

## THE NORTHWEST BELGIAN BRONZE AGE BARROW IN CONTEXT: A REVIEW OF THE <sup>14</sup>C CHRONOLOGY FROM THE LATE NEOLITHIC TO BRONZE AGE

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**ABSTRACT.** To formulate a solid chronology of the northwest Belgian Bronze Age barrow phenomenon, a critical review of the available radiocarbon dates was necessary. The resulting <sup>14</sup>C chronology of the barrows was compared with the <sup>14</sup>C chronologies of the Late Neolithic Bell Beaker graves, the Bronze Age metalwork depositions, the evidence of barrow reuse, and the Bronze Age longhouses. This research revealed interesting patterns concerning the appearance and disappearance of the barrow phenomenon. The earliest <sup>14</sup>C-dated barrows are dated during the Late Neolithic and coincide with the presence of the Bell Beaker culture in the region. The peak of the barrow-building practice occurred between 1700 and 1500/1400 cal BC, a period of flourishing trade networks in the regions along the North Sea basin. The period around 1500 cal BC is characterized by the disappearance of barrow-building practices and the sudden appearance of ritual depositional practices, reflecting changes in society.

### INTRODUCTION

Forty years of systematic aerial surveys, combined with in-depth excavations and geophysical surveys, have resulted in the detection of a previously unknown Bronze Age burial landscape in the sandy lowlands of NW Belgium (Bourgeois and Talon 2009; De Reu and Bourgeois 2013). Recently, the whole Bronze Age barrow data set has been the subject of thorough inventory in order to provide insights into the distribution, location, and chronology of these funerary monuments (e.g. De Reu et al. 2011b, 2013). During this research, all available <sup>14</sup>C dates associated with barrows in NW Belgium were compiled.

This article presents a critical review of the <sup>14</sup>C dates in order to build a reliable chronology for the (Bronze Age) barrow phenomenon in NW Belgium. Subsequently, the barrow chronology was compared with the available <sup>14</sup>C data of other aspects of Late Neolithic and Bronze Age society, including the Late Neolithic Bell Beaker burials (Crombé et al. 2011), the Bronze Age metalwork (Verlaeck 1996), the phenomenon of barrow reuse (Bradley and Fraser 2011), and the Middle Bronze Age longhouse (Fokkens 2003) (see Table 1 for periodization). This approach yielded new insights in the cultural biography of the Bronze Age barrow and the Bronze Age communities who built these monuments.

### REVIEW OF THE <sup>14</sup>C DATA

#### Barrows

Since the end of the 1970s, aerial surveys led to the discovery of more than 1000 barrows in NW Belgium. Some other barrows have been discovered during in-depth or development-led excavations. A systematic study of the aerial images and the excavation data led to a data set of 1105 identified and precisely located barrows (De Reu et al. 2011a; De Reu 2012). Due to intensive agricultural activities and erosion, the barrows were badly preserved (De Reu et al. 2013). No mounds and almost no graves survived; only the ditches once surrounding the mounds remained. More than 70 barrows have been investigated during excavations. However, only 31 monuments, less than 50%, have been <sup>14</sup>C dated, resulting in 61 available <sup>14</sup>C dates (for an overview: De Reu and Bourgeois 2013).

Because of the absence of preserved graves, <sup>14</sup>C dating was mostly done on charcoal samples taken from the ditches. To formulate a chronology of the barrow phenomenon, a critical review of the

Table 1 Traditional periodization for the NW Belgian Bronze Age (after Bourgeois and Talon 2009), used in this article.

Chronology	Calibrated calendar yr
Late Neolithic B	2500–2000 BC
Early Bronze Age	2000–1800 BC
Middle Bronze Age A	1800–1500 BC
Middle Bronze Age B	1500–1100 BC
Late Bronze Age	1100–800 BC
Early Iron Age	800–500 BC

available  $^{14}\text{C}$  dates was necessary.  $^{14}\text{C}$  dates on samples collected in the bottom layer of the ditches were used, while  $^{14}\text{C}$  dates on samples derived from upper layers or for which the excavators did not provide stratigraphic information were rejected. As such, 31  $^{14}\text{C}$  dates derived from 20 different barrows were selected to build the barrow chronology (Figure 1). The barrow phenomenon in NW Belgium is  $^{14}\text{C}$  dated largely between 2498 (95.4%) 2235 cal BC and 1438 (95.4%) 1268 cal BC (Figure 6; Table 2), with a peak between 1700 and 1500 cal BC (Figure 1).

One barrow is dated 3358 (95.4%) 2635 cal BC, and might be an erroneous date (UtC-2750). The use of charcoal found in the ditches might be problematic for  $^{14}\text{C}$  dating purposes, since the construction of a barrow is an intrusion into the ground and during the building activities material like charcoal from older layers under the barrow may have merged with the new barrow. Because of that, some of the earlier dates might be possible *terminus post quem* values. However, not all the earlier dates are necessarily *terminus post quem* values. For example, at the site Deinze, two  $^{14}\text{C}$  dates (UtC-9929 and -9930) confirm an earlier date of the monument, i.e. 2295 (95.4%) 1980 cal BC and 2281 (95.4%) 1985 cal BC.

### Barrow Reuse

The practice of reuse is difficult to detect in the archaeological record, mainly due to the poor state of preservation of the monuments. Graves are seldom preserved, which makes it impossible to identify by whom, at what time, and with what intensity barrows were reoccupied. The reuse of the barrows is mainly attested in the form of the addition of new ditches, the redigging of existing ditches, and the construction of larger mounds. Among the 61  $^{14}\text{C}$  dates on barrows, the stratigraphic location of three  $^{14}\text{C}$  dates, from three different barrows, could be associated with a possible phase of reuse of the monuments. Based on the limited  $^{14}\text{C}$  data, the Middle Bronze Age barrow reuse can be dated between 1500 and 1250 cal BC (Figure 2). Barrows were also reused repeatedly in Iron Age, Roman, and/or Medieval times (e.g. Vermeulen and Bourgeois 2000). However, this aspect of reuse is beyond the scope of this paper.

### Bell Beaker Burials

The Bell Beaker culture, dated to the 3rd millennium cal BC, appears scattered all across Europe (Vander Linden 2007). In NW Belgium, several bell beakers were excavated, though none of these in association with a barrow. In neighboring regions, however, Bell Beaker burials can often be associated with a barrow [e.g. Beex and Roosens 1963 (NE Belgium); Van der Beek 2004 (S Netherlands); Salanova and Tchérémissinoff 2011 (N France)]. In these regions, the Bell Beaker barrow is often a mound without peripheral structures like ditches. Whether there were Bell Beaker barrows in NW Belgium remains unclear. Mounds without peripheral structures are, due to erosion, unfortunately no longer visible in the archaeological record of NW Belgium.

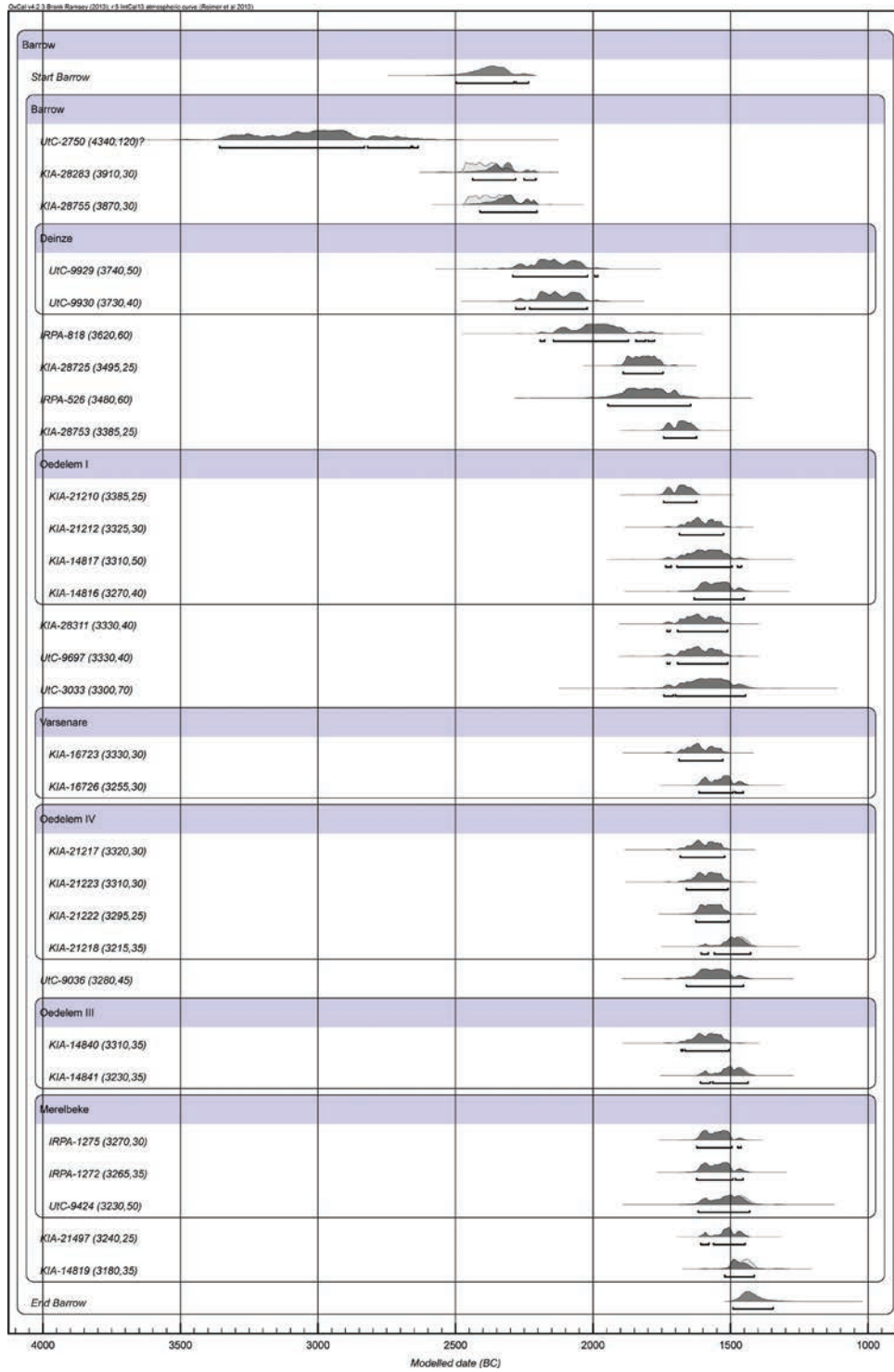


Figure 1 Chronological distribution of the <sup>14</sup>C-dated barrows; OxCal v 4.2.3 (Bronk Ramsey 2009); atmospheric data from Reimer et al. (2009).

Several of the NW Belgian bell beakers were deposited in large oval or rectangular pits, measuring up to 2.5 m diameter. Although it was only at one site that cremated remains were found in the pit (De Laet and Rogge 1972), the other large pits could also represent Bell Beaker burials (Crombé et al. 2011). Four Bell Beaker pits have been  $^{14}\text{C}$  dated, resulting in five  $^{14}\text{C}$  dates (Crombé et al. 2011). All  $^{14}\text{C}$  dates were derived from charcoal samples. An overview is given in Figure 3. Based on the limited data, the  $^{14}\text{C}$ -dated Bell Beaker sites in NW Belgium can be dated to the second half of the 3rd millennium cal BC.

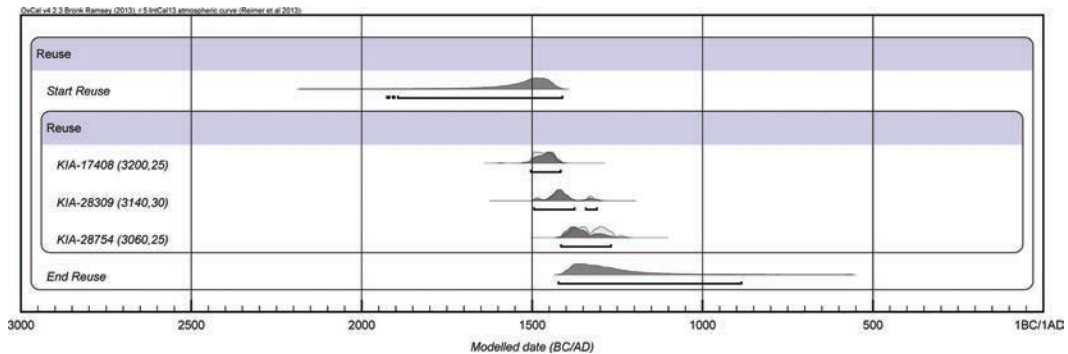


Figure 2 Chronological distribution of the  $^{14}\text{C}$ -dated reuse of barrows during the Middle Bronze Age; OxCal v 4.2.3 (Bronk Ramsey 2009); atmospheric data from Reimer et al. (2009).

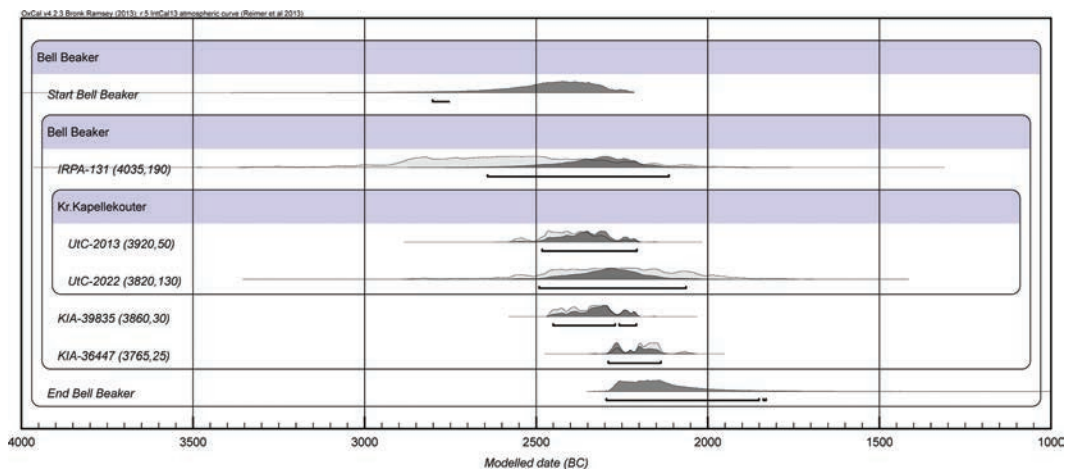


Figure 3 Chronological distribution of the  $^{14}\text{C}$ -dated bell beakers; OxCal v 4.2.3 (Bronk Ramsey 2009); atmospheric data from Reimer et al. (2009).

## Metalwork

The large majority of extant NW Belgian Bronze Age metalwork was found in the second half of the 19th and the first half of the 20th century during dredging activities on the major rivers in the regions, including the rivers Scheldt, Lys, Kale/Durme, and Dender (Warmenbol et al. 1992; Verlaeck 1996). Most of the bronzes ended up in the collections of private antiquaries, which then passed into museums. Apart from these collections, only a limited number of recent finds have been made (e.g. Parent and De Mulder 2012). Several hundred metal objects, including weapons (e.g. spearheads, swords, and daggers), tools (e.g. axes), and ornaments (e.g. pins and bracelets), have been recorded. Almost all metalwork was found in wetlands. This is probably a reflection of delib-

erate, ritual deposition practices (Verlaeckt 1996). In a non-metalliferous region like NW Belgium, metalwork was presumably a valuable and prestigious material (Sørensen 1987; Fontijn 2002).

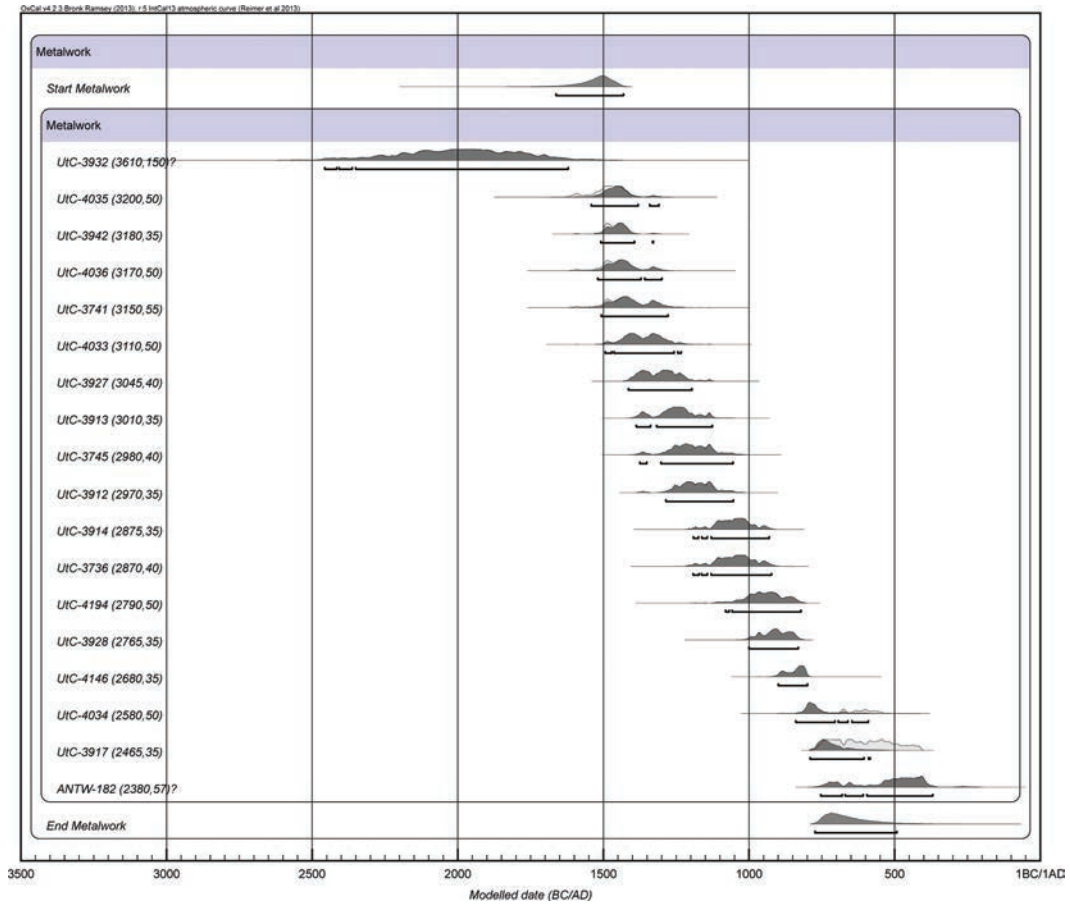


Figure 4 Chronology of the <sup>14</sup>C-dated metalwork (after Verlaeckt 1996); OxCal v 4.2.3 (Bronk Ramsey 2009); atmospheric data from Reimer et al. (2009).

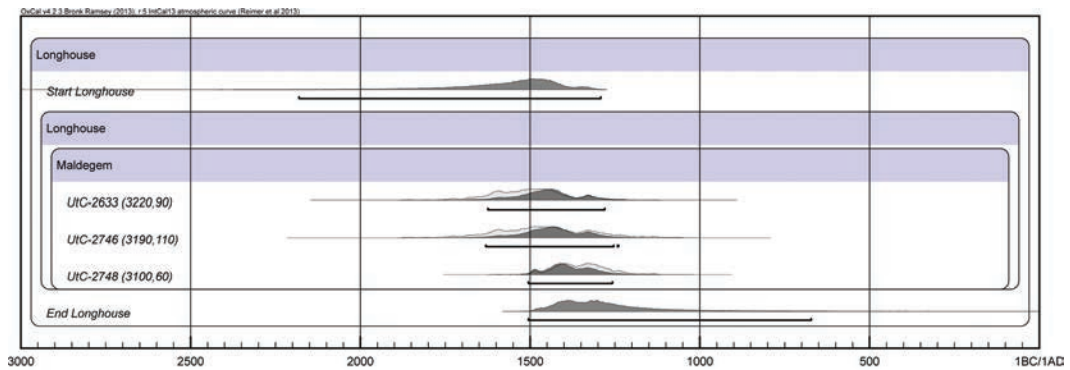


Figure 5 Chronology of the <sup>14</sup>C-dated longhouse; OxCal v 4.2.3 (Bronk Ramsey 2009); atmospheric data from Reimer et al. (2009).

<sup>14</sup>C dates are available for 18 metalwork objects (Figure 4) (Verlaeckt 1996). Although only a small proportion (about 6%) of the metalwork data set was <sup>14</sup>C dated, Verlaeckt (1996) argues that the <sup>14</sup>C chronology of the metalwork is representative for the whole phenomenon of metalwork depositions in NW Belgium. The <sup>14</sup>C dating was, except for one object (UtC-3932), conducted on wood from the shafts of the objects, mostly axes and spearheads. The <sup>14</sup>C date UtC-3932 was done on a collagen sample, but the result [2457 (95.4%) 1621 cal BC] might be considered an erroneous date.

The metalwork is <sup>14</sup>C dated largely between 1662 (95.4%) 1431 cal BC and 774 (95.4%) 492 cal BC (Figure 6; Table 2). The <sup>14</sup>C dates illustrate a sudden start in metalwork depositions in the period after 1500 cal BC, and the deposition of metalwork continued until at least 700 cal BC (Figure 4).

Table 2 Modeled start and end boundaries for each discussed aspect of Late Neolithic and Bronze Age society in NW Belgium; OxCal v 4.2.3 (Bronk Ramsey 2009); atmospheric data from Reimer et al. (2009).

Boundary	Modeled (BC)
Start Bell Beaker	2815 (95.4%) 2216
End Bell Beaker	2292 (95.4%) 1856
Start Barrow	2498 (95.4%) 2235
End Barrow	1438 (95.4%) 1268
Start Reuse	1897 (95.4%) 1412
End Reuse	1423 (95.4%) 888
Start Longhouse	2247 (95.4%) 1287
End Longhouse	1508 (95.4%) 625
Start Metalwork	1662 (95.4%) 1431
End Metalwork	774 (95.4%) 492

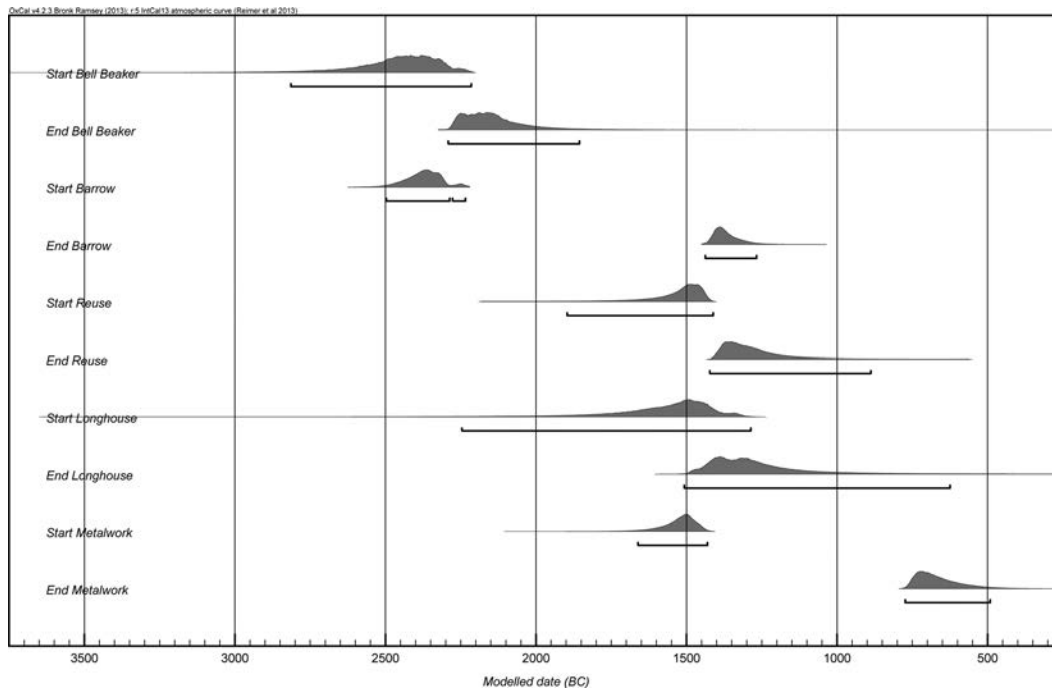


Figure 6 Modeled start and end boundaries for each discussed aspect of Late Neolithic and Bronze Age society in NW Belgium; OxCal v 4.2.3 (Bronk Ramsey 2009); atmospheric data from Reimer et al. (2009).

### Longhouse

Information about settlements that were contemporaneous with the barrows are scarce. Three settlement sites are known. The houses fit in the tradition of the NW European longhouse (Fokkens 2003). The site of Maldegem “Burkel” is the only  $^{14}\text{C}$ -dated site (Crombé et al. 2005). Three reliable  $^{14}\text{C}$  dates are available.  $^{14}\text{C}$  dating was done on charcoal samples. The building is dated to 1742 (95.4%) 1133 cal BC (Figure 5).

### RESULTS AND DISCUSSION

This study’s aim was to gain insight in the chronology of the barrow in NW Belgium, by critically reviewing the available  $^{14}\text{C}$  dates and by comparing it with the chronologies of other aspects of Late Neolithic-Middle Bronze Age society. The results show interesting patterns in the cultural biography of the barrows and remarkable associations with the Bell Beakers and the metalwork.

The earliest barrows in NW Belgium are  $^{14}\text{C}$  dated in the second half of the 3rd millennium cal BC. In this period, these are contemporaneous with the  $^{14}\text{C}$ -dated Bell Beaker sites (Figure 6; Table 2). It can be suggested that the barrow-building practice reached NW Belgium through the flow of Bell Beaker people and their trade networks. However, solid archaeological evidence for the relationship between the emergence of the barrow-building practice and the Bell Beaker people is still absent in NW Belgium. No clear traces of barrows can be associated with the few Bell Beaker graves discovered, while excavations of the (earliest) barrows revealed no archaeological evidence for the connection between barrows and the Bell Beaker people. Based on evidence from neighboring regions [e.g. Beex and Roosens 1963 (NE Belgium); Van der Beek 2004 (S Netherlands); Salanova and Tchérémissinoff 2011 (N France)], we can assume that in NW Belgium the Bell Beaker graves were also covered with a burial mound. However, due to the absence of peripheral structures and due to erosion, there is no chance that these barrows are preserved in the archaeological record. Evidence from the Netherlands (e.g. Theunissen 1999) and S England (e.g. Garwood 2007) suggest (intensive) barrow-building practices in these regions during the second half of the 3rd millennium cal BC. Although some of the earlier barrow dates are convincing (e.g. the mentioned site at Deinze), we have to keep in mind that some of the earlier dates could be *terminus post quem* values. Towards the end of the 3rd millennium cal BC, the typical characteristics of the Bell Beaker culture disappeared from the archaeological record; however, the barrow tradition seems to have continued with low numbers of new barrow constructions (Figure 1).

In NW Belgium, the zenith of the barrow-building practice is attested largely between 1700 and 1500 cal BC (Figure 1). It is a period of revival of the long-distance trade networks in the whole of NW Europe (Needham 2009). Probably the most important traded type of object is metalwork. Based on the  $^{14}\text{C}$  dates, a sharp decrease in the number of barrow constructions is attested between 1500 and 1400 cal BC. Simultaneously, an enormous increase in metalwork depositions in wet contexts is observed (Figure 6). These changes reflect changed perceptions towards these burial monuments and clearly visible cultural changes in society. Around 1500 cal BC, changes are evident throughout NW Europe, where the trade networks had probably reached their climax (e.g. Kristiansen 1991; Needham 2009). In NW Belgium, the period around 1500 cal BC is characterized by the disappearance of barrow-building practices and the sudden appearance of ritual depositional practices. A possible explanation could be that through the flourishing trade networks, metalwork becomes relatively more abundant in society, allowing the ritual giving up of large amounts of these prestigious objects. When the barrow phenomenon reached its peak, socioeconomic and/or political status is no longer clearly indexed by this practice. The need to display such status on the part of some individuals or groups, to distinguish themselves from the mainstream of the community,

causes them to adopt new practices. The highest status is from now on obtained and/or reflected in being capable of depositing and destroying (large amounts of) prestigious objects. The deposition phenomenon sets in with a peak of depositions after 1500 cal BC, which could indicate sudden changes in society and the sudden decision of individuals or groups to differ from others within their community. Although later in time, a similar relation by which barrows are replaced by depositions is observed in northern Europe (Kristiansen 1991).

The sudden adoption (or intensification) of the deposition practice marks the end of the barrow phenomenon in the region. There is evidence of reuse of old monuments, but new monuments were probably no longer built after 1400 cal BC (Figure 6). It is difficult to explain the practice of reuse, as it is difficult to detect in the archaeological record due to the poor state of preservation. The <sup>14</sup>C dates clearly document reuse practices after 1500/1400 cal BC. It is, however, unclear whether barrows were reused in earlier times. Nonetheless, it is likely that the intensity of the practice of reuse must have changed through time (cf. southern England, Bradley and Fraser 2011), and that it was a more common practice in periods when fewer new monuments were built. More systematic <sup>14</sup>C dating of excavated monuments and associated features could provide new insight into these practices. The practice of a barrow as a burial monument went certainly out of practice before 1200/1100 cal BC when a new burial practice, the so-called urnfield, appears in the archaeological record (see De Mulder et al. 2009).

It is arguable that the deceased was buried close to the settlement where s/he lived. As mentioned, the evidence of settlement sites is scarce and only the site of Maldegem provided a <sup>14</sup>C date. The house seems slightly younger than the barrow phenomenon (Figure 6). Nevertheless, more evidence is needed to understand the relation between longhouse and barrow. A recent comparison of the <sup>14</sup>C chronologies of Bronze Age barrows and Middle Bronze Age settlements in the Netherlands has revealed that the barrows are in general older than the longhouses. Most of the barrows were built before 1400 cal BC, while most of the houses date from 1400 cal BC onwards (Bourgeois and Fontijn 2008). These observations make a relation between the longhouses and the barrows more unlikely. However, we need to await new archaeological evidence before it is possible to formulate a statement on the relation between barrows and longhouses in the Middle Bronze Age of NW Belgium.

## CONCLUSION

This research revealed interesting patterns concerning the chronology—the appearance, the disappearance, and the peak—of the NW Belgian Bronze Age barrow phenomenon. The earliest <sup>14</sup>C dates out of barrow contexts coincide with the presence of the Bell Beaker culture in the region during the Late Neolithic. The peak of the barrow-building practice occurred between 1700 and 1500 cal BC, a period of flourishing trade networks in the regions along the North Sea basin. Around 1500/1400 cal BC, when the barrow-building practice seems to disappear, a sudden start of metalwork depositions is attested, presumably reflecting changes in society.

The presented <sup>14</sup>C data led to some challenging observations that hopefully stimulate further investigation and discussion towards the chronology of the Bronze Age in Belgium (and NW Europe). However, to dig deeper into the Bronze Age chronology, a refinement of the archaeological data (e.g. identification of reuse during fieldwork) and more systematic <sup>14</sup>C dating is needed.

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