

Introduction

The chronological framework of the west Central European Neolithic can be regarded as well established due to the progress in radiocarbon dating and dendrochronology of the last two decades (cf. Becker et al. 1985; Breunig 1987; Raetz-Fabian 1986; 2000a). Still, the improvements in dating techniques, carried out at the expense of indirect dating through the use of pottery typologies, occasionally lead to surprising discrepancies in the supposedly solid chronological framework, as the following example shows.

The Wartberg Culture (WBC; or Wartberg Group in older publications) is mainly located in the German states of Hesse, eastern Northrhine-Westphalia and western Thuringia. It is one of the „fringe cultures“ on which research rarely focuses, even though its central geographical position links influences from several directions. Nevertheless the WBC proves to be a pivotal complex for the understanding of the cultural dynamics between 3600 and 2700 calBC, for it delivers information on what kind of development we can expect after the end of the Michelsberg Culture in the western parts of Germany, where in many regions subsequent complexes are not yet known (Raetz-Fabian 1990; Wotzka 2000). In addition to this, the appearance of megalithic tombs (gallery graves) in an early stage of the WBC raises many questions, because the grave architecture is distinctively different from that in the adjacent regions of Northern Germany and the Netherlands, but shows striking resemblances to distant regions, such as the Paris Basin and Brittany.

For a long time there were serious problems with the timeframe of the WBC and with the cultural concept as a whole. As a consequence settlements and megalithic gallery graves were treated as remnants of two different cultures or groups (*Steinkistenkultur*, *Wartberg-Gruppe*). It was the work of Winrich Schwellnus (1979) that put an end to this misconception. He suggested that the graves and the settlements belonged to one cultural complex, chronologically located between Michelsberg and Single Grave Culture (SGC; *Einzelgrabkultur*). Schwellnus proposed a twofold subdivision of the WBC: „Inventory Group A“ with affinities to the Central German Salzmünde Culture and „Inventory Group B“ with connections to Central German Bernburg and the East European Globular Amphora Culture (*Kugelamphorenkultur*). This scheme was widely accepted, even though it was solely based on typological observations that were not always convincing (cf. the review by Müller 1982).

The Wartberg Culture's first radiocarbon date was published in 1980 (Bantelmann et al. 1980, 204). The charcoal sample was taken from a settlement layer that was buried by a SGC grave mound. The very early date (c. 3500 calBC) undoubtedly influenced the typological determination of the rather undiagnostic pottery as „Wartberg A“ (cf. Spennemann 1984), thus seemingly confirming the chronology proposed by Schwellnus. Additional radiocarbon dating of WBC settlements was carried out in 1982 by the *University of Cologne* (Hermann Schwabedissen, Jürgen Freundlich) and the *Hessian State Museum* in Kassel (Irene Kappel). Unfortunately the measurements on ani-

Absolute Chronology and Cultural Development of the Neolithic Wartberg Culture in Germany*

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Durch die archäologischen Ausgrabungen in Calden (Kr. Kassel) und das daran anschließende „Datierungsprojekt Wartbergkultur“ konnte die bis dahin gültige Gliederung der hessisch-ostwestfälischen Wartbergkultur vollständig revidiert und absolutchronologisch fixiert werden. Der Artikel gibt eine kurzgefasste Übersicht über den Stand der Forschung.

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mal bones were unsuccessful due to a serious sample contamination, which caused erroneous dates (Raetzel-Fabian 2000 a). Just one date from the Hasenberg settlement roughly seemed to fit into the expected range, but was considered too young (c. 2900 calBC) for a complex representing the transitional stage between Wartberg A and B (cf. Raetzel-Fabian 1990).

The Wartberg Culture Dating Project

This was the chronological background when the *Hessian State Museum* started an excavation project at Calden, located 12 kilometers NW of Kassel. Between 1988 and 1992 two sites were examined: a causewayed enclosure (covering 14 ha) and a nearby megalithic gallery grave (Calden II; Raetzel-Fabian 1999 a; b; 2000 a). As a first result, the ornamented sherds from the the enclosure and the Calden II grave just 100 m outside the ditch system clearly showed a close typological connection, dating the pottery of both objects to a WBC context. But there were several observations, which did not fit into the existing concepts:

Most of the reconstructed pots from the enclosure undoubtedly belonged to a WBC context in a broader sense, but these resemblances were of a general character. It was (and is) not possible to find exact parallels in the WBC type-sites of the Fritzlar region, such as the eponymous Wartberg, Güntersberg, Bürgel and Hasenberg hilltop sites. Regional stylistic differences could be excluded as a cause, for the distance of Calden and the hilltop sites does not exceed 30 kilometers.

The first radiocarbon dates on charcoal from the enclosure's palisades and additional dates on animal bones from the primary ditch fill led to a further complication: They pointed to a construction date around 3700/3600 calBC, the time of the late Michelsberg Culture (Michelsberg V; Lüning 1967). Moreover in the Michelsberg V settlement of Dauernheim (c. 120 km south of Calden) fragments of collared flasks – believed to be a characteristic type of the WBC – had been uncovered in a clear Michelsberg context. This raised an interesting question: Did Michelsberg and WBC coexist for a time (Höhn 1992/93)?

At this point it became clear, that there were serious problems with the Schwellnus chronology and the overall framework of the younger Neolithic in central western Germany. Since it was highly unlikely that – after decades of mainly typological research – a solution could be reached by continued efforts along those lines, a radiocarbon dating project was established. It comprised over 60 dates from the Calden sites and other places in the state of Hesse, Lower Saxony, Westphalia and Thuringia. Samples from ongoing investigations as well as from earlier excavations were included. The „oldest“ sample came from bone fragments of the Züschen gallery grave, originally excavated in 1894.

At the time of the Calden project Klaus Günther from the *Westfälisches Museum für Archäologie* in Bielefeld examined a gallery grave cluster near Warburg (Warburg I–V), which consis-

ted of four megalithic graves and a wooden structure of as yet unknown purpose. Close cooperation between both projects resulted in publication of the Wartberg research by Günther (1997), including a first outline of the results of the Wartberg Dating Project (Raetzal-Fabian 1997).

After the completion of the project in 1996 and its publication (Raetzal-Fabian 2000a) not all chronological question can be answered in detail, but the outline of the WBC development is taking form:

- ◆ The relation between Michelsberg and WBC can be recognized as a clear succession with remarkable continuities. The Calden enclosure has been constructed in a Late Michelsberg context in the 37th century calBC.
- ◆ For the first time reliable dates for the use of the gallery graves are available. Several of these dates concern lower burial layers, thus giving a rough indication for the time of the tomb construction.
- ◆ The current usage of Wartberg A and B (Schwellnus 1979) is incorrect: „A“ as well as „B“ sites belong to the same chronological horizon after 3000 calBC and do not represent the WBC development as a whole.
- ◆ Consequently there is an gap of c. 500 years from c. 3500 to 3000, previously thought to be filled by Wartberg A.
- ◆ Pottery in greater quantities, that can be assigned to this gap come from a re-use phase of the Calden enclosure, the Calden II grave and from Thuringian settlements.

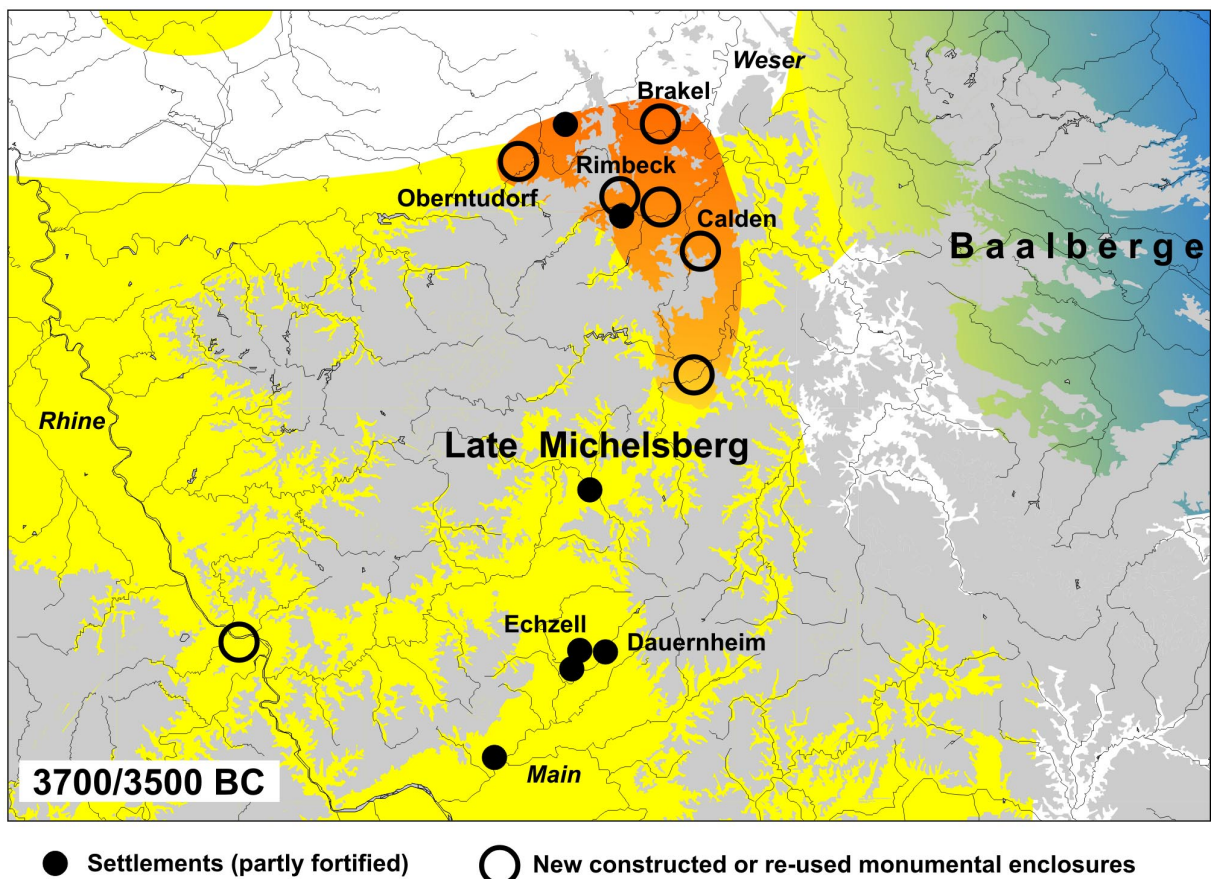
The results in detail:

Origin of the Wartberg Culture

The roots of the WBC can be traced between 3700 and 3500 calBC in a late Michelsberg and Baalberge influenced context. Until recently Michelsberg V sites seemed to be restricted to the southern parts of Hesse, but new discoveries (cf. Pfeffer 1998; 1999) show the existence of a local late Michelsberg in northern Hesse and eastern Westphalia. Related sites are the enclosures of Calden, Daseburg „Schlachberg“, Oberntudorf, the hilltop site of Ossendorf „Gaulskopf“ and a new discovered settlement near Paderborn (Schyle 1997; Pfeffer 1998; 1999; Raetzal-Fabian 2000a; Sicherl 2000). Baalberge pottery at Calden and Oberntudorf shows that there were also close connections with the Central German Middle-Elbe-Saale region.

There are several observations, indicating the beginning of a formation process that leads to the emergence of the WBC after 3500 calBC:

- ◆ The contemporaneous construction of large („monumental“) enclosures at Calden, Rimbeck and probably Brakel and Utershausen c. 3700/3600 calBC.
- ◆ The lack of evidence of earlier (Michelsberg I–IV) occupation on these sites, indicating that there is no link to former traditions at the places themselves.



- ◆ A constant re-use of the ditch-system and intense WBC activities in the following centuries at Calden and partly Rimbeck.

Wartberg – before 3000 calBC

The traditional definition of archaeological cultures in Europe is closely linked to pottery styles (Lüning 1972). Therefore, a „new“ culture is usually identified by the appearance of a set of new stylistic features. In the case of the WBC we may be able to trace the roots of a cultural change prior to the emergence of a characteristic pottery style as early as in the precedent late Michelsberg culture. The transformation phase starts c. 3700/3600 calBC with a new and extensive construction of monumental enclosures (cf. Raetz-Fabian 1999a), which may be a hint at imminent social changes. It ends 200 or 300 years later with the construction of gallery graves in northern Hesse and eastern Westphalia, which are regarded as the typical WBC grave form. So this process starts with large-scale enclosure construction, which involves a great number of communities, and leads to communal efforts on a smaller, homestead-based level – once the cultural formation and social consolidation in a wider area is achieved.

The dating of the Hessian gallery graves has long been under discussion. The first available radiocarbon dates were quite late (after 3000 calBC; cf. Raetz-Fabian 1986). Several new dates

Fig. 1: Distribution of late Michelsberg and Baalberge in Hesse, Northrhine-Westphalia and Thuringia (3700/3500 calBC). Yellow: Overall distribution of the Michelsberg Culture (I–V). Orange: Distribution area of newly constructed or re-used monumental Michelsberg enclosures in the area of the subsequent Wartberg Culture.

Das Arbeitsgebiet zur Zeit der späten Michelsberger Kultur (Lüning V). Kartiert sind Siedlungen (z.T. befestigt; Punktsignatur) und neu erbaute oder in Benutzung stehende monumentale Erdwerke (Kreissignatur). Gelb: Gesamtverbreitung der Michelsberger Kultur (I–V). Orange: Verbreitungskonzentration monumentaler Erdwerke im späteren Entstehungsgebiet der Wartbergkultur.

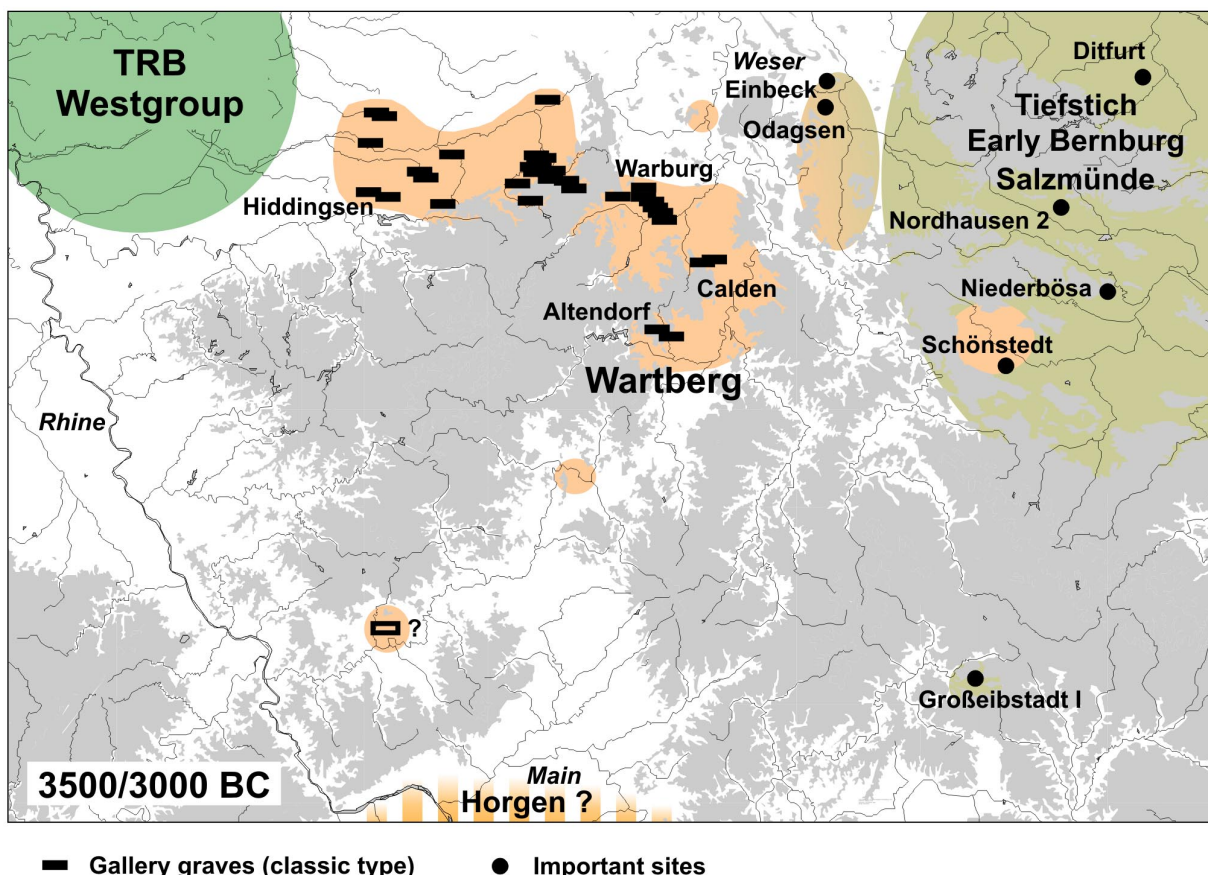
on human bones from the first burial layers of recently excavated sites now hint at the start of construction at c. 3400 calBC or somewhat earlier. The early dates stem from both the Züschen-type chambers with axial entrance and Rimbeck-type graves with lateral access; they do not support the old idea of a gradual development from the „Züschen“ to the „Rimbeck“ chamber types. Most likely there has been a quite short and intensive tomb construction phase, in which most of the „classical“ gallery graves were erected (Raetz-Fabian 1997).

Against this background the long discussed derivation of the German gallery graves from graves of the same type in the Paris basin and Brittany (*allées couvertes*; cf. Schrickel 1966) cannot be maintained, for the currently available dates from France are considerably younger (even though they stem mostly from charcoal, which usually results in older dates; Raetz-Fabian 2000a, 199 ff.). Though it might be tempting, we should not make the mistake to just reverse the direction of influence given, because it is just as likely that a not yet understood common socio-religious background of Chasseo-Michelsberg-Baalberge societies may well have led to similar religious and architectural manifestations in a large area without any dramatic migration.

Pottery finds from the early Wartberg phase are exceedingly rare. However, material from the Calden I gallery grave provides a hint of how the pottery around 3400 calBC may have looked: It still shows very distinct Michelsberg and Baalberge affinities so that one cannot really speak of „genuine“ WBC types.

Fig. 2: Distribution of the Wartberg Culture, gallery graves and contemporary cultural groups between 3500 and 3000 calBC.

Verbreitung der älteren Wartbergkultur, der Galeriegräber sowie zeitgleicher Gruppen zwischen 3500 und 3000 calBC.



The early, conservative WBC pottery seems to have been replaced with a Horgen-influenced style around 3200 calBC. This is evident in the re-use phase of the Calden enclosure, in the Calden II gallery grave and in the settlement finds of the Mühlhausen basin in western Thuringia (Walther 1986). The discovery of a Horgen-like pottery far from the main distribution areas around Lake Constance and in northern Switzerland was a surprise, because intervening finds in the Rhine Valley, which may bridge the spatial gap between Horgen and the WBC, are very sparse (Raetz-Fabian 1990). Yet, several radiocarbon dates from Calden support the typological cross dating with the dendrodated Swiss Horgen sites, suggesting a time-span from 3200 to 3000 calBC for this WBC phase.

Simultaneously, strong relations with the TRB Westgroup and its *Tiefstich*-ornamented pottery of the Brindley's 4–5 horizons (Brindley 1986) become evident in the Calden enclosure and gallery grave II. Comparable influences from the northwest can also be observed in a number of Westphalian gallery graves and must not lead to the conclusion, that the northern fringe of the gallery grave distribution area was culturally a part of the TRB Westgroup as proposed earlier by Günther (1986; cf. Raetz-Fabian 2000a).

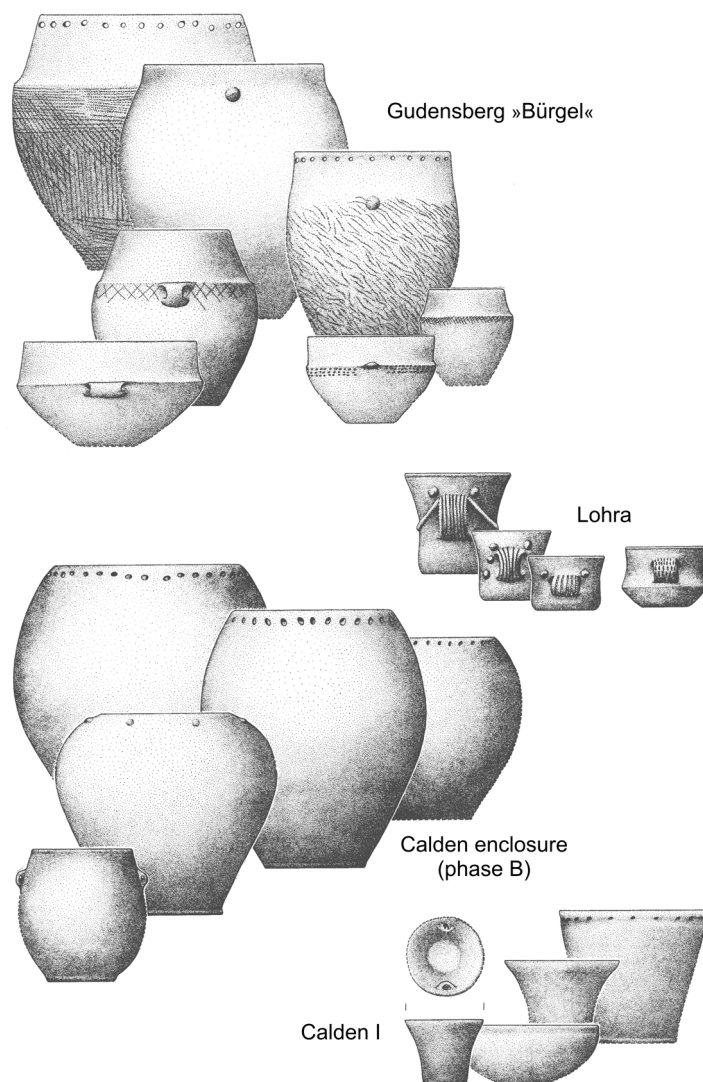


Fig. 3: Wartberg pottery style from 3500 to 2700 calBC. The development leads from Michelsberg-Baalberge traditions (Calden I) to Horgen-like pottery (Calden enclosure, phase B) and – in a late phase – to Goldberg III-affinities (Gudensberg „Bürgel“). The Lohra style (c. 3000 calBC) shows influences from early Bernburg pottery (Großobringen).

Typologische Entwicklung der Wartbergkeramik von Traditionen der Michelsberger und Baalberger Kultur (Calden I) über Horgen-artige Formen (Calden, Erdwerk, Nutzungsphase B) zu Entsprechungen mit der Goldberg III-Gruppe (Gudensberg „Bürgel“). Der Lohraer Stil (um 3000 calBC) zeigt Bezüge zum frühen Bernburg Thüringens (Großobringen).

Drawing: Heidi Hogel.

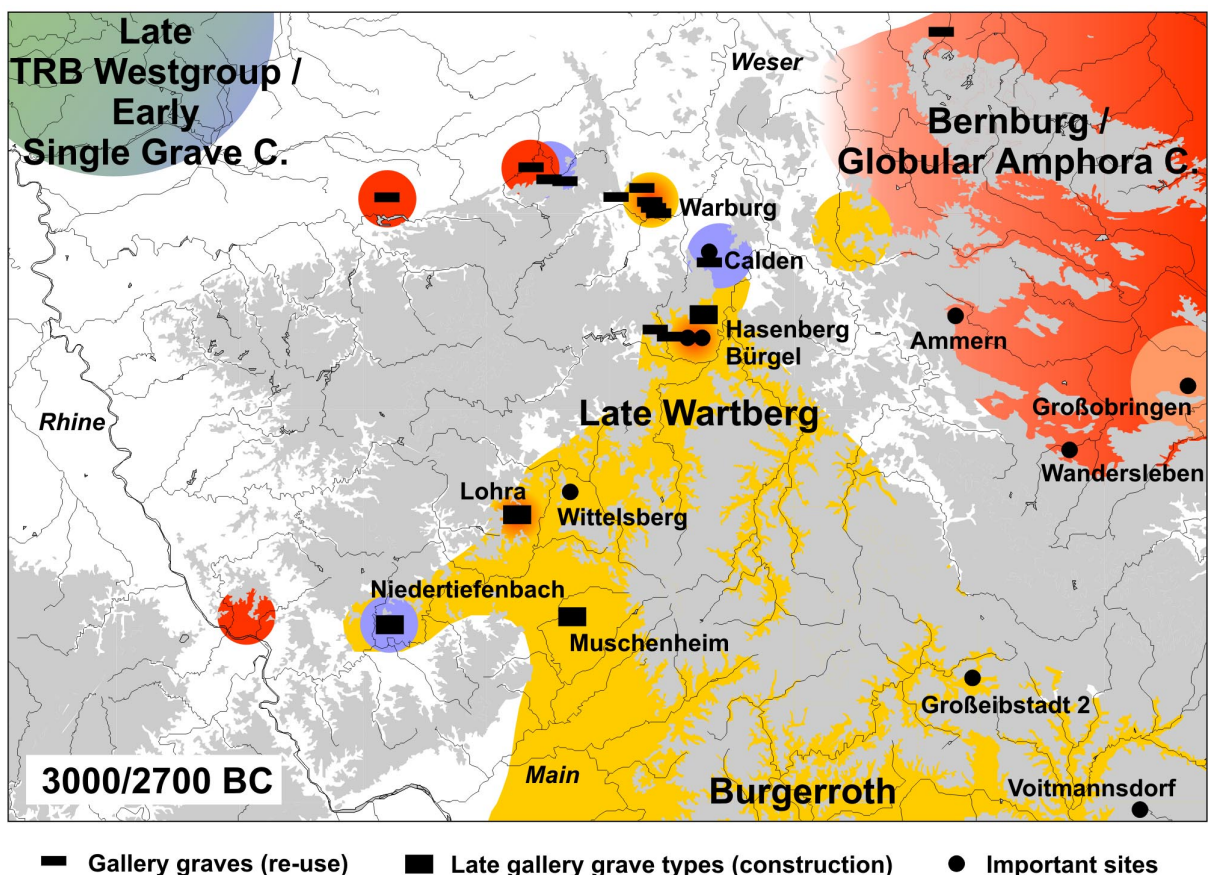
The later WBC (3000 to c. 2800/2700 cal BC) is comparatively well known. It is represented by the material from the hilltop sites described by Schweltnus (1979; Güntersberg, Hasenberg, Gudensberg „Bürgel“, Odenberg) and Schrickel (1969; Wartberg). Until now, the finds from these sites were erroneously used to fill the entire time span from the end of Michelsberg until the beginning of the SGC. Close typological parallels can be found to the South, particularly in the Burgerroth complex (Spennemann 1984) and the Goldberg III group (Schlichtherle 1999). Contemporaneity is confirmed by new radiocarbon dates from Hesse and Upper Swabia.

The early gallery graves of the „classical“ type are largely still in use after 3000, while new tomb construction produced only very small and atypical chambers, such as Lohra, Muschenheim, Niedertiefenbach and possibly Gudensberg „Lautariusgrab“. Several radiocarbon assays on human bones show that all types of graves were in regular use until c. 2700 cal BC.

Hilltop sites like the Hasenberg and Güntersberg and a recently excavated fortified settlement at Wittelsberg near Marburg (Fiedler 1991) may reflect an increase of conflicts, while a palisade-and-ditch-structure at Gudensberg „Bürgel“ was probably used for ritual purposes (Raetz-Fabian 2000a, 130, 134 Fig. 186).

Fig. 4: Distribution of late Wartberg and contemporary cultural groups between 3000 and 2700 cal BC. In the north-western parts of the distribution area the former WBC dominance decreases in favor of several influences from neighbouring groups.

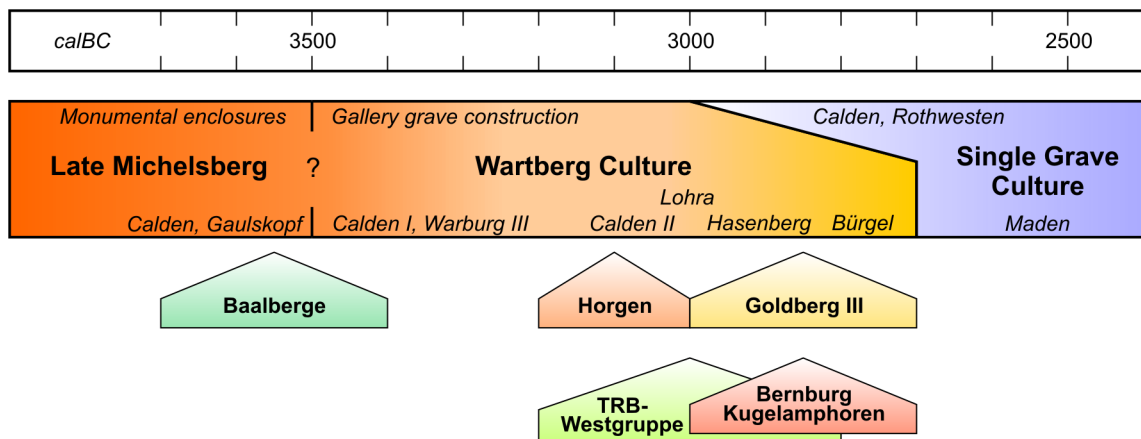
Verbreitung der späten Wartbergkultur und zeitgleicher Komplexe zwischen 3000 und 2700 cal BC. Im nordwestlichen Teil des ehemaligen Verbreitungsgebietes treten Wartbergelemente zugunsten zahlreicher Einflüsse aus den Nachbarräumen deutlich zurück.



The Wartberg–Single Grave Culture transition

A yet unsolved problem concerns the transition from late Wartberg to the Beaker period, for late WBC pottery shows no typological development to or influences from the SGC. In the field of absolute chronology, one of the main obstacles is the combination of „wiggly“ and flat sections of the calibration curve, which prevents precise dating between c. 2900 and 2600 calBC, which is exactly the time span of the transition.

With the help of the „wigggle matching“ calibration model the use of the Niedertiefenbach gallery grave can be approximately dated to a time span from 2900 to 2700 calBC (Raetz-Fabian 2000a). Though Niedertiefenbach is not a Wartberg site in a strict sense, it provides a hint for how long collective burial chambers remained in use, before single inhumations became dominant. On the other hand, the earliest reliable dates for the SGC in the Netherlands and northern Hesse already fall on the steep section of the calibration curve around 2900 calBC, suggesting a considerable overlap with the late WBC.



The often discussed massive immigration or invasion of „Cord Ware-“ or „SGC-people“ would suggest a major break between the two cultures. However, recent research on the WBC–SGC transition in the northern parts of the WBC distribution area shows that – at least in the field of mortuary ritual – there was no such clear-cut discontinuity (Raetz-Fabian 2001). On the contrary, the replacement was a long step-by-step process, taking place between 3000 and 2700/2600 calBC. During this phase successive stages of cultural change and adoption can be observed. Sufficient data on economic changes are still lacking, but in the realm of religion and ritual we can observe several modes of reaction to the new developments over several generations. These reactions include conservative opposition or rejection, attempts of integrating old and new elements and a complete abandonment of the old religious concepts. Within this long-lasting process, the „radical“ concept of the SGC seems to be just one of many alternatives, that was not fully adopted in the former WBC area until c. 2600 calBC.

Fig. 5: Chronological framework of the Wartberg Culture, important sites and distinct influences from neighbouring or related groups.

Chronologie der Wartbergkultur, wichtige Fundorte und kulturelle Einflüsse aus den Nachbarregionen.

All in all the Wartberg culture reveals itself to be a heterogeneous phenomenon with an often-changing face through time. With its overall roots in Michelsberg and Baalberge, it's mortuary customs and architecture in the older stage show a close long-distance relationship to the Paris Basin and Brittany. On the other hand, the developed pottery style is linked very much to southern regions, first to the Horgen Culture and later to Goldberg III and the Cham Culture. Contemporaneous with the late TRB (Brindley's Horizon 7) in the Northwest, this later stage is also the era of a slow but radical social and religious change leading to the emergence of the Single Grave Culture.

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