Breaking and making the ancestors. piecing together the urnfield mortuary process in the Lower-Rhine-Basin, ca. 1300–400 BC

Louwen, A.J.

3

Dissecting the urnfield funeral

3.1 From practice theory to theory in practice

Sociology might have provided us with ample starting points to understand funerary practices in a broader social context (Chapter 2), the challenge archaeologists face is that the communities under study are no longer there. Whereas Hertz, Van Gennep and Mauss could base themselves on eye-witness accounts of others, all archaeology can do is reason backwards from the tacit bones and objects encountered in (urnfield) graves. Still, as will appear in the following, even the "average" urnfield grave yields clues of a multi-phased mortuary process that could have taken years to complete. Urnfield graves for that matter do not necessarily have to be less informative than the eye-witness accounts on the *'Olo Ngaju'* of Borneo that were central to Hertz's study (Hertz 1960, 29).

The aim of this chapter is to provide an insight into the mortuary process concerned with the urnfields by dissecting the urnfield funeral on basis of the archaeological data already at hand. It will pay attention to what stages of the mortuary process are in fact reflected in the archaeological record and also specifically how much time was involved in every step (Section 3.2). The time-windows obtained will on their turn provide a rough indication of where from an archaeological viewpoint the social personae of the decedent can be expected to surface throughout the funerary narrative (*cf.* Fowler 2013; see Section 2.4). As such, this chapter will lay the groundwork for the research to be presented in chapters 4-6 (Section 3.3). Furthermore, an evaluation of the current state of affairs in urnfield research will be presented: What accents were emphasised in the long research history of the urnfields and what possibilities and restrictions did these accents bring about when the quality of the data is concerned (Section 3.4)? The chapter will conclude with a selection of sites forming the basis for the final research (Tab. 3.2).

3.2 The urnfield mortuary process

3.2.1 Staging the urnfield funeral

When dissecting the urnfield mortuary process, at least three different points in time can already be distilled from even the "simplest" of graves: (1) the death of a person; (2) the cremation of the corpse and (3) the final interment of the cremated remains (Fig. 3.1). With the exception of a small number of inhumation graves (*e.g.* Van den Broeke 2014) all graves dating to the Late Bronze Age and Early Iron Age in the Lower-Rhine-Basin reflect these three main events or stages in the mortuary process. Subsequently, we can use these

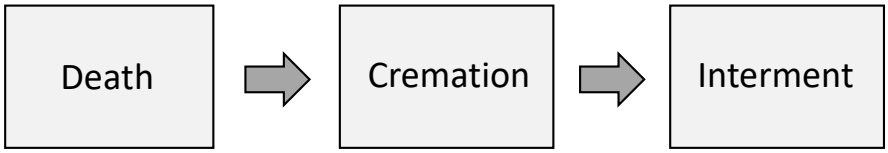

Fig. 3.1: The three mains stages of the mortuary process reflected in cremation graves.

three main stages as the basis for dissecting the urnfield funeral even further by focussing on the two episodes in between them. Clearly, these two episodes, or intermezzo's, appear not as evidently from the archaeological record as the sequence of events in Figure 3.1, but the dead person must have gone through them nevertheless, as probably did some of the objects that finally ended up in the grave. Using these various stages as stepping stones, in this section an attempt shall be made to divide the urnfield funeral into plausible time-slices and explore to what extent the archaeological record can back up the urnfield mortuary process.

3.2.2 Stage 1: Death

The event of death marks the beginning of the mortuary process and can be read from the archaeological record as a single point in time (Fig. 3.7). With the exception of clear trauma or pathologies that might still be present on the cremated remains, the archaeological record tells us little about the way someone died. Osteological analysis may provide a rough indication for the age at which death occurred and some of the bones hold clues about the sex of the subject of study. Other techniques, like strontium-isotope analysis, sometimes allow for a peak further back in time when specific $^{87}Sr/^{86}Sr$ ratios attest to the whereabouts and place of origin of the deceased as related to place of burial (Slovak/Paytan 2011). However, still all that can be stated about the process of dying on basis of just the archaeological record is the simple fact that the person who was buried was no longer breathing and it will take some time before the dead person becomes visible again in the archaeological record beyond the point of dying.

3.2.3 Intermezzo 1: From deathbed to pyre

The first episode in the mortuary process that leaves practically no clues in the archaeological record, comprises the entire time-span between death and cremation. As was demonstrated in the previous chapter, above ground the event of death would have set in motion a whole range of rites concerned with mourning and the preparation for the departure of the dead person from the world of the living (*cf.* Hertz 1907; Van Gennep 1909). Even though from an archaeological viewpoint there is not much to help fill in this "intermezzo," some of its facets can be reasoned backwards up to a plausible degree.

One of these facets is the limited time-span people would have had at their disposal to prepare for cremation since the temperate climate of both the Subboreal (5000-2900 years BP; Berendsen 2004, 293) and the Subatlanticum (2900 years BP-present; Berendsen 2004, 293) did (and does) not allow to store a dead body above ground for a long period of time. Body decay starts as early as approximately four minutes after the heart has stopped beating (Vass 2001, 190) and it is only within a matter of days that the first liquids start oozing out of nose and mouth, unpleasant odours fill the air around the

corpse and gases produced in the decaying process will make the body bloat. With the exception of the cold winter months, the imminent decay of the corpse would probably have urged people to arrange for the cremation within days after the event of death itself.

The here proposed time-window could however be disputed when taking into account the possibility that only the 'dry' bones were cremated. This scenario would have prolonged the episode between death and cremation substantially. Following a view where cremation of dry bones would have taken place, separating flesh from bone could have happened along three different paths: (1) the active defleshing of the bones, (2) primary burial in the form of inhumation followed by the digging-up of the dry bones and (3) storing the cadaver above ground and letting it decay under controlled circumstances. To come up with osteological prove for these scenarios is however problematic. To begin with the cremation of dry bones, the specific fracture patterns of burnt bones that are believed to suggest the cremation of dry bones are at least ambiguous (Harvig 2017, 234).[11] Also, cut marks on cremated remains that could suggest the active defleshing of the cadaver are only very rarely encountered (*ibid.*, 234), and (by the present knowledge of the author) have so far not been observed on cremated remains from Late Bronze Age/Early Iron Age grave contexts in the Lower-Rhine-Basin. Archaeologically, there are also some difficulties in proving a prolonged episode between death and cremation. Up till now, no features have been encountered in excavations of a Late Bronze Age/Early Iron Age date that could suggest primary burial in the form of inhumation followed by the digging-up of the dry bones. In such a scenario one would expect to regularly find some 1.5 – 2 metres long "empty" pits that show signs of reopening. These kind of pits have however not been found so far or have at least not been published as such. With regard to the third scenario, this option is even harder to prove archaeologically since it involves the controlled decay of the corpse *above* ground. The small four- or eight-posts structures that are occasionally found associated with Bronze Age barrows and urnfields, have in the past been interpreted as mortuary houses (Theunissen 1993; Lohof 2000; Bourgeois/Fontijn 2012) that could have hosted a decaying body. There are however also other explanations for these structures like granaries or little causeways (Fokkens 2013). Overall, both the archaeological and osteological evidence that could possibly prove the cremation of dry bones is rather thin.

Neither conclusive but a bit more plausible is the osteological evidence that suggests cremation in the flesh. Specific concave fracture patterns regularly observed on cremated remains from urnfield graves are called *'curved transverse fractures'* (Symes *et al.* 2008, 43) or *'thumbnail fractures'* (Gonçalves *et al.* 2011, 1308) and are believed to occur when there is still muscle tissue attached to the bones (Baby 1954; Binford 1963; Etxeberria 1994; Symes *et al.* 2008). Especially the *femur* is known to show these fracture patterns (Fig. 3.2). When trapped in a typical fire, the human body adapts the so-called "pugilistic posture" which is a body pose caused by the shrinking of the muscles. In the pugilistic pose the knees are slightly bent, the elbows are bent even further and the hands are clutched in front of the torso. A burnt body will adapt this pose as it are the joints that will start to burn first when a body is set on fire (Symes *et al.* 2008, pl.2). The kinetic energy that builds up in the muscles around these areas, will finally start to pull muscle tissue towards the joints. In the case of the *femur*, shrinking muscles are pulled towards the knee, slowly exposing the bone in jerky movements and leaving these typical concave fracture patterns (Fig. 3.2).

11 Lise Harvig lists a long row of publications in her article that show the ambiguity of these fracture patterns (Harvig 2017, 234).

Fig. 3.2: "Thumbnail fractures" on a *femur* fragment from 'Grave 4' at Apeldoorn-Uddeler Heegde (Louwen *et al*. 2014).

Recent experiments by the team of David Gonçalves, concerning the cremation of 61 human individuals that had been inhumed first for a period of at least five years, however showed that these typical thumbnail fractures are certainly not only restricted to the cremation of fleshed and green bones (Gonçalves *et al.* 2011) and they presume them to originate from the general loss of collagen in the bone structure caused by burning. After a critical review of the available research on thumbnail fractures they still conclude that these fractures do indeed occur more often on fleshed and green bone but as their own experiment showed, they are not *per se* related to the presence of soft tissue (Gonçalves *et al.* 2011, 1312).

Overall, from both an archaeological as osteological point of view it remains rather difficult to make a definitive statement about the length of the time-frame between death and cremation. The absence of evidence for the cremation of dry bones is notable but can also not be employed to entirely exclude this scenario. And even though the osteological evidence presented for cremation in the flesh tilts the argument slightly in favour of the short time-span, the evidence itself is not entirely conclusive. Either way, the imminent decay of the corpse would have ushered the prehistoric communities concerned to act swiftly as soon as death struck in their midst. The most effortless and straightforward path to take would clearly have been to perform the cremation within a matter of days after death occurred.

Carefully assuming cremation was indeed performed shortly after death, what would the days leading up to the cremation have looked like? Following the scheme of Van Gennep's rites of passage (Section 2.3.3; Van Gennep 1909) the first rites to be performed after one's death, would have been rites of separation. Following Hertz the sight of the dead body alone would in different respects have evoked a sense of fear and urged the mourners to approach the corpse accordingly (Hertz 1960). Perhaps the corpse was displayed and adorned in a separate room or building filled with fragrant herbs to mask the stench of the already decaying body. Perhaps the body was being watched over all the time and provided with food and offerings. Perhaps prayers would have been said and people could come by to pay their last respects. And perhaps this was all simply not the case as these rites of separation would have taken place above ground and we unfortunately have no archaeological record to back up these maybes. It is only in the rites of transition, following on the rites of separation in Van Gennep's scheme (see Section 2.3.3), where we see the dead person re-emerge in the archaeological record.

Fig. 3.3: The remnants of a pyre as discovered in the urnfield of Weert-Boshoverheide (Photo: Amsterdam Archeologisch Centrum; University of Amsterdam; Hissel *et al*. 2012, afb. 7.43).

3.2.4 Stage 2: The cremation process

As cremation is more of a process than a single event, at this stage in the mortuary process both the dead person and the living community become visible for at least several hours as some facets of the cremation process have been fossilised in the archaeological record.

3.2.4.1 The construction and location of the pyre

For start, the cremation rite would have required fuel. Judging from the charcoal particles that are regularly encountered in urnfield graves, wood would have served as the main fuel for the pyre, though indications for the use of turf as fuel have been attested outside the Lower-Rhine-Basin too (Squires 2017, 260). Botanical analysis of the charred wood can help determine which types wood were preferred for the cremation process. The pyre itself had to be assembled in a way that ensured the complete cremation of the corpse, thus providing sufficient fuel, heat and oxygen. In modern India the traditional Hindu cremation may use as much as 550 kilograms of firewood to cremate a single individual (Chakrabarty *et al.* 2014, 45), an amount that would have been no different in later prehistory. The process of collecting fuel and assembling the pyre would at least have taken several hours and was perhaps already arranged for in the days leading up to the cremation.

As cremation would have taken place above ground, not many pyre locations have been recovered from excavations in the Lower-Rhine-Basin. A clear example and exception has been mentioned in the introduction of this dissertation (Section 1.4.2) and concerns the burnt-out pyre that was covered by the monumental barrow ('Mound 7') at Oss-Zevenbergen (Fontijn *et al.* 2013a). Another exceptional case concerns the vast urnfield of Weert-Boshoverheide in the southern Netherlands where parts of the original prehistoric surface were covered up by blow-sands as a result of which also several pyre locations (Fig. 3.3)

had been preserved (Hissel *et al.* 2012, fig. 7.43). These two examples suggest that cremation took place in the urnfields themselves or close to the location of burial, but as these are also the only two examples for the Netherlands,[12] some caution is needed in making definitive statements about the general location of pyres related to urnfield graves.

Finally, towards the Middle Iron Age so-called '*cinerary barrows*' [Dutch: '*brandheuvels*'] start to occur in urnfields. In this type of grave the cremated remains are left on the burnt-out pyre and are covered up with a small burial mound that is often surrounded by a quadrangular ditch (Hessing/Kooi 2005, 637). Most examples come from the northern Netherlands (*e.g.* Waterbolk 1965; Kooi 1979, 120) where these graves date to the end of the Early Iron Age and beginning of the Middle Iron Age (Hessing/Kooi 2005, 637).

3.2.4.2 Dressing the dead

Probably around the same time the pyre was assembled, the corpse would have been prepared for cremation too. For the Netherlands, no direct evidence for the washing and shaving of the dead body exists, but the fact that razors and tweezers regularly occur in urnfield graves (Fontijn 2002, 200) at least suggests that body care and a clean appearance were of importance in Late Bronze Age/Early Iron Age society. Evidence from Bronze Age coffin graves in Denmark, where hair and skin have been preserved, shows that males were indeed clean shaven for burial or had a beard of only a day or two's growth (Harding 2008, 191; Broholm 1944, II, 58; 108; 285).

Assessing the dress of the decedent is rather problematic as all pieces of textile would have been completely consumed by the cremation fire. The Early Iron Age inhumation grave found in the urnfield of Uden-Slabroekse Heide (Jansen *et al.* 2011; Jansen/Van der Vaart-Verschoof 2020) is the one exceptional case from the Netherlands[13] where fragments of garment survived in association with a corpse. Due to the corrosion of the bronze bracelets and anklets the decedent was wearing, fragments of at least two (woollen) textiles (Van der Vaart-Verschoof 2017b, 224) made it to our era. A remarkable feature is that the textiles were found on the *out*sides of the bracelets and anklets, suggesting this fine jewellery was sealed from sight when the grave was closed. Whether the cloth represents a shroud or actual clothing can no longer be determined, but it would have been a colourful sight nonetheless as the textile consists of a woven check pattern made of different colours, probably red and blue (Van der Vaart-Verschoof 2017b, 224).

For the remainder, we only have jewellery made of less-perishable materials at our disposal as a testament to the decoration of the corpse. Metal trinkets affected by fire (Fontijn 2002, 198) could suggest these were indeed worn by the decedent on the pyre. It has also been argued that cremated remains showing green stains are indirect evidence for the presence of bronze (copper) objects during cremation (*e.g.* Theunissen 2009, 88; De

12 In the urnfield of Sittard-Hoogveld an elongated pit was found, measuring 2.5 x 0.9 metres, that was filled with charred trunks and a pottery vessel. The pit has not been interpreted as a pyre but it has been ascribed a ritual function (Tol 2000, 109; 157).

13 A piece of textile made of woollen thread was recovered from an urn found before 1937 at the heath near Nieuwenhagen in the south of the Netherlands (Ypey 1955). The textile does not necessarily represent clothing and might as well have belonged to a woollen sack or cloth to wrap the cremated remains in before depositing them in the urn. Textiles have also been recovered from the 'Chieftain's grave of Oss' where it was used to wrap some of the objects found in the bronze situla, including the bent sword (Van der Vaart-Verschoof 2017b, 194).

Mulder 2011, 281). Though clear examples indeed occur (Kühl 1987), not all green stains on cremated remains automatically represent metal objects since iron, copper and manganese particles present in the soil can, induced by bacterial activity, also leave blueish green traces on the bones (Herrmann 1981, 121; Chadefaux *et al.* 2009, 32; Reiche *et al.* 2000, 636).

3.2.4.3 Cremation

After the body had been placed on the freshly assembled pyre, the decedent was submitted to the consuming qualities of fire. From a scientific viewpoint, the cremation process is in fact a chemical transformation of the substances that make up the human body. Clues about the intensity of this chemical transformation can be read from the cremated remains and modern day equivalents of open-air cremations provide some valuable insights as well.

To begin with the length of the cremation process, in modern cremation ovens, or *retorts* as they are called, it takes on average two hours to fully cremate a human body (Schultz *et al.* 2008, 78). These retorts however concern indoor and sealed-off spaces that are fuelled on gas. For cremation in the open air involving wooden pyres, as would have been the case in prehistory, time-tables varying between two to eight hours have been proposed (McKinley 1989, 67). In modern cremation ovens temperatures may vary between 760 and 982 °C with the highest temperatures occurring when both body and coffin are alight (Schultz *et al.* 2008, 78-79). The cremation of an obese individual, who on average possesses more body fats that can serve as fuel, may even produce temperatures as high as 1093 °C (*ibid.*, 79). When it comes to the temperatures that would have been reached in prehistoric cremation, the grade of combustion can still be deduced from a combination of colour, texture and fracture patterns of the cremated remains (*e.g.* Walker *et al.* 2008). In osteology most often is made use of the scheme developed by Joachim Wahl (1983; 2008) in order to approach the grade of combustion whereby 'I' serves to indicate the lowest grade and 'V' the highest (Wahl 2008, table 9.1).

3.2.5 Intermezzo 2: From pyre to grave

It is the period in between cremation and final interment that is the most elusive episode of the urnfield mortuary process as there is no clear indication for the time-window involved. It is often assumed that the interment of the cremated remains took place only shortly after cremation but that does not necessarily have to be the case. The transformation the corpse underwent in the cremation process from a mass of rotting flesh to a small heap of calcined bones eliminated the urge to quickly dispose of the body. In a sense the cremation process made the decedent durable as the threat of decay was no longer a problem. Also, the decedent became tangible and easily transportable as body mass shrunk substantially in the cremation process. From a conceptual viewpoint one could even state the human body is in a way *objectified* in the cremation process (*cf.* Brück 2004; 2006).

A study performed by McKinley[14] of the cremation process in two modern crematoria provides some insight in what weight classes can be expected in prehistoric open-air cremation (McKinley 1993). Only adult individuals (both sexes) were included in the study. Combined, the two crematoria produced total cremation weights varying between 1,227.4 and 3,001.3 grams. Assuming that in prehistoric times people did not went through the trouble of retrieving bone fragments smaller than two millimetres, this class of bone

14 See Table 4.3 for an overview of comparable studies.

fragments was subsequently excluded from the experiment, reducing the range of total weights between 1,001.5 and 2,422.5 grams with an average weight of 1,625.9 grams (McKinley 1993, 285). Though the experiment by McKinley provides some valuable insights in the amount of burnt bone left after cremation, as will be argued later on (Section 4.4.2), there are several other important factors of influence that need to be considered when approaching cremation weight classes generated in open-air cremations.

After cremation the decedent could practically be stored everywhere for an unspecified period of time. Even today we are quite accustomed to the idea of having the ashes of our deceased beloved ones around us in the house. Some people even create shrines in their living room to accommodate the urn. Not uncommonly are these shrines enriched with candles, photographs and objects associated with the decedent. This present day example is certainly not meant to confuse modern ideas about mourning with later prehistory, but to show that the process of cremation creates the possibility to prolong the period between death and final interment substantially. The final interment taking place within hours or days after cremation to a period of several years, are both scenarios that should be taking into account when dissecting the urnfield mortuary process. Also, the act of cremating could have been something that was not only performed because of certain cosmologic ideas about the transformation of the dead person, but it might as well have been a means to an end. A certain objectification of the human body has already been mentioned in this regard. In addition, as Oestigaard and Goldhahn have argued, funerals create *par excellence* the opportunity to renegotiate social relations on a scale exceeding the boundaries of the local (Oestigaard/Goldhahn 2006). In this view, cremating the dead creates the opportunity to postpone the funeral and allows people living further away to still be present at the funeral. One can also think of scenarios involving only specific days, seasons or maybe even feasts that were deemed suitable for the interment of new decedents in the (ancestral) burial grounds. All in all, however substantial the time in between cremation and interment might have been, the archaeological record does not provide sufficient clues to make an accurate reconstruction for this time-window, making it indeed the most elusive episode of the urnfield mortuary process.

3.2.6 Stage 3: Interment

Whether it were hours, days or perhaps even years after cremation, both the decedent and the living community eventually resurface in the archaeological record at the location of the grave. As illustrated by the Oss-Zevenbergen example from the introduction (Section 1.4.2) people must have had clear ideas about where someone needed to be buried. The fact that cremated remains needed to be buried in the first place already is an interesting observation in itself as there are many ways of disposing of cremated remains. Today we are quite accustomed to scattering the ashes above ground, in rivers or at sea. However, in the Late Bronze Age and Early Iron Age it was clearly deemed important to anchor these last tangible remains of the decedent somewhere within the physical landscape, preferably surrounded by the other dead.

The ways in which this could be achieved were manifold as the shapes and sizes of funerary monuments in urnfields vary substantially (Hessing/Kooi 2005, fig. 28.3a/b), even within the confinements of single cemeteries (Fig. 3.4). In contrast, there are also cemeteries that did not produce a single monument at all (*e.g.* Dyselinck 2013). Variation in the composition of the graves themselves exists in the size and location of the burial

Fig. 3.4: The urnfield of Sleen. Note the variety in the different types and sizes of funerary monuments (After: Hessing/Kooi 2005, fig. 28.9).

pit, the presence of an urn and whether or not the decedent was provided with grave gifts. Most decedents received their own "spot," but multiple burials within the same monument also regularly occurred (Fig. 3.5). Pilot studies of the relation between sex and the age of the decedent and the variation in urns, grave goods, the type of monument and the location of the burial in relation to the monument have so far not yielded any clear patterns (*e.g.* Louwen 2008).

Returning to the time-window concerned with this stage of the mortuary process, the mourners would have spent several moments at the opened burial pit while placing cremated remains and objects inside the grave. Whether these moments involved minutes or hours cannot be deduced from the archaeological record. In the end the pit would have been sealed off and the construction of the monument could begin. Again the archaeological record does not allow for any statements about the time involved between the closing of the burial pit and the construction of the monument. The time required for construction must have depended on the type of monument. The long mound found at the urnfield of Someren-Waterdael, measuring some 145 metres in length (Kortlang 1999) would have taken reasonably more time to construct than the more common and modest round mounds of only several metres in diameter. Also the construction methods would have varied considerably as some monuments partly

Fig. 3.5: A series of keyhole-shaped funerary monuments in the urnfield of Wessinghuizen (Province of Groningen). The example in the front accommodated three urn graves. The photo was taken during the excavation of 1926. (Willems 1935, afb. 23; © University of Groningen, Groningen Institute of Archaeology).

consisted out of wooden structures while others were built up of heather sods or just loose sand. An experiment carried out by the team excavating the urnfield of Geldrop-Genoenhuis involved the digging-out of the ring ditches surrounding the original (now vanished) burial mounds and tossing up the sand in the area surrounded by these ditches. As appeared, the ditches alone provided sufficient sand to build a substantial mound (Hissel *et al.* 2007, 105). Excavations of urnfield barrows carried out before the great heath reclamations in the early twentieth century AD however also show clear examples of urnfield barrows built-up with heather sods (Fig. 3.6). Whatever construction method might have been applied, the efforts of the living community in burying the decedent and building the funerary monument would have taken at least several hours, if not days, providing us with a substantial time-window in which we can follow the living community almost by the minute.

3.2.7 A final Act?

As urnfields often host dozens, sometimes even hundreds of graves, one way or the other, these were places that must have been frequented a lot. For some urnfields the presence of roads has been attested (Holwerda 1914) while for other urnfields the configuration of the monuments and the open spaces in between them point in the same direction (Kooi 1979; Jager 1987; Roymans/Hoogland 1999). Also, the fact that small barrows were erected over the graves suggests that these graves were meant to be seen or at least to be recognised. All this implies that the dead still formed an important part of the world of the living. Perhaps there were even specific days or feasts throughout the year for the commemoration of

Fig. 3.6: Profile-section of urnfield mound in the urnfield of Uden-Slabroekse Heide (Province of Brabant). Clearly visible are the original flat top of the mound and sods that were used to build the mound. Photo was taken during the excavation of 1923 (After: Remouchamps 1924, afb. 8).

the dead. Unless "residues" of these acts of commemoration were deliberately added to the graves or monuments concerned, they will remain forever hidden from archaeology's reach. Also the exact time-frame for these (presumed) acts of commemoration will be hard to establish on basis of just the archaeological record.

3.2.8 Conclusion

This rough sketch of the different stages involved in the urnfield mortuary process provides a scaffolding that can be used for a more detailed analysis of the associated funerary practices. Clearly the process of cremation (stage 2) and interment (stage 3) present the best opportunities when it comes to keeping track of both the decedent and the living community in the mortuary process. Both stages would have taken at least several hours, if not days, to complete and left ample clues within the archaeological record (Fig. 3.7). However, the "archaeological gap" that exists between the two stages might have been substantial, and above all, of equal importance to the mortuary process as a whole. Though the entire sequence of events could have taken place within just a matter of days, from an archaeological perspective both the decedent as the living community disappear from sight for an unspecified period of time between cremation and interment (Fig. 3.7). Herein lies probably the most difficult challenge when a detailed reconstruction of the urnfield mortuary process is envisioned. Notwithstanding, the next step is to evaluate which practices can still be distilled from the features we encounter in urnfield graves and subsequently upon which stages in the mortuary process these might reflect.

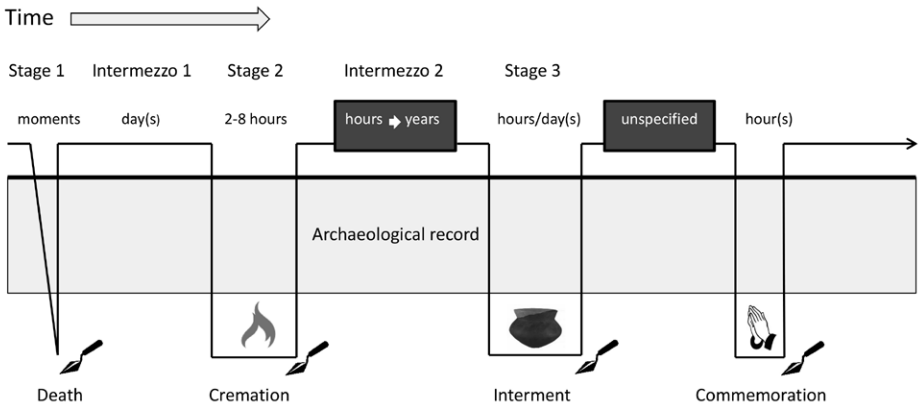

Fig. 3.7: The urnfield mortuary process in stages. The grey baulk represents the archaeological record. As soon as the timeline appears underneath this baulk it means this section of the timeline can be traced archaeologically (hence the trowel) and specific funerary practices can be reconstructed for these respective stages.

3.3 Building the database: the urnfield mortuary process in cells

3.3.1 General structure of the database[15]

Most of the elements that make up an urnfield grave can in fact be grouped according to their relation to the mortuary process. The location of the grave, the type of monument and the furnishing of the grave, for instance, all relate to the stage of interment. There are however other elements that relate to multiple, if not all, stages of the mortuary process. The cremated remains, for one, are prove that someone died (stage 1), was subsequently cremated (stage 2) and was finally interred in a specific way (stage 3). As such, the cremated remains can provide an insight in all three stages of the mortuary process. The same applies to the objects that are occasionally found in urnfield graves, as they too could have functioned in more than just one facet of the mortuary process. Clearly, objects were not only placed in the grave as grave goods (stage 3) but, as their occasional burnt state suggests, could have already accompanied the decedent on the pyre (stage 2).

To create some order in the magnitude of variables that are of interest for the reconstruction of the urnfield mortuary process, a database [Microsoft Access 2007-2010] was constructed that more or less follows the general excavation process (see Fig. 3.8): a cemetery is discovered (level 1) and is excavated grave by grave (level 2) after which the different find categories are sent to specialists for analysis (level 3). An extra fourth level for registering the monuments was finally added to the database structure between Tables 1 (cemetery) and 2 (graves) as one monument can host multiple graves.

15 Special thanks are due to Catalin Popa and Erik Kroon (both Leiden University) for their help and advice in constructing the database.

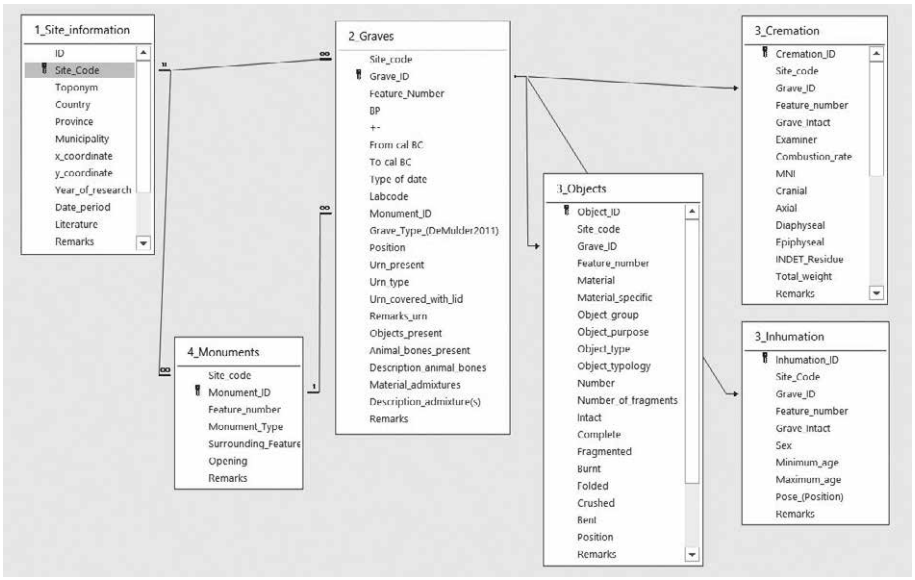

Fig. 3.8: Printscreen of the database structure.

3.3.2 The cemetery

Even though Table 1 (Fig. 3.8) might seem to only contain the necessary site-information, the data stored in this table actually reflect upon an important element of the mortuary process. The numbers forming the x- and y-coordinates of the cemeteries concerned are not just dots on a map but they represent very deliberate choices of Late Bronze Age/Early Iron Age people to bury the dead where they are buried. These must have been places of significance and as some of these burial grounds were used for centuries, the life-, or better, death-histories of these people were deeply rooted in the physical landscape.

Not directly linked to the mortuary process itself, but certainly of interest to the perception of these places throughout the ages are their toponyms. Urnfield toponyms like '*Hunenbelten,*'[16] '*Galgenberg,*'[17] '*Kabouterberg*'[18] and '*Duivelsberg*'[19] refer to fantastic interpretations and the often heathen connotations these places had in the Christian era (Roymans 1995).

3.3.3 Furnishing the grave

Table 2 contains all variables that are somehow concerned with the furnishing of the grave. As a consequence, most variables in Table 2 relate to the stage of interment. Since Table 2 contains all the basic information that is to know about the grave itself, it forms the core of the database. As Figure 3.8 shows, all other tables are directly linked to Table 2. The contents of Table 2 can be grouped in (a) administrative information, (b) age/dating method, (c) type of grave and monument and (d) contents of the grave. In the following these different categories of variables will be explained in further detail.

16 English translation (by author): 'Mounds of giants.'
17 English translation (by author): 'Gallows' mound.'
18 English translation (by author): 'Goblin's mound.'
19 English translation (by author): 'Devil's mound.'

(a) Administrative information

Table 2 is linked to Table 1 by the unique site-code assigned to all the Late Bronze Age/Early Iron Age cemeteries that were registered in the general inventory for the Netherlands (see Section 3.4.1). The 'grave-ID' is auto-generated by Microsoft-Access and forms the link with all underlying tables. Also, the original 'feature-ID' of the grave is included in this table so that every grave entered in the database can be traced back to the original administration of the excavation concerned. In case no original 'feature-ID' was available or a 'feature-ID' was not included in the publication, a provisional feature-ID has been provided. These provisional 'feature-ID's' have been indicated with an asterisk (*).

(b) Age and dating methods

Determining the exact age of past practice is a difficult and often complex exercise. Especially when prehistory is concerned, we must already be content when the dating range obtained falls within a few generations from the actual event itself. With regards to the urnfields, typo-chronology clearly is the most applied dating method as absolute dating methods like radiocarbon dating only became available after the heyday of urnfield research (see Section 3.4). On the Northwest European continent, the chronology developed by Paul Reinecke (see Fig. 3.9) forms the most important basis for typo-chronological analysis of objects retrieved from urnfields. Typo-chronological schemes like the one created by Reinecke are constructed on basis of co-occurring archaeological phenomena in relation to stratigraphy and have over time been complemented and adjusted by high resolution data from regional studies (*e.g.* Mülller-Karpe 1959; Desittere 1968). As a result, at present an elaborate typo-chronological framework exists that can easily provide a rough indication for the age of urnfield graves as long as the graves concerned contain objects or are surrounded by a specific funerary structure. However, at least for the Lower-Rhine-Basin attempts to back up these typo-chronological schemes with radiocarbon dating are scarce and have only recently begun to develop (Lanting/Van der Plicht 2003; 2005; De Mulder *et al.* 2007). Recent small-scale radiocarbon dating programs in commercial archaeology already show that typo-chronological schemes are not always as accurate as one might hope (*e.g.* Dyselinck 2013, 137).

Since radiocarbon dating concerns a dating method where the age of organic archaeological materials can be *measured*, from a scientific viewpoint it forms the strongest and most objective base for determining the age of past events. Also, it can be applied to almost every archaeological context that contains organic materials and does not require the presence of objects or specific types of monuments. However, radiocarbon dating too is certainly not without its challenges. For start, a flat section in the ^{14}C-calibration curve, called the '*Hallstatt-plateau*,' causes all radiocarbon dates around 2450 BP to calibrate between ca. 800 and 400 BC (Van der Plicht 2004, 45). Unfortunately, this flat area on the calibration curve coincides with the entire Early Iron Age. Another difficulty concerns the so-called 'old-wood-effect.' What is actually determined when charcoal from grave contexts is radiocarbon dated, is not so much the event of cremation but a point in time *before* the tree that produced the fuel for the pyre was felled. With a bit of bad luck, people would have used wood coming from the core of an old oak, pushing the outcome of the ^{14}C-analysis concerned even further back in time. AMS-dating the cremated remains themselves does not solve this problem either as the majority of carbonates[20] present in

20 An estimated 95%.

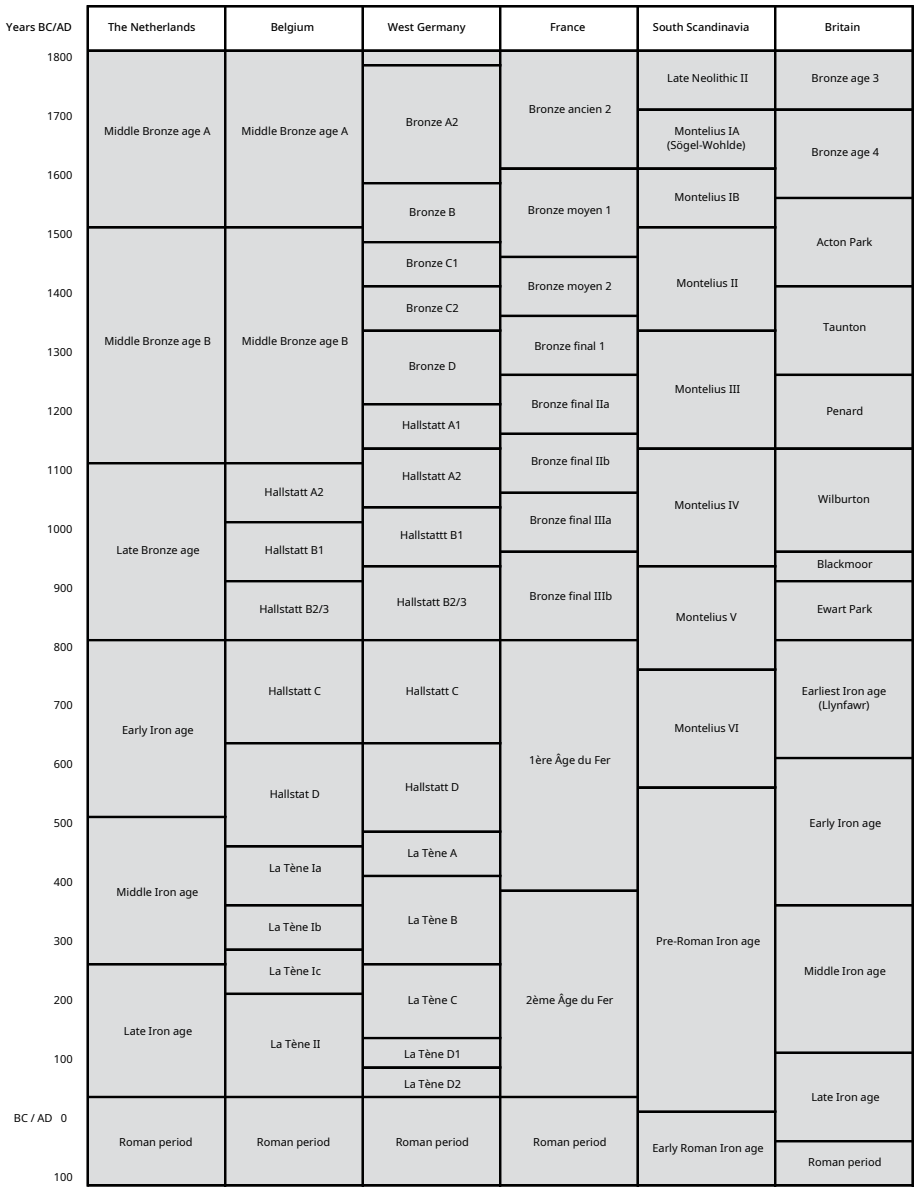

Fig. 3.9: (Typo-)chronological scheme for Northwest Europe from the beginning of the Middle Bronze Age until the start of the Roman Period. Many of the indicated boundaries are open for discussion, but in this context the scheme is merely meant to provide a rough insight in the different (typo-)chronologies used in and around the research area and how these may coincide. The Bronze age section of the scheme is largely based on Fontijn's scheme (Fontijn 2002, fig. 1.4) who made use of Lanting/Van der Plicht 2003; Needham 1996; Vandkilde 1996 for respectively Britain and South-Scandinavia. The works of Reinecke (1965) and Déchelette (1914) traditionally form an important basis for the (typo-)chronologies of respectively Germany and France (partly Belgium). For the Bronze age section of (West) France has been made use of the recently published scheme by Ducreux (2017, tabl. 10). De Mulder's work (2011, fig. 5.3) has been used as a reference for Belgium. Finally, the scheme produced by Moore/Armada (2011, fig. 1.7) has been consulted for the Iron age section of Britain.

bone apatite after cremation in fact comes from the fuel used for the pyre (Snoeck *et al.* 2016, 41). Thus, when applying radiocarbon dating in determining the age of cremation graves in general, one must be aware that the outcome will always prove to be a bit older than the actual event of cremation. However, this error-margin will probably in most occasions sooner have concerned decades rather than centuries.

Overall, typo-chronologies allow for a rough indication of the age of certain archaeological phenomena while radiocarbon dating can narrow down certain events within the course of a century. However, one method does certainly not exclude the other and it can even be profitable when both methods are used to complement each other, just as long as the merits and restrictions of both methods are clear. For instance, the 2-sigma ranges of calibrated radiocarbon dates still often span many decades, if not centuries. But as typo-chronologies are based on stratigraphy and seriation they can be used to refine the outcomes of ^{14}C-analyses. This is essentially how *'Bayesian-statistics'* have recently been applied in archaeological radiocarbon dating programs. By adding probabilities of relative age to sequences of radiocarbon dates for graves within the same cemetery, the 2-sigma ranges of calibrated radiocarbon dates can be refined substantially (*e.g.* Bourgeois/Fontijn 2015; Fitzpatrick *et al.* 2017).

Returning to the database structure, given the above, it is useful to register for every individual grave how an indication for its age was obtained. Perhaps even more so because for many of the cremation graves found in urnfields, no direct indication for an age is available. Cremation graves without any objects or accompanying funerary structure have in the past often been "lumped" with the rest of the cemetery. The number of Early Iron Age cemeteries that also produced graves dating to the later Iron Age has however grown substantially in the last couple of years (*e.g.* Hiddink/De Boer 2011; Blom/Van der Velde 2015; Van der Leije 2018). Additionally, again as a result of a more systematic application of radiocarbon dating, graves that turn out to be older than the Late Bronze Age also come to light in advancing numbers in cemeteries that are ranked among the urnfields (De Mulder *et al.* 2007; De Mulder 2011; Dyselinck 2013). Given these recent developments on the field of radiocarbon dating in urnfield research, the lumping of cremation graves without an urn, object or any other typo-chronological marker may in the past have led to a certain condensing of the presumed period of use of the cemeteries concerned. Not only is this observation of influence on the chronology of urnfields, but also on demographic reconstructions that are heavily reliant on the presumed period of use of specific cemeteries (Ascádi/Némeskeri 1970).

To provide the room necessary for making the nuances in time, in the database three types of dating methods have been entered.[21] The most straightforward type concerns 'radiocarbon dating.' For radiocarbon dates several specific columns have been created: one column for entering the 'BP-date,' one column for the 'error-margin' [+/-] and one for the 'lab-code.' The calibrated 2-sigma range is entered in the 'from cal. BC-column' and 'to cal. BC-column.' These latter columns are also available to the other types of dating methods.

The second type of dating method involves 'typo-chronology.' When typo-chronological markers were present, the entire time-span that these markers occur was indicated in the 'from-/to cal. BC-columns.' As Reinecke's typo-chronology is not often used as reference in most of Dutch archaeological literature, it has been decided to use the Dutch chronology

21 Special thanks are due to Mette Løvschal (Aarhus University) for helping out with the system for registering the age of the graves.

for the metal ages as a basis for convenience sake (see Fig. 3.9). For example, '*Kerbschnitt*-pottery' is known to only occur in the Late Bronze Age (Desittere 1968, 80), subsequently in the 'From-/to cal. BC-columns' the time-span of the entire Late Bronze Age was entered. For types of pottery that are less clearly confined to a specific sub-phase of the Dutch chronology, the entire time-span of the Late Bronze Age and Early Iron Age was entered. A radiocarbon date is preferred over a typo-chronological indication, but as there is a separate column for registering the type of urn the possibility arises to cross reference typo-chronological indicators with radiocarbon dates.

The third and last dating method concerns the so-called 'frame-date.' This type of date was applied when there were no radiocarbon dates or any (clear) typo-chronological markers present. These graves mostly concerned cremation graves devoid of any other material than cremated remains. In these cases both the very oldest and very youngest dates available for the cemetery concerned were used to provide a rough indication for the age of the grave.

(c) Type of grave and monument

The next challenge was to cover the extensive variety in grave forms that exists for the urnfields in the Lower-Rhine-Basin. Especially because this variety in grave forms originates from a variety in funerary practices. Not only the way the grave itself was composed but also the type of funerary monument seems to have been of importance. The connection between both features is also worth looking into as graves can be positioned either central or peripheral in relation to the monument concerned and even graves that are dug into already existing monuments come about. To avoid any further confusion the terminology of 'grave' is only applied when an archaeological feature contained any human remains. Thus, in contrast to some earlier publications, circular ditches or the areas these might surround have not been documented as a grave but simply as funerary structures accompanying one or sometimes multiple graves (see Fig. 3.11).

Type of grave

To begin with the type of grave, a major distinction can be made between cremation graves and inhumation graves. Despite being reduced to a simple option in a database form, this distinction in fact already reflects a major decision early in the mortuary process that was probably motivated by profound reasons. Details about the treatment of the human remains in either capacity can be found in their separate tables (Sections 3.3.4; 3.3.5).

Following the decision tree down the path of cremation from here, the next choice we encounter would be the choice for a container to put the cremated remains in. Clearly not all urnfield graves actually concern urn graves. In fact, there are even cemeteries ranked among the urnfields that did not produce a single urn at all (*e.g.* Kortlang 1999). In the database several columns have been reserved for registering the different features that are somehow related to the container of the cremated remains like the presence of an urn [yes/no], the type of urn [typo-chronological denomination] and whether the urn was covered with a lid of sorts [yes/no]. Also a column has been reserved for remarks that solely involve the urn like the presence of burn marks or any indications for prior use of the vessel.

After the choice for a container (or not), the decision tree widens substantially as we now arrive at the point where the cremated remains in whatever capacity would have entered the ground. For the Netherlands the work of Henk Hiddink is often cited to distinguish between different forms of interment when cremated remains

Hiddink 2003	De Mulder 2011	Dutch terminology	German terminology	English description
-	Type H	*Bustumgraf met depot*	Not applicable	Bustum grave with separate interment of cremated remains
-	Type I	*Bustumgraf*	*Brandflachengrab*	Bustum grave (sensu stricto)
Type A	Type A	*Urngraf*	*Urngrab*	Urn grave (sensu stricto)
Type A	Type C	*Beenderpakgraf; crematierestendepot*	*Knochenlager*	Concentration of 'clean' cremated remains
Type A	Type F	*Botstrooiing in greppel*	Not applicable	Scatter of cremated remains in fill of surrounding feature
Type A	Type G	*Botstrooiing in vlakgraf*	*Leichenbrandschüttungsgräber*	Scatter of cremated remains in large pit
Type B	Type D	*Type Destelbergen'*	Not applicable	Concentration of 'clean' cremated remains buried separately from pyre-debris
Type C	Type B	*Brandafvalgraf*	*Brandschüttungsgrab*	Urn grave with mixed cremated remains and pyre-debris
Type C	Type E	*Brandrestengraf*	*Brandgrubengrab*	Mixed deposition of cremated remains and pyre-debris in small pit

Tab. 3.1: Grave types as devised by Hiddink (2003) and De Mulder (2011) and the associated terminologies as most commonly applied in archaeological literature.

are concerned (Hiddink 2003). Hiddink divides his graves into three main categories or types of graves whereby 'type A' involves a '*clean*' deposit of cremated remains (see Fig. 3.10 and Tab. 3.1; Hiddink 2003, 23). A clean deposit in fact means that the cremated remains have been carefully separated from the pyre-debris and only a negligible amount (several specks/grams) of charcoal is present in the grave. It is possible that cremated remains in this type of grave have been washed, but at present there is no sound archaeological evidence that could help prove this thesis. 'Type B' includes graves that not only contain cremated remains but also pyre-debris consisting of charcoal and burnt objects. In 'type B graves' cremated remains and pyre-debris are however clearly separated while in 'type C graves,' also known as *Brandgrubengräber*, people buried both substances mixed together (*ibid*., 23).

For the lack of a comparable classification model, people also started to apply 'Methode Hiddink' to Late Bronze Age and Early Iron Age urnfields (*e.g.* Roessingh/Blom 2012; Blom/Van der Velde 2015). The classification model Hiddink devised, was however never intended to include the urnfields as it was originally constructed for the Late Iron Age and Roman Period. The model does for instance pay little attention to the use of urns as they only occasionally come about in the Late Iron Age and Roman Period (Hiddink 2003, 23). Therefore, in the same spirit as Hiddink, Guy de Mulder has more recently come up with a classification model for Late Bronze Age and Early Iron Age cremation grave cemeteries (De Mulder 2011, 215). Based on his research aimed at reconstructing the funerary rituals for the urnfields in the Scheldt-Basin, De Mulder created a scheme involving no less than nine different types of urnfield graves (De Mulder 2011, 215; fig. 8.4). Since this scheme is tailor-made for the urnfields, it was decided to adapt De Mulder's classification in the database. As De Mulder's work was originally published in Dutch, in the following an attempt shall be made to grasp the essence of each type of grave he distinguished for the urnfields in the Scheldt-Basin (Fig. 3.10; Tab. 3.1).

Also following the decision tree via the path of cremation, De Mulder first distinguishes between interment at the site of the pyre and interment elsewhere. His 'type H-' and 'type I graves' both concern grave forms whereby the cremated remains were interred at the location of the pyre. In 'type H graves' the cremated remains are collected from the pyre, but interred at the very same location. The central find-assemblage of 'Mound 7' at Oss-Zevenbergen from the introduction (Section 1.4.2) would for instance qualify as a 'type H grave,' since the cremated remains were deposited in an urn that was placed next to the pyre (Fontijn *et al.* 2013a, 126). In 'type-I graves,' or *Brandflachengräber*, the cremated remains are just left on the pyre-debris. Occasionally a shallow pit has been dug before the pyre was constructed. 'Type H-' and 'I-graves' can both be described as a form of *bustum* graves (De Mulder 2011, 219).

For all grave forms that are not located at the site of the pyre, De Mulder's classification in fact coincides with Hiddink's classification as he too distinguishes three main types of graves involving a clean deposition of the cremated remains (types 'A,' 'C,' 'G' and 'D'), graves where cremated remains and pyre debris have been buried separately ('type D') and grave forms where both features have been buried mixed together (types 'B' and 'E'). Beginning with the types of graves that practically contain no charcoal, De Mulder distinguishes four different forms. The first one concerns the 'classical' urn grave ('type A') consisting of a small, often shaft-like pit in which the urn is carefully placed. 'Type C' very much resembles 'type A' only in 'type C graves' the urn is absent. The often compact distribution of the cremated remains in this type of grave could suggest the cremated remains had originally been wrapped in a container of an organic material like textile or leather but there is no direct archaeological evidence at hand that could back up this hypothesis. 'Type C graves' are also known as *'Knochenlager.'* The third type of grave, 'type G' or *'Leichenbrandschüttungsgrab,'* concerns a somewhat larger pit in which the cremated remains are scattered or placed in small bundles. The backfill of the pit consists of the same clean soil surrounding the burial pit, making this type of grave somewhat hard to recognise in the field. In the Scheldt-Basin this type of grave has so far only been attested at one site. The graves concerned were found associated with Late Bronze Age graves but ^{14}C-analysis of charcoal and cremated remains from two examples of these 'type G' graves produced dates in the Middle Bronze Age (De Mulder 2011, 234). Graves of the same type have recently been excavated in the Netherlands as well, where they too produced radiocarbon dates in the Middle Bronze Age (Louwen/Fontijn 2019, 114). The question is whether this type of grave was still commonplace in the Late Bronze Age. The last type of grave concerning a clean deposition of cremated remains ('type F') has in the Scheldt-Basin only been attested for the Late Iron Age (De Mulder 2011, 233-234). It concerns a form of burial whereby the cremated remains are scattered in the surrounding feature of the funerary monument. In the Netherlands this type of grave has been attested in different capacities. Not only scatters of cremated remains are regularly encountered in the fills of circular ditches but also compact bundles of cremated remains have been found deposited in these surrounding features. To indicate that cremated remains have been retrieved from the surrounding features of funerary monuments, in the database these different forms of graves have all been ranked under 'type F graves,' thus slightly deviating from De Mulder's definition of a 'type F grave' (De Mulder 2011, 218).

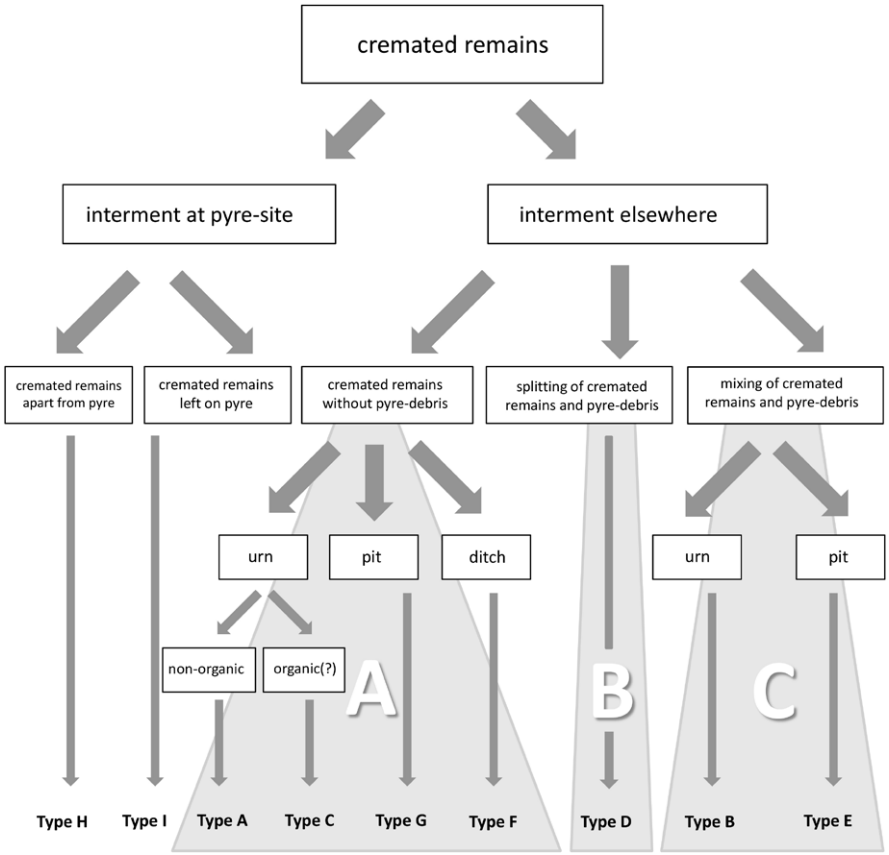

Fig. 3.10: Cremation grave classifications by De Mulder (2011). In this figure the original denominations of De Mulder have been reworked to an English description. The word 'selection' in the original scheme has been left out on purpose as it may cause some confusion with the practice of '*pars pro toto*' deposition of cremated remains. The grey planes with 'A-B-C' indicate where De Mulder's classification coincides with Hiddink's classification. (After: De Mulder 2011, fig. 8.4).

The type of grave De Mulder presents as '*type Destelbergen*' (his 'type D') is in fact the same type of grave as Hiddink's 'type B' as it too involves a clear separation of cremated remains from pyre-debris. Although clearly separated, the two features are deliberately placed within the same pit. The cremated remains are often found on the bottom of the pit while the pyre-debris is used as backfill.

The remaining two types of graves both concern a way of burying whereby cremated remains and pyre-debris are not sorted out. De Mulder's 'type E' is also known as '*Brandgrupengrab*' and is in fact the same type of grave as Hiddink's 'type C' involving the deposition of cremated remains and pyre-debris in a small pit. De Mulder's 'type B,' to conclude, also involves the use of an urn. In 'type B graves' the urn contains both cremated remains as well as pyre-debris and is placed in a small pit. The same mix of cremated remains and pyre-debris is then used to backfill the grave. In the database graves with a backfill consisting out of both cremated remains and pyre-debris but with an urn that only contains cremated remains are also ranked among the 'type B graves' as the presence of pyre-debris in these graves was clearly deemed important.

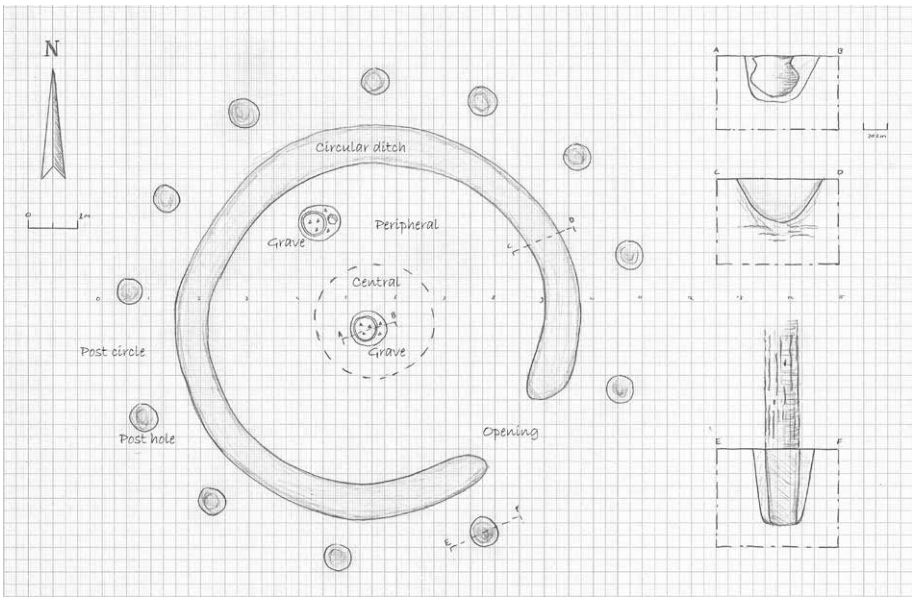

Fig. 3.11: Schematic overview of the types of archaeological features associated with urnfield graves and their terminology. The here presented structure is made up and concerns a compilation of the most typical features found in urnfields in the Lower-Rhine-Basin.

Type of monument

As there seem to have been at least as many ways to monumentalise a grave as there were ways of composing the grave, a separate table [Table 4] has been created in the database to accommodate the basic information about the monuments concerned. The term "monument" may be a bit confusing in this context as the mounds erected over urnfield graves were generally not very large, often only several metres in diameter. Nevertheless, they indicated the locations of specific graves and would have been recognised by the living community as representing a beloved one, an anonymous dead or perhaps even an ancestor.

Originally, most monuments would have consisted out of a (small) mound and accompanying surrounding feature like a post-circle or circular ditch. However, as most of the urnfields have over time been completely levelled, in many occasions the only features that can tell us something about the original monument are the cut features of posts and ditches that once surrounded the original monuments. The general lack of preserved or properly excavated urnfield mounds is also why in the database for the monuments themselves only the rough distinction between 'round mounds' and 'long mounds' could be made. Additional options are formed by 'quadrangular mound,' 'stone cist' and 'stone platform.' Only when the mound itself was still present at the time of excavation the type of monument was noted down without an additional question mark.

For the type of surrounding feature the following options have been distinguished: 'circular ditch,' 'double circular ditch,' 'circular ditch with post-circle,' 'quadrangular ditch,' 'rectangular ditch,' 'keyhole-shaped ditch' and finally 'post-circle.' In an additional field the presence and direction of opening(s) in the surrounding features have been documented as they occur quite often in urnfield funerary structures. The original feature numbers have also been entered and the different monuments are linked to their specific

graves by their unique monument-ID. Subsequently, in Table 2 is indicated how a specific grave is related to a specific monument by stating its position in relation to the monument. A grave can either be located 'central' or 'peripheral' in relation to the monument. As "central" is a rather subjective term and urnfield graves are only rarely located in the exact centre of a monument, the entire area within a third of the radius of the monument concerned is considered as 'central' (Fig. 3.11). For long mounds one-third of the distance from the central axis to the outer edges of the monument is considered 'central.' Finally, urnfield graves dug into older barrows have been registered as secondary graves.

(d) Contents of the grave

Returning to the graves themselves, in Table 2 also room has been reserved for keeping track of the general contents of specific graves. Apart from the already mentioned urns, cremated remains or preserved bones in inhumation graves, there are many other find categories that are encountered in urnfield graves. Not only an occasional piece of metal jewellery or small drinking cup made of pottery may find themselves among these other find categories, but also pottery sherds, charcoal fragments, flint, animal bones, stones/pebbles, burnt loam and so on. The question then arises which of these materials should be regarded as grave gifts or objects for that matter. For instance, we are probably not quickly inclined to assume the inclusion of pebbles in the backfill of urnfield graves to represent grave gifts. Sooner we would describe them as intrusive. However, the Jewish tradition of putting the same kind of pebbles on the graves of beloved ones is even at present widely known. In Jewish belief these pebbles are not (only) just marking individual visits to the grave, as the much celebrated movie of *Schindler's list* (1993) might suggest, but they are actually meant to pin down the spirit of the decedent in the grave (Riemer 1995). A comparable idea has been attested for a series of British Medieval graves where ash of domestic hearths was placed in the graves to prevent the spirits of the decedents to return to their home fires (Gilchrist 2008, 145-148). Up till now, in this dissertation the charcoal particles reported to come from urnfield graves have been described as representing pyre-debris, but in the light of the example provided by Gilchrist, this does not necessarily has to be the case. The difficulty however is that in the case of the urnfields there is no *Talmud* or Early Medieval documentation to testify to the meaning behind the funerary practices we observe. Also, determining whether a stone or pebble is intrusive or not might prove difficult for some archaeological contexts like cemeteries on fluvial sediments.

Another complication in determining the exact nature of the find categories we encounter in urnfield graves, concerns the long research history of the urnfields. Not always has attention been paid to retrieving the seemingly more insignificant find categories like pieces of stone, flint or charcoal. The numbers of these latter categories have grown substantially ever since the implementation of the Valetta Treaty prompted all sorts of excavation protocols[22] dictating the contents of cremation graves should now be sieved. Thereby, the analysis of cremated remains only developed in the second half of the twentieth century, making find categories like animal bones a relatively "young" niche in urnfield research. In general, urnfields excavated at the beginning of the twentieth century will score low on these smaller and seemingly less significant find categories. On the other hand, urnfields excavated in the earlier era's (see Section 3.4) will produce significantly more complete urns and objects as most of the urnfields were not levelled

22 For the Netherlands: *Kwaliteitsnorm Nederlandse Archeologie* (Quality standard for Dutch Archaeology)

yet at that time. This latter observation brings us to another taphonomy related issue as it will not always prove possible to determine whether a pottery sherd retrieved from a heavily damaged urnfield grave concerns an urn fragment, a fragment of an accessory vessel or perhaps just a pottery sherd. Especially the latter category seems on basis of more recent excavations to represent an intentional addition to urnfield graves (*e.g.* Tol 1999; 2000; Dyselinck 2013). Overall, there are a lot of uncertainties involved when it comes to determining which find categories functioned as grave gifts and which did not.

To cope with these ambiguities, in the database structure the following approach has been adapted. First of all, to qualify as a grave gift, without the slightest shadow of doubt the artefact concerned was meant to enter the grave as an object or is at least a clear representation of a specific object. It has been decided to exclude the urns, and if presents their lids too, as they already fulfilled the role of container for the cremated remains. Accessory vessels functioning as lids were thus not ranked among the grave gifts. On their turn, accessory vessels were only counted among the lids when they seal off the mouth of the urn, preferably placed upside down. When in doubt if an accessory vessel really functioned as lid, it has been counted among the grave gifts.

Consequently, with all the different capacities in which pottery occurs in urnfield graves, this leaves us with a substantial amount of graves that contain pottery sherds that are not clearly derivative of an urn, lid or piece of accessory pottery. It is for this kind of ambiguous finds that in the 'graves table' [2] a separate field for '*material admixtures*' has been created. In this field all find categories are registered that are clearly of importance to the reconstruction of the mortuary process but did at the same time not clearly function as intentional grave gifts and merely represent the residue of the mortuary process as whole. It also offers space to materials, like pottery sherds or fragments of stone, for which some doubt may exist about their original nature. For instance, after decades of intensive ploughing, all that remains of an urn grave may just be a handful of pottery sherds and a few specks of cremated remains. Having noted all the capacities in which pottery does occur in urnfield graves, there is no way of telling which of the three categories of pottery these sherds might represent: container, accessory vessel or just pottery sherds. Ranking these sherds among the urns or the grave gifts would be to risk blurring the actual figures on both categories as these heavily damaged graves come about quite often. But by putting them in the 'material admixtures' field with an additional remark that these sherds possibly represent an urn or accessory vessel both categories are not wrongfully influenced. Other find categories registered in the 'material admixtures' field (if recorded at all in the excavation concerned) are charcoal, burnt loam, pieces of flint, unworked stone/pebbles and metal slag.

A last find category included in Table 2 concerns the bones of animals. As mentioned, the presence of animal bones in urnfield graves has in the Lower-Rhine-Basin only been noted quite late in the research history of the urnfields, making it difficult to draw a representative picture from the data at hand. The fact that most of the animal bones are burnt and mixed with the cremated remains suggests they represent (food) offerings on the pyre. But occasionally also unburnt animal bones surface in urnfield graves (*e.g.* Blom *et al.* 2012; Bérenger/Pollmann 2008; Pollman 1994). In Table 2 the presence of animal bones [yes/no] has been indicated, and if available, also a brief description of the species, part of the skeleton and weight has been included.

3.3.4 Cremated remains[23]

Making sense of the heavily deformed and often severely fragmented pieces of calcined bone that remained after the destructive process of cremation is not an easy task. Yet still a lot can be learned from cremated remains about the age and sex of the decedent and even things like the temperature of the pyre can roughly be determined on basis of these seemingly unpresentable crumbs of former bones.

The 'cremated remains table' is one of three tables that form the third level in the database structure (see Fig. 3.8). All three tables in this level concern the contents of specific graves, hence every entry in this level is connected to a specific grave. Every entry also received its own unique 'cremation-ID.' Apart from the administrative information like the 'site-code,' 'grave-ID,' and feature number the following variables have been registered for every grave for which osteological analysis was carried out.

As the total weight of cremated remains is often used as an indication for the completeness of the cremation concerned and the carefulness with which the cremated remains have been collected from the pyre (*e.g.* Veselka/Lemmers 2014), for every grave has been indicated [yes/no] whether the grave was still intact when it was found. As mentioned, because of extensive agricultural activities in the last century, "decapitated" cremation graves often come about in the more recent excavations. It goes without saying this taphonomic factor can be of great influence on conclusions based on total weights of cremated remains if not documented correctly. Only graves with urns that have their lids still placed on top and urns that have been preserved *in situ* with their necks and rims still attached are counted among the intact graves. This might seem a bit as too strict of a rule as there are probably also graves without urns that are still intact or "decapitated" urns that were never filled to the rim with cremated remains. However, as we can be pretty sure this small group of graves is indeed intact, it provides us with a safe reference group that can be used to compare the bulk of the graves to.

The analysis of cremated remains is a relatively young discipline and still prone to rapid methodological developments that sometimes alter the outcomes of earlier analyses. Also, when visiting conferences about the analysis of cremated remains, the impression a layman (like myself) often gets is that specialists still seem to disagree on different aspects of the research. Therefore, in the database is also kept track of which examiner performed the analysis of the cremated remains as any conflicting outcomes that might occur possibly reflect differing views of the researchers concerned.

Arriving at the technical aspects of osteological analysis, for keeping track of the grade of combustion, the earlier mentioned scheme of Joachim Wahl (1983; 2008) has been applied. Subsequently, if recorded, the total weights per skeletal region are noted down. Osteologists in general distinguish between *cranial, viscerocranial, axial, epiphyseal* and *diaphyseal* parts of the skeleton. In the database these same skeletal regions have been adapted except for the fact that the *viscerocranium* and *cranium* have been combined into one category as they both concern parts of the head. By noting down the weights per skeletal region not only the average distribution of weight becomes assessable but it also opens up the possibility to check whether only specific parts of the skeleton were

23 Special thanks are due to Barbara Veselka, Rachel Schats and Menno Hoogland of the osteology lab at Leiden University for their help and advice in coming up with a suitable strategy for recording the osteological data.

selected for burial. The weights for the indeterminable fragments are also registered as are the total weights of the cremated remains. The grade of fragmentation has deliberately not been included in the database as this feature of osteological analysis is simply too dependent on too many taphonomic factors.

If possible, an indication for the sex and age of the decedent is registered. As age determination is one of those aspects in the study of cremated remains about which some discussion exists, it has been decided to only create several main categories and not narrow down the age of individuals to years or even months. A major distinction has been made between 'non-adults' [0-15 years old] and 'adults' [>15 years old]. Within these two groups one can distinguish between 'infants' [0-3 years old], 'child' [4-15 years old] and 'old adult' [>40 years old]. The specific age as estimated by the researcher concerned is still noted down in the 'remarks' field so that if necessary, some nuances can be made. For the determination of the sex of the decedent the nuance of 'probably' and 'possibly' is made with respectively one and two question marks. A decedent for whom only vaguely positive indications for the male-sex have been observed is for instance indicated as [Male??]. The database offers room for as much as seven individuals per grave as this is the highest number of individuals for a single cremation grave ever recorded in the Netherlands (Roymans/Hoogland 1999).

3.3.5 Inhumations

As inhumed skeletons are less problematic to study than the heavily deformed bones in cremation graves, the 'inhumations table' has been structured accordingly. Apart from the same administrative fields that were created for the cremated remains, separate columns for an indication of the minimum and maximum age at death have been included for the inhumations. Indications for the sex of the decedent are also more straightforward for inhumed skeletons, hence only the distinctions of 'certain' and 'probably'[?] have been applied. Still, for every grave has been indicated whether the burial was still intact [yes/no] or was damaged by any taphonomic process, as here too, the completeness of the skeleton is of importance in the reconstruction of the funerary practices. An additional column was created to indicate the pose or position of the skeleton like 'stretched on back' or 'flexed on left side.' As inhumation graves are less easy to categorise according to classification systems like the ones devised by Hiddink and De Mulder, the 'remarks' field has been used to provide a short description of each grave.

3.3.6 Objects

As at least two research questions already fully concern the objects themselves, the construction of an elaborate but workable classification system that allows for a quick assessment of all the informative characteristics of the objects is paramount. Especially the categorisation of the objects that were selected for burial in the first place, as the way they were treated are of interest here. It are mostly these two features that shaped the structure of the 'objects table.'

Like with the 'cremation' and 'inhumation' tables, every entry in the objects table received its own unique 'object-ID' that is linked to specific graves (see Fig. 3.8). Again the general administrative information has for every entry been included. However, where for the cremated remains all individual decedents present in one grave have been registered under the same ID, individual objects within the same grave have been

recorded separately as individual objects may have received different treatments, consist out of different materials and can be placed in different positions in relation to the body. One grave may thus contain multiple 'object-ID's.'

For the description of the objects themselves, the following categorisation has been established. First the general material the object is made of was determined followed by a more specific categorisation of the material. A dress pin may for instance have been made of 'metal' and more specifically of 'bronze.' Then, inspired by the method applied by Popa (Popa 2018, chapter 2),[24] subsequently the 'object group,' 'object purpose' and 'object type' are indicated. These categorisations provide a rough insight in the references these objects might bear and perhaps even hint at reasons why certain objects were placed in the grave. The categories concerned have however been described as objectively as possible. The bronze dress pin that was already taken as an example in the above could for instance further be described as (respectively): 'cosmetics and clothing,' 'adornment' and 'needle/pin.' Especially the 'object purpose' category is a difficult one as one object might have served multiple and ambiguous purposes. The object purpose of the dress pin in the example has been registered as 'adornment' because it was nicely decorated but at the same time it probably also functioned as 'fastening pieces of clothing.' Also, as grave gifts in urnfield graves are often severely damaged, not every pin-like object evidently represents 'cosmetics and clothing' as an object group. All these nuances have been considered per object and will be readdressed in the final analysis (Chapter 5). Also, when in doubt about one or more of the categorisations, the categories concerned have been left undetermined. Metal rings, for instance, occur in urnfield graves in many different capacities such as finger rings, earrings, horse gear or other forms of composite artefacts. When only a small ring is found among the cremated remains it is often impossible to determine which of the above the ring actually represents. In these occasions 'object group' and 'object purpose' have simply been left open. Finally, the section reserved for the objects themselves also offers space to 'object typology' as typological denominations might be of help in tracing the object concerned in the available archaeological literature.

When numbers are concerned, one grave might contain multiple objects and one object might be fragmented into several pieces. As mentioned, multiple 'object-ID's' can be assigned to a single grave. However, certain composite artefacts may consist out of multiple objects. One glass bead necklace may for instance count as many as 70 individual glass beads (*e.g.* Van Straten/Fermin 2012, 68). In these occasions the glass beads have been lumped as representing one object while the number is set on the number of beads. Fragments of the same object have always been counted as one object, and if countable, are indicated as 'number of fragments' (see Fig. 3.12).

The second segment of the 'objects table' is dedicated to the treatment of the objects. First is indicated whether an object is still *intact* and whether the object is *complete*. Though at first the two descriptions may seem to be aimed at the same capacity of the object, but they do in fact indicate two entirely different qualities. '*Intact*' in this context means an object has not been manipulated at all and is left entirely "unharmed." '*Complete*' is however only used to indicate that no parts of the object are missing from the grave. The object concerned can however still be completely burnt or fragmented, but as long as all parts are still there it is considered 'complete.' Detailed actions concerning

24 Popa reconstructed the mortuary process as reflected in some 300 Iron age graves from present day Romania (Popa 2018).

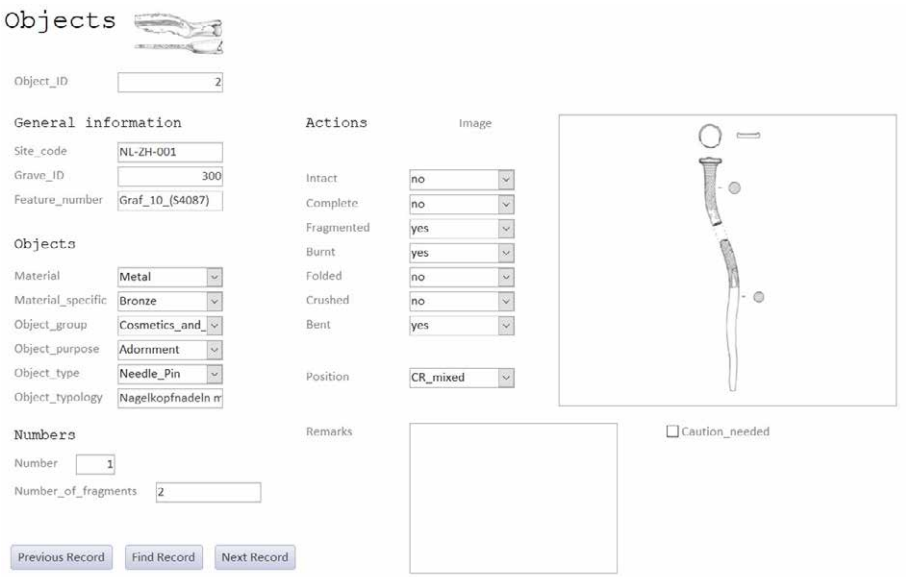

Fig. 3.12: Object form designed for the database of the present research.

the treatment of the objects have been categorised using the classification system devised by Matthew Knight for his research into the treatment of objects in Bronze Age hoards (Knight 2018). Knight distinguishes several categories of manipulation of which five have been adapted in the database: 'burning,' 'breaking/fragmenting,' 'crushing,' 'bending' and 'folding' (Knight 2018, 111- 113). For each form of manipulation the options of 'yes,' 'no,' 'probably' or 'indeterminable' have been registered (see Fig. 3.12). It has to emphasised here, that none of the objects have been analysed by the present author himself and that findings concerning the treatment of objects have generally been adapted from the publications concerned. If some doubt existed about the nature of certain objects or/and their treatment, the box 'caution needed' has been ticked (see Fig. 3.12).

Finally, for all objects entered in the database their position in relation to the body, both cremations and inhumations, has been determined. Nuances and extra descriptions have been entered in the 'remarks' field.

3.3.7 Conclusion

Noting the uniqueness Bourdieu ascribes to a person's *habitus* (Bourdieu 1990, 64), he would probably have shaken his head in dismay when he would learn about the attempt to categorise human behaviour in the way it was done in the above. However, the main aim of this exercise is not so much to fit 900 years of loss, grieve, mourning and celebration into a '*one-size-fits-all*' jacket, but rather to map which actions in general made up the narrative of the urnfield mortuary process (*cf.* Fowler 2013) and how this narrative may have changed over time and differed per region. By examining the decision tree involved in the urnfield mortuary process and noting the slight differences in the way these actions were performed perhaps local communities, households and maybe even individuals might surface in the reconstruction of the mortuary process that will be presented in the next chapters. Clearly, the proposed database structure is merely a means to this end.

3.4 Selection of cemeteries

3.4.1 From assessment to excess: the sheer abundance of urnfield data in the Lower-Rhine-Basin

The next challenge is to determine what number of graves has to be studied in order to draw a representable picture of the funerary practices associated with the urnfields. This means a rough estimation has to be made of the total number of cemeteries and graves in the entirety of the Lower-Rhine-Basin. Also, an assessment needs to be carried out of what portion of the original amount of urnfield graves, meaning *all* decedents interred in the period between 1300 and 400 BC, is in fact reflected by the graves that did make it to our museums an repositories.

Originally, the size of the research area comprised the whole of the present day Netherlands, the Flemish part of Belgium, Lower Saxony west of the river Weser and Nordrhein-Westfalen in Germany. Together these areas cover roughly 110.000 km^2. After an initial inventory of cemeteries throughout the Lower-Rhine-Basin, the size of the original research area simply proved to be too big for the scope of a single PhD-project as the Netherlands alone already produced 689 sites (Fig. 1.9; Appendix I; Appendix III: Map 1),[25] while Flemish Belgium added another 200 cemeteries to the count. After just a superficial scan of inventories and site reports on Westfalen-Lippe, the eastern part of Nordrhein-Westfalen, another 220 sites were added to the list and it was agreed to abandon the inventory for sites in Germany. As Guy de Mulder only recently published his research on urnfield graves from the Scheldt-Basin, which already comprises most of the Belgium urnfields (De Mulder 2011), it was finally decided to confine the research area to the just the present day Netherlands. Methodologically, this decision also had its advantages as now most of the data would be compatible and could be retrieved from the same data-sources. Even more so, a more complete and in-depth study of a smaller area could now be performed.

For the inventory of Late Bronze Age and Early Iron Age cremation grave cemeteries in the Netherlands was initially made use of a corpus of regional inventories (Desittere 1968; Kooi 1979; Verlinde 1987; Gerritsen 2003; Verlinde/Hulst 2010).[26] As most of these inventories have been written several decades ago and do not cover the entirety of the Netherlands, the Dutch national archaeological database [Archis II/Archis 3] and the online report-repository [DansEasy] have been assessed to complete the inventory. To avoid any future confusion, every time the original inventory numbers of the urnfields concerned have been adapted into the system devised for the research at hand. In this register every site received a unique site-code consisting out of the abbreviations of the country and province followed by a number. Number 387 in the Gerritsen's inventory (Gerritsen 2003), for instance, has been registered as 'NL-LI-387' (The Netherlands – Limburg – site 387).

Just to give an impression of the sheer number of graves we are actually dealing with here, before the inventory of the German part of the research area was abandoned, track was kept of all the cemeteries published in the '*Neujahrsgruss*,' which is a concise overview of the archaeological fieldwork carried out in just the area of Westfalen-Lippe and is published on a yearly basis. A survey of all editions issued between 1970 and 2013 yielded no less than 104 newly or rediscovered cremation grave cemeteries that date to the period between 1300 and

25 The inventory may be considered up-to-date until 2016.

26 Special thanks are due to Roy van Beek (University of Wageningen) for providing me with his unpublished inventory of cremation grave cemeteries in the Achterhoek.

400 BC. For 72 of these sites also figures on the number of graves retrieved from the cemeteries concerned had been provided. As many of these graves concern chance finds, the original number of graves for these sites would have been much higher. But, when just these numbers are added up, in total no less than 4,311 graves were discovered in a timespan of just 43 years. This means that on average every year at least some 100 new urnfield graves were discovered in just the area of Westfalen-Lippe. Also, as 72 sites produced 4,311 graves, the average number of graves per cemetery in Westfalen-Lippe is at least 59.9. Assuming that the find circumstances in other parts of the Lower-Rhine-Basin are comparable to the circumstances in Westfalen-Lippe, from chance finds to excavations so to speak, and that the average size of cemeteries throughout the Lower-Rhine-Basin is also comparable, we can extrapolate the numbers from Westfalen-Lippe to gain a rough insight in the total number of graves represented by the known number of cemeteries. For the present day Netherlands this would mean that some 41,254 graves are represented by the 689 sites that have been counted for this area.

The next question is to what extent do these numbers actually represent the original situation, or in other words, how much did we lose over time and how much do we still miss? Even though it might be impossible to come up with a true answer to this question, by scanning through the literature from the last 150 years one cannot escape the impression that we are indeed dealing with only a small fraction of what once might have been. Nineteenth century researchers like Willem Pleyte already complain about the fact that they often arrived just too late at a site and that most of the urns were already destroyed or looted (*e.g.* Pleyte 1887). Subsequently, at the doorstep of the twentieth century AD, many urnfields that had been present in the physical landscape for more than two millennia finally fell victim to reclamation activities before an archaeologist was ushered to the site. As an example, Van Giffen vividly described his observations when he arrived at the site of Zeijerveld in 1934 as he witnessed the damage done to one of the barrows:

> *"…At the eleventh hour, as so often, we were able to conduct some scientific observations. As a rueful, poignant wound, as a bitter, helpless indictment of the ancient landscape the barrow laid. Torn apart, devoured, with here and there some patches of heath still on its heavily violated flanks. Such the once graceful barrow grinned at us like a shell crater on a desolated battlefield…"*[27] A.E. van Giffen 1936b, 24.

Anecdotes do not produce numbers, but these observations at least show that at a time when many urnfields were still visible in the landscape, the urns that made it to the museums were often the clear exceptions. Where in the eighteenth and early nineteenth century looters and urn-diggers would have caused most of the damage to urnfields, heath reclamation, heavy ploughing and rapidly expanding towns have taken their toll from the later nineteenth century onwards. An exemplary case that shows the alarming effects of the early twentieth century reclamations can be found with the urnfield of Uden-Slabroekse Heide in the southern Netherlands.

In 1923 a local physician from Uden learned about the plans of transforming the heathland at Slabroek into arable land. As he knew an urnfield was located on the Slabroekse Heide he informed the State's Museum of Antiquities in Leiden. The excavation that followed was carried out by Remouchamps and a team of local workers.

27 English translation by author.

Fig. 3.13: Two field impressions of the same cluster of graves in the urnfield of Uden-Slabroekse Heide. The top-picture was taken in the excavation of 1923, while the bottom-picture was shot in the trial-trench campaign of 2005. (Van Wijk/Jansen 2010, fig. 6.8).

The excavation produced 38 intact cremation graves as well as intact profile sections of burial mounds (Fig. 3.6). In the end only a small portion of the original urnfield could be excavated (Remouchamps 1924). When the site was finally re-excavated in 2005 (Van Wijk/Jansen 2010) and 2010 (Jansen/Van der Vaart-Verschoof 2020), it proved that more than 50 years of agricultural activities clearly had done the damage as the contours of the cemetery had almost completely been wiped out (Fig. 3.13). Nevertheless, due to the

Fig. 3.14: Uden – Slabroekse Heide. One of the urns found in the 2010-campaign. The urn had not only collapsed under pressure in the ground, but was also "decapitated" and heavily damaged by ploughing. The picture clearly shows one of the plough-marks running right through the urn, scattering the contents of the urn up to several decimetres outside the urn (Photo: Arjan Louwen, August 2010).

process of podzolisation that had occurred underneath the original cut features of the small mounds, still over a hundred funerary structures could be documented. That these by far not represent the original situation is demonstrated by the fact that no trace was left of the largest barrow that was documented by Remouchamps. This section of the cemetery was probably levelled first before the actual ploughing took place. In addition to the podzolized cut features, the remnants of 15 cremation graves were recovered, most of them reduced to a few grams of cremated remains and the bottom segments of urns (Fig. 3.14). Knowing that the urnfield must have consisted of more than a hundred funerary monuments, the here presented numbers indicate that in little over 50 years more than half the original amount of graves had vanished.

The case of Uden-Slabroekse Heide is just one of many examples from the Netherlands where only a fraction of the original urnfield made it to our era. There are even clear examples of historically known cemeteries, like Winterswijk-De Hunebelten, that must have been substantial in size but of which nothing remains (Schabbink 2014). In addition, recent excavations of urnfields start to reveal extensive funerary landscapes (*e.g.* Blom/Van der Velde 2015; Kortlang 1999; Hiddink/De Boer 2011; Laloo *et al.* 2014) implicating many cemeteries still await their discovery. All things considered, determining the right sample size remains a complicated affair. However, as will appear from the following, the quality of the available data varies substantially and only a portion of the data actually allows for the resolution required to study funerary practices.

3.4.2 Urnfield research in the Low Countries

For the research history of the urnfields in the Low Countries usually a division is made between the research performed before and after 1960 (Roymans/Kortlang 1999, 34; Gerritsen 2003, 22). Before 1960 excavations mostly focussed on urnfields still visible within the vast heaths that dotted the Pleistocene parts of the landscape while after 1960 the introduction of the mechanical excavator made it possible to also investigate the so-called '*essen*' complexes. These Late Medieval '*plaggen* soils,' created to enrich the minerally poor sandy soils, had over time covered up substantial parts of the prehistoric landscape and when the first *essen* had to give way to expanding towns in the mid twentieth century, the first cemeteries started to come to light from underneath these sometimes more than one metre thick layers of sods.

Several detailed accounts on the research history of the urnfields have already been published recently (Roymans/Kortlang 1999; Gerritsen 2003; De Mulder 2011). Therefore, in the following only the highlights of the urnfield research history will be addressed. In order to better assess the usability of the data throughout the long research history of the urnfields, a subdivision of the already mentioned research epochs is being suggested. Subsequently, for all 689 sites that have been mapped in the Netherlands, the years the research took place have also been registered. These figures have been used to create Fig. 3.15 which shows the research intensity through time (Also see Appendix III: Map 4). As will derive from the following, every research epoch brings about its own possibilities and restrictions in regard to the quality of the excavational data.

As Fig. 3.15 shows, Roymans and Kortlang rightfully once dubbed the period between 1850 and 1960 the heyday of the urnfield research (Roymans/Kortlang 1999, 34) as this is the period of the great heath reclamations and the period in which archaeology developed into maturity as a scientific discipline. As such, the research history of the urnfields is already divided into three chapters. To start with the beginning, the period before 1850 is characterised by unsystematic research and a first curiosity for the 'heathen past' by the educated upper class, mostly vicars and physicians. Some fascinating accounts exist about clergy men handling the spade in their leisure time to quench their curiosity:

> *"…On march 8, 1711 I resided on my estate near the town of Borken. It was Ash Wednesday and I was contemplating death and the cremation graves of the urnfields. As such I decided to act upon my old plan of excavating opportune places noted much earlier…"* J.H. Nunningh, 1713.[28]

Overall, when the usability of the data obtained in this period is concerned, only an occasional urn finally made it to a local '*Oudheidkamer*' or museum. For these objects it is often even difficult to trace back the urnfield they were retrieved from.

The successive period between 1850 and 1960 could in fact be broken up into two sub-epochs. Between 1850 and 1900 archaeology started to develop as a scientific discipline and the first systematic field techniques were applied in funerary archaeology (*e.g.* Janssen 1856a). Also, the first regional archaeological overviews appear (*e.g.* Ort 1882; Hermans 1865) that occasionally feature the most beautiful illustrations of archaeological objects (*e.g.* Pleyte 1887). It was however only from 1900 onwards that not only the number of

28 Translated to English by author after the Dutch translation of the original Latin text by J.A. Bakker (1983, 21).

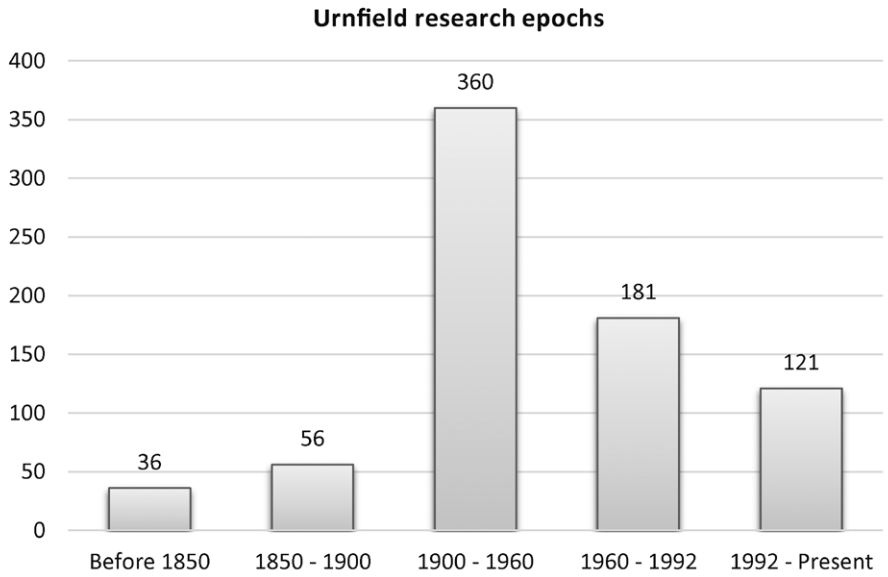

Fig. 3.15: Research intensity in relation to the different urnfield research epochs. One urnfield may have been counted under multiple research epochs as some urnfields have been excavated episodically over time.

excavations really picked up pace (see Fig. 3.15) but also archaeological field techniques developed rapidly. The curator (and later director) of the National Antiquities Museum in Leiden, Jan Hendrik Holwerda (1873-1951), was at that time being trained in archaeological fieldwork in Germany (Holwerda 1906) and introduced systematic excavation techniques to funerary archaeology in the Netherlands with his first barrow excavation at the Crown Estate near the hamlet of Hoog Soeren (Holwerda 1907a). After an argument with one of his pupils, Albert Egges van Giffen (1884-1973), a second epicentre of archaeological field research was created by the latter in Groningen with the founding of the *Biologisch Archeologisch Instituut*. Both Groningen and Leiden conducted numerous excavations of urnfields in the decades preceding the Second World War. Van Giffen, for instance, excavated no less than 48 urnfields in the period between 1917 and 1952. Even though many excavations in fact concerned salvage excavations, field (recording) techniques and additional analyses were developed up to high standards in this period. The most illustrative example is probably the excavation of the urnfield of Gasteren by Van Giffen in 1939. Not only the stratigraphical positions of intercutting funerary structures were precisely documented, also the first systematic palynological and osteological[29] analyses were performed for this urnfield (Van Giffen 1945).

The introduction of the mechanical excavator and the so-called '*essen*-archaeology' have already been mentioned in relation to the birth of a new research era after the year

29 The very first analysis of cremated remains from a Late Bronze Age/Early Iron Age grave was in fact carried out by one professor Vrolijk in 1856 who studied the cremated remains from the site of Hilversum-Westerheide (Janssen 1956b). Unfortunately, after his analysis the cremated remains were buried somewhere in the garden of the National Antiquities Museum in Leiden.

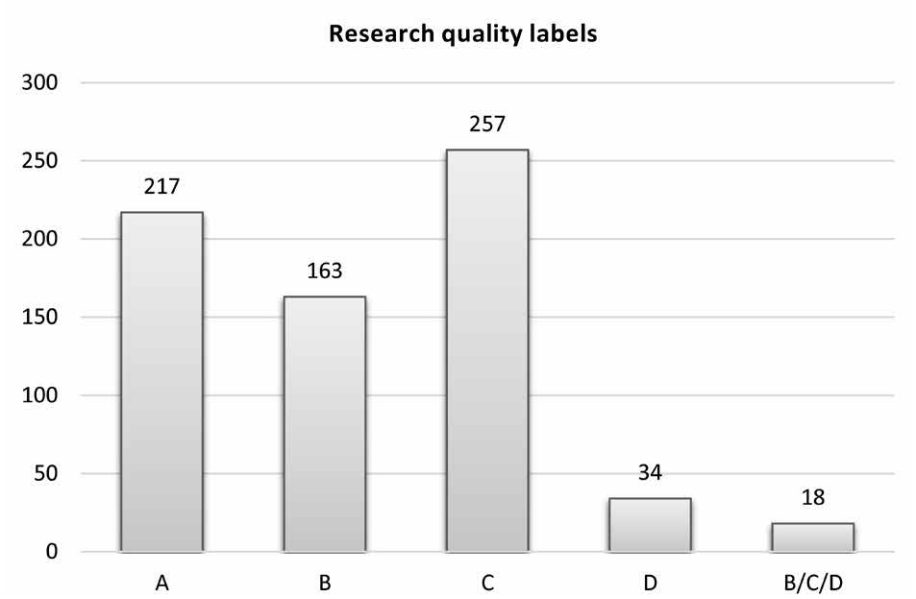

Fig. 3.16: Number of sites per research quality label. N total = 689 sites.

1960. Also the gradual introduction of radiocarbon dating is an important feature of the research period after 1960. But like with the preceding period, the period after 1960 too can also be divided into two sub-research-epochs. Especially since it has already been more than 25 years since the Valetta Treaty was implemented, it would be interesting to see the effects of a treaty that is aimed at protecting archaeology from the whims of all harmful ground penetrating activities. Therefore, 1992 has been chosen as a boundary for indicating a new research era, as before that year all excavations in fact still concerned salvage projects while after 1992 all archaeology got protected by law. As a result, in the Netherlands a commercial market developed to be able to keep up with the countless invasive procedures that now needed to be guided by a form of archaeological investigation. As mentioned, the implementation of the Valetta Treaty also brought about all sorts of protocols meant to guarantee the quality of excavational data. It is for example from 1992 onwards that most of the excavation reports on cremation grave cemeteries also include the osteological analyses of the cremated remains. Finally, since the introduction of 'Malta archaeology' urnfield graves started to pop up in places where they were not expected in the first place. For instance, practically all cremation grave cemeteries on clayey soils in the Dutch riverine area have been excavated after 1992. Not only an entirely different and dynamic archaeological landscape was brought to light in these excavations but also the spectrum of funerary practices broadened substantially as almost all inhumation graves dating to the Late Bronze Age and Early Iron Age have been found in these excavations (Van den Broeke 2014). Also, since 1992 urnfield graves regularly occur as a "bycatch" of sorts in excavations aimed at other objectives, again showing that still a lot of urnfield graves still await their discovery.

3.4.3 Cherry-picking the Dutch data-set?

As appears from the brief research history in the above, clearly there is an abundance of urnfield data around, but the quality of the data is highly dependent on the time of excavation. Stray urns collected from a random heath before 1850 have lost almost all scientific value and for the availability of osteological data, practically only the urnfields that were excavated after the early 1990's are of use. On the other hand, some excavations from the early 1900's have been excavated and published so well that they even exceed some recent reports in quality. The excavation and publication of the urnfield of Well-De Hamert in 1913 under the supervision of Holwerda (1914) would for instance pass the qualifications of the Dutch Quality Standard (KNA) with flying colours.

For his research in the Belgian Scheldt-Basin (De Mulder 2011), Guy de Mulder faced comparable issues concerning the quality of the data. As a way of source criticism, he developed a ranking system for urnfield excavations that divided his data into 4 categories of different quality levels (De Mulder 2011, 48-50). After his analysis, only 31 examples of the original 129 sites met the standards required for the research he had planned to conduct on the composition of urnfield graves, a corpus that now "only" consisted of 729 graves (*ibid*., 207). His method allowed De Mulder to work with only the best quarter of his original dataset. Since his selection method proved to be a fruitful exercise, the urnfields in the Netherlands have been subjected to a slightly adapted version of De Mulder's analysis consisting of four quality categories (also see Appendix III: Map 5):

A. High quality urnfields
   The location of the cemetery is exactly known, as are the locations of individual graves. Also, the individual graves can be traced back in the archives and the publication contains at least an excavation plan with the exact location of the graves and preferably field-drawings and/or photographs of the individual graves.
B. Salvaged urnfields
   The location of the cemetery is exactly known, but there is only limited contextual information at hand. The cemetery has been published, be it only very concise. Urns, objects and, if present, cremated remains can still be traced back to specific graves, but there are no field drawings or photographs of these graves available. Heavily damaged cemeteries of which only the deepest cut features survived and salvaged finds by amateur archaeologists also qualify as category B cemeteries.
C. Antiquarian urnfields
   Location of the cemetery is only approximately known and only a limited number of finds can be traced back in archives, depots and museums. No contextual data on specific graves is available and the publication is of very restricted quality (*e.g.* letter or newspaper)
D. Paper urnfields
   Location of the cemetery is only approximately known and finds from these cemeteries are no longer present.
   + Osteological analysis

   For cemeteries with the addition of the plus-sign osteological analyses are available. This addition is not only restricted to A-category cemeteries since osteological analyses have been carried out for A-, B- and C-category cemeteries.

Eventually, of the 689 sites in the Netherlands almost one-third in the end qualified as 'A-category' urnfields (Fig. 3.16). This is not a bad score as this means that almost one-third of the data can still be assessed for the research questions central to the research at hand. For 83 of the 217 sites that qualified as 'A-category' also osteological data are available. 'A-category' urnfields have only been excavated in the Netherlands after 1900 (Fig. 3.17) and make up substantial percentages of all three subsequent research epochs (Fig. 3.18). When the ratios of the different quality labels per research epoch are plotted (Fig. 3.18), it clearly shows the implementation of the Valetta Treaty did indeed have a very positive effect on the quality of the data obtained. Where in the period between 1960 and 1992 only 30.41% of the data qualifies as 'A-category,' after 1992 the percentage increased to no less than 71.07% (Fig 3.18). At the same time the number of graves without clear context ('C-' and 'D-category' urnfields) decreased substantially in the course of the twentieth century (Fig. 3.18). For some 18 sites no documentation could be found. These sites have been classified as 'B/C/D' (Fig. 3.16). Since these 18 sites only make up 2,61% of the total of sites, their influence on the figures presented is negligible.

The next step is to select a representable sample of sites form these 217 'A-category' cemeteries. Not only regional variation has to be considered when a sample is selected, also developments through time need to be included. As the Netherlands are located on the very edge of the continent, the physical landscape too is characterised by great diversity. Ice-pushed ridges and cover-sand plateaus are cut by countless little stream valleys, dry valleys and major rivers. These major rivers on their turn created an ever changing landscape consisting of levees, gullies and basins while throughout the Bronze- and Iron Age vast peat bogs developed behind the dunes, ultimately covering almost two-third of the Dutch physical landscape. Even though not many cemeteries have been located so far in the coastal area, especially from the Early Iron Age onwards, people inhabited the coastal plains (Fokkens 1998), the old dunes and even some of the peaty areas were colonised from the sixth century BC onwards (Van Trierum 2005). Clearly, the diversity of the physical landscape and the possibility of regional variation also need to be included in a sample of sites (also see Appendix III: Maps 2, 3, 6 and 7).

To cover all these factors, the following sample strategy has been adapted. Within the various landscape types, clusters of 'A-category' urnfields were selected as a starting point for the sampling of specific regions. Clusters of cemeteries are likelier to cover a bigger portion of the timespan between 1300 and 400 BC and they provide the opportunity to compare contemporary cemeteries within distances likely to have facilitated contacts between different groups of people. The word 'cluster' has been used in the broadest sense of the word as in some areas a cluster will measure just a few square kilometres while in other areas the 'A-quality' cemeteries were located further apart. Eventually, eight regions of various size have been selected as case study regions (Fig. 3.19; Appendix III):

A. The Frisian-Drentian plateau [Appendix III; Map 8]
B. The glacial landscape of Salland and Twente [Appendix III; Map 9]
C. The riverine area of the IJsselstreek and East Veluwe [Appendix III; Map 10]
D. The Dutch riverine area [Appendix III; Maps 11 and 12]
E. The Dutch coastal area [Appendix III; Map 13]
F. The cover-sand and marsh landscape of West Brabant [Appendix III; Map 14]
G. The cover-sand and stream valley landscape of East Brabant and North Limburg [Appendix III; Map 15]
H. The Meuse terraces and loess landscape of South Limburg [Appendix III; Map 16]

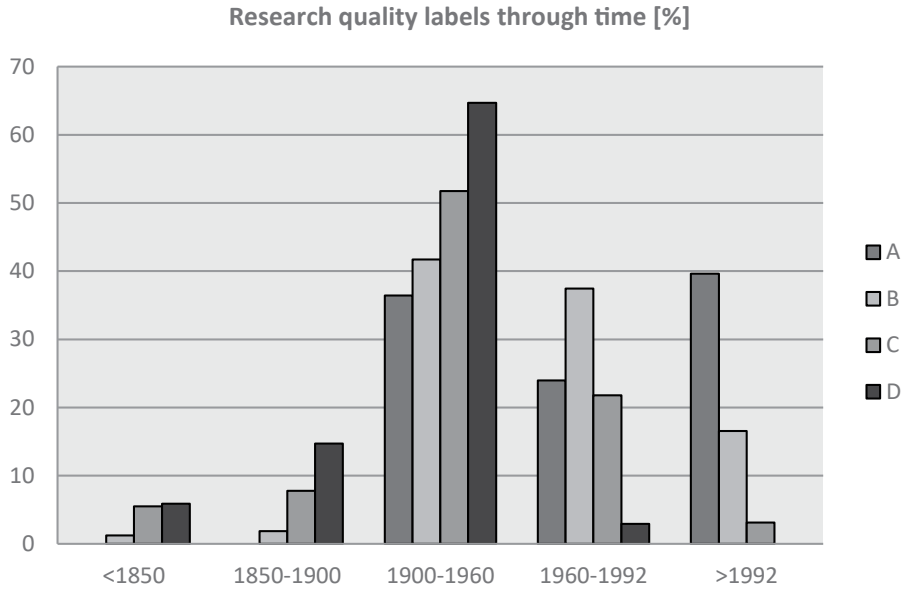

Fig. 3.17: The distribution of the different quality labels through time. As an example, 40% of all 'A-quality urnfields' have been excavated after 1992. For the exact numbers behind the percentages see fig. 3.16.

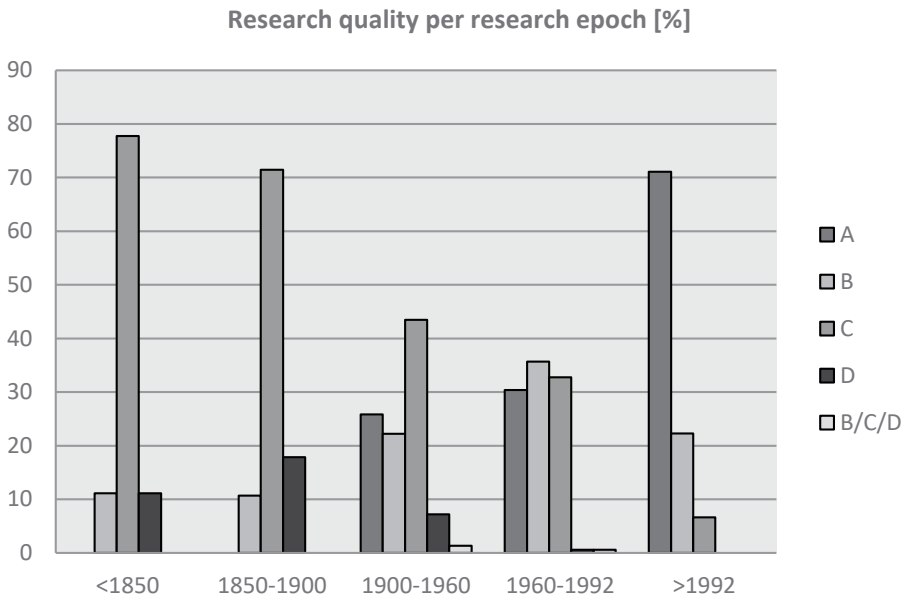

Fig 3.18**:** Research quality labels as a percentage per research epoch. As an example, more than 70% of the urnfields excavated after 1992 concern 'A-quality urnfields.' For the exact numbers behind the percentages see fig. 3.16.

With the exception of the Dutch coastal area, all these regions produced multiple well-documented urnfields. The Dutch coastal area was however still included since it was the only observation available for the west of the country. Effectively, what was done next is adding the 'A-category' cemeteries that are not part of the initial clusters but find themselves within the same region. This exercise was continued until the time reserved for data-entry had run out. As Table. 3.2 shows, many cemeteries exceed the timespan of just the Late Bronze Age and Early Iron Age. In order to be able to detect some long term developments in the funerary practices these cemeteries might represent, both the older and younger graves have also been entered in the database. Interments in the urnfield of Gasteren, for example, clearly peaked in the period of the Late Bronze Age and Early Iron Age (Van Giffen 1945). The cemetery however clearly started as early as the Middle Bronze Age and continued to be used in the Middle Iron Age. In this case the few earlier and later graves have also been included. In the cases where the later graves formed their own distinct (and substantial) cluster, as was the case for the urnfield of Someren-Waterdael III (Hiddink/ De Boer 2011), these later graves have not been included. As every grave entered in the database is provided with an indication for its age, the deviations concerned can be traced back easily.

Eventually, 3,182 graves[30] coming from 75 different cemeteries have been entered in the database (Tab. 3.2). These cemeteries represent 34.56% of all 'A-category' urnfields present in the Netherlands. Despite the knowledge that these 3,182 graves probably still only make up the slightest fraction of the original amount of urnfield graves once present in the Netherlands, they were selected from that portion of cemeteries that produced the most details on the funerary practices concerned with the urnfields. As such, a sample of more than 3000 'A-category' graves still provides a substantial base for the *re*construction of the urnfield funeral to be performed in the next chapters.

30 These are only the graves that were published. The total number of graves coming from these 75 cemeteries is in fact much (100's) higher.

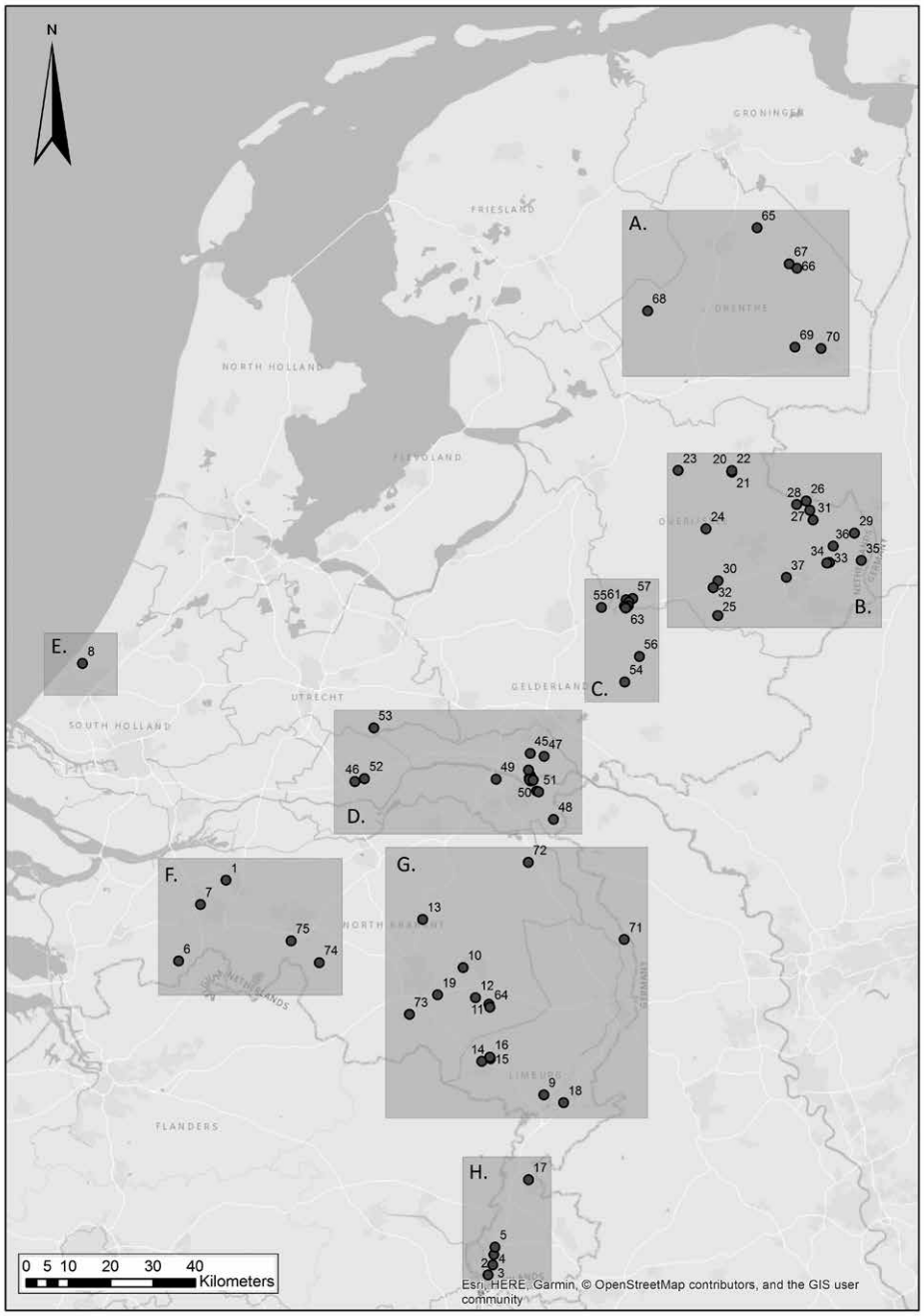

Fig. 3.19: Selection of case-study regions and sites. The clusters of cemeteries around the cities of Nijmegen (D.) and Deventer (C.) are so dense, that the site-numbers concerned cannot be displayed properly on this scale. Detailed maps of all regions, including the site-codes, are available in Appendix III. (Own work; Background: Esri, HERE, Garmin; Copyright Open StreetMap contributors, and GIS user community).

ID	Site-Code	Toponym	Literature
1	NL-BR-136	Oosterhout (Vrachelen/De Contreie)	Verwers/ Beex 1978; Bink/ Dyselinck 2009; Roessingh/ Blom 2012; Veselka/ Lemmers 2014
2	NL-LI-018	Maastricht-Oosderveld	Mildner/ Wetzels 2005
3	NL-LI-397	Maastricht-Vroendaal	Dijkman 2000; Dijkman/ Hulst 2000
4	NL-LI-396	Maastricht-Withuisveld	Dijkman 1995
5	NL-LI-006	Maastricht-Ambyerveld (Hagerhof)	Van der Mark/ Schorn 2008; Dyselinck/ Warmenbol 2012; Dyselinck 2013; 2014
6	NL-BR-010	Zundert-Mencia Sandrode	Krist 2005
7	NL-BR-011	Breda-Steenakker	Koot/ Berkvens 2004
8	NL-ZH-001	Den Haag-Hubertustunnel	Bulten 2007; Bulten/ Opbroek 2014; De Mulder 2015
9	NL-LI-377	Beegden	Roymans/Hoogland 1999
10	NL-BR-220	Mierlo-Hout-Snippenscheut	Tol 1999
11	NL-BR-223	Someren-Waterdael I	Kortlang 1999; Kortlang/ Van Ginkel 2016
12	NL-BR-224	Someren-Philips Kampeerterrein	Modderman 1955b; Modderman 1962/1963
13	NL-BR-210	Sint Oedenrode-Haagakkers	Van der Sanden 1981
14	NL-LI-017	Weert-Laarveld	Tol 2009
15	NL-LI-385	Weert-Kampershoek/Raak/Klein-Leuken	Tol 1998; Hiddink 2010
16	NL-LI-020	Weert-Kampershoek Noord	Hiddink 2010
17	NL-LI-387	Sittard-Hoogveld [sites 3, 4, 8 and 9]	Scholte Lubberink 1998; Tol 2000
18	NL-LI-365	Roermond-Musschenberg	Schabbink/ Tol 2000; Lohof 2001
19	NL-BR-004	Geldrop-Genoenhuis/Grondwal	Hissel *et al.* 2007; Rebergen 2011
20	NL-OV-003	Mariënberg	Verlinde 1975a/b; 1987
21	NL-OV-003II	Hardenberg-Mariënberg II	Verlinde 1978; 1979; 1980; 1982a; 1987
22	NL-OV-003III	Hardenberg-Mariënberg III	Verlinde 1982b; 1983a; 1987
23	NL-OV-006	Varsen	Goutbeek/ Wijnberger 1972; Verlinde 1971; 1972; 1973a/b; 1992a/b; 1987; Hielkema 2014
24	NL-OV-015	Hulsen	Hijszeler 1948; 1961; Verlinde 1987
25	NL-OV-030	Stokkum I and II	Braat 1931; Hijszeler 1961; Verlinde 1969; 1981; 1982a/c; 1983b; 1987
26	NL-OV-084	Mander III	Hijszeler 1961; 1962b; Verlinde 1987
27	NL-OV-086	Vasse	Verlinde 1984; 1987
28	NL-OV-080	Manderveen	Hijszeler 1961; 1963; Verlinde 1987
29	NL-OV-062	De Borchert	Verlinde, A.D., 1973c; 1987
30	NL-OV-024	Noord Elsen	Holwerda 1924; 1925; Hijszeler 1961; Verlinde 1987; Van Beek 2009
31	NL-OV-077	Haarle	Molhuysen 1844; Pleyte 1885; Mulder 1889; Holwerda 1907b; Ter Kuile 1909; Van Deinse 1925; Bursch 1942; Hijszeler 1961; Desittere 1968; Verlinde 1987
32	NL-OV-025	Elsen-Friezenberg	Verlinde 1976a; 1977; 1987; Van Beek 2009
33	NL-OV-050	Oldenzaal-De Tij	Ort 1901; Holwerda 1907b; Ter Kuile 1909; Hijszeler 1951; 1961; Verlinde 1987
34	NL-OV-051	Oldenzaal-De Zandhorst	Ort 1901; Holwerda 1907b; Ter Kuile 1909; Hijszeler 1961; Hijszeler/Verlinde 1975; Verlinde 1976b; 1987
35	NL-OV-049	Losser-De Aust	Ter Kuile 1924; Hijszeler 1961; 1962a; Hijszeler/Verlinde 1978; Verlinde 1987
36	NL-OV-059	Rossum-Oranjestraat/Kulturhus	Verlinde 1987; Eeltink/Smits 2007; Brouwer *et al.* 2008; De Wit/Bergsma 2008
37	NL-OV-092	Hengelo/Borne-Veldkamp/Schild Es	Scholte Luberink 2008; 2010
38	NL-GL-064	Lent-Laauwikstraat-Zuid	Van den Broeke 2002b; 2014
39	NL-GL-065	Lent-Smiltjesland	Van den Broeke 2002b

Tab. 3.2: Sites selected for the present study. Data from these selected sites will form the basis for the research to be presented in Chapters 4 – 6.

ID	Site-Code	Toponym	Literature
40	NL-GL-063	Lent-Castilliëstraat	Daniël 2012
41	NL-GL-039	Lent-Schoolstraat	Van den Broeke 2002b; 2014
42	NL-GL-036	Lent-Lentseveld	Van den Broeke *et al.* 2011; Van den Broeke 2014
43	NL-GL-037	Lent-Steltsestraat	Van den Broeke 2002b; 2008; 2014
44	NL-GL-038	Lent-Zuiderveld-Oost/Stationsweg (Ressen)	Van den Broeke *et al.* 2010; Van den Broeke 2003; 2014
45	NL-GL-047	Elst-Westeraam/Parklaan	Prangsma 2005
46	NL-GL-060	Meteren-De Bogen	Meijlink/Kranendonk 2002
47	NL-GL-026	Huissen-Agropark	Alma/Van Benthem 2008; Bergsma/Stokkel 2011
48	NL-GL-024	Groesbeek-Hüsenhoff	Geerts/Veldman 2012
49	NL-GL-017	Ewijk-Keizershoeve II	Blom *et al.* 2012
50	NL-GL-294	Nijmegen-Hunerberg	Louwe Kooijmans 1973; Beex 1989
51	NL-GL-293	Nijmegen-Kops Plateau	Fontijn 1995; Fontijn/Cuijpers 1999; 2002
52	NL-GL-022	Meteren-De Plantage	Jezeer/Verniers 2012
53	NL-UT-012	Wijk bij Duurstede-De Horden	Hessing 1989; Hessing/Steenbeek 1990
54	NL-GL-019	Steenderen-Steenderdiek	Ringerier 2005; Van Straten 2010
55	NL-GL-068	Twello-De Schaker	Meurkens 2014
56	NL-GL-056	Zutphen-Looërenk (Meijerink)	Bouwmeester 2002; Van Beek 2009; Van Straten/Fermin 2012
57	NL-OV-012	Colmschate-Banekaterveld	Mulder 1889; Butter 1935; Modderman 1960; Van Tent 1974; Hermsen/Van der Wal 2012
58	NL-OV-088	Colmschate-Kloosterlanden (Hunneperweg)	Van Beek 2009; Hermsen/Van der Wal 2012
59	NL-OV-089	Colmschate-'t Bramelt (Hondsroos)	Cuijpers 1991;Van Beek 2009; Louwen 2008; Verlinde/ Buisman 1988; Verlinde 1997a/b; Hermsen/Van der Wal 2012
60	NL-GL-029	Epse-Olthof Noord	Van Beek 2009; Hermsen/Van der Wal 2012
61	NL-GL-030	Epse-Waterdijk Noord	Appels 2002; Hermsen/Van der Wal 2012
62	NL-GL-031	Epse-Waterdijk II	Hermsen/Van der Wal 2012; Prangsma 2002; Van Beek 2009
63	NL-GL-067	Epse-Waterdijk-West (III)	Van Mousch 2016
64	NL-BR-014	Someren-Waterdael III	Hiddink/De Boer 2011; Kortlang/Van Ginkel 2016
65	NL-DR-026	Gasteren	Van Giffen 1941; 1945
66	NL-DR-038	Buinen-Hoornse Veld	Kooi 1979
67	NL-DR-039	Drouwen	Van Giffen 1943; Kooi 1979
68	NL-DR-045	Wapse	Van Giffen 1936a; Waterbolk 1957
69	NL-DR-094	Sleen	Kooi 1979
70	NL-DR-054	Noordbarge-Hoge Loo	Van Giffen 1934; 1937a; Kooi 1972; 1973; 1979; Harsema 1976; Arnoldussen/Albers 2015
71	NL-LI-313	Well-De Hamert	Holwerda 1914
72	NL-BR-196	Haps-Kamps Veld	Verwers 1972
73	NL-BR-250	Valkenswaard-Het Gegraaf	Evelein 1909; Brunsting/Verwers 1975
74	NL-BR-159	Hilvarenbeek-Laag Spul	Modderman 1957/1958; Verwers 1975
75	NL-BR-155	Goirle-Hoogeind	Remouchamps 1926; Verwers 1966a