

¹⁴C DATING OF “BRANDGRUBENGRÄBER” FROM THE BRONZE AGE TO THE ROMAN PERIOD IN WESTERN FLANDERS (BELGIUM)

Guy De Mulder^{1,2} • Mark Van Strydonck³ • Wim De Clercq¹

ABSTRACT. A *Brandgrubengrab* entails a specific way of depositing human remains whereby the cremated remains of the deceased and other remnants of the funeral pyre, such as charcoal and burnt objects, are jointly deposited onto the bottom of a pit. This type of burial became increasingly popular during the Late Iron Age and the Roman period, when it was the main basic funerary structure used in western Flanders. In recent years, more attention has been paid to establishing a more precise chronology for these funerary structures by applying radiocarbon dating. A set of 40 ¹⁴C dates obtained from samples originating from small cemeteries and isolated cremations now offers new insights in the development of this specific cremation burial ritual.

INTRODUCTION

The region of study presented in this paper is located in the western part of Belgium, with the North Sea to the west, and the River Scheldt and the Antwerp region to the east. It broadly covers the present-day provinces of West- and East-Flanders, with only 1 site being located east of the Scheldt.

The term *Brandgrubengräber* is borrowed from a German archaeological term (Dutch: *brandstengraf*; French: *tombes à incinération*). This type of cremation grave is a specific depositional practice in which the cremated remains of the deceased and other remnants of the pyre, such as charcoal and burnt funerary objects, are jointly deposited onto the bottom of a pit (Van Doorselaer 1969; De Laet et al. 1986; De Mulder 1994). In all cases, a lenticular-shaped deposit is found on the bottom of a pit, covered by reworked soil, indicating a fast infilling of the grave after deposition of the funeral remnants.

Most often, only a limited number of the cremated bone are deposited in the burial pit, probably as a *pars pro toto* for the deceased. Along with these, the burned grave goods that originally accompanied the deceased on the funeral pyre are often found in a fragmented state in the burial pit, either within the deposit or, for larger pieces, placed on top of it. Deposition of intact unburnt funeral objects also occurs, but it cannot be considered as a standard rule as the practice varies among microregions.

Burial of this type is traditionally dated by the funerary objects found within the structure itself. However, due to the lack of funerary objects or by their fragmented and burned condition, an exact dating of a number of burials was not possible. Moreover, conventional dating of graves through associated material culture, such as ceramics, may be misleading. Objects deliberately selected to be placed in the burial pit as grave goods may predate the structure in which they were discovered, hence suggesting an older date for the cremation grave. It is possible to provide an alternative date of these burials based on radiocarbon dating of charcoal or cremated bone (Lanting and Brindley 1998; Lanting et al. 2001; Van Strydonck et al. 2005; De Mulder et al. 2007). In recent years, more attention has been paid to developing a parallel chronology for these funerary structures in the study region by using ¹⁴C dating independently from the material culture.

¹Department of Archaeology, Ghent University, Sint-Pietersnieuwstraat 35, B-9000 Ghent, Belgium.

²Corresponding author. Email: Guy.Demulder@Ugent.be.

³Royal Institute for Cultural Heritage, Jubelpark 1, B-1000 Brussels, Belgium.

PRECURSORS

Brandgrubengrab-type burials became predominant during the Late Iron Age (475/450–52 BC) and the Roman period (52 BC–AD 406) but were first used in the Early Bronze Age at several sites in western Belgium and northern France, where *Brandgrubengräber* have been ascertained in several barrow and urnfield cemeteries. A series of these cremation graves have been dated using charcoal or cremated bone. To date, 17 cremations from 8 different sites have been dated (De Mulder 2011). These ^{14}C dates cover a period from the 2nd millennium BC to the beginning of the period discussed in this paper (Table 1). The oldest ^{14}C date comes from a *Brandgrubengrab* located in the center of a barrow at the urnfield of Tessenderlo (Belgium). Both the charcoal (KIA-33814) and cremated bone (KIA-33618) had the same age (3210 ± 30 BP) (De Mulder 2010). This situates the first appearance of this type of cremation grave in the Middle Bronze Age.

During the Late Bronze Age and Early Iron Age, the *Brandgrubengrab*-type burial existed in limited numbers in urnfield cemeteries, representing approximately 15% of the cremation graves (De Mulder 2011). The most recent date from an urnfield cemetery is on charcoal from the site of Wijnegem/Blikstraat (Belgium). The result (KIA-41940: 2130 ± 30 BP) is relatively recent for an urnfield cemetery and dates the latest activity to the Late Iron Age (De Mulder 2011). The prolonged use of urnfield cemeteries has sporadically been ascertained at other sites such as Destelbergen/Eenbeekeinde (De Mulder 2010, 2011) and Kontich/Duffelsesteenweg (De Mulder 2011).

Table 1 Overview of the ^{14}C dates from prehistoric cremation graves (*Brandgrubengrab*-type).

Site and context number	Material ^a	Lab nr	Date BP	Calibrated date ^b (2 σ)
Tessenderlo gr 14	CC	KIA-33814	3210 ± 30	1530 (95.4%) 1415 BC
	CB	KIA-33618	3210 ± 30	1530 (95.4%) 1415 BC
Wijnegem/Blikstraat gr 130	CC	KIA-41940	2130 ± 30	350 (11.1%) 305 BC 210 (84.3%) 50 BC
Destelbergen/Eenbeekeinde gr 4	CB	KIA-34909	2120 ± 30	350 (4.8%) 320 BC 210 (90.6%) 40 BC
Kontich/Duffelsesteenweg gr 48	CC	KIA-42133	2275 ± 40	405 (42.7%) 345 BC 320 (52.7%) 205 BC
Kontich/Duffelsesteenweg gr 66	CC	KIA-42135	2250 ± 35	395 (31.0%) 345 BC 325 (64.4%) 205 BC

^aCC = charcoal; CB = cremated bone.

^bCalibration conducted using OxCal v 4.2.1 (Bronk Ramsey 2009) and the IntCal09 calibration curve (Reimer et al. 2009).

In the urnfield cemeteries of the Late Bronze Age and Early Iron Age, *Brandgrubengräber* represented only a small fraction of the various types of cremation graves. During the Late Iron Age, a process started in which the *Brandgrubengrab* became the dominant way of disposing cremated remains. In our study area, the process reached a high point in the Roman period when it was, according to present-day archaeological information, the predominant funerary ritual practiced, although some urn graves and inhumations sporadically occur.

THE SITES

The ^{14}C dates discussed in this paper originate from rural cemeteries belonging to different local communities (Figure 1). They can be subdivided into 2 groups: traditional cemeteries, which contain tight clusters of cremation graves, and a series of sites that are characterized by the presence of a rather loose distribution of graves in the landscape or even isolated cremations (Table 2). This phe-

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nomenon has been described in Flemish archaeological literature as *veldgraven* (“field graves”; De Clercq 2000; 2009; Messiaen et al. 2012).

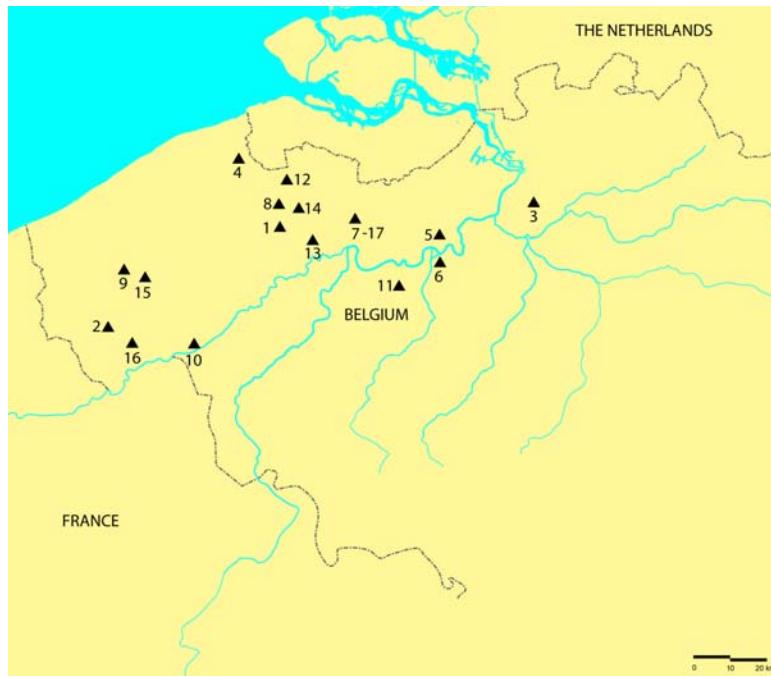


Figure 1 Location of cemeteries with ¹⁴C-dated *Brandgrubengräber* in the western part of Belgium. The sites and their corresponding number are detailed in Table 2.

The largest group of ¹⁴C dates comes from the multiperiod cemetery at Ursel/Rozestraat (Bourgeois 1998), at which ~68 cremations could be ascribed to different types of cremation grave. It is the only site where different types of cremations were observed. The *Brandgrubengräber* constitute only a limited group of cremations within this cemetery.

The other ¹⁴C dates derive from smaller cemeteries that contain a few to a dozen cremations each. Only *Brandgrubengräber* were found in these small cemeteries, which probably belonged to local farming communities (De Clercq 2011) and include the sites of Lede/Domein Mesen, where 12 cremations were excavated (Pede et al. 2012), Dendermonde/Hoogveld with 14 cremations (Vandecasteyne and Laisnez 2010), and Maldegem/VLM with 13 cremations (De Clercq et al. 2007). Other sites contain only a few cremations, as in the cases of Knesselare/Westvoorde in which only 4 cremations were counted, all lying close to a Late Iron Age monument (Vermeulen and Hageman 1997), Kluizendok/ZA2, also with 4 cremations (Laloo et al. 2009), and Dendermonde/Grembergen with 3 graves (Deconynck and Verbruggen 2011; Deconynck et al. 2011). Next to these small community cemeteries, single cremations are mostly found isolated in the landscape. In some cases, isolated cremations are located close to settlements or ditch systems. De Clercq (2009) has suggested that the association of isolated cremations with settlements or ditch systems seems to be deliberate and may have served as a way of culturally and spatially organizing the landscape of the region during the Gallo-Roman period. Examples that have been ¹⁴C dated originate from Kortrijk/Bouvekerke (Verdegem et al. 2011), Aalter/Langevoorde (Eggermont and Hoorne 2010), Roeselare (M De Wilde, personal communication, 2012), and other minor sites (see Table 2). The information on which this

study is based was accumulated over a period of more than 30 yr (Table 2). The first ^{14}C dates were obtained on cremations from the cemetery at Ursel/Rozestraat. Since 2005, there has been a growing number of ^{14}C dates available for *Brandgrubengräber* cremations in small and isolated cemeteries.

Table 2 Burial sites, detailing the number of cremation graves and ^{14}C dates obtained. The number in parentheses for Broechem represents the inhumations at this cemetery. The first number (Nr) refers to the location of each site as given in Figure 1 (Van Strydonck and De Roock 2011; <http://c14.kikirpa.be/search.php>).

Site	Nr	Nr of graves	Nr of ^{14}C dates
Aalter-Langevoorde	1	1	2
Boezinge	2	1	1
Broechem	3	53 (239)	3
Damme	4	1	1
Dendermonde/Grembergen	5	3	1
Dendermonde/Hoogveld	6	14	5
Kluizendok/ZA2	7	4	2
Kluizendok/R4H	17	1	1
Knesselare/Westvoorde	8	4	4
Kortemark/Voshoek	9	1	1
Kortrijk/Bouvekerke	10	1	1
Lede/Domein Mesen	11	12	5
Maldegem/VLM	12	13	3
Merendree/Veldestraat	12	2	1
Ursel/Rozestraat	14	68	6
Roeselare/RGHI	15	2	2
Zonnebeke/Groeve Wienerberger	16	1	1

MATERIALS AND METHODS

Presently, a set of 40 ^{14}C dates is available, representing 17 different sites and covering a range of “classical” cemeteries and isolated cremation graves (Table 3). Most of these sites cluster in the Ghent-Bruges area (see Figure 1). These ^{14}C dates were collected over the last 30 yr and include β -counting as well as accelerator mass spectrometry (AMS) measurements (single-entity measurements). All cemeteries, have been dated by AMS, with 2 exceptions: at Ursel, all graves were dated by β -counting with the exception of grave 37, which was dated by AMS; and β -counting was used for both graves from Roeselare.

In the funerary rite, oak clearly was the preferred combustible (Deforce 2009; Deforce and Haneca 2012) and samples for ^{14}C dating predominantly originate from carbonized oak. The majority of the dated samples (36) therefore consist of charcoal fragments. These samples were treated according the standard AAA-method, prepared by the Royal Institute for Heritage, and measured by the van der Graaff Laboratory (Utrecht, the Netherlands, code UtC), the Leibniz Labor für Altersbestimmung und Isotopenforschung (Kiel, Germany, code KIA), and the Royal Institute of Cultural Heritage (Brussels, Belgium, code KIK-IRPA). Charcoal was the preferred choice for 2 reasons: 1) samples were measured before cremated bone dating was applied (Ursel/Rozestraat and Roeselare); 2) in other cases the cremated bone is reduced to specks and therefore unreliable because the fragments were too small to be dated precisely (Van Strydonck et al. 2009). This contrasts with the Bronze and Iron Age predecessors, in which the bones are less fragmented and deposited in a larger quantity in the grave, allowing a ^{14}C date on cremated bone. Dating of charcoal is therefore the only option by which an absolute date for these Late Iron Age and Roman cremation burials can be obtained.

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Table 3 Overview of ¹⁴C dates on *Brandgrubengräber*.

Site and context nr	Material ^a	Lab nr	Date BP	Calibrated date (2σ)
Aalter-Langevoorde08 F-339-Hka	CC	KIA-39830	2210 ± 35	385 BC (95.4%) 195 BC
Aalter-Langevoorde08 F-339-Hkb	CC	KIA-39825	2215 ± 25	375 BC (95.4%) 200 BC
Boezinge IB/91/1/2	CC	IRPA-1149	1945 ± 50	55 BC (93.6%) 180 AD 190 AD (1.8%) 215 AD
Broechem-973a	CB	KIA-26753	1550 ± 25	425 AD (95.4%) 570 AD
Broechem-973b	CB	KIA-26750	1520 ± 30	430 AD (95.4%) 610 AD
Broechem-1091	CB	KIA-26752	1465 ± 25	550 AD (95.4%) 645 AD
DammeWNW11	CC	KIA-22274	2005 ± 25	60 BC (95.4%) 60 AD
Dendermonde-Gremb. S510	CC	POZ-42009	1775 ± 26	135 AD (11.3%) 200 AD 205 AD (84.1%) 340 AD
Dendermonde-Hoogv.VL1SP18	CC	KIA-45059	2010 ± 25	90 BC (1.5%) 75 BC 55 BC (94.9%) 60 AD
Dendermonde-Hoogv.VL1SP43	CC	KIA-45063	2035 ± 30	165 BC (5.3%) 130 BC 120 BC (88.0%) 30 AD 35 AD (2.1%) 50 AD
Dendermonde-Hoogv.VL1-SP113	CC	KIA-45060	1995 ± 30	55 BC (95.4%) 75 AD
Dendermonde-Hoogv.VL1-SP131	CB	KIA-45072	2130 ± 25	350 BC (7.6%) 315 BC 210 BC (83.4%) 85 BC 80 BC (4.4%) 55 BC
Dendermonde-Hoogv.VL4-SP13	CC	KIA-45061	1945 ± 25	1 AD (95.4%) 130 AD
Kluizendok ZA2-SP01	CC	KIA-41145	1780 ± 35	130 AD (95.4%) 345 AD
Kluizendok ZA2-SP02	CC	KIA-41146	1965 ± 30	45 AD (94.3%) 85 AD 105 AD (1.1%) 115 AD
Kluizendok R4H-SP120	CC	KIA-41147	1925 ± 25	20 AD (95.4%) 130 AD
Knesselare-Westvoorde M8	CC	UtC-5384	2290 ± 30	405 BC (66.5%) 350 BC 295 BC (28.9%) 230 BC
Knesselare-Westvoorde M13	CC	UtC-5392	2270 ± 30	400 BC (46.9%) 350 BC 305 BC (48.5%) 205 BC
Knesselare-Westvoorde M17	CC	UtC-5395	2050 ± 40	175 BC (93.9%) 30 AD 35 AD (1.5%) 50 AD
Knesselare-Westvoorde M20	CC	UtC-5373	2050 ± 30	170 BC (95.4%) 20AD
Kortemark-Voshoek 27	CC	KIA-30985	1900 ± 30	25 AD (2.4%) 40 AD 45 AD (88.2%) 180 AD 185 AD (4.9%) 215 AD
Kortrijk-Bouvekerke SP42b	CC	KIA-47562	1965 ± 25	40 BC (95.4%) 85 AD
Lede-Domein Mesen 96	CC	KIA-47023	1980 ± 30	50 BC (95.4%) 80 AD
Lede-Domein Mesen 269	CC	KIA-47031	1995 ± 25	50 BC (95.4%) 65 AD
Lede-Domein Mesen 419	CC	KIA-47028	2000 ± 30	380 BC (95.4%) 185 BC
Lede-Domein Mesen 449	CC	KIA-47026	1935 ± 30	1 AD (95.4%) 130 AD
Lede-Domein Mesen 509	CC	KIA-47025	1900 ± 25	25 AD (1.1%) 40 AD 50 AD (88.8%) 140 AD 145 AD (3.1%) 175 AD 190 AD (2.3%) 210 AD
Maldegem-VLM-Z1-SP1	CC	KIA-43011	1915 ± 30	1 AD (92.9%) 140 AD 150 AD (1.3%) 170 AD 195 AD (1.2%) 210 AD
Maldegem-VLM-Z1-SP4	CC	KIA-43012	1930 ± 35	40 BC (95.4%) 140 AD
Maldegem-VLM-Z1-SP9	CC	KIA-43014	1850 ± 30	85 AD (95.4%) 235 AD
Merendree-Veldstraat05AS1	CC	KIA-27597	1990 ± 30	50 BC (95.4%) 75 AD
Ursel-Roze T7	CC	IRPA-820	1980 ± 60	170 BC (95.4%) 135 AD
Ursel-Roze T9	CC	IRPA-1039	1905 ± 35	20 AD (95.4%) 215 AD
Ursel-Roze T12	CC	IRPA-822	2070 ± 50	340 BC (0.8%) 325 BC 205 BC (93.3%) 30 AD 35 AD (1.3%) 55 AD
Ursel-Roze T13	CC	IRPA-823	1990 ± 50	155 BC (1.0%) 140 BC 115 BC (94.4%) 125 AD

Table 3 Overview of ^{14}C dates on *Brandgrubengräber*. (Continued)

Site and context nr	Material ^a	Lab nr	Date BP	Calibrated date (2σ)
Ursel-Roze T37	CC	UtC-1544	1820 ± 70	50 AD (95.4%) 385 AD
Ursel-Roze T56	CC	IRPA-939	1355 ± 45	605 AD (82.0%) 730 AD 735 AD (13.4%) 775 AD
Roeselare RH/93/14-BRGII	CC	IRPA-1034	1910 ± 40	5 AD (95.4%) 220 AD
Roeselare RH/93/14-BRGII	CC	IRPA-1122	1990 ± 40	95 BC (94.1%) 90 AD 105 AD (1.0%) 120 AD
Zonnebeke-Groeve Wienerberger	CC	KIA-47757	1975 ± 25	45 BC (95.4%) 75 AD

^aCC = charcoal; CB = cremated bone.

The potential for a negative impact of oak on the date by the old-wood effect is low as anthropological and archaeological information indicate that at the time small, young trees were preferred for the pyre. Representations of an ancient pyre on a Greek red amphora show the use of rather small trees as firewood for the pyre (Van Strydonck et al. 2010). The selection of fuel wood was determined by the soil type and its wood vegetation type (Deforce and Haneca 2012). Anthropological studies of funeral rites in Thailand have revealed that different types of wood were chosen for cremations but with a preference for varieties that were reduced to ash. Large pieces of timber were less preferable due to the difficulties in burning (Pautreau and Mornais 2005). Finally, numerous tests on paired samples of cremated bone and associated context materials (charcoal) have given good results and demonstrated that the impact of using old wood is limited (Olsen et al. 2013).

Only 4 samples were dated using cremated bone and were obtained from the sites of Broechem and Dendermonde/Hoogveld. They were the only sites where excavated bone met the standard for a reliable ^{14}C date based on visual inspection of the quality of the cremated bone as described by Van Strydonck et al. (2009). The samples from Broechem were prepared in the KIK-IRPA based on a method that involves using HCl to leach part of the surface away, removing the secondary calcite concentrated on the outside of the cremated bone (Naysmith et al. 2007). The cremated bone of the Hoogveld site followed the procedure described in De Mulder et al. (2007) and Van Strydonck et al. (2009). Cremated bone sample targets were prepared at the Royal Institute for Cultural Heritage in Brussels (Van Strydonck and van der Borg 1990–1991) and measured at the Leibniz Labor für Altersbestimmung und Isotopenforschung in Kiel (Nadeau et al. 1998).

DISCUSSION

The *Brandgrubengräber* can be divided into 2 groups based on their form as attested in the field. The first category tends to be rounded or slightly oval in shape and is rather small (0.4–0.5 m diameter) and represents 22 ^{14}C dates (Figure 2). The graves of Aalter/Langevoorde and Broechem 973 both had duplicate ^{14}C dates. The second group has a rectangular or quadrangular shape and consists of 18 ^{14}C -dated samples. Their dimensions exceed those of the first group (~0.8–1.4 m in mean). Some of these rectangular graves have dimensions as large as the size of a traditional inhumation (Figure 3). In cross-section during excavation, these cremation graves all show a similar shape. A typical dark lenticular, charcoal-rich layer is visible at the bottom and walls of the burial pit. The layer was formed when the remains of the pyre were deposited on the bottom of the pit before subsequently being buried by the excavated soil, which was redeposited into the grave. In the course of the 1st century AD, a niche could possibly have been added in which intact grave goods, which did not burn on the pyre, were placed for the afterlife of the deceased. This practice has only been dated by means of the typochronological study of the grave goods. No ^{14}C dates on cremation graves with a niche are available at the present time.

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Figure 2 A round type of *Brandgrubengrab* at Ursel/Rozestraat (copyright J Bourgeois, Ghent University).



Figure 3 A rectangular type of *Brandgrubengrab* at Maldegem (copyright W De Clercq, Ghent University).

From a chronological point of view, a clear distinction can be made in the ¹⁴C record of both groups (Figure 4): the round *Brandgrubengräber* clearly predate the rectangular group. The round *Brandgrubengräber* have their roots in the Bronze Age and Early Iron Age, as described in the Precursors section above (Figure 5). The 2 earliest ¹⁴C dates for these round burials come from the small cemetery at Knesselare/Westvoorde: 2290 ± 30 BP (UtC-5384) and 2270 ± 30 BP (UtC-5392). These are older than the latest cremation of this type in the urnfield cemetery of Wijnegem/Blikstraat, which was mainly functioning during the end of the Late Bronze Age and the Early Iron Age. The dates suggest that the latest deposition at the urnfield of Wijnegem/Blikstraat represents a limited reuse of an older cemetery by the local population. In most of the cemeteries discussed, there are no indications that locations were used before as a funeral sites. There are 2 exceptions, Ursel/Rozestraat and Dendermonde/Hoogveld. The first funerary use at both sites was in the form of Early-Middle Bronze Age barrows. Later, these monuments were integrated in the funeral function of

Ursel/Rozestraat (Bourgeois et al. 1989) and Dendermonde/Hoogveld (Vandecatsye and Laisnez 2010) in the Roman period. The most recent date on a round *Brandgrubengrab* in the Roman period was obtained from grave 37 at Ursel/Rozestraat (UtC-1544: 1820 ± 70 BP), but carried a degree of uncertainty as to its reliability because the dating was carried out in the late 1980s. From the available information, we conclude that this round type begins disappearing from the funerary record after 1900 BP, in the course of the first 2 centuries of the Roman period.

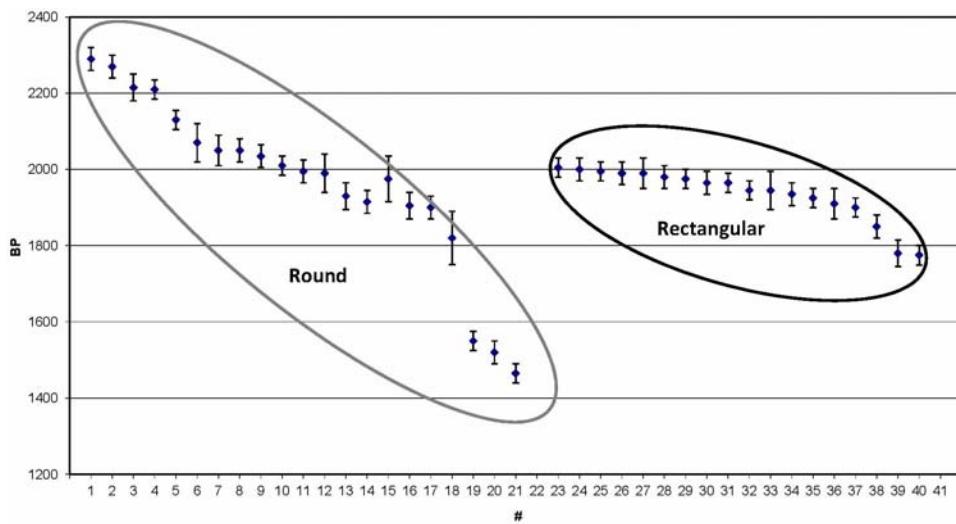


Figure 4 Round versus rectangular *Brandgrubengräber* based on date BP

Within the category of round *Brandgrubengräber*, a group of ^{14}C results is remarkably later. They come from the cemetery at Broechem, which has been ^{14}C dated using cremated bone and the typochronology of the grave goods in the Early Medieval period. Although this small group of round cremation graves fits well with the classic typology of this kind of cremation, it represents another historical fact. They can be interpreted as a reappearance of this type in the Early Medieval period, when it was introduced again by Germanic immigrants, although on a limited scale (see below). The ^{14}C date on charcoal for grave 56 at Ursel also belongs to this group of later dates, which has most likely to be ascribed to infiltration of later charcoal by animal activity because there are no other chronological elements that suggest an Early Medieval occupation of the site.

The second category of *Brandgrubengräber* consists of rectangular/quadrangular shapes, for which at present there are 18 ^{14}C dates available (Figure 6). This subtype definitely appears later than the round cremation graves, although they do not appear in the funerary record before 2000 BP. In the studied region, the earliest examples come from an isolated cremation at Damme (KIA-22274: 2005 ± 25 BP) and the oldest grave (nr 419) in the small rural cemetery of Lede/Domein Mesen (KIA-47028: 2000 ± 30 BP). The ^{14}C dates confirm that the *Brandgrubengrab* phenomenon starts for the first time in the beginning of the Roman period. The most recent graves of this subcategory have been identified at Dendermonde/Grembergen (POZ-42009: 1775 ± 26 BP) and Kluizendok/ZA2 (KIA-41145: 1945 ± 25 BP). Both cremations give calibrated ages in the period between the 3rd to mid-4th century AD. However, ^{14}C dating is less frequently applied to the 2nd and 3th century AD graves, probably due to the abundance of funerary sets rich in imported Roman pottery that can often be sharply dated. We argue, however, that there is a need for more ^{14}C dating in these periods, since pottery may have been placed in the grave at a later date.

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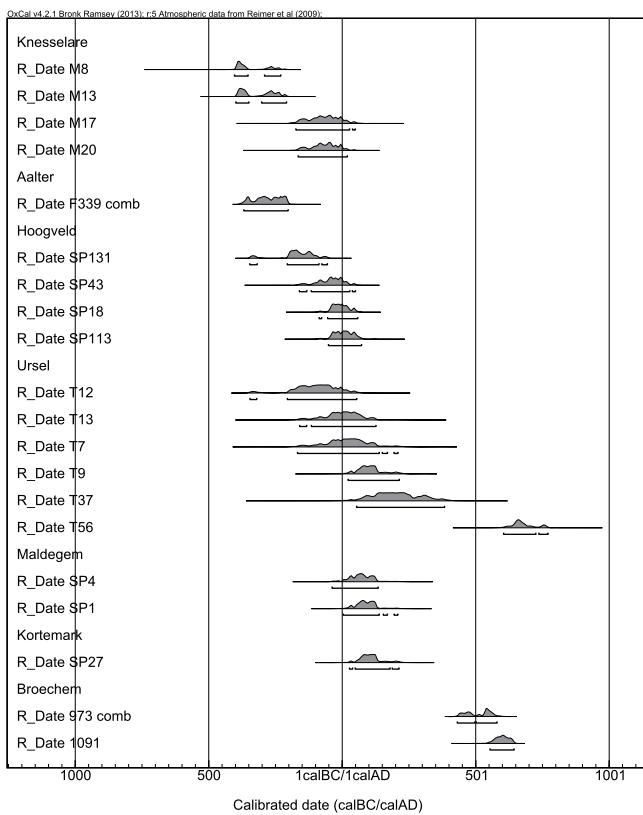


Figure 5 Overview of calibrated ¹⁴C results on round *Brandgrubengräber*

Between 2000 and 1800 BP, there seems to exist an overlap between the 2 groups of cremations, with an increase in rectangular graves towards 1800 BP. The ¹⁴C dates suggest that the rectangular/quadrangular cremation graves have replaced the round type during the Roman period. This development has been documented by ¹⁴C dates at 2 sites: Dendermonde/Hoogveld and Maldegem. The earliest of 5 dates for the small cemetery at Dendermonde/Hoogveld (Figure 7) is 2130 ± 25 BP (KIA-45072), while the most recent grave dates to 1945 ± 25 BP (KIA-45061). The latter was obtained from a rectangular cremation grave, while the others represent the group of round *Brandgrubengräber*. The same development can be observed among the ¹⁴C dates from Maldegem (Figure 7). The most recent date (KIA-43014: 1850 ± 30 BP) can be attributed to the rectangular type, while both other cremations have a round form. This evidence is also visible in the funerary sets that were placed in the graves.

Information about this development is also available at the site of Ursel/Rozestraat, but unfortunately only the round *Brandgrubengräber* have been ¹⁴C dated. At this site, all cremation graves were of the round type except for 1 *Brandgrubengrab*, which was the only grave with a classic rectangular shape. It was also the only grave that contained a funerary set of wheelthrown *terra nigra* pottery. *Terra nigra* pottery consists mostly of regional ceramics used as luxury tableware. The other graves only contain local handmade pottery. The presence of *terra nigra* pottery in only 1 grave may show a growing taste for Roman-style pottery and has been interpreted as a next step in adapting Roman-style objects by the local population. This cremation has not been ¹⁴C dated, but the pottery

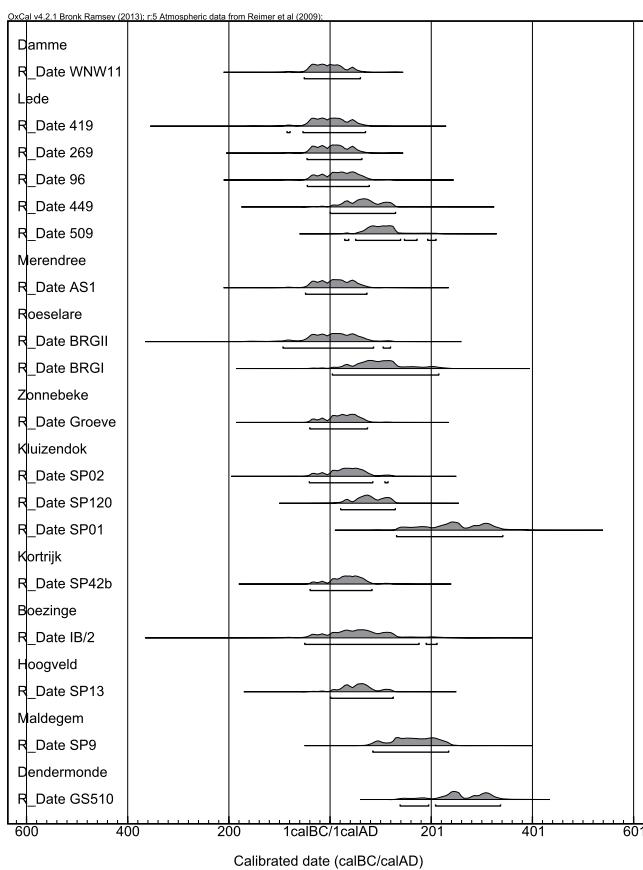


Figure 6 Overview of calibrated ^{14}C results on rectangular/quadrangular *Brandgrubengräber*.

types suggest a date of 1st century AD. It has been interpreted as one of the latest cremation burials in the cemetery before the funerary site at Rozestraat lost its function as a burial place (Bourgeois 1989). In the 2nd century AD, another cemetery was used in the immediate vicinity at Ursel/Konijntje, in which only the rectangular type of cremation grave is present (Bungeneers et al. 1987).

According to the available ^{14}C dates, the shift from round to rectangular burials occurred later in Maldegem than in the cemetery of Dendermonde/Hoogveld. Taking into account the archaeological information from the excavated cemeteries and the settlements (De Clercq 2009), we suggest that the shift in grave type occurred over a period of time (most likely several generations) and that geographical differences also existed. These chronological and geographical differences probably originated in culturally and socially differing attitudes towards the changing sociocultural background of native Roman society.

The ^{14}C dates from *Brandgrubengräber* in West- and East-Flanders show a distribution pattern with a peak in the 1st and 2nd centuries AD, after which the number of ^{14}C dates starts to decline. Although we have already noted that a bias towards the 2nd and 3rd centuries AD may exist—with graves for this period only being dated by objects—the sheer number of earlier dates could also correspond with a historical reality. It may not be the result of a change in burial traditions since the inhu-

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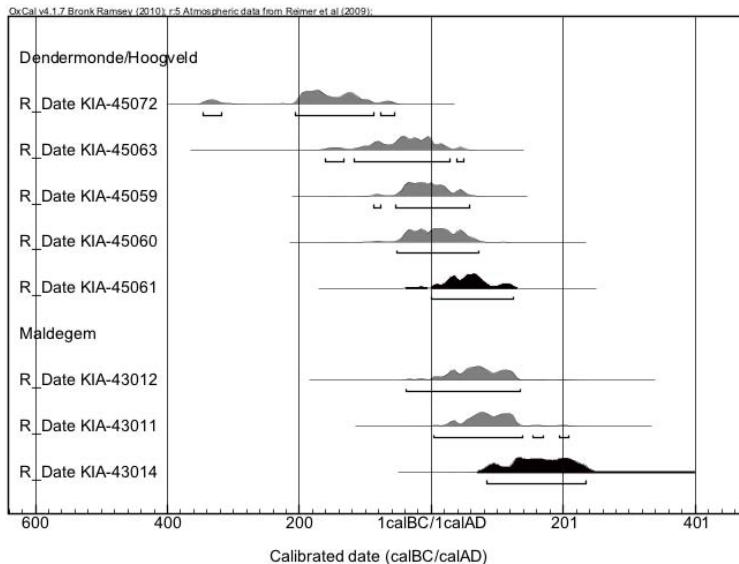


Figure 7 Overview of ¹⁴C dates from Dendermonde/Hoogveld and Maldegem. The results in gray are round cremations, while those in black are rectangular *Brandgrubengräber*.

mation burial only becomes the dominant burial rite in northern Gaul during the Late Roman period. Rather, we believe the diminishing numbers of later graves to be explained by the rapidly declining population numbers since the late 2nd century AD onwards. Rural settlements in the region were rapidly diminishing in number, most likely reflecting depopulation as a consequence of political and economic change (De Clercq 2011).

The round *Brandgrubengrab* appear again in the Early Medieval period as a result of the influx of Germanic immigrant populations. The grave type was part of the cultural context of northern and eastern Germanic groups (Annaert et al. 2010; De Mulder et al. 2012). In these Merovingian cemeteries, inhumation dominates, however, and only a small portion of the population chose cremation, as has been observed in Broechem (Annaert et al. 2010; De Mulder et al. 2012), Velzeke (Van Durme 1969–1971), and Dendermonde (Van Doorselaer and Opsteyn 1999).

CONCLUSIONS

The results of ¹⁴C analyses applied to the burials are 4-fold. First, ¹⁴C dating based on a good prior selection of charcoal samples proves to be a valuable tool for establishing funerary chronology in the region during the period 2200–1750 BP. Second, graves lacking grave goods can now be more precisely dated. Third, the distribution of date ranges clearly demonstrates a peak in the first 2 centuries AD. Fourth, and of great importance for the understanding of the funerary rite, the ¹⁴C results indicate an important change in the shape of these cremation graves during the transition from the Late Iron Age to the Early Roman period, ~2100–2000 BP. The small, irregular-shaped and unstructured cremations of the Late Iron Age became replaced by more uniformly structured *Brandgrubengräber*, which have a rectangular or quadrangular shape.

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