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CHALLENGING THE TRADITIONAL CHRONOLOGICAL FRAMEWORK OF FUNERARY RITUALS IN THE MEUSE-DEMER-SCHELDT REGION: ^{14}C RESULTS FROM THE SITE OF LUMMEN-MELDERT (BELGIUM)

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ABSTRACT. Archaeologists tend to use typochronological frameworks to date their sites. These are based on the appearance of certain cultural markers such as grave types or houseplans. In the Meuse-Demer-Scheldt region, a chronological framework is used for the cremation cemeteries from the Middle Bronze Age until the Late Iron Age based on the size, number, and presence of different types of cremation graves. Radiocarbon dating of cremated bone from the small cemetery at Lummen-Meldert dates this site to the Late Bronze Age. These results challenge the hypothesis that small cremation cemeteries with mostly "unurned" graves date to the Middle Iron Age. The cremation graves without an urn and grave goods are a specific category that has to be dated by absolute dating methods such as ^{14}C. The results also suggest a connection with the funerary traditions in the Atlantic region.

INTRODUCTION

Archaeologists traditionally work with typological features to place their excavated sites within a chronological framework. These chronologies are normally based on the study of artifacts and their presumed evolution, with pottery and metal artifacts being the most favored objects, next to glass objects and coins. Other typochronologies are based on the appearance and disappearance of certain cultural markers such as grave types, surrounding grave structures, or houseplans. These typochronologies are mostly useful within the region where they have been studied.

The Meuse-Demer-Scheldt (MDS) region covers the southern Netherlands and the northeastern part of Belgium. It is an area with an old and rich tradition of archaeological research (Fokkens 1996; Roymans 1996; Theuws and Roymans 1999; Gerritsen 2003). In the 1970s, a chronological framework was proposed for the cremation cemeteries from the Middle Bronze Age until the Late Iron Age (Table 1). This scheme was based on the appearance of certain types of cemeteries, the number of graves, and the presence of different types of cremation graves. Late Bronze Age urnfields were characterized by the presence of dozens of cremation graves and even up to more than hundred graves on the same site. So-called "unurned" cremations were the dominant group of burials within the cemeteries of this period (Verwers 1971, 1972). During the Early Iron Age, the size of the urnfields remains the same, but there is a change to a preferential deposition of the cremated bones in an urn. Thus, there are fewer unurned cremation graves in the Early Iron Age cemeteries. There are also differences concerning the surrounding structures of the burials. A change in the funerary ritual happened in the Middle Iron Age. In general, information about cemeteries is becoming scarce because they are less documented in the archaeological record of this period. The known cemeteries are smaller and they contain mostly a small number of cremation graves without an urn (Verwers 1972). The size of the cemeteries is limited to no more than 20 cremation burials (Gerritsen 2003). Currently, this scheme is still used as the framework for the funerary archaeology in the southern Netherlands (Hessing and Kooi 2005).

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Table 1 Chronology of the studied region based on Lanting and van der Plicht (2001/2002, 2005/2006) and van den Broeke (2012).

Typochronology	Dutch chronology	Calendar years BC	^{14}C yr BP
Bronzezeit D (BZ D)	Middle Bronze Age B	1325–1200	3100–3000
Hallstatt A1 (Ha A1)		1200–1125	3000–2950
Hallstatt A2 (Ha A2)	Late Bronze Age	1125–1025	3000–2875
Hallstatt B1 (Ha B1)		1025–925	2875–2800
Hallstatt B2 (Ha B2)		–	–
Hallstatt B3 (Ha B3)		925–800	2800–2650
Hallstatt C (Ha C)	Early Iron Age	800–625	2650–2450
Hallstatt D (Ha D)		625–500/475	2500–2450/2400
La Tène I (LT I)	Middle Iron Age	500/475–250	2450/2400–2250/2200

Site Description

Meldert is a small village, part of the larger municipality of Lummen in the province of Limburg, located in the northeastern part of Belgium (Figure 1). In 1995, a rescue excavation was organized by the former IAP (Flemish Institute for Archaeology) and the province of Limburg after the discovery of two cremation graves during mechanical diggings within the framework of building activities. The site was situated on a small sandy ridge, just a few meters beside the Zwarte Beek River. Two areas could be distinguished (Figure 2). In the first zone, eight cremation graves were recorded. They were dispersed randomly on the southern and western edge of the ridge. In the same area, a large circular ditch had been dug out. This monument, possibly a funerary structure, had a diameter of 20 m. It covered part of the center of the ridge and also the southern edge. Adjacent to this circular monument, a fragment of a probable rectangular structure was discovered. Because it was only partially excavated, its dimensions remain uncertain. The eight cremation graves were dispersed in and around both monuments. The chronological relationship between these monuments and the cremation graves is not quite clear. None of them seems to be a primary burial, which should be expected in the center of the monuments. Their position rather suggests that they are secondary burials. These eight burials could be divided into two different types of cremation grave. One is a so-called "bone-packgrave"(*Knochenlager*) and seven are *Brandgrubengräber* (for the typology see De Mulder

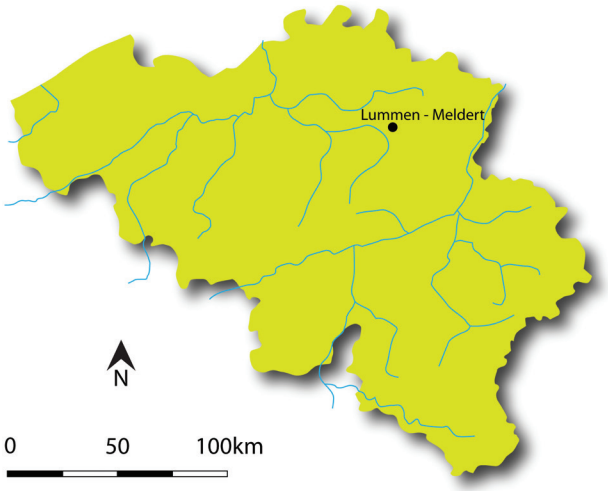

Figure 1 Location of the site of Lummen-Meldert

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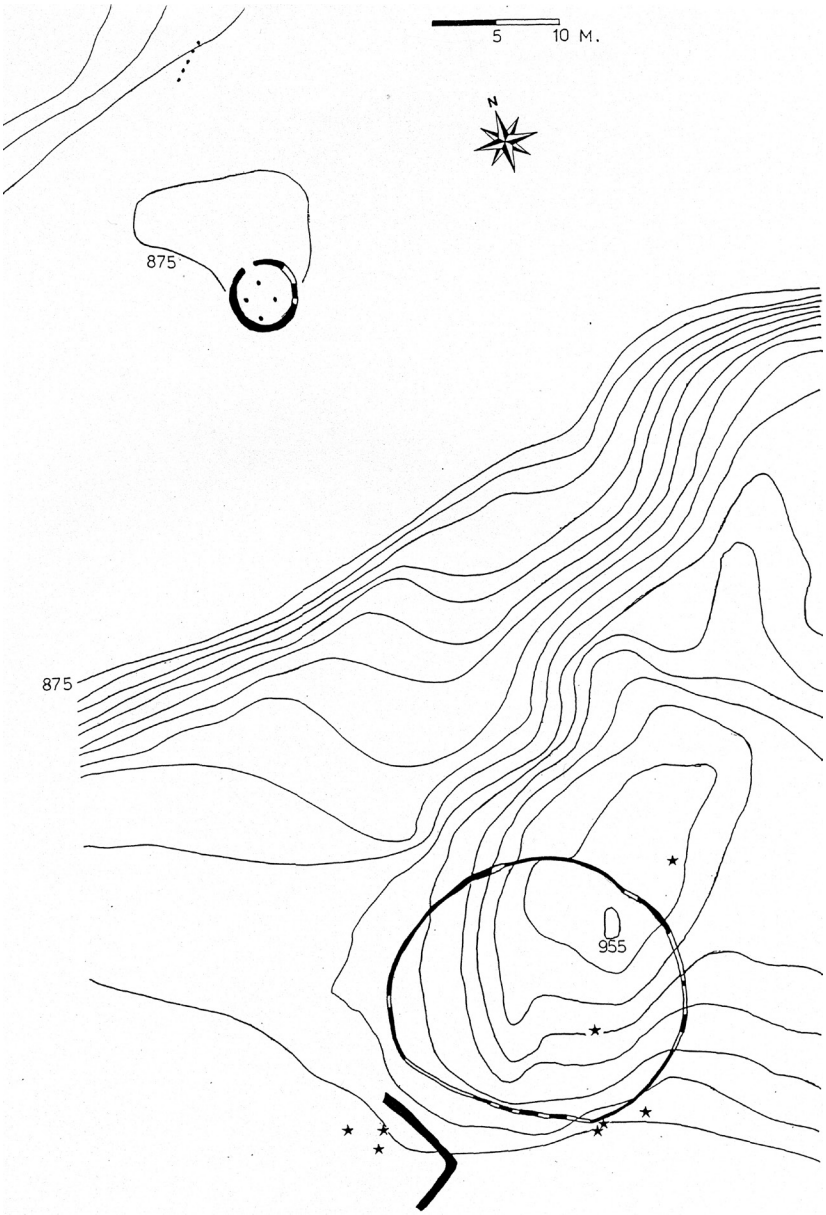

Figure 2 Excavation plan of the cemetery; stars represent the cremation graves

1994, 2011; De Mulder et al. 2013). Two of these cremation graves contained some small fragments of pottery, which were too small to provide typochronological information for the site. In the second area, 60 m north of the first zone, a second circular structure had been erected. Its dimensions were limited to a diameter of 5.5 m. A square structure of four postholes had been constructed, a bit eccentric within this monument. Supposedly due to the erosion, there were no indications of cremation graves (Creemers 1996).

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MATERIAL AND METHODS

Cremated bone material from seven cremation graves was selected for ^{14}C dating (Table 2), following the standards for selecting cremated bone as described in Van Strydonck et al. (2009). Due to the high fragmentation degree of the bone in comparison with other dated urnfield cemeteries, smaller fragments had to be used for the dating than normally used. The fragments were prepared in the laboratory in Brussels according to the standard procedures for cremated bone samples (Van Strydonck and van der Borg 1990–1991; Van Strydonck et al. 2009). The samples were measured in the AMS facility of the Leibniz Labor Institute at Kiel (Nadeau et al. 1998). Dates are calibrated using OxCal v 4.2 (Bronk Ramsey 2009) with atmospheric data from Reimer et al. (2013).

Table 2 Results from the dated cremation graves.

Grave nr	Lab reference	Age BP	Calibrated age (2σ)
1	KIA-48299	2710 ± 30	910 BC (95.4%) 805 BC
2	KIA-48300	2755 ± 30	980 BC (95.4%) 825 BC
3	KIA-48301	2775 ± 35	1005 BC (95.4%) 835 BC
4	KIA-48302	2845 ± 35	1115 BC (95.4%) 915 BC
5	KIA-48303	2840 ± 35	1115 BC (95.4%) 910 BC
7	KIA-48304	2700 ± 35	915 BC (95.4%) 800 BC
8	KIA-48305	2720 ± 35	930 BC (95.4%) 805 BC

DISCUSSION

The dating results of the cremated bones were surprisingly much older than expected by the excavator using the traditional typochronologies of the MDS region. In a first report after the excavation, a Middle Iron Age date had been proposed as a working hypothesis. The few cremation graves and their typology seemed to support this hypothesis (Creemers 1996). This hypothesis also fit with the supposed chronological evolution of the cemeteries within the region.

Following the new dating results, all the cremation graves of Lummen-Meldert are dated to the Late Bronze Age from the end of the 12th century BC until the end of the 8th century BC (Figure 3). The earliest graves belong to the beginning of the Late Bronze Age in the region and the appearance of the urnfield cemeteries in this period. Two graves can be situated in the middle phase of this period. Finally, three burials can be placed in the final phase of the Late Bronze Age, i.e. in the 9th century BC. This coincides with the typochronological phase Ha B2/3.

The question about the chronological relationship between the cremation graves and both monuments cannot be answered with certainty due to the absence of datable material in both surrounding structures. Circular structures with a dimension of 20 m can in this region belong to the Bronze Age and the Early Iron Age (Hessing and Kooi 2005). This type of barrow was frequently built as a funeral monument between 3400–3150 BP, the Middle Bronze Age A period (Bourgeois and Arnoldussen 2006). Late Bronze Age and Early Iron Age barrows in the region tend to have smaller dimensions, averaging less than 10 m. The four postholes within the ring ditch are interpreted in some cemeteries of this period as a funerary building. Rectangular structures appear at the earliest within the local cemeteries in this region at the beginning of the Middle Iron Age (Gerritsen 2003). Although there are no indications of a primary burial, it is believed that the large circular structure was the oldest funerary monument. The Late Bronze Age cremation graves, dispersed within and around the circular ring ditch, represent a younger phase. As already mentioned, the second smaller ring ditch could fit, based on its dimensions, in the typology of Late Bronze Age barrows. Unfortu-

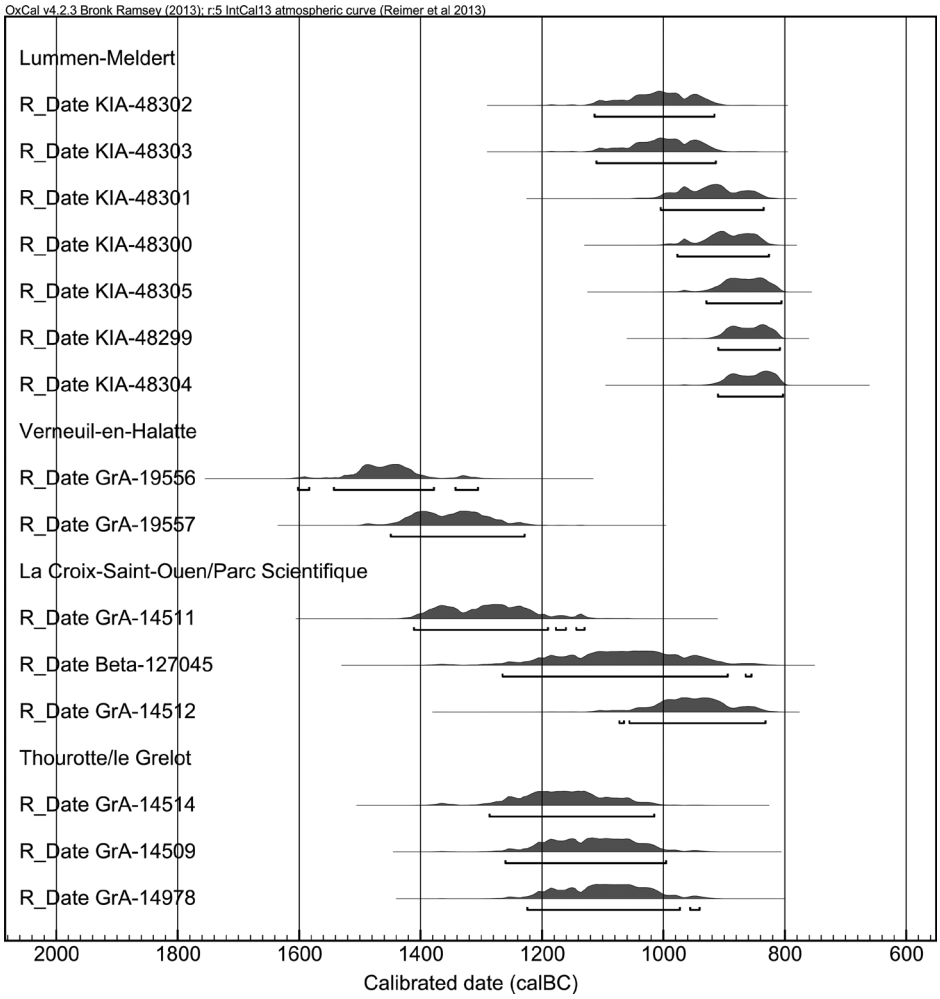

Figure 3 Overview of the calibrated ^{14}C dates from the sites discussed herein

nately, there is no indication of any burial within this structure and its surroundings. Compared with the other structures and the cremation graves, this ring ditch is located farther away from the other archaeological features. The rectangular structure, situated on the southern part of the excavation, encloses three burials. If the traditional typochronological schemes of the region are followed, we have to conclude that this was an attempt to integrate some older Late Bronze Age cremation graves in a new Iron Age structure.

The ^{14}C dating of the cremation graves at Lummen-Meldert indicates that in addition to the larger classical urnfield cemeteries of this period, also smaller cemeteries with only a few burials were in use during the Late Bronze Age in the MDS region. The diversity in burial ritual and burial grounds should be larger than expected. The urnfields of the Late Bronze Age and Early Iron Age are traditionally interpreted as cemeteries for one to three families who use them for generations (Roymans 1999; De Mulder 2011). Because they were in use for a long period, they usually contain several dozen cremation graves. The small number of graves at Lummen-Meldert and the long timespan

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of the ^{14}C dates (3 centuries at 2σ range or 2.5 centuries at 1σ range) suggest that this site had a less frequent use in this period if we take into account the average 25/35-yr life expectancy for an individual at this time (Harding 2000). This is less than we could expect from one family using this cemetery. Although, the option of reuse by another family group cannot be excluded.

The Late Bronze Age cemetery of Lummen-Meldert contains no urngraves, and it is from this point of view aberrant from the other cemeteries of this period. Only two different types of burial of cremated bones in a pit were excavated (bonepackgraves and *Brandgrubengräber*). In the neighboring region, there is also a small cemetery at Meerhout-Zittaart where predominantly cremation graves without urns are recorded (Roosens and Meex 1975). For this cemetery, a series of ^{14}C dates have been performed, which place it also in the Late Bronze Age. The ^{14}C dates thus confirmed the typochronological date based on some pottery and bronze objects deposited in a few cremation graves (Roosens and Meex 1975; De Mulder 2011).

The present typochronology in the MDS region, based on the structure of the cemeteries, the type of cremation graves, and their number, has to be questioned. The hypothetical attribution to the Middle Iron Age for the cemetery at Lummen-Meldert was based on its layout and the type of cremation graves, as was accepted for the cemeteries in the MDS region. The results of our research in Lummen-Meldert indicate that one must be careful with using only typochronology as a dating tool. ^{14}C dating of cremated bones from a cemetery should always be integrated in an archaeological research project, especially when a site contains predominantly burials without urns and when other archaeological artifacts are rarely found in the graves.

The layout of the cemetery at Lummen-Meldert can be compared with some recent excavated cemeteries in northern France. They also contain a limited number of burials interred in each cemetery, and are mostly cremations without an urn. Both types of cremation graves that occur in Lummen-Meldert (bonepackgraves and *Brandgrubengräber*) are also recorded in northern France. These graves seem to be the dominant way of deposing cremated bones in a burial pit. Funerary monuments are also scarce in northern France. There, available ^{14}C dates from three sites are older than the results for Lummen-Meldert. The dates of the sites of Verneuil-en-Halatte (Gaudefroy and Le Goff 2004), La Croix-Saint-Ouen/Parc Scientifique and Thourotte/le Grelot (Blanchet and Talon 2005) can be placed between 3180–2800 BP (Table 3) (Figure 3). The northern French cemeteries date from the end of the Middle Bronze Age to the Late Bronze Age. They are interpreted as representing a probable Atlantic burial tradition in this period, which is characterized by small cemeteries with a limited number of cremation burials and the presence of mostly unurned cremations. In con-

Table 3 ^{14}C dates from the three French cemeteries discussed.

Grave nr	Lab ref.	Age BP	Calibrated age (2σ)
Verneuil-en-Halatte			
18	Gr A-19556	3180 ± 45	1605 BC (95.4%) 1305 BC
20	GrA-19557	3095 ± 45	1450 BC (95.4%) 1255 BC
La Croix-Saint-Ouen/Parc Scientifique			
6	GrA-14511	3035 ± 45	1415 BC (95.4%) 1130 BC
42	Beta-127045	2880 ± 70	1270 BC (95.4%) 855 BC
41	GrA-14512	2800 ± 45	1075 BC (95.4%) 830 BC
Thourotte/le Grelot			
2	GrA-14514	2955 ± 45	1290 BC (95.4%) 1015 BC
1010	GrA-14509	2920 ± 45	1265 BC (95.4%) 995 BC
106	GrA-14978	2905 ± 45	1225 BC (95.4%) 940 BC

trast, the more continental urnfield cemeteries tend to be larger and the deposition of the cremated remains mostly occur in an urn. This continental type of cemetery is known in the neighboring French regions of the Aisne Valley (Brun et al. 2005; Le Guen and Pinard 2007) and the Seine-Marne region (Mordant 2008). There are some differences in age between Lummen-Meldert and the three French funerary sites. They seem to start earlier than the cemetery of Lummen-Meldert. Nevertheless, the layout of these cemeteries with only a few burials is similar. All four sites show also a preference for unurned cremation graves. This finding is an interesting new element in the ongoing discussion about the spheres of influence between Atlantic and continental cultures during the Late Bronze Age, and especially how to recognize and identify potential Atlantic cultural markers (Burgess 1969; Brun 1991, 1998).

CONCLUSIONS

The cemetery of Lummen-Meldert was ^{14}C dated to the Late Bronze Age by the use of cremated bone. According to its small size and limited number of burials, a date in the Middle Iron Age was expected. This result questions the existing ideas regarding the evolution of funerary practices in the MDS region. In the same region, the funerary ritual seems to be more diverse than is traditionally accepted. The site of Lummen-Meldert displays some similarities with northern French cemeteries, which are sometimes slightly older. This raises an interesting question about possible Atlantic cultural influence in the southern part of the MDS region. This scientific discussion about Atlantic and continental spheres of influences has been going on for decades, focused more on the material culture in the regions bordering the Channel and the North Sea. Further studies concerning the layout of the cemeteries and ^{14}C dating of cremations in this region could supply new information for this complicated debate.

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