With the emergence of the Corded Ware at the Lake Constance after 2700 BC people still settled along the shore line, but the quantity and quality of the archaeological evidence decreases significantly (*Fig. 3*).

House plans are rare, probably because of erosion processes. Up to now, we only know house plans from Ludwigshafen "Seehalde", Maurach "Ziegelhütte" (*Billamboz – Köninger 2008*, 327–328) and Sipplingen "Osthafen" (*Billamboz 2004*, 107–108).[4] Most of the settlement sites can only be identified by accumulations of a number of typical Corded Ware

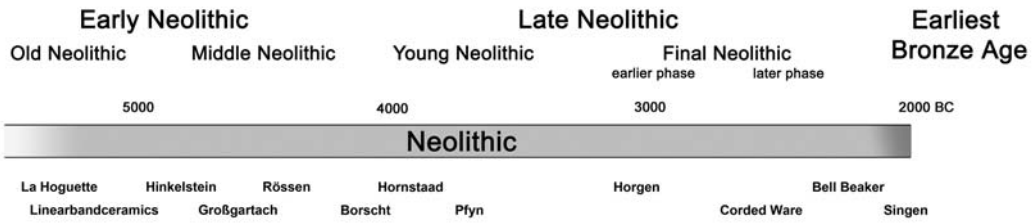

Fig. 2. *Neolithic periods and Neolithic cultures present in the district of Constance.*

finds that have been washed out by waves and currents and were picked up by private collectors. The two sites Hornstaad "Schlössle I" (*Schlichterle 1987*, 26–27; *Köninger – Schlichterle 1990*, 151) and Ludwigshafen "Seehalde" (*Köninger 2002*) can be considered as the most comprehensively studied and published sites with Corded Ware in our area.
Within the area of our study 24 Corded Ware sites have been located, whereby 18 of them are situated in the western Lake Constance region and six in the Hegau. Only eight sites are clearly documented as settlements (all lake dwellings); the others have to be addressed as either graves or single finds, since the archaeological context is unknown (cf. Appendix). Characteristic finds are potsherds with corded or incised ornaments, wavy lines and fingertip impressions on the vessel's rim (*Fig. 4A*). The pottery is closely linked to the Swiss lake dwellings by typology (*Köninger – Schlichterle 1990*). Additionally, a particular type of stone axe-head, the "degenerierte A-Axt" (*Fig. 4B*), has also often discovered in contexts with Corded Ware pottery (*Köninger – Schlichterle 1990*, 160ff.).

It is significant that in the western Lake Constance region nearly all Corded Ware finds have been found in the littoral zone. Only a cord-decorated potsherd and a sherd with semi-circular impressions – both identified as Corded Ware – have been found at Bodman "Bodenburg", which is a hilltop close to the lake (*Köninger – Schöbel 2010*, 400). In contrast, five Corded Ware graves and two single finds of potsherds are known in the Hegau. One fragment of a cord-decorated beaker was found in Duchtlingen "Im Zehntgarten/Lachen" (*Ehrle et al. 2011a*, 77). The other potsherd was discovered at a slope of the Hegau volcano Hohenkrähen near Duchtlingen and is decorated in the typical style of Swiss Corded Ware. The impressions were not made with a cord, but by beads on a string (*Schlichterle 1982*, 10). Even if there are no further indications at the Bodenburg and the Hohenkrähen, Corded Ware hill-top settlements are known from e.g. the Weinfelden "Thurberg" in Switzerland which is around 30 km southeast of the Hegau (*Hardmeyer 1983*, 132ff.). Nevertheless, definite evidence of Corded Ware settlements is still missing at the Hegau. Instead, several graves linked to Corded Ware burial traditions have been excavated there. Individuals with Corded Ware affiliations were typically buried in a crouched position in east/west-orientated graves, thus facing south, and were usually associated with gender specific grave goods (*Fischer 1953*, 135–136, 168; *Turek – Černý 2001*). Even if diagnostic grave goods such as pottery are missing, the bodies are buried in the relevant position; these graves are understood as the early type of Corded Ware graves (*Furholt 2003*, 119). All graves without characteristic pottery are E–W-orientated in our study area. We suggest they could be part of that group, because in the Hegau the more or less N–S-orientated burials are associated with either typical Bell Beaker or Early Bronze Age grave goods.
Cord-decorated pottery has only been found in two E–W orientated graves[5]. In Singen „Ob den Reben (Uhlandstr.)" a small group of five graves (*Krause 1988*, 22nn, 296–297) and in Anselfingen „Breite" two graves have been discovered (*Ehrle et al.* 2010). In the area of Hilzingen „Unter Schoren" (*Dieckmann 1989*) and Singen "Maggi-Fabrikgelände" (*Bad. Fundber. 16, 1940*, 39) no evidence of additional graves is known.

Bell Beaker finds, however, are nearly absent in the western Lake Constance region (*Fig. 3*). Just one single finding of a stone wrist-guard, detected in Dettingen "Ried", can be associated with the presence of Bell Beaker carrying people in that region (*Sangmeister 1974*, 132). Although the find context is unknown, it is possible that the wrist guard is the

[4] Both sites Maurach „Ziegelhütte" and Sipplingen „Osthafen" are outside the research area. The two are located on the north-western shore of Lake Constance, but not within the district of Constance.

[5] Hilzingen „Unter Schoren" (*Dieckmann 1989*) and Singen „Ob den Reben (Uhlandstr.)" (Grave no. 5) (*Garscha 1929–1932*; *Krause 1988*, 296–297).

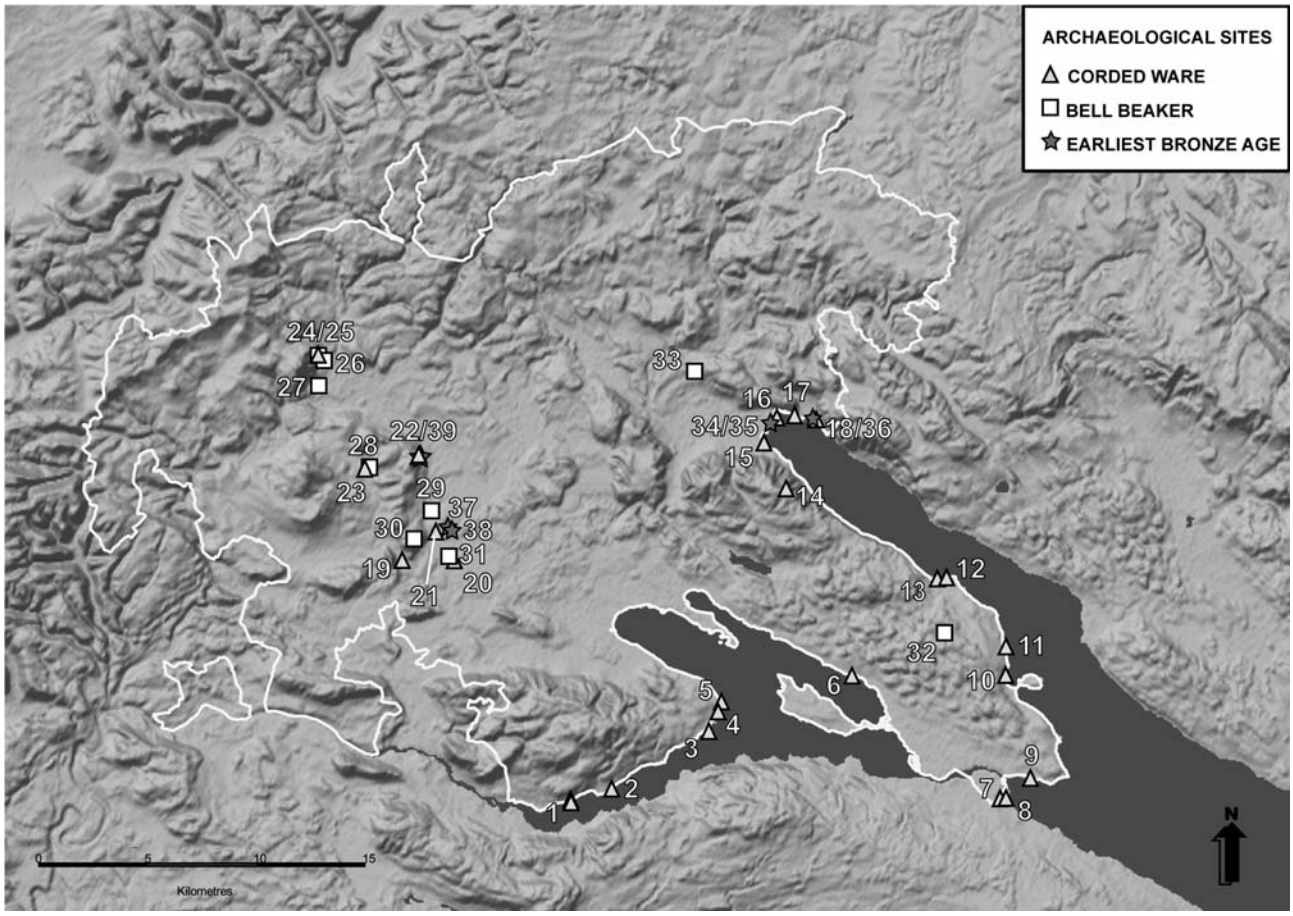

Fig. 3. *Geographical distribution of sites connected with Corded Ware, Bell Beakers and the Earliest Bronze Age sites (for information on the sites: cf. Appendix)*

remnant of a destroyed burial, since these kinds of objects are commonly found in Bell Beaker graves. They are part of the so-called Bell Beaker Set reflecting a Bell Beaker ideology (cf. *Shennan 1975*; *Burgess – Shennan 1976*). Additionally, a potsherd was excavated in the context of the Early Bronze Age lake dwelling from Bodman "Schachen I (layer A)". It is a small rim fragment with two parallel incised lines (*Köniniger 2006*, 229, Fig. 92a). Bell Beaker pottery of similar workmanship has been found in Welschingen "Guuhaslen", and, consequently, it can be connected with Bell Beaker traditions. As Joachim *Köninger* (*2006*, 230) states, various other handled cups, that were found in the same layer, are typologically comparable to the complementary ceramics of the Bell Beaker phenomenon by typology[6].

On the contrary, in the Hegau region several Bell Beaker sites are known. Apart from some single finds[7], Bell Beakers are almost exclusively known from graves. At the Hegau the first excavation of Bell Beaker burials took place in 1901/1902. In the course of the excavation of Hallstatt period mounds in Wahlwies "Bogen" also a Bell Beaker grave was found (*Wagner 1908*, 71).
In 2004 nine Bell Beaker graves were discovered during a rescue excavation north of Singen at a site called "Nordstadtanbindung" (*Hald 2008*; *Zängle 2011*). The group of graves was aligned in southwest-northeast direction. It is located in the Aach valley, just some hundred metres away from the so-called "Nordstadtterrasse" on top of which five Corded Ware graves and the famous Early Bronze Age cemetery were located.

[6] The handled cups are similar to M. Besse's complementary ware of Type 35 (*Besse 2004*, 133).

[7] Single finds of Bell Beaker pottery have been found in Duchtlingen "Im Zehentgarten/Lachen" (pers. corr. Jürgen Hald) and Singen "Hohentwiel" (*Biel 1987*, 167). A small, rather untypical square wrist-guard is supposed to be found in Singen (*Sangmeister 1974*, 133). Today the object is exhibited in the Rosgartenmuseum in Constance.

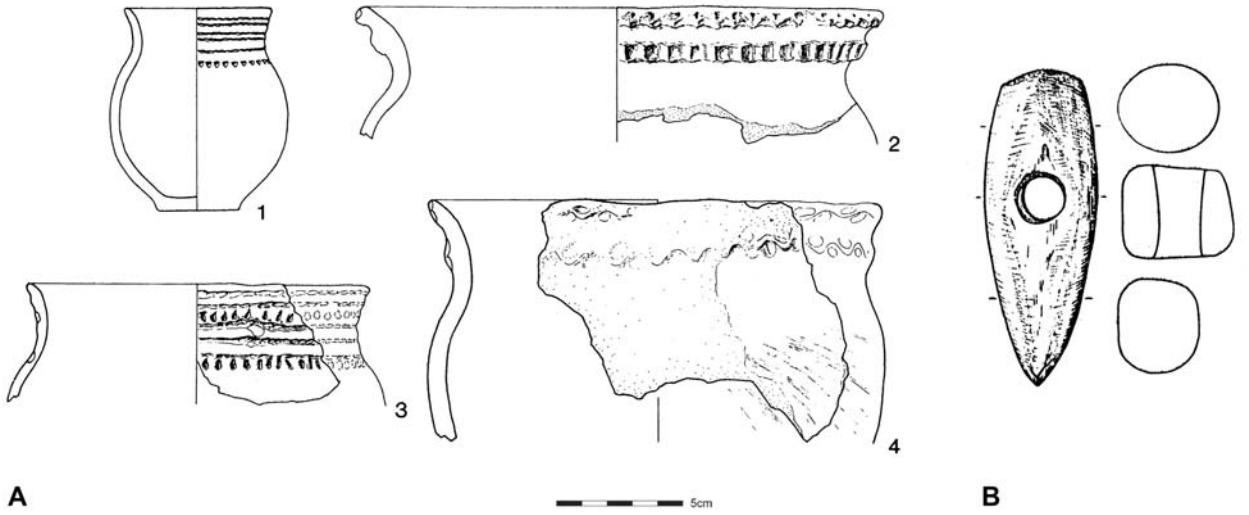

Fig. 4. *Selection of typical Corded Ware pottery as it has been found e.g. in Hornstaad "Schlössle I" (A) and a so-called "degenerierte A-Axt" from Hornstaad "Hörnle" (B) (Köninger – Schlichterle 1990, Fig. 3: 1-4, Fig. 10: 1).*

In Anselfingen "Eulerloch/Sandäcker" and "Breite" - both sites less than 500m away of each other - six Bell Beaker burials and one single potsherd have been detected altogether (*Bad. Fundber. 3 1933–1936*, 352; *Ehrle et al. 2011b*; *Ehrle et al. 2013*, 136–137). It is likely that those were part of a single Bell Beaker cemetery placed on a gravel terrace, which had already been occupied by Corded Ware graves (*Fig. 3*).

On the bottom of the gravel terrace in a distance of about 1 km remains of a destroyed Bell Beaker settlement were detected (*Ehrle et al. 2008*). A ditch had been backfilled with fragments of Bell Beaker and Bronze Age pottery. It can be assumed that it was filled in with rubbish from a nearby settlement, which, however, is not preserved. The above mentioned possible settlement and the small cemetery on top of the terrace were probably connected in some way. The Bell Beaker pottery found in the Hegau (*Fig. 5*) has close parallels in the ceramics of the so-called Eastern Bell Beaker group[8], which was distributed from the Rhine valley to Budapest.

Regarding the Earliest Bronze Age of our study area, it is hard to draw a comprehensive picture of the settlement pattern, because only six sites are documented here for the earliest phase of the Bronze Age. Nevertheless, the well-known and comprehensively studied cemetery of Singen accounts for the existence of wide-spread networks at the end of the 3rd millennium BC (e.g. *Krause 1988*; *Oelze et al. 2012*; *Cattin et al. 2015*). In addition to this important example, the previously mentioned pottery from Bodman "Schachen I (layer A)" indicates the transition between Bell Beaker and Early Bronze Age traditions. These cups that were found in Bodman "Schachen I (layer A)" have been defined as the "Bodman facies" by Joachim *Köninger* (*2006*, 218–219). In the area of our research ceramics belonging to the "Bodman facies" have been also found in Bodman "Weiler I", Ludwigshafen "Seehalde", at the Hohenkrähen and even at the cemetery of Singen (*Köninger 2006*, 219, Fig. 149). Finally, the finding of an oar-headed pin from Singen "Rußäcker (Lessingstraße)" should be mentioned. The context of the find is unknown (*Fundber. Baden-Württemberg 10, 1985*, 485). Because of its proximity to the famous cemetery, where similar finds have been made, this artefact probably came from a destroyed grave. In summary, these objects can be classified as remains of the Earliest Bronze Age in our study area (Singen group and accordingly the early Blechkreis).

[8] A detailed typological analysis including the presentation of the finds and features of all Bell Beaker graves from the district of Constance would go beyond the scope of the present paper. This topic will be addressed in another work which is currently prepared by Jürgen Hald and Björn Zängle in cooperation with the author of this study.

Fig. 5. *Pottery from Singen "Nordstadtanbindung" is exemplary for Hegau Bell Beaker pottery (Hald 2008, Fig. 30).*

Concerning the archaeological remains of Corded Ware, Bell Beaker and Earliest Bronze Age it seems obvious that contemporaneously with the abandonment of Corded Ware lake dwellings the characteristic pottery also disappears. Nevertheless, during the Corded Ware period and especially with the emergence of Bell Beakers in the research area, the archaeological record increases at the Hegau. Coinciding with the appearance of what we define as Earliest Bronze Age material, the shores of Lake Constance were sporadically re-colonised. This sequence, however, is only based on the typo-chronology of local material. The following section concentrates on absolute-chronological data from various sites in order to better understand the development of the colonisation of the Hegau and the western Lake Constance region during the 3rd millennium BC.

3. Absolute-chronological dated sites with Corded Ware and Bell Beakers

One of the aims of the DFG-founded research project is to clarify the chronological and spatial context of the Neolithic groups present in the district of Constance. Within the scope of our study it was possible to obtain radiocarbon dates from bones from several Neolithic sites. Additionally, numerous dendro-chronological dates can be considered here, because the dendro-archaeological laboratory at Hemmenhofen (GER) has been examining chiefly pile dwellings around the Lake Constance for more than 30 years[9]. Now, the new radiocarbon dates and the dendro-chronological data can be compared in order to build up a chronological sequence of Corded Ware, Bell Beaker and Earliest Bronze Age sites in the area of research[10].

[9] André Billamboz and his team thankworthily made their data available for the project. Their information is vital for a successful discussion.

[10] The radiometric data of the present paper has been calibrated at 2 range using OxCal v4.2.4 [http://c14.arch.ox.ac.uk/] and the calibration curve IntCal13 published by *Reimer et al.* (*2013*).

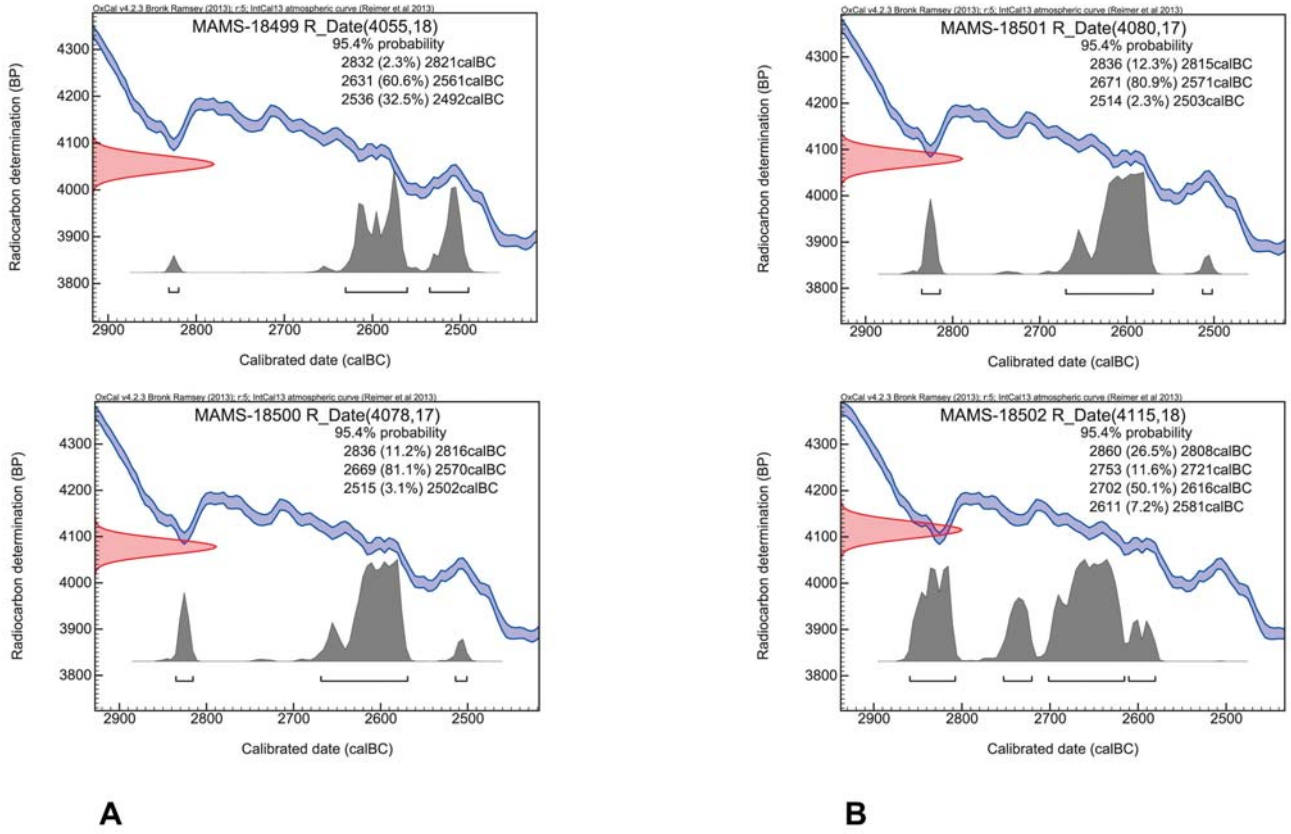

Fig. 6. *Calibration curve of the radiocarbon dates carried out on two Corded Ware burials from Anselfingen "Breite".*

On the one hand, dendro-chronological information from some pile dwellings which are linked to Corded Ware will be compared with radiocarbon data recently carried out on human bones found in two east/west-orientated graves at Anselfingen "Breite". On the other hand, skeletons of four Bell Beaker graves provided new radiocarbon data. Two of them were also excavated in Anselfingen "Breite" and the others at Singen "Nordstadtanbindung". They can be compared with radiocarbon data from botanic rests that have been collected in a natural depression in Welschingen "Guuhaslen" (*Lechterbeck et al. 2014*) which was filled with Bell Beaker pottery (*Ehrle et al. 2008*). Finally, we will take a number of radiocarbon dates from Singen "Nordstadtterrasse" (*Krause 1988*, 171, Tab. 5) and from Bodman "Schachen I (layer A)" (*Köninger 2006*, 237ff.) into account in order to evaluate the chronological relationship between Bell Beaker and Earliest Bronze Age sites.

In studying the dendro-chronological data from several Corded Ware sites at the western part of Lake Constance André *Billamboz* and Joachim *Köninger* (*2008*, 326–330) interpreted two rather short and interrupted phases of colonisation. Whereas the earlier phase covers a period between 2682 and 2647 BC, the later phase covers dendro-data between 2441 and 2415 BC[11]. To the period between these dates only two further sites have been dated dendro-chronologically. Piles from Litzelstetten "Ebnewiesen" are dated to 2576/75 BC and from Sipplingen "Osthafen" to 2532 BC (*Billamboz – Köninger 2008*, 326–327). Thus, there is lack of data between 2647 and 2441 BC which cannot be explained, yet. Nevertheless, it needs to be taken into consideration that the fragmentary remains may reflect bad conditions of preservation. Even if the chronological framework of Corded Ware lake dwellings is known, the fragmentary record does not

[11] Referring to *Billamboz – Köninger* (*2008*, 325, Fig. 4) the earlier phase Corded Ware settlements is documented by Maurach "Ziegelhütte", Sipplingen "Osthafen", Bodman "Schachen II", Hegne "Galgenacker", Hornstaad "Schlössle I" and Steckborn "Schanz". Ludwigshafen "Seehalde", Sipplingen "Brandacker" and a further layer at Sipplingen "Osthafen" constitutes the later Corded Ware phase. It has to be taken into account that Maurach "Ziegelhütte", Sipplingen "Brandacker" and "Osthafen" and Steckborn "Schanz" are not within the district of Constance. They, however, can be considered here, because they are located at the western part of Lake Constance, only a few kilometres outside the area of research (*Billamboz – Köninger 2008*, 318, Fig. 1).

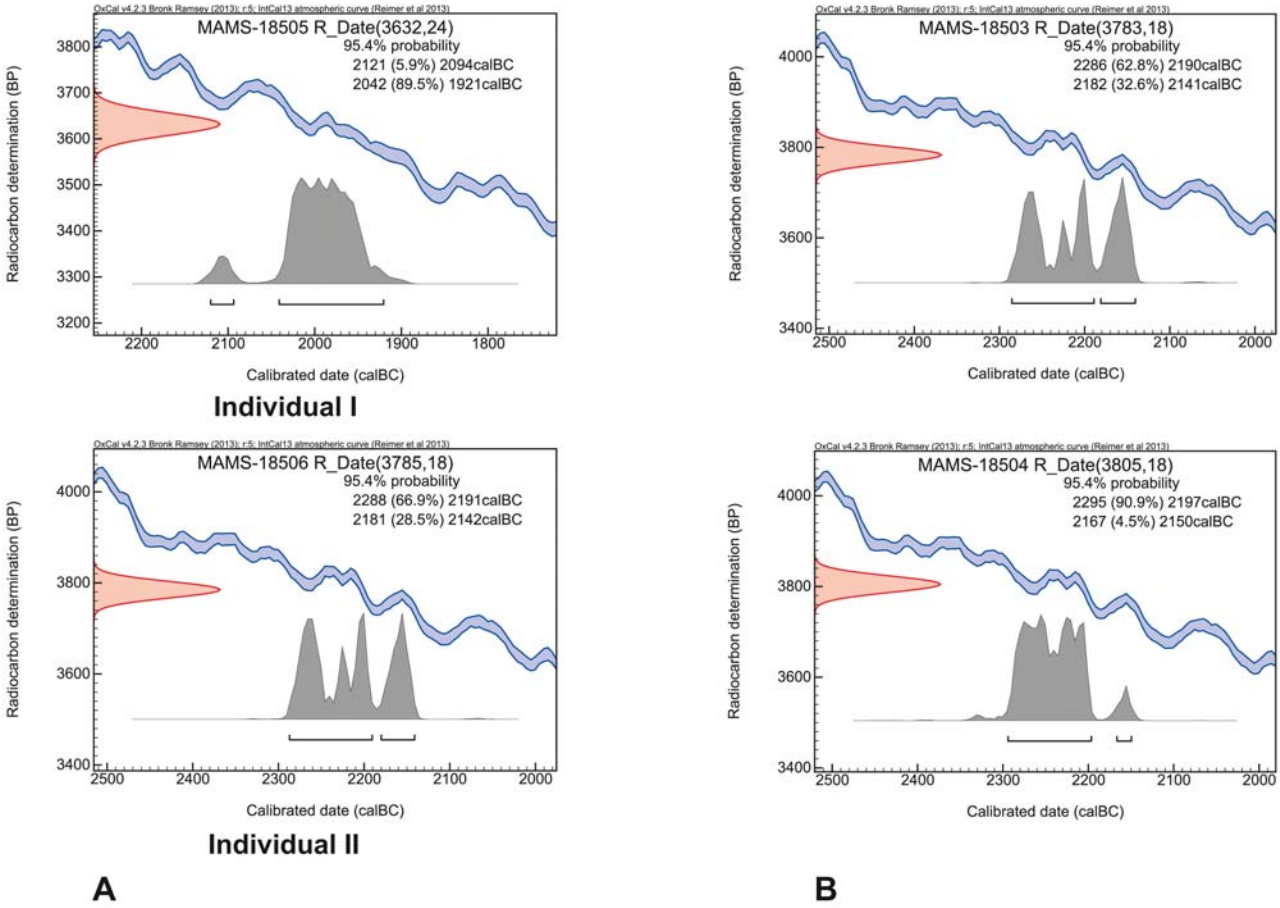

Fig. 7. *Calibration curve of the radiocarbon dates carried out on two Bell Beaker burials from Anselfingen "Breite".*

allow to state whether the western Lake Constance region was continuously occupied by Corded Ware using people. Comparing the data from the western Lake Constance region with data from the Corded Ware lake dwellings in central Switzerland for instance, a similar picture can be seen. In general, two separated phases of occupation have been detected on the shores of the central Swiss lakes, such as Lake Zurich. However, the start and end date of these phases is slightly different when compared to those from Lake Constance (*Bleicher et al. 2013*, 52–53). Since these different settlement records have also been documented at other lakes of the alpine foreland, it is unlikely that it is only a result of preservation. Subsequently, it has to be questioned whether Corded Ware sites in the Hegau existed contemporaneously or with a temporal difference.

It was possible to produce four radiocarbon dates on two Corded Ware graves from Anselfingen "Breite" (*Ehrle et al. 2010*). In the case of the double burial both individuals could be dated with one date each, and both dates concentrate around 2600–2500 BC (*Fig. 6A*). Thus, the absolute-chronology confirms the archaeological result that both individuals were buried at the same time. The second grave, a single burial, is most likely dated between c. 2750 and 2570 BC (*Fig. 6B*). It is very unlikely that the burials date younger than 2800 BC, although in the cases of the four dates there are peaks of the probability curve prior to 2800 BC. This, however, results from a dip of the calibration curve. Consequently, the radiocarbon measurements are evidence for the general concurrence of the two graves with the earlier phase of the Corded Ware lake dwellings. Moreover, the dating substantiates the archaeological hypothesis that E–W-orientated grave without ceramic grave goods can be interpreted as burial practise of the earlier Corded Ware period. We can only speculate about the lack of specific pottery in early Corded Ware graves. Maybe it was unnecessary for these communities to distinguish themselves from others concerning burial practises. But with the emergence of Bell Beakers in the same region, specific Corded Ware pottery as a group defining element was presumably introduced to the burial practises.

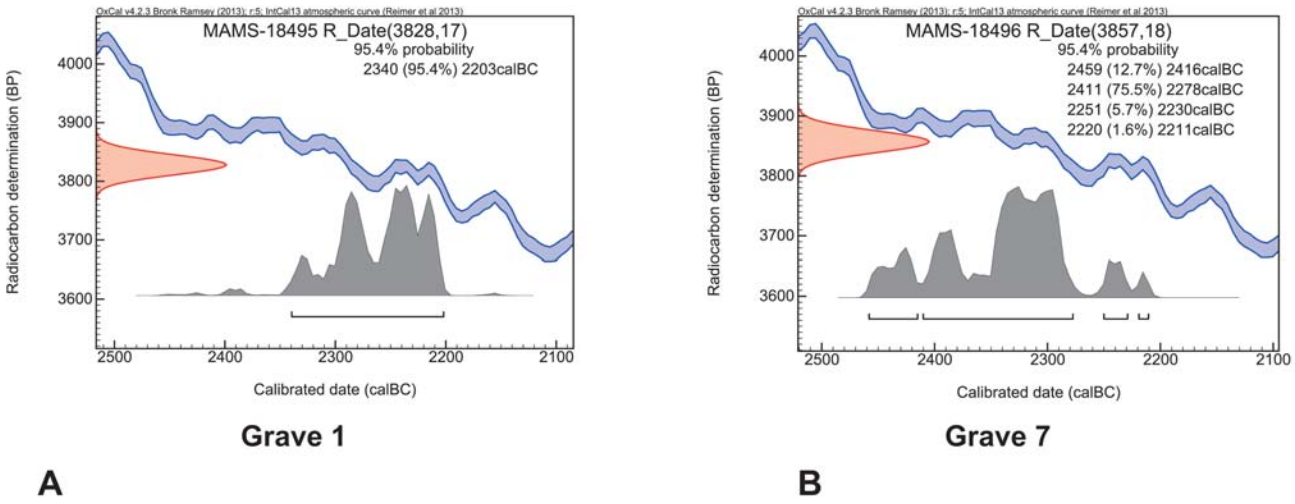

Fig. 8. *Calibration curve of the radiocarbon dates carried out on two Bell Beaker burials from Singen "Nordstadtanbindung".*

The presence of both Corded Ware and Bell Beaker burials on the gravel terrace of Anselfingen indicates a certain mutual knowledge or interaction of both archaeological phenomena. Hence, it was vital to clarify whether the two burial rites had been used at the same time in our area of research. Skeletal remains of four further graves containing Bell Beaker pottery - two graves from Anselfingen "Breite" and two from Singen "Nordstadtanbindung" - could also be radiocarbon dated.

In Anselfingen "Breite" it was possible to date bones of the two individuals which were buried together with Complementary Ware as well as the human remains of a single grave (*Ehrle et al. 2013*, 136–137). The radiocarbon dates carried out on the individuals of the double burial slightly vary, suggesting that the uppermost individual (Individual I) died slightly later (*Fig. 7A*). Based on stratigraphic evidence, however, it is impossible to state whether both individuals were buried separately and to which individual the associated pottery belongs. Therefore, it can be assumed that both persons died around 2100 BC. The S–N-orientated, probably female[12], skeleton is dated between c. 2290–2150 BC by two overlapping ^{14}C–dates (*Fig. 7B*).

Both of the single graves found in a small group of nine burials at Singen "Nordstadtanbindung" (cf. *Hald 2008*; *Zängle 2011*) could be dated by one radiocarbon date each (*Fig. 8A*). Whereas grave 1, which included a comb-stamp decorated Bell Beaker, is clearly dated between 2340 and 2203 calBC (2σ), the radiocarbon date of grave 7 ranges between 2459 and 2211 calBC (2σ) (*Fig. 8B*). With the probability of 75.5% the individual died between 2411 and 2278 calBC. The NE–SW-orientated grave 7 included a small jet bead, a handled cup and a decorated Bell Beaker.

In addition to the chronological information derived from burials, it is possible to include three radiocarbon dates from organic materials dug up from a depression together with Bell Beaker pottery in Welschingen "Guuhaslen" (*Ehler et al. 2008*; *Lechterbeck et al. 2014*). The dates have a large standard deviation and cover a period between at least 2460 and 2140 BC (*Fig. 9*; *Lechterbeck et al. 2014*, 100). Nevertheless, this time span covers more or less the period of the Bell Beaker graves.

In order to explain the chronological development of the Bell Beaker phenomenon in the Hegau and to compare the results with Volker *Heyd's* (*2000*, 343–353) typological sequence of the material from the Upper Rhine valley and the Hegau the number of absolute-chronological dates is still too small, although the number of Bell Beaker finds

[12] The skeleton was buried in crouched position, the head in a southward direction facing east. Referring to Adalbert *Müller* (*2001*) this orientation is characteristic for female burials. Therefore, we can assume that the individual was female, even if some exceptions from this practise are known. Anthropological analyses have not been carried out on that skeleton, yet.

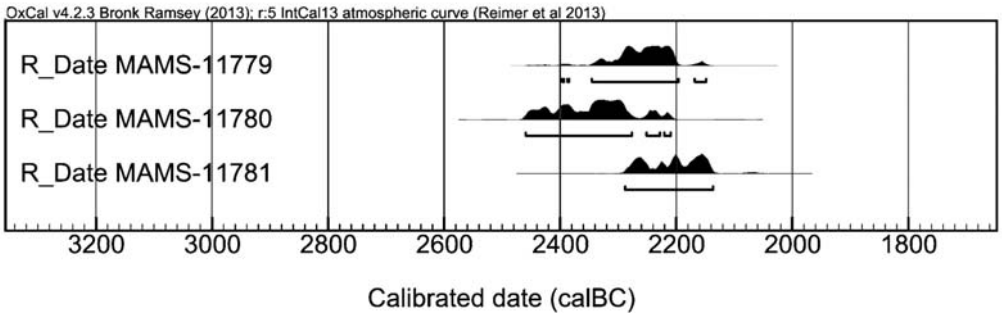

Fig. 9. *Calibration curve of three radiocarbon dates carried out on cereals found in the depression at Welschingen "Guuhaslen" (cf. Lechterbeck et al. 2014, Tab. 3).*

has increased since his work was published. Despite of that the new radiocarbon dates provide a temporal framework for the use of Bell Beakers in the studied area. There, people buried with Bell Beakers died between c. 2400 and at least 2100 BC. As a preliminary result, contact and interaction between Bell Beaker carrying people and settlers of the later Corded Ware lake dwellings can be assumed, but according to the radiocarbon data a long-lasting co-existence of Corded Ware lake dwellings and Bell Beaker carrying people seems to be unlikely. The dendro-chronological data from late Corded Ware settlement and the calibrated dates of the Bell Beaker graves do not overlap significantly (*Fig. 11*).

In contrast, the period of the Bell Beaker graves overlaps to a large extent with the data from the Singen cemetery. According to Rüdiger *Krause* (*1988*, 171, 176, Tab. 5), this Earliest Bronze Age cemetery had by and large been occupied between the late 3rd to the earliest 2nd millennium BC. A re-calibration of seven of the eight radiocarbon measurements points to an occupation of the cemetery from 2343–1899 calBC[13]. The results of the re-calibration indicate a longer time span. Both calibrations, however, clearly overlap chronologically with Bell Beakers. This would mean that Bell Beaker and "Singen" burial rites were practised at the same time, but they did not share the same burial ground. From the sites where Bell Beaker graves have been found, no evidence of the Earliest Bronze Age has been detected, yet.

Apart from the handled cup found at Duchtlingen "Hohenkrähen", indications of Earliest Bronze Age settlements are missing at the Hegau. Scattered finds point to a re-colonisation of the Lake Constance, but currently the only dated evidence is layer A at Bodman "Schachen I". The calibrated ^{14}C-dates demonstrate that the earliest occupation had presumably not taken place before 2000 BC (cf. *Köninger 2006*, 238). Even though Köninger argued (ibid.), that Bodman "Schachen I (layer A)" was contemporary with several Early Bronze Age cemeteries, such as Singen and sites of the Bavarian early Straubing group, only the later dates from Singen overlap with the earlier dates from Bodman. Also it is unlikely that the Bell Beaker burials where contemporaneous with the Bodman "Schachen I", too.

Consequently, the history of colonisation in our area of research during the 3rd millennium BC can be summarised as follows:

Based on the currently available archaeological and chronological evidence, the lake dwellings of what is defined as Horgen culture disappeared from the shores of western Lake Constance by 2800 BC (cf. *Billamboz 2014*, 1283–1284). After a period of more than 100 years of an absence of lake dwellings in general, the earliest pile dwellings associated with Corded Ware finds appeared around 2680 BC. Apparently along with new cultural impulses the shores were re-colonised. There is, however, no significant evidence for colonisation of the hinterland of Lake Constance throughout the 3rd millennium BC. At the time of the early phase of Corded Ware lake dwellings burial activity has been documented at Anselfingen, so that the Hegau and the shores of western Lake Constance must have been populated at the same time. Single finds from Duchtlingen "Hohenkrähen" support that notion. Based on the typology of the beaker found in a grave in Hilzingen "Unter Schoren" it seems that the Hegau was also occupied during the later Corded Ware period, but this could not be proven by radiocarbon dating, yet.

[13] The analysis HD 8974-9155 (3890 +/- 45 BP) is excluded. Because of its comparably old date it can be considered as an outlier.

[14] The Bell Beaker phenomenon probably originated on the Iberian peninsula around 2500 BC and spread out over wide areas of western Europe (*Müller – van Willigen 2001*).

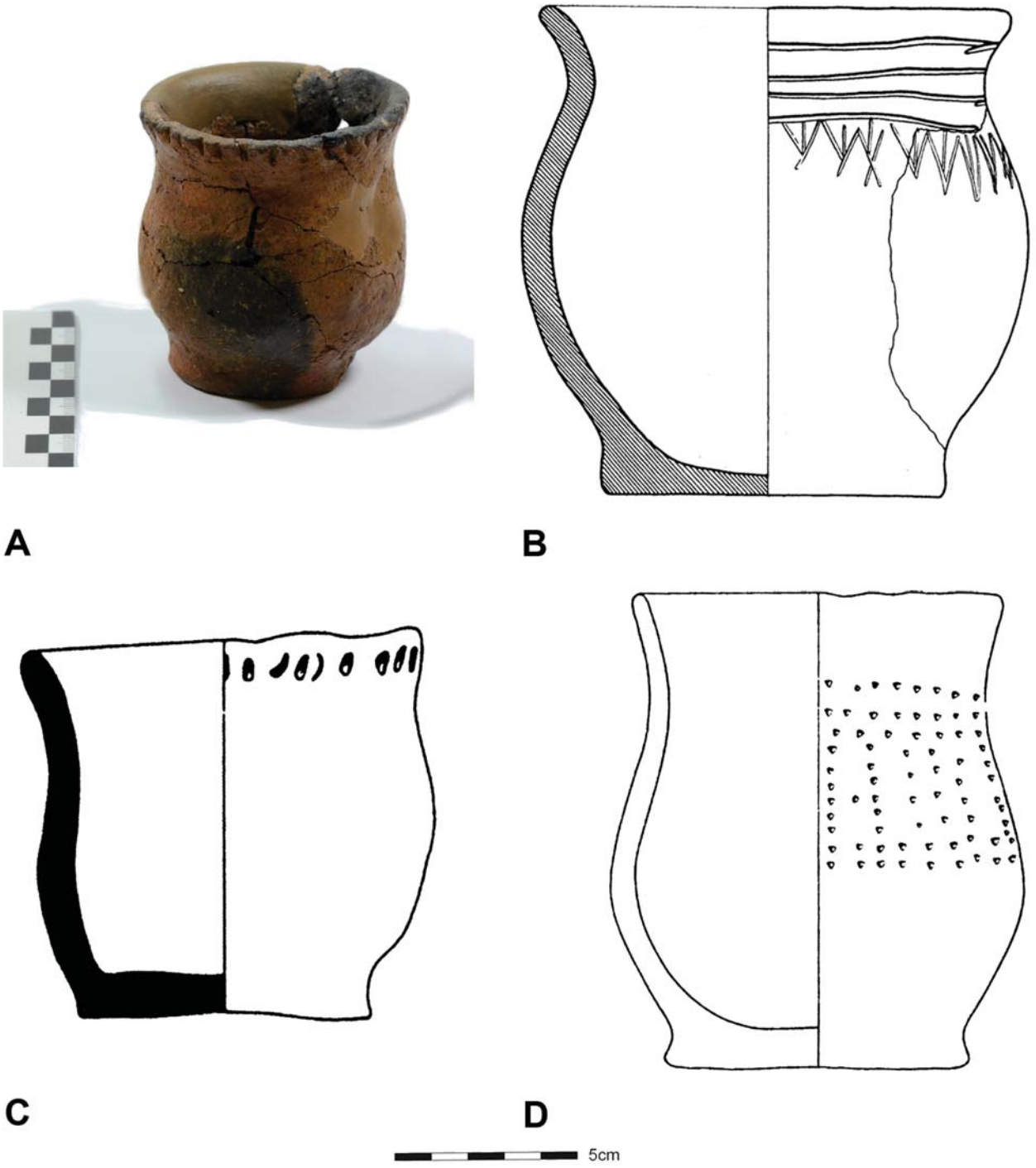

Fig. 10. *The small protruding footed beaker from Anselfingen "Breite" (A) (Landesamt für Denkmalpflege Baden-Württemberg, Foto: Jürgen Hald) and the typologically comparable finds from Schöfflisdorf (B) (Strahm, 1971, Tab. 37: 3), Auvernier "La Saunerie" (C) (Ramseyer, 1988, Tab. 32: 12) and Ludwigshafen "Seehalde" (D) (Köninger, 2002, Fig. 2: 1).*

Around 2450 BC the entire archaeological evidence of land use at the Lake Constance disappeared and a shift of habitat is suggested. Instead, new customs – described as the Bell Beaker phenomenon – emerged around 2400 BC in central Europe and at the Hegau[14]. These Bell Beaker carrying people seemed to have avoided dwelling along the lake shores. The radiocarbon measurements of the studied region show that Bell Beaker burials were present at least between 2400 and 2100 BC, and they were probably contemporary with most of the graves from Singen "Nordstadtterrasse". From that point of view that data can be regarded as a sign of a replacement of Corded Ware traditions by Bell Beaker carrying

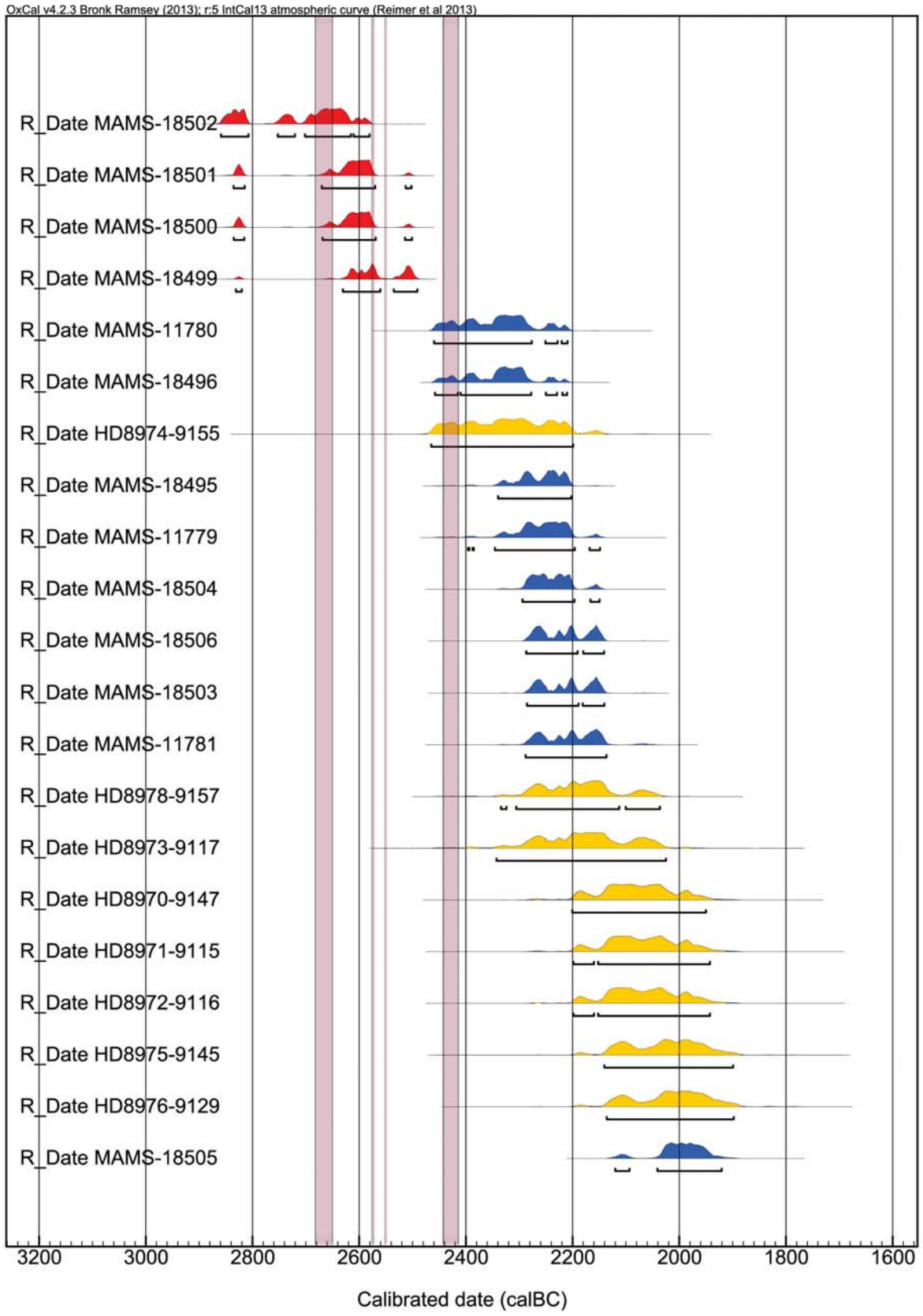

Fig. 11. *Comparison of the dendro-chronologically documented Corded Ware phases from Lake Constance (pink bars), with the radiocarbon measurements derived from both Corded Ware (red) and Bell Beaker sites (blue), as well as from the cemetery of Singen "Nordstadtterasse" (yellow) at the Hegau. The dendro-chronological data of the Corded Ware settlement phases is based on the work of Billamboz – Köninger (2008, 326–327).*

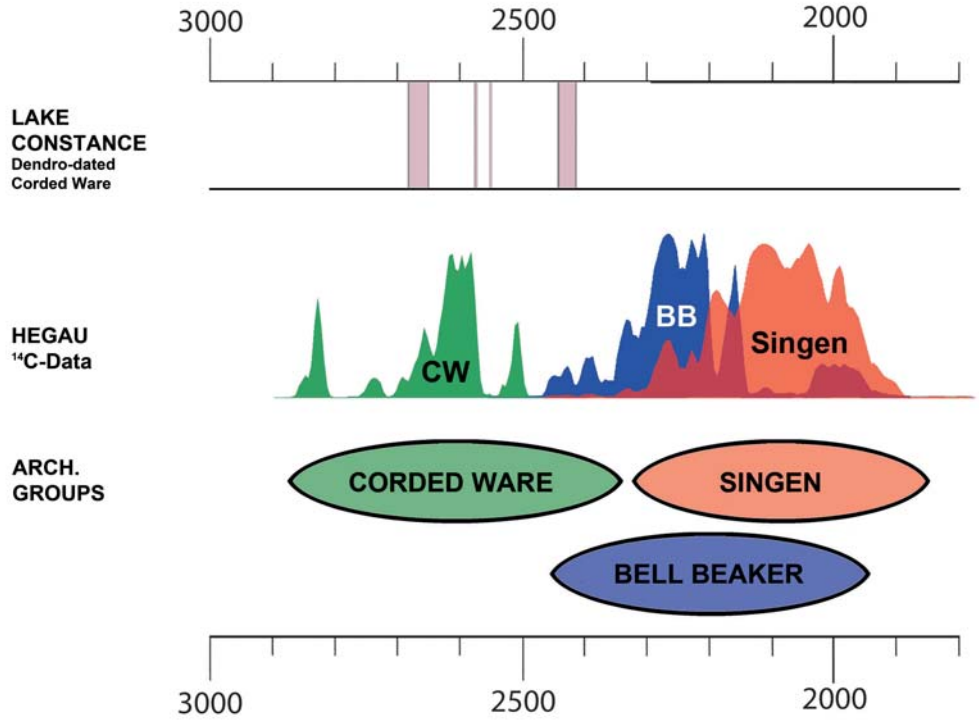

Fig. 12. *Comparison of dendro-chronologically dated Corded Ware sites, the curves of the sum calibrated radiocarbon dates and the assumed duration of the archaeological group at the area of research.*

people. Maybe the disappearing of both Corded Ware and lake dwellings is connected to the appearance of new cultural influences of the Bell Beaker phenomenon.

4. Evidence of a coexistence of Corded Ware and Bell Beaker traditions

The issue of a co-existence of older, local traditions with new practices of Bell Beaker carrying people have been repeatedly discussed with reference to different aspects (e.g. *Strahm 2002*; *Harrison – Heyd 2007*). Even if the analysis of absolute-chronological data does not indicate an explicit contact of Corded Ware and Bell Beaker in the Hegau, the archaeological evidence suggests that both groups mingled with each other. For instance, at Anselfingen burials of both groups were discovered in close vicinity but without direct contacts, so that it is possible that the location of Corded Ware graves was still known.

However, the best evidence of an interaction between burial practices of both phenomena is a grave excavated in 2012 at Anselfingen "Breite". The above mentioned, probably female individual was buried together with a handled cup, a bowl, two beakers and a necklace consisting of 33 v-perforated buttons (*Ehrle et al. 2013*, 137). The v-perforated buttons which are considered part of the Bell Beaker package/set were made of bone or antler. In southern Germany these objects appear rather regularly. According to Volker *Heyd* (*2000*, 292), graves sometimes include more than 20 pieces.

Additionally, four ceramic grave goods have been recognised. The bowl with a T-shaped rim is meant to be characteristic for the Eastern Bell Beaker group. Similar finds were found in various graves associated with Bell Beakers (cf. *Heyd 2000*, 252ff.). The beaker with stamped metope ornaments is similar to the samples dug up in graves in Singen "Nordstadtanbindung" (*Hald 2008*) and Mühlheim a. D. "Stetten" (*Fundber. Baden-Württemberg 28/2 2005*, 67–71), for instance. Furthermore, a handled cup was recovered from the grave. Typologically this cup is related to so-called Complementary ceramics (cf. *Besse 2004*). Similar cups are known from all over the distribution area of the Eastern Bell Beaker group, but also in Singen "Nordstadtanbindung" (Grave 7). Grave 7 is generally dated older than the other Hegau graves (cf. *Fig. 8, 11*), although, concerning the typology of southern German Bell Beaker research, this type of handled cups

is best interpreted as a transitional form between Bell Beaker and Early Bronze Age pottery (*Ruckdeschel 1978*, 77–79; *Heyd 2000*, 315ff.).

The most significant object, however, is a small, inconspicuous beaker. It is about 10 cm high with 6 cm in diameter produced rather simple without prominent decorations. The beaker is decorated with small, vertical incised lines along the rim (*Fig. 10A*). The important aspect is the Beaker shape. It is rather narrow in comparison to its height and characterised by a protruding foot. Overall, protruding foot beakers have been classified as Corded Ware beakers (*Glob 1944*, 64ff.). Heyd, who recently published a comprehensive study on Corded Ware and Bell Beaker typology of southern Germany, mentions only three examples of beakers with protruding foot from Bell Beaker context and stresses the typological connection to Corded Ware beakers (*Heyd 2000*, 435–436). Within the broader surroundings of the present study's research area, similar pottery has only been found in Corded Ware contexts. Comparable with the small beaker from Anselfingen "Breite" are, for example, beakers found in graves at Schöfflisdorf (CH) (*Fig. 10B*). Typologically these graves are considered as part of the later phase of Swiss Corded Ware (*Strahm 1971*, 124). Similar shaped beakers are also known from several Corded Ware lake dwellings from Switzerland, but also from Lake Constance. In Auvernier "La Saunerie" (Neuchâtel/CH) (*Ramseyer 1988*), for instance, pottery has been excavated that is quite similar to our sample (*Fig. 10C*). The respective cultural layer was dendro-chronologically dated to 2600-2490/2450 BC (*Furholt 2003*, 210). Overall, those finds were contemporary with the pile dwelling of Ludwigshafen "Seehalde" which dates between 2471–2431 BC (*Köninger 2002*; *Billamboz – Köninger 2008*, 327). In that layer a comparable beaker has also been found (*Fig. 10D*).
Therefore, our small beaker from Anselfingen has to be classified as a Corded Ware beaker and because of analogous artefacts, the expected date would range around the 25th century BC. The "Anselfingen"-burial's radiocarbon date ranges from c. 2295–2141 calBC, so that it is significantly younger than the dates originating from Auvernier and Ludwigshafen. This proves that in the Hegau the use of this type of beaker lasted longer than Corded Ware lake dwellings existed. Moreover, pottery identified as Corded Ware was contemporaneously used with typical metope-decorated Bell Beakers there. This argument is supported by the fact that one mound at Schöfflisdorf (grave 9) contained a small fragment of a comb-stamped decorated Bell Beaker (*Strahm 1971*, 104–105).

Concurrence of Corded Ware, Bell Beaker and graves of the Early Bronze Age Únětice culture within a closer region - the northern part of the Harz mountains (Sachsen-Anhalt/GER) - were published by Birgit *Lissner* (*2012*, 400). She also discussed a grave (Grave 6256) which was dug up during the building of Bundesstrasse 6n (National Highway 6n) near Quedlinburg. The SE–NW-orientated body was buried in crouched position together with a footed bowl of Bell Beaker style and typical Corded Ware beaker. Therefore, our Anselfingen grave is not unique. The two examples show that a strict archaeological classification does not necessarily reflect the historic reality. Different ceramic types and settlement or burial practices often overlap which is a sign of a cultural process and developments.

The Sequence of Corded Ware and Bell Beaker pottery and the beginning of the Bronze Age at the Hegau

The burial from Anselfingen "Breite" is a good example of the problematic and strict definition and application of the concept of Neolithic cultures. This does not only address the chronology of pottery sequences, but also the interpretation of those distinct archaeological cultures. Undoubtedly, the potential synchronism of two or more archaeological cultures would lead to a completely different understanding of those phenomena than a firm sequence. Typological and absolute-chronological dating - even within two adjacent regions - does not necessarily need to correlate.
Based on dendro-chronological analyses it could be shown that the Corded Ware lake dwellings disappeared in the alpine foreland prior to 2400 BC. These well-dated sites, however, do not reflect the entire settlement activities, so that these results merely reflect the current state of research. Considering the gaps between the dated settlements and the continuity of Corded Ware traditions over these gaps (*Fig. 11*), it is to be expected that people using Corded Ware pottery were present in the area. Regardless of the lack of clearly associated archaeological finds at the lakeside, it is suggested that they switched either to the Hinterland or to the Hegau. The calibrated dates of the two Corded Ware graves (MAMS-18499–18502) partly cover the period between the two well-dated phases of Corded Ware lake dwellings. Corded Ware traditions were already present at the Hegau before the final disappearance of Neolithic lake dwellings, as both radiocarbon dated graves tend to date to the earlier phase. In other regions of southern Germany radiocarbon measurements showed that

Corded Ware burial practices were used until c. 2000 BC: e.g. in the valley of river Tauber in Northern Baden-Württemberg (*Furholt 2003*, 90; *Ortolf 2014*, 481). Thus, it would not surprise if the Corded Ware burial rites persisted after the lake dwellings had disappeared and "Corded Ware people" moved to the hinterland - especially, since Corded Ware pottery was still used in the Bell Beaker burial from Anselfingen dated to the 23rd/22nd century BC. The lack of Corded Ware sites that are younger than those of the lake dwellings is presumably caused by preservation conditions, since the general absence of Final Neolithic sites in the hinterland and the Hegau. Maybe the shift of archaeological evidence from the western Lake Constance region to the Hegau at that time is initiated by cultural changes and Bell Beaker influences.

At this point it is useful to contemplate defined archaeological cultures, ceramic typology and independent dating separately. A single archaeological feature can always be only a snap-shot. The entire cultural background and development is a longer lasting process which can just be understood by comparing various sites, features and material remains. Prehistoric archaeology is far from being able to explain the entire cultural development, since conditions of conservation and discovery preclude understanding the complete picture of the past (cf. *Strahm 1977*, 118). On the example of the northern Alpine foreland the discrepancy between Neolithic evidence and cultural developments has already been discussed by Christian *Strahm* (e.g. *1977*; *2001*).
In the case of our research area we have to deal with two different types of absolute-chronological data. Whilst dendrochronology enables us to determine the exact moment of an event (i.e. the exact age of the existence of a pile dwelling), radiocarbon data gives a larger time span within within something has happened. The calibrated date denotes only a certain probability when the particular event took place and the curve covers a period. It, however, is still a momentary event that is dated. In consequence, dendro-chronological data gives information of a relatively short event and we are unaware of what happened before or after. In both cases only a single event which does not last longer than at most a few years. It is to expect that cultural developments started earlier and lasted longer than they can be recognised by archaeologists (*Strahm 2001*, 179). From today's perspective prehistoric changes can only be documented when material culture has modified and differs from previously used objects. Early impulses or hybrid types are hardly recognisable, since archaeologists tend to classify objects to either one or the other group. The formation of a new cultural phenomenon is rarely a straight-line process - only based on local traditions. Instead, it is a mixture of local traditions including influences from outside that leads to something new. Hereby, some preceding elements may survive.

A model of the progress of the relevant archaeological groups of the 3rd millennium BC in the district of Constance is presented in figure 12. Based on the absolute-chronology and typological comparison the picture of the development during the 3rd millennium BC should be drawn. It is possible that the fragmentary picture of Corded Ware lake dwelling mapped in figure 2 does not show the entire colonisation of the research area at that period. It is only a state of research. The same situation applies for the Bell Beaker and the Earliest Bronze Age sites. The curves of sum calibration of radiocarbon data, however, pretend to reveal the entire length of those phenomena, but it shows the highest probabilities of when the particular features existed. Interpreting these records in terms of the duration of an archaeologically defined group or culture it is most likely that within the time span of the earliest and latest absolute-chronologically dated site the corresponding group lived on. However, it must be assumed that its existence began earlier and lasted longer. The burial from Anselfingen illustrates that cultural relicts may live on even if new traditions were adopted or, maybe, a new population replaced former inhabitants. Consequently, the assumed duration of the use of artefacts representing an archaeological group may last longer than a dated site shows.

The chronological picture of Bell Beaker graves and the Singen cemetery differs from that of Corded Ware and Bell Beakers. It seems that Corded Ware and Bell Beaker do not overlap significantly, in contrast to Bell Beakers and the cemetery of Singen. In the case of the later 3rd millennium BC, we deal with two types of burial practices, Bell Beaker graves and the Earliest Bronze Age graves, which may have existed – at least partly – contemporaneously. Since settlements of both groups are still unknown in the Hegau, culture-specific settlement pattern cannot be reconstructed. In our case it is uncertain whether they lived in the same region, but distinguished themselves by group specific features, such as religious believes or burial practises. Even if Bell Beaker and Singen burials would differ temporarily more than the calibrated dates imply, both archaeological groups show similarities on various levels. For example, the groups applied the same gender specific grave orientation. Archaeobotanic analyses also emphasised corresponding patterns of agricultural activities

ID	Find place	Site	abs.-chronolog. Dating	Arch. Group	Context	Literature
1	Öhningen	Oberstaad		CW	SF	Köninger – Schlichterle 1990, 171.
2	Wangen	Hinterhorn		CW	SF	Schlichterle 1988, 35.
3	Horn	Hornstaad-Schlössle/ Strandbad I	Dendro	CW	STL	Dieckmann 1987, 30; Schlichterle – Köninger 1990, 151.
4	Horn	Hornstaad-Hörnle I		CW	STL	Matuschik 2011, 294.
5	Horn	Hornstaad-Hörnle VI	Dendro	CW	SF	Matuschik 2011, 302–305.
6	Hegne	Galgenacker	Dendro	CW	STL	Schlichterle 1990; Köninger – Schlichterle 1990, 171.
7	Konstanz	Hafenstraße		CW	SF	Mainberger – Schlichterle 2003, 48.
8	Konstanz	Rauenegg		CW	STL	Köninger – Schlichterle 1990, 171.
9	Konstanz	Hinterhausen I		CW	SF	Köninger – Schlichterle 1990, 171.
10	Litzelstetten	Ebnewiesen	Dendro	CW	STL	Köninger – Schlichterle 1990, 172; Schlichterle 2013, 9.
11	Litzelstetten	Hasenwiesen (Li2)		CW	SF	Köninger – Schlichterle 1990, 172; Schlichterle 2013, 9f.
12	Dingelsdorf	Klausenhorn		CW	SF	Bad. Fundber. 19, 1951, 130–131; Schlichterle 1990, 204.
13	Wallhausen	Ziegelhütte		CW	SF	Köninger – Schlichterle 1990, 172.
14	Bodman	Bodenburg		CW	SF	Köninger – Schöbel 2010, 400.
15	Bodman	Weiler I		CW	STL	Köninger – Schlichterle 1990, 172.
16	Bodman	Schachen II	Dendro	CW	STL	Köninger – Schlichterle 1990, 172.
17	Ludwigshafen	Holzplatz		CW	SF	Köninger 2010, 75f.
18	Ludwigshafen	Seehalde	Dendro/ Radiocarbon	CW	STL	Köninger 2002, 66-70; Köninger 2003, 53–56.
19	Hilzingen	Unter Schoren		CW	GRV	Dieckmann 1989; Fundber. Baden-Württemberg 17/2, 1992, 39.
20	Singen	Maggi-Fabrikgelände		CW	GRV	Bad. Fundber. 16, 1940, 39.
21	Singen	Ob den Reben (Uhlandstr.)		CW	GRV	Garscha 1929–1932; Bad. Fundber. 3, 1933-36, 352 f; Krause 1988, 296 f.
22	Duchtlingen	Hohenkrähen		CW	SF	Schlichterle 1982, 5–11.
23	Duchtlingen	Im Zehntgarten (BV Felix)/ Lachen (Strohlager)		CW	SF	Ehrle et al. 2011a, 76-77.
24	Anselfingen	Breite (Kiesgrube Kohler)	Radiocarbon	CW	GRV	Ehrle et al. 2010.
25	Anselfingen	Breite (Kiesgrube Kohler)	Radiocarbon	BB	GRV	Ehrle et al. 2011b, 100–103; Ehrle et al. 2013.
26	Anselfingen	Eulenloch (Kiesgrube Kohler)/ Sandäcker		BB	GRV	Bad. Fundber. 1, 1925–1928, 212; Bad. Fundber. 3, 1933–1936, 352.
27	Welschingen	Guuhaslen	Radiocarbon	BB	STL	Ehrle et al. 2008; Lechterbeck et al. 2014.
28	Duchtlingen	Im Zehntgarten (BV Felix)/ Lachen (Strohlager)		BB	SF	pers. comm. J. Hald.
29	Singen	Nordstadtanbindung I	Radiocarbon	BB	GRV	Hald 2008, 50–54; Zängle 2011.
30	Singen	Hohentwiel		BB	SF	Biel 1987, 167; Heyd 2000, Bd. 2, 129.
31	Singen	k.a.		BB	SF	Sangmeister 1974, 133; Heyd 2000, Bd. 2, 129.
32	Dingelsdorf	Ried		BB	SF	Wagner 1908, 18; Sangmeister 1974, 132.
33	Wahlwies	Bogental		BB	GRV	Wagner 1908, 71.
34	Bodman	Schachen I		BB	SF	Köninger 2006, 129.
35	Bodman	Schachen I	Radiocarbon	EBA	STL	Köninger 2006, 218f.
36	Ludwigshafen	Seehalde		EBA	STL	Köninger 2006, 219.
37	Singen	Nordstadtterrasse	Radiocarbon	EBA	GRV	Krause 1988.
38	Singen	Rußäcker (Lessingstraße 13)		EBA	SF	Fundber. Baden-Württemberg 10, 1985, 485.
39	Duchtlingen	Hohenkrähen		EBA	SF	Reichardt 1992, 17 Kat.-Nr. 22; Köninger 2006, 219.

Brief information (including the relevant literature) about the Corded Ware, Bell Beaker and Earliest Bronze Age site mapped on Fig. 3.
Abbr.: CW: Corded Ware; BB: Bell Beaker; EBA: Earliest Bronze Age/Singen group; STL: settlement; GRV: grave; SF: single find.

and land use between Bell Beaker and Earliest Bronze Age, but no continuity between Corded Ware and Bell Beaker period (*Lechterbeck et al. 2014*, 110). Thus, it is possible that Bell Beaker and Earliest Bronze Age communities differ not much in everyday life, but regarding religious affiliation and burial practises. This, however, is speculation. Finally, we can conclude that even if there is a certain affinity between Corded Ware and Bell Beaker practices, Bell Beakers are closer linked to Earlier Bronze Age communities. This shows that differences are often based on pure archaeological definitions. Diverse factors, such as material remains (esp. typology of ceramics or other artefacts), settlement patterns, burial practises etc., is not necessarily restricted to an archaeological culture, which was constructed and defined by prehistorians. Nevertheless, with further research this picture may become blurred.

In order to eliminate the lack of archaeological records the ongoing DFG-project will apply botanic methods – especially pollen analyses will be studied by Jutta Lechterbeck. In the future, the aim is to explain whether, despite of the lack of archaeological evidence, Neolithic land use can be traced in our area of research. Since typologically classified finds do not necessary define its chronology, we are trying to take into account as much absolute-chronological data as possible. Well-dated archaeological sites give evidence of the presence or absence of settlers within an area, and this will be combined with the results of reconstruction of models of land use based on also independent dated pollen profiles.

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This paper is developed from an ongoing research project carried out by Dr. Jutta Lecherbeck and Dr. Matthias Merkl located at the Landesamt für Denkmalpflege Baden-Württemberg (Arbeitsstelle Hemmenhofen). The project "Archäologische und vegetationsgeschichtliche Untersuchungen zur neolithischen Besiedlungsgeschichte im Hegau und am westlichen Bodensee im diachronen Vergleich" studies the Neolithic settlement dynamics between the Hegau and the western Lake Constance region by comparing the archaeological and archaeobotanic record (cf. *Lechterbeck – Merkl 2014*). It is coordinated by Dr. Jörg Bofinger and Prof. Dr. Manfred Rösch and founded by the Deutsche Forschungsgemeinschaft (DFG BO 2776/2-2; RÖ 2282/14-2).

Resumé
Der heutige Landkreis Konstanz ist durch die beiden Siedlungskammern – den Hegau und das westliche Bodenseegebiet geprägt (*Fig. 1*). Im Arbeitsgebiet sind Hinterlassenschaften aus allen neolithischen Epochen gekannt (*Fig. 2*), wobei diese zeitlich und regional unterschiedlich verbreitet sind. Das Verhältnis zwischen diesen zwei Siedlungskammern im Neolithikum wird zur Zeit in einem interdisziplinären Forschungsprojekt (gefördert durch die DFG) untersucht. Ein Teilaspekt dieses Projektes ist die Untersuchung der Besiedlungsgeschichte im 3. Jahrtausend v. Chr. Während die Fundstellen mit Schnurkeramik v.a. am Bodenseeufer liegen, gibt es Hinweise auf Glockenbecher und die älteste Frühbronzezeit im Hegau (*Fig. 3*). Formenkundlich ist die Schnurkeramik vom Bodensee mit den Funden aus der Nord- und Ostschweiz vergleichbar (*Fig. 4*). Die Glockenbecher stammen fast ausschließlich aus Gräbern und stehen typologisch in Verbindung mit der sogenannten Glockenbecher-Ostgruppe und haben Parallelen im Süddeutschland und dem östlichen Mitteleuropa (*Fig. 5*).
Im vorliegenden Beitrag werden anhand neuer Radiokarbondatierungen aus Befunden mit Schnurkeramik und Glockenbechern aus dem Hegau folgende Probleme untersucht (*Fig. 6-9*):
1. Waren die schnurkeramischen Seeufersiedlungen am Bodensee zeitgleich mit den Gräbern der Schnurkeramik im Hegau?
2. Gibt es im Landkreis Konstanz Hinweise auf Gleichzeitigkeit oder zumindest auf zeitliche Überschneidungen der Befunde mit Schnurkeramik und Glockenbechern bzw. mit dem frühbronzezeitlichen Gräberfeld von Singen?

Es zeigt sich, dass die schnurkeramischen Gräber aus Anselfingen „Breite“ teils zeitgleich mit der früheren Phase der Seeuferbesiedlungen waren, und somit Hegau und westliches Bodenseegebiet wahrscheinlich auch zur selben Zeit genutzt wurde (*Fig. 11*). Währenddessen kennen wir keine eindeutigen Anhaltspunkte auf eine Nutzung des Bodenseegebietes durch die Träger des Glockenbecher-Phänomens. Es gibt jedoch Belege dafür, dass Glockenbecher und Gefäße, die typologisch der Schnurkeramik angerechnet werden (Gefäße mit abgesetztem Fuß; *Fig. 10*), gleichzeitig verwendet wurden. Im Bezug auf das Gräberfeld von Singen zeichnet sich eine enge Verbindung zu den Glockenbechern ab. Diese Verbindung wurde auch von anderen Untersuchungen hervorgehoben. Insgesamt dürfte es vermutlich bei der Abfolge der archäologischen Gruppen im Arbeitsgebiet zu teils großen Überschneidungen gekommen sein (*Fig. 12*). Im Arbeitsgebiet scheint es, dass die unterschiedlichen Kulturerscheinungen am Ende des 3. Jahrtausends v. Chr. weniger deutlich zu trennen sind, als dies die klaren typologischen Definitionen suggerieren.

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