Returning and reuse: Diachronic perspectives on multi-component cemeteries and mortuary politics at Middle Neolithic and Early Bronze Age Tara, Ireland

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A B S T R A C T

Archaeologists studying multi-component cemeteries have argued that the societies who reused cemeteries were motivated by connecting to the past. However, often overlooked are the potential roles of mortuary events and sites as key social and political venues for creating, contesting, and unmaking relationships and identities for the later community independent of a connection to the past. In this paper, I explore the social and political roles that mortuary rituals at the Mound of the Hostages, Tara, Ireland played during the Middle Neolithic (3350–2800 BC) and Early Bronze Age (2300–1700 BC).

Tara's emergence as a regional mortuary center occurred only several hundred years after its initial reuse by Early Bronze Age peoples. Just as importantly, the burial activity that marked Tara as special in the Early Bronze Age was very brief, revealing that the regional centralization at Tara was ultimately unsuccessful. The analysis of cemetery formation at Tara is only possible due to the development of a fine-grained site specific chronology. These results have broad implications for how we understand cemetery formation, the reuse of mortuary monuments, and the dynamics of social complexity in prehistoric societies.

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1. Introduction

Mortuary rituals are more than just ways of disposing of the dead. They provide a forum for remembrance and celebration of the deceased, for engaging with and potentially challenging cultural norms, and for integrating social collective units in ways that can mimic, mask, or modify social relationships that exist in the non-ritual social structure. While mortuary rituals are reproduced through acts of ritual performance and burial, each act offers opportunities to change the role of these rituals in any society. Consequently, mortuary rituals can serve multiple roles that not only *can*, but *will*, change over time.

In multi-component cemeteries, archaeologists have argued that the people who reused cemeteries were motivated by connecting to the past (see Bradley, 2002; Williams, 1998; Yoffee, 2007). However, often overlooked are the potential roles of these mortuary events as key social and political venues for creating, contesting, and unmaking relationships and identities for the later community regardless of a connection to the past. Archaeologists must also take into account other factors that affected past societies' decisions of who, where, why, and when to bury.

Multi-component cemeteries must be treated as spaces where contemporary social and political relationships were contested regardless of the connections to the distant past.

A lack of emphasis on the multiple tempos of cemetery formation has obscured a significant amount of social information encoded in the mortuary record. Mortuary archaeology has been handcuffed by a lack of fine-grained chronologies for most cemeteries. In most cases, components within a cemetery are treated as long and uniform chronological units (though see Yao, 2008).

In this paper, I explore the social and political roles that mortuary rituals at the Mound of the Hostages, a multi-component cemetery in prehistoric Ireland, played for the communities that used this cemetery throughout its history. The Mound of the Hostages is a passage tomb constructed and used as a cemetery during the Middle Neolithic and subsequently reused as a cemetery during the Early Bronze Age (after a significant gap in time) (O'Sullivan, 2005). More specifically, I investigate the changing processes that led to the Mound of the Hostages at Tara becoming a uniquely large Early Bronze Age cemetery. To understand *why* this transition occurred, it is first necessary to understand *when* and *how* the cemetery became unique within Bronze Age Ireland. As such, I monitor long-term changes in burial practices, tempo of burial, and the demographic profiles of both the living and dead

populations using the tomb, from the monument's construction in the Middle Neolithic to the end of its use as a cemetery. Accounting for diachronic change in the roles of mortuary activity in multi-component cemeteries provides new insights into the social dynamics and mortuary politics of the past.

2. The politics of returning to and reusing cemeteries

This paper is situated within anthropological perspectives of emergent social inequality, mortuary ritual, and social change. The development of institutionalized social inequality continues to be one of the most fundamental issues in anthropology (Ames, 2007; Bowles et al., 2010; Earle and Johnson, 2000; Flannery and Marcus, 2012; Fowles, 2002; Marcus, 2008; Price and Feinman, 2010; Rousseau, 2006; Shennan, 2008; Trigger, 2003). While researchers have often emphasized political and economic strategies for creating social inequalities (Arnold, 1993; Earle, 1997; Earle and Kristiansen, 2010; Flannery, 1972; Hayden, 1995; Hirth, 1996), ideologies also play an integral role (e.g., Aldenderfer, 1993, 2010; Earle, 2002; Wiessner, 2002). Since the development of systematic models of mortuary assessment in ethnographic and archaeological contexts (e.g., Binford, 1971; Brown, 1971; O'Shea, 1984; Saxe, 1970), mortuary rituals have been primary lines of evidence for studying the existence of social inequality (Arnold, 1996; Marcus and Flannery, 2004; Price and Feinman, 2010). Such studies have been useful in identifying whether or not larger social inequalities are present. They have been less successful in examining the roles of mortuary rituals themselves as contexts integral to creating and maintaining inequalities. Combining agency and system-level perspectives can allow archaeologists to examine mortuary rituals as venues for negotiating interpersonal relationships among participants and for bringing about rapid macro-scale changes in social complexity.

Anthropologists have long been interested in ritual as an important context in which the nature of social relationships and structures are negotiated (Rappaport, 1999; Schechner, 1994; Turner, 1972; Van Gennep, 1960). Through rigorous analysis of material traces of patterned behavior in archaeological contexts (e.g., Buikstra and Charles, 1999; Fogelin, 2007; Marcus, 2007; Marcus and Flannery, 1994, 2004; Renfrew, 1994, 2001; Spielmann, 2002; Wright, 2014), archaeology has the potential to understand the social roles of ancient ritual (Howey and O'Shea, 2009).

I approach mortuary rituals as processes rather than events (Bourdieu, 1991; Brück, 2004b). Mortuary treatments are the conscious and intentioned results of decisions made by the living (Bradley, 1998b; O'Shea, 1996). As the results of choices, mortuary deposits are unique contexts in which archaeologists can examine the politics of materializing agency, structure, and identity (Brück, 2004a,b, 2006; Fowler, 2005; Keswani, 2004; O'Shea, 1996). Mortuary rituals also provide contexts in which the structures and rules of society, that is, institutions (North, 1990; Wiessner, 2002), can be unmade and reformed (Mills, 2004). Because of the recursive dialogues of mortuary rituals – between participants and observers, and between agency and structure – the mortuary record encodes processes of social negotiation rather than fossilized past relationships (Kuijt, 1996). This approach encourages archaeologists to consider the timing, space, and scale of mortuary rituals in order to better understand who participated in different stages of funerary processes, who witnessed different ritual performances, and what sorts of integrative or inequality relationships were actualized in these social contexts (Kuijt, 1996, 2000, 2008; Lukes, 1975).

The emotionally charged nature of mortuary rituals can generate a wide range of meanings, significances, and experiences for the participants (Inomata, 2006). At the scale of the individual participant it is impossible to reconstruct the exact emotions, or meanings, that mortuary rituals played (Howey and O'Shea, 2009). Indeed, the meanings associated with ritual performances are so fractured and malleable within any given community that assessing the specific experiences of people in the past is both impossible and a diversion from the significance of examining ritual action for archaeologists interested in past lifeways (Inomata, 2006).

Given the impossibility of reconstructing individual experiences or meanings associated with mortuary rituals, we are better served by examining the roles these mortuary rituals played within societies. Mortuary practices are political acts (Parker-Pearson, 1993), each involving different participants and providing the opportunity for changes in the politics of mortuary activity. Such an approach to the mortuary practices of the Irish Neolithic and Bronze Age requires examining mortuary rituals within multiple time scales: the intra-tradition process of returning and the change of mortuary traditions over time.

2.1. Diachronic perspectives on cemeteries

Cemeteries – spatially bounded places on the landscape where multiple individuals are buried – are one of the fundamental units of study in mortuary archaeology (O'Shea, 1984). Cemeteries are rarely formed as a single event. Instead, cemeteries are formed through repeated actions at the same location to bury the dead (Parker-Pearson, 1999). The amalgamated archaeological record in cemeteries can obscure that each burial event involves a different set of participants with a different range of experiences and a different set of choices (Bailey, 2007). This complexity is accentuated when cemeteries are reused over multiple periods. Considering the different time scales across which cemeteries form provides opportunities to integrate the diversity of human action into narratives of past human behavior.

The human choices and social processes that form cemeteries have particular temporal dimensions. These include (1) *returning* and (2) *reusing*. The process of *returning* is defined as the act of burial within an existing cemetery within a single mortuary tradition (a spatially and temporally bounded set of mortuary practices). The process of *reuse* is defined as the act of burial that, following a hiatus in activity, establishes a new temporally distinct burial tradition within a cemetery where an earlier mortuary tradition existed. Reuse results in multi-component cemeteries. Reuse only happens at the start of a new temporally distinct burial tradition. Once a cemetery has been reused, it has been repurposed as a functional cemetery within the new tradition. As such, continued burial in multi-component cemeteries with multiple components is actually a process of returning rather than reusing. Because mortuary practices are dynamic, we must account for cemetery formation when examining the changing social roles of mortuary rituals.

2.2. Archaeological perspectives on reuse and returning

The reuse of mortuary locations is a global phenomenon (Dillehay, 1990; Honeychurch et al., 2009; Williams, 1998, 2014; Yoffee, 2007). Monument reuse has been particularly well studied in Europe (Bradley, 1987, 1993, 1998a,b, 2002; Dillehay, 1990; Gosden and Lock, 1998; Hingley, 1996; Honeychurch et al., 2009; Johansen et al., 2004; Newman, 1998; Porter, 2002; Semple, 1998; Williams, 1997, 1998, 2006; Yoffee, 2007). Explanations of reuse from across the globe have ranged from seeing returning as a form of legitimization of territorial access or power (Buikstra and Charles, 1999; Chapman, 1995; Saxe, 1970), to a complex political interaction that makes or unmakes ancestors (Hingley, 1996; Schurr and Cook, 2014), to considerations of social memory, forgetting, and identity formation (Kuijt, 2008; Sørensen, 2014;

Williams, 1998). Increasingly, archaeologists are emphasizing the importance of time and tempo of mortuary practices to provide a dynamic view of social acts and transformations (Scarre, 2010).

As theoretical concepts, returning and reuse articulate with time perspectives and the temporality of social change within archaeology. In his exegesis on time perspectivism, Bailey (2007: 218–219) emphasizes the multitemporality of the material world. Time can be experienced and materialized at various scales (Gosden and Kirsanow, 2006; Holdaway and Wandsnider, 2006; Scarre, 2010), ranging from events (Beck et al., 2007; Foxhall, 2000; Lucas, 2008) to transformations across the *longue durée* (Ames, 1991; Prentiss et al., 2009; Shryock and Smail, 2011).

Bailey critiques a concept in Lucas (2005: 87), following Bradley (2002), that "any aspect of the archaeological record that would seem to indicate some reference to an earlier part of that record might be interpreted in this way." Bailey (2007: 219) questions whether this is always the case, presenting examples of Medieval farmers and Greek shepherds in which he asks whether they would have had a greater sense of the antiquity of the various landscape and archaeological features they encountered and in some cases exploited as a stone quarry. For Bailey, archaeologists are acutely aware of the differential time depth of landscapes, but it is difficult to demonstrate that the "pastness" of materials incorporated into the cultural world of prehistoric societies can be attributed to their experiences of multiple time dimensions. In this paper, I question the assumed importance of "pastness" for later communities that reuse cemeteries. Through an investigation of the tempo and nature of cemetery reuse, and disarticulating cemetery reuse from perspectives that fetishize "pastness", it is possible to better understand the roles of mortuary rituals as venues for contesting social and political organization.

The lumping of chronological components often results in interpretive frameworks that are themselves singular and monolithic.[1] The tendency for archaeologists to flatten cemetery formation is due to two key factors: (1) inadequate budgets to process a sufficient quantity of radiocarbon dates on burials in a cemetery, and (2) a broader under-appreciation of the complex social behavior that can be revealed through a rigorous dating program. While funding will always be an issue, I argue that a lot of information about dynamic social and political strategies can only be accessed through fine-grained chronologies and models of the different social processes that form cemeteries.

Even in multi-component cemeteries, it is uncommon to archaeologists account for the internal development of any component. Given the diversity of reasons for burial and choices within any burial tradition, it should not be expected that the choices made by the first people to reuse a monument were shared by later groups, even within the same mortuary tradition. Therefore, any consideration of the development and reuse of cemeteries must look beyond identification of simple or mono-causal reasons for the phenomenon.

Drawing on a case study from the Hill of Tara and northern Leinster during the Neolithic and Early Bronze Ages, I explore changing mortuary practices within a context of changing social organization, use of mortuary rituals, and integration of social networks. This approach takes advantage of a fine grained chronology for the Mound of the Hostages. Monitoring the changing role of mortuary rituals at the Mound of the Hostages, through processes of returning and reuse, provides a better understanding of the socio-political structure and dynamics of past communities.

3. The Tara case study

3.1. Tara in space and time

The Hill of Tara is a low rise that has commanding views of the surrounding regions. Among the many prehistoric and historic archaeological features at Tara, the Mound of the Hostages is one of the more prominent. Tara is located in North Leinster, just north of Dublin; a major zone of prehistoric activity. The region is an area of low rolling hills, productive agricultural and pastoral land, and the Boyne River – one of the major rivers on the island (Casey and Rowan, 1993). Within North Leinster, County Meath is peppered with prehistoric monuments and is home to some of the most spectacular and well documented prehistoric monuments in Ireland. Within County Meath, the Boyne Valley (Brú na Bóinne), Loughcrew, Fourknocks, and the Hill of Tara have been major locales of research for Neolithic and Bronze Age archaeologists.

The Hill of Tara is one of the most intensively analyzed sites in Ireland (see O'Sullivan et al., 2013) (Fig. 1). Thanks to Tara's significant role within the history and culture of Ireland – from the development of Irish High Kings through the fight for Irish independence in the early 20th century – this site has received special treatment within Irish archaeology (Bhreathnach, 2005). The earliest work at Tara extends back to the 19th century (e.g., Petrie, 1839). Recent works focused on the Hill, its monuments, and surrounding landscape have been spurred by the construction of the M3 Motorway through the area around Tara as well as a research program established by the Discovery Programme (e.g. – Bhreathnach, 1995; Fenwick and Newman, 2002; Grogan, 2009; Newman, 1997; O'Sullivan, 2005; Roche, 2002). Thanks to this support, materials from the Mound of the Hostages excavations of the 1950s were analyzed, documented, and a full site report has been produced (O'Sullivan, 2005).

In this study, I focus on the Middle Neolithic and the Early Bronze Age mortuary activity at the Mound of the Hostages (see Bayliss and O'Sullivan, 2013; Kuijt and Quinn, 2013; Mount, 2013; O'Sullivan, 2005; O'Sullivan et al., 2013; Quinn and Kuijt, 2013; Scarre, 2013; Sheridan et al., 2013). The Middle Neolithic coincides with the passage tomb building tradition in North Leinster, and dates to approximately 3350 cal. BC to 2800 cal. BC (Cooney, 2000). The Early Bronze Age dates from 2300 cal. BC to 1700 cal. BC (Cooney, 2000; O'Sullivan, 2005). There is a gap in mortuary activity at the Mound of the Hostages from approximately 3000 cal. BC to 2200 cal. BC, that is, during the Late Neolithic. Since this period coincided with a hiatus in use of the Mound of the Hostages, I am omitting the Late Neolithic from this study. As a result, I cannot speak to direct or continuous evolutionary trends between the two periods; however, the temporal separation does facilitate broader comparisons among distinct mortuary and social traditions. A radiocarbon sampling strategy developed by the Heritage Council, O'Sullivan (2005), and Brindley et al. (2005), combined with artifact and contextual analyses, has provided a uniquely fine-grained chronology for a single Middle Neolithic passage tomb and Early Bronze Age cemetery. This study employs multiscalar perspectives, connecting the local (Hill of Tara) and regional (North Leinster within the modern borders of County Meath) scales of analysis. These scales are of particular importance because they allow us to monitor processes of centralization, regionalization, and community integration and take advantage of robust datasets at each scale that are unmatched anywhere else in Ireland.

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[1] This is more a byproduct of typological approaches that create static categories or terms for dynamic social processes. These types are necessary for breaking down the fluid and complex human system into manageable categories for research analysis. However, too often these types/periods grow into more than a tool for analysis. When this happens, types/periods are given a concrete sense of reality that are necessarily static in their current conceptualization and do not represent the full reality of human action in the past. Archaeologists must be fully aware of the limitations (but also the inherent advantages) of using static models to understand dynamic behavior in the past.

Fig. 1. Map of the Hill of Tara. The Mound of the Hostages is the earliest of many archaeological monuments at Tara (LiDAR imagery courtesy of the Discovery Programme).

3.2. The North Leinster mortuary landscape

Regional patterns of mortuary practices have been the primary way archaeologists have understood the dynamics of social and political complexity in the Neolithic and Early Bronze Age. Settlement pattern studies, another key approach to detect the emergence of regional polities, remain poorly developed for these periods due to issues of preservation, archaeological visibility, and gaps in archaeological focus.

Within North Leinster, the Mound of the Hostages is just one cemetery among many (Table 1). Significant field work within the region has produced large quantities of data on many monuments including Knowth (Eogan, 1984, 1986), Newgrange (O'Kelly, 1982; Stout, 2002), Tara (Newman, 1997; O'Sullivan, 2005); Fourknocks (Hartnett, 1957, 1971), and Loughcrew (Cooney, 1990; Fraser, 1998; McMann, 1994; Shee Twohig, 1996). Information from these sites has been used to reconstruct Neolithic and Bronze Age lifeways (e.g., Cooney, 2000; Cooney and Grogan, 1994; Herity and Eogan, 1977).

Tara's changing role in North Leinster is best seen through a comparison with other Middle Neolithic and Early Bronze Age cemeteries. Middle Neolithic passage tomb cemeteries varied significantly in size and were clustered in three main areas: the Boyne Valley, Fourknocks, and Loughcrew (see Table 1; Fig. 2). There were two distinct modes in cemetery size (measured as mound size). The majority of passage tombs, including the Mound of the Hostages (21 m in diameter), were smaller than 30 m in diameter

($n = 45$; 86.5%). The second mode between 80 and 90 m in diameter ($n = 3$; Knowth, Dowth, Newgrange – all in the Boyne Valley)[2] (Fig. 3).

Unlike the clustered mortuary landscapes of the Middle Neolithic, the cemeteries of Early Bronze Age North Leinster were more evenly distributed across the landscape (Fig. 4; see Table 1). Like the Middle Neolithic, there were two distinct modes in cemetery size (measured as number of burials). The majority of Early Bronze Age cemetery sites had fewer than 10 burials ($n = 21$; 91.3%). The second mode was made up of only one tomb: the Mound of the Hostages (31 burials) (see Fig. 3).

In both size and form, Tara appears to have been relatively 'typical' of a small community cemetery within the region during the Middle Neolithic. However, in the number of burials in a single cemetery, the Mound of the Hostages was definitely 'exceptional' within North Leinster during the Early Bronze Age. How, when, and why did Tara become the key mortuary center within the region? What implications does this regional patterning have on our reconstruction of regional social and political organization?

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[2] Mound size was used as the proxy for site size in the Middle Neolithic because many of the tombs have been disturbed and comparable information on the quantity of burials is not present for the vast majority of sites. In contrast, Early Bronze Age cemeteries use the proxy of minimum number of individuals because these are the most comparable data across the sites. These different proxies are used only to show the relationship of Tara to other sites within the same phase.

Table 1
Size of Middle Neolithic and Early Bronze Age cemeteries in North Leinster.

Middle Neolithic			Early Bronze Age		
Meath Inventory Number	Site	Size *Diameter* (m)	Meath Inventory Number	Site	Size *Number of Burials*
2	Tara	21	264	Tara	33
4	Corstown	20	265	Athgaine Little	1
11	Corstown	35	266	Ballinvalley	2
13	Corstown	11	267	Ballinvalley	1
14	Corstown	7	268	Betaghstown	1
16	Dowth	20	270	Briarleas	1
18	Dowth	85	271	Collierstown	1
22	Fourknocks	19	275	Doon	1
23	Fourknocks	24	276	Knockminaune	1
110	Fourknocks	14	277	Fourknocks I	8
27	Knowth	85	278	Fourknocks II	8
28	Knowth	22	279	Fourknocks III	2
29	Knowth	11	281	Keenoge	14
30	Knowth	17	283	Martinstown	5
33	Knowth	10	284	Monknewtown	1
34	Knowth	13	287	Nevinstown	3
35	Knowth	11	288	Newcastle	2
37	Knowth	11	289	Oldbridge	2
38	Knowth	15	290	Oldbridge	2
39	Knowth	13		Kells	3
40	Knowth	13		Ardsallagh 2	6
41	Knowth	19		Blackcastle Demesne	2
42	Knowth	9		Balrath	1
43	Knowth	15			
46	Loughcrew	12			
48	Loughcrew	20			
50	Newgrange	85			
51	Newgrange	20			
52	Newgrange	23			
53	Newgrange	20			
55	Newtown	7			
56	Newtown	55			
58	Newtown	15			
59	Newtown	19			
60	Newtown	16			
61	Newtown	19			
62	Newtown	14			
63	Newtown	15			
64	Newtown	41			
65	Newtown	22			
66	Newtown	12			
67	Patrickstown	11			
68	Patrickstown	13			
173	Dowth	20			
174	Dowth	20			
175	Dowth	20			
176	Dowth	20			
186	Iskaroon	12			
197	Monknewtown	27			
201	Newgrange	25			
202	Newgrange	30			
203	Newgrange	36			

Our ability to address these questions is limited by the chronological resolution of the above analysis. By treating monuments and cemeteries constructed, used, and abandoned over several hundred years as if they were synchronic, we are projecting a static regional structure that may or may not have been present for all (if any) of that time span. As others have argued, these cemeteries were not necessarily contemporary and likely changed through time (see Bayliss and O'Sullivan, 2013; Cooney and Grogan, 1994; Scarre, 2013; Sheridan, 1985/6). What is needed is a fine-grained chronology; something that does not exist on a regional level. At the site level it is possible to create the fine-grained chronology necessary to understand how, when, and why Tara became the key mortuary center in the region, and to understand what roles its multi-component nature may have played in that transition.

3.3. Traditional perspectives on complexity through Irish Middle Neolithic and Early Bronze Age cemeteries

Archaeologists have relied heavily on mortuary practices to reconstruct the organization of Irish Neolithic and Bronze Age societies through several, sometimes complementary and sometimes contradictory, theoretical perspectives. In Irish as well as other European contexts, archaeologists have emphasized the importance of ancestors for understanding lineage, descent, and the legitimization of social and political institutions (Barrett, 1988; Cooney, 2000, 2014; Hingley, 1996). However, there are limitations to the ancestor concept, especially problems of defining ancestors (see Whitley, 2002) and overemphasizing finding ancestors in the archaeological record rather than exploring the roles they may have served (see Kuijt, 2008). When used in the context of human
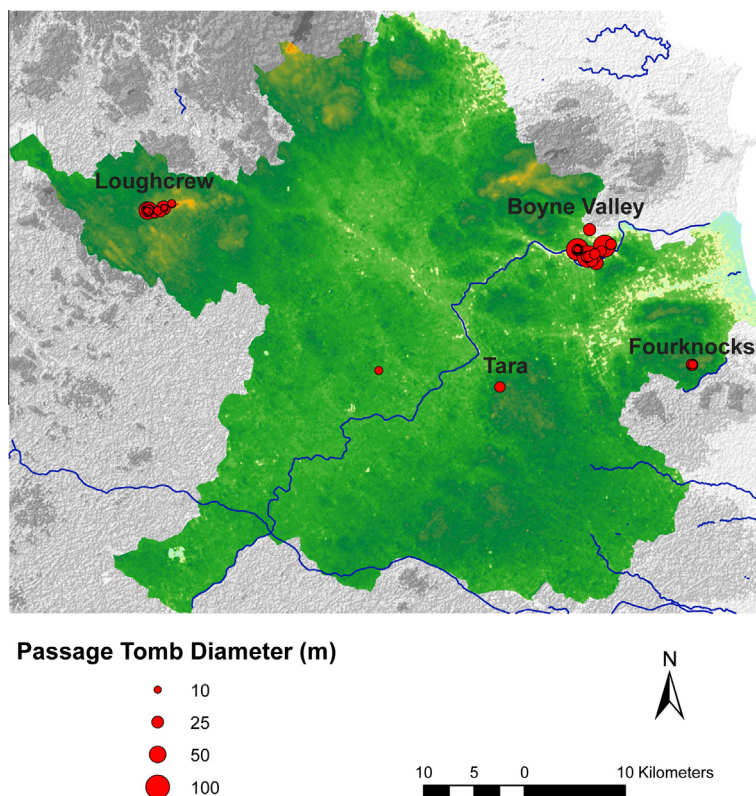
Fig. 2. Middle Neolithic mortuary landscape in County Meath, North Leinster. All passage tombs are weighted by size. Note the concentration of passage tombs in the Boyne Valley (upper right) and Loughcrew (upper left).

action, the ancestor concept can have a significant amount of utility for analyzing the Irish mortuary record. As part of active social strategies, ancestors can provide a mechanism of legitimizing of authority and access to resources, creating group identities, and mediating social integrations (see Cooney, 2014). As such, there has been an emphasis on "the past in the past" (Bradley, 1987, 1998b, 2002) within Irish archaeology for understanding the politics of mortuary ritual, particularly monument and cemetery reuse.

Many archaeologists have emphasized the shifts in mortuary practices between the Middle Neolithic and Early Bronze Age as reflecting two different world-views and political structures. For the earlier period, the world view is built around emphases on collective action and group identity. This view is replaced with a religion focused on individual identity in the later period. The so-called "cult of the individual," as seen across the British Isles during the Early Bronze Age, is seen as a stark and significant break with the preceding burial tradition (Renfrew, 1974; Shennan, 1982). Additionally, archaeologists have interpreted this shift in mortuary practices as indicative of a change in social structure from hierarchically arranged lineages to influential groups of autonomous and powerful elite individuals (Clarke et al., 1985; Fowler, 2005; Renfrew, 1973, 1979; Shennan, 1982; Thorpe and Richards, 1984). This interpretation has been challenged over the last few decades on multiple fronts (e.g., Brück, 2004a,b; Fowler, 2005), primarily on the grounds that the mortuary record is not a direct reflection of the existing social order. Just because there are individual bodies does not necessarily mean that there was a "cult of the individual" that was associated with increased social hierarchy.

Assessments of social and political complexity in the Middle Neolithic and Early Bronze Age have been divided. Based on normative conventions of a static archaeological landscape, the presence of large and small passage tombs in the Middle Neolithic has been used as evidence of "chiefdom" level social organization

(see Darvill, 1979; Herity, 1974). Later research that accounted for a development of Middle Neolithic landscapes still argued that a few elite lineages became significantly more important than others (see Sheridan, 1985/6). Variability in grave goods and the presence of fewer cremated individuals interred separately during the Early Bronze Age has also been interpreted as evidence of significant social differentiation (Mount, 1991, 2013). Whether there was a hierarchically integrated, regional chiefly polity in either, both, or neither of the time periods has not been resolved.

While some have challenged the utility of examining social organization through mortuary contexts (see Brück, 2004a,b; Fowler, 2005), most archaeologists have employed a middle-ground approach to the mortuary record that acknowledges the role of human agency and the mutability of living identities in mortuary contexts. Mortuary practices are a social process and not a direct reflection of the deceased individual's personal identity. These actions and processes are mediated within cultural frameworks that have structures and rules (see Brown, 1995; Keswani, 2004; O'Shea, 1996). It is from this tradition that my approach to Irish mortuary practices is developed.

3.4. The roles of mortuary ritual at Tara

The Middle Neolithic and Early Bronze Age mortuary activity at the Mound of the Hostages on the Hill of Tara is the perfect setting for examining diachronic variability in the role of mortuary rituals for three main reasons. First, Irish archaeologists have a history of examining reuse of monuments and the tensions between ritual action and the structure and dynamics of other dimensions of the social system (see Cooney and Grogan, 1994). Second, the history of research at the Mound of the Hostages has produced a fine-grained chronology and rich dataset that are well suited for an approach that breaks down traditional chronological phases into shorter time. Third, we know that the Mound of the Hostages
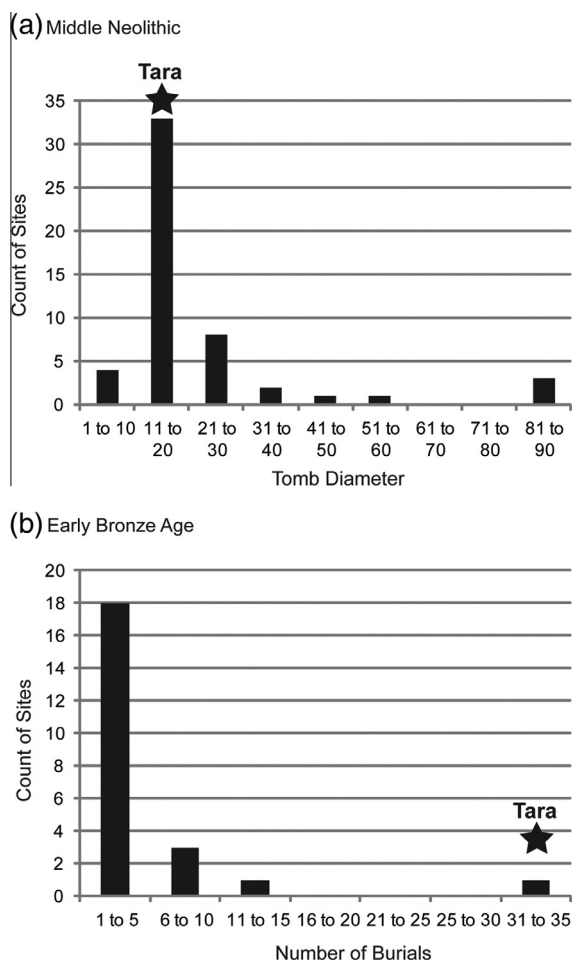
Fig. 3. Sizes for cemeteries in the (a) Middle Neolithic and (b) Early Bronze Age in North Leinster. Note Tara's transition from a more 'typical' cemetery to a more 'exceptional' cemetery.

developed into a major center for historic Irish power as well as modern Irish identity (see O'Sullivan et al., 2013).

By examining the archaeological record at the Mound of the Hostages, we may be able to see when, and in what ways, Tara was transformed from just another hill in the North Leinster landscape into a major social, political, and/or ideological center. The importance of Tara cannot be presumed to be static, absolute, and ever-present. Examining the archaeological record at the Mound of the Hostages can elucidate the significance of returning and reuse in mortuary contexts in negotiating socio-political strategies, integrating social units together, and identity formation in the past.

4. Methods and approaches

To investigate the changing roles of mortuary activity at Tara, I employ a multi-stage and multi-scalar approach. I emphasize synchronic patterns and diachronic change through the use of an extensive radiocarbon database and Bayesian analysis of radiocarbon dates. Building upon this new chronology of activity at Tara, I use mortuary archaeological and osteological techniques to determine who was buried and in what way. A more detailed discussion of burial modes and tempo and frequency of burial for the Early Bronze Age specifically has been presented elsewhere (see Quinn and Kuijt, 2013). Additionally, I employ demographic modeling to assess the structure of the population and rules of restriction of

burial at Tara. When combined, I generate a detailed narrative of the history of mortuary activity during the Middle Neolithic and Early Bronze Age. Drawing upon the concepts of returning and reuse, this approach alters our understanding of the changing roles of mortuary rituals at the Mound of the Hostages as well as the larger trajectories of social and political organization of North Leinster.

4.1. Chronological approach

The history of burial practices at the Mound of the Hostages was complex and dynamic. As such, comparisons of Middle Neolithic practices as a whole and Early Bronze Age activity as a whole (which assume contemporaneity among burials in each phase) are not adequate. Instead, I situate the mortuary activity into a more time-sensitive chronological framework. This technique shows the variable tempos of activity associated with the development of the site.[3] The sum of the posterior density estimates of all calibrated ^{14}C dates in the Mound of the Hostages for the Middle Neolithic (Bayliss and O'Sullivan, 2013) and Early Bronze Age (Bayliss and O'Sullivan, 2013; Quinn and Kuijt, 2013) were calculated and modeled using OxCal 3 (Bronk Ramsey, 2009). These data are combined with an assessment of the intensity of burial throughout the use of the site (as measured by frequency of burial) to understand the tempo of burial at the site. Breaks in burial activity are revealed and burial practices can be grouped into shorter chronological blocks than previously possible.

4.2. Mortuary and osteology approach

Several traditional mortuary archaeological and osteological methods were employed to identify who was buried at Tara, the social units they are associated with, and how mortuary rituals, rules, and practices changed over time.[4] Osteological analyses performed by Dr. Brendan Coakley of University College Dublin in the late 1980s and early 1990s provide the basis of skeletal information. Minimum number of individuals in the tomb was generated based on counts of the right internal auditory meatus, a hard portion of the inner ear that is diagnostic and more likely to survive cremation. In the non-ossuary deposits, minimum number of individuals was based on the most common skeletal element or significant differences in ages or sex of the bones. The minimum number of individuals is necessary for understanding the intensity of burial, as well as to reconstruct source population profiles using demographic models. Additionally, I rely on other traditional lines of mortuary evidence. Treatment of the body, either inhumation or cremation, can provide key social information if any spatial or chronological patterning in their relationship can be identified (Quinn et al., 2014). The type, count, diversity, and association of grave goods within the mortuary contexts provide information on chronology, social roles, norms of burial (and deviations from the norm), and concepts of wealth and adornment. Finally, I present the spatial location of the human remains within the site, and their relationship to other remains, in single, multiple, or ossuary grave deposits. Patterned use of space within a cemetery may be the product of one or more groups participating in the burial process.

4.3. Demographic modeling approach

Building on traditional mortuary archaeological approaches, demographic modeling is a way of utilizing the known

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[3] See Appendix 7 in O'Sullivan (2005) for all dates used here. Models 2 and 14 from Bayliss and O'Sullivan (2013) are the site based models used here.
[4] See O'Sullivan (2005) for a more detailed summary of initial mortuary results; also see unpublished report by Brendan Coakley on file with UCD.
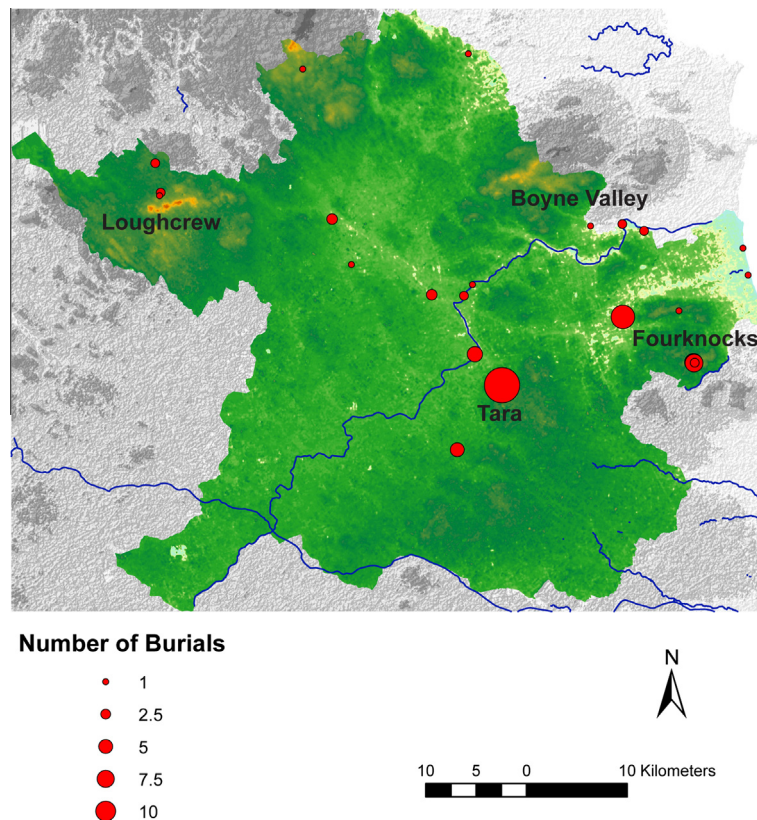
Fig. 4. Early Bronze Age mortuary landscape in County Meath, North Leinster. All cemeteries are weighted by size. Note the avoidance of the Boyne Valley, the low degree of clustering of cemeteries in the landscape, and the unique size of Tara.

archaeological record to ascertain characteristics of how the living buried their dead at Tara. The modeling provides a range of demographic and restrictiveness profiles of the source population that was interred in the Mound of the Hostages. These data address important social issues such as who merited burial there and the size of the community using the cemetery. The modeling procedure employed here comes from Acsádi and Nemeskéri (1970) and is meant less to determine the exact number of people in the prehistoric population and more to illustrate relative changes in the scale and restrictiveness of burial through time.

5. Timing, tempo, and traditions at Tara

Whereas traditional cultural historical approaches would identify only two blocks (Middle Neolithic and Early Bronze Age activity), it is possible to identify four chronological blocks within the mortuary record at the Mound of the Hostages. The passage tomb was built between 3210 and 3100 cal. BC (posterior density estimate at 59% probability) and Neolithic activity within the tombs and cists ended between 3080 and 2970 cal. BC (posterior density estimate at 68% probability). Based on the posterior density estimates, Bayliss and O'Sullivan (2013) suggest that the highest probability for the duration of activity is approximately between 3150 and 3050 (see Fig. 14 in Bayliss and O'Sullivan, 2013). The use of the Mound of the Hostages during the Middle Neolithic was very brief, likely under a century (for purposes here, I use the estimate that the passage tomb was in use for approximately 100 years). The perimeter burials associated with the Middle Neolithic passage tomb activity may both pre-date and post-date activity within the passage tomb (Bayliss and O'Sullivan,

2013), and cannot be separated in time from the rest of the burial activity.

After a hiatus of nearly a millennium, the reuse of the Mound of the Hostages as a cemetery for the deposition of human remains by Early Bronze Age peoples began between 2100 and 2035 cal. BC (posterior density estimate at 65% probability) (Bayliss and O'Sullivan, 2013). The initial reuse of the Mound of the Hostages started with Early Bronze Age burials being placed in the tomb passage. Activity then shifted to the earthen mound, probably in 2010–1965 cal. BC (68% probability). The use of the Mound of the Hostages as a communal cemetery probably ended by 1855–1790 cal. BC (68% probability). Burial 30 is an isolated individual inhumation (cluster 7) that was deposited during a temporally distinct period after a gap in burial at the site between 1700 and 1600 cal. BC (68% probability), approximately 105–225 years (68% probability) after the last previous burial. Excluding Burial 30, the core of Early Bronze Age activity extended from 2050 to 1850 cal. BC, a span of approximately 200 years.

Unlike the Middle Neolithic, the Early Bronze Age use of the Mound of the Hostages varied significantly over time. Based on the timing and intensity of use of the site, it is possible to identify three temporally distinct blocks of activity within the Early Bronze Age record. The first Early Bronze Age chronological block, which spans from c. 2050 to 1900 cal. BC, consisted of burial modes that sequentially changed through time (burial modes discussed below). The second Early Bronze Age chronological block, dating from c. 1900 to 1850 cal. BC consisted of multiple co-occurring burial modes. Finally, Burial 30, as an isolated burial, is a distinct third Early Bronze Age chronological block.
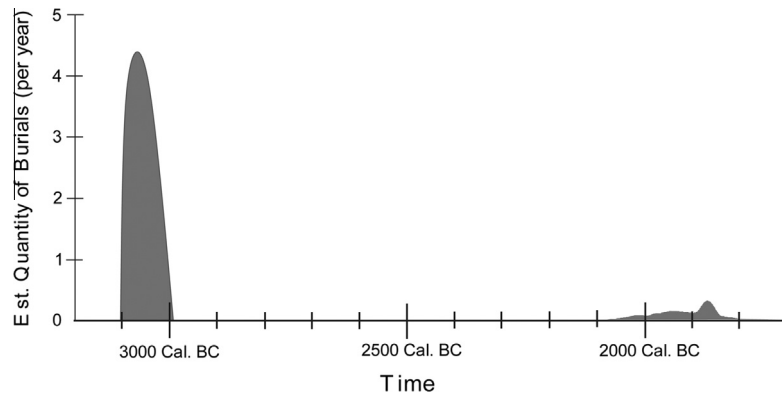
Fig. 5. Burial frequency through time at the Mound of the Hostages. The rate of burial during the Middle Neolithic was much higher, and over a shorter period of time, than during the Early Bronze Age.

Table 2
Quantity of burials per chronological block and the estimated rate of burial per year at the Mound of the Hostages.

Mortuary tradition	MNI	Years of use	Minimum deposition rate (per year)
MN	293	100	2.93
EBA 1 (2050–1900) – Burials 18, 19, 24, 25, 28, 29, 33, 43, 46, 47	16	150	0.11
EBA 2 (1900–1850) – Burials 31, 34, 35, 36, 37, 38, 39, 40, 41, 42, 44, 45	16	50	0.33
Burial 30	1	n/a	n/a

The frequency and tempo of burial at the Mound of the Hostages varied significantly over time (Fig. 5).[5] Combining identifiable adults, children, and infants, both cremated and unburnt, from tomb, cist, and perimeter burials, the remains of a minimum of 293 people (MNI)[6] were interred at the Mound of the Hostages during the Middle Neolithic. The minimum deposition rate of burials per year was 2.93 burials per year (Table 2). This number is not meant to imply that the tempo of burial rituals within the Middle Neolithic use of the site was steady throughout the period. Instead, it is used as a general proxy of intensity of burial at the site that can be compared with activity during later periods.

During the earliest Early Bronze Age activity at the site, a span of approximately 150 years, a minimum of 16 individuals were buried at the Mound of the Hostages[7] (see Table 2). The next chronological block had the same number of individuals buried, but over one-third the length of time – 50 years. The minimum deposition rate for the first Early Bronze Age period was 0.11 burials per year. The deposition rate for the second Early Bronze Age period was 0.32 burials per year, three times higher than the previous period. The last period in which Early Bronze Age mortuary activity took place consisted of one single inhumation burial.

These different blocks reflect different tempos and intensity of burial activity. They may also reflect broader transitions in social

Table 3
Age-based demographic profiles of burials at the Mound of the Hostages. Across most chronological blocks, burial is significantly biased towards adults.

Burial tradition	Number of adults	Number of infants/children	Total MNI
MN	263 (89.7%)	30 (10.3%)	293 (100%)
EBA 1	14 (87.5%)	2 (12.5%)[b]	16 (100%)
EBA 2	16 (100%)	0 (0%)	16 (100%)
Burial 30[a]	0 (0%)	1 (100%)	1 (100%)

[a] Could be adult female.
[b] Adolescents in burials with at least 2 other adults.

and ritual lifeways at the Mound of the Hostages and within the North Leinster region. The reasons for burial, and the roles of mortuary ritual at Tara in general, may have likewise changed through time. To track the significance of the temporal shifts in burial at the Mound of the Hostages, it is necessary to compare and contrast the specific mortuary practices between and within the different chronological blocks.

6. Mortuary practices at the Mound of the Hostages through time

Within each distinct chronological block, the choices made by human agents to bury deceased individuals at Tara integrated different social units, emphasized different key social identities, and contested the role mortuary rituals played within the social system. To monitor this change, I track (1) the demographics of the burials, (2) the treatment of the body, (3) grave goods, and (4) the location(s) within the Mound of the Hostages where burials were placed.

6.1. Middle Neolithic (3150–3050 cal. BC)

During the Middle Neolithic, the remains of at least 293 individuals were interred at the Mound of the Hostages. Of the remains, 89.7% of the identifiable individuals were adults (Table 3). There

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[5] Neolithic dating derived from Model 2, Fig. 9, in Bayliss and O'Sullivan (2013). Early Bronze Age dating derived from Quinn and Kuijt (2013).
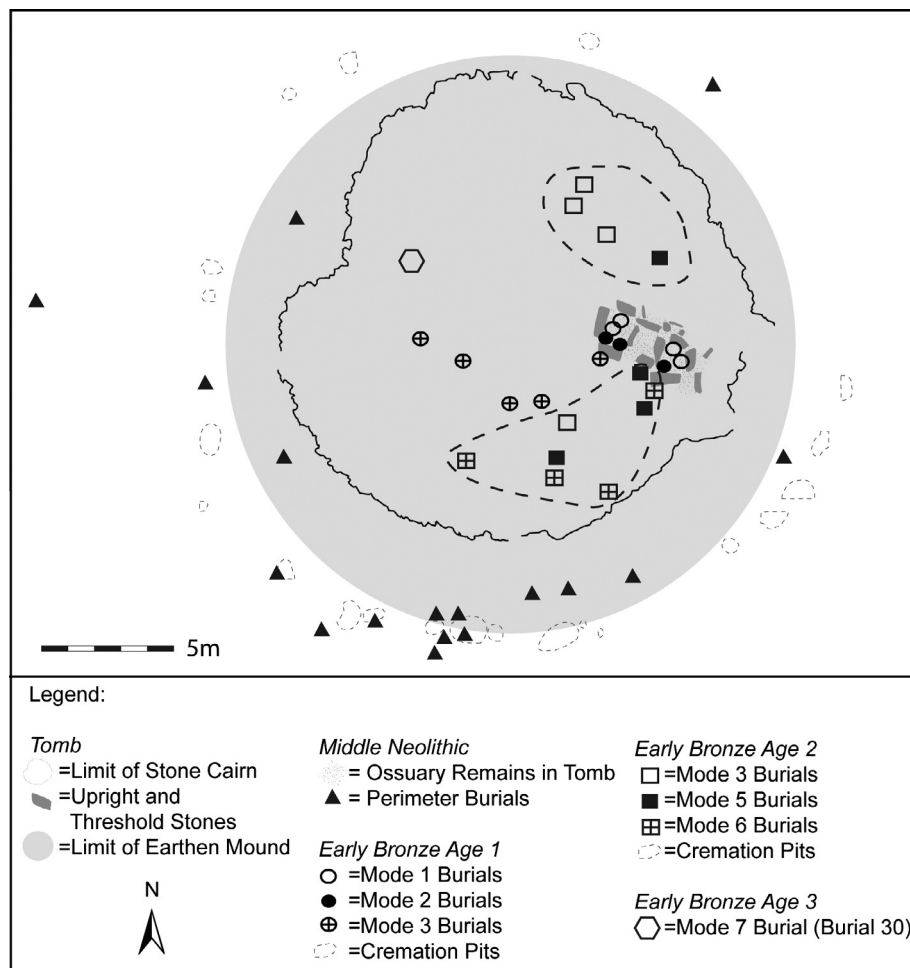
[6] Identification and counts based on the presence of right internal auditory meatus. This is the minimal number of individuals, and the true number of people represented in the remains is likely higher. The internal auditory meatus is used because of its high preservation rate and visual distinctiveness in cremation deposits. Mortuary programs that differentially treat the head (which may be the case at Tara) can affect the reliability of linking the number of skulls to the number of individuals buried. However, this is the absolute minimum number of individuals, so utilizing this proxy does not affect the patterning observed here. More detailed osteological analyses on the Mound of the Hostages collection is needed to generate more accurate minimum number of individual estimates, and to test whether the IAM proxy is accurate, or significantly underrepresenting the number of individuals buried at the site.

[7] In contrast to the ossuary deposits in the Middle Neolithic where there may be many more people represented than the MNI, the estimated number of individuals buried in the Early Bronze Age is not likely to increase drastically due to the bounded and small quantity of bone within the deposits.

Table 4
Grave goods for all burials within each chronological block at the Mound of the Hostages.

Burial tradition	Personal adornment items	Polished stone axes	Chipped stone	Worked bone/ antler	Ceramic pots	Bronze objects	Pumice
MN	277	3	35	46	3	0	0
EBA 1	64	0	1	0	17	1	0
EBA 2	0	1	5	5	12	4	1
Burial 30	17	0	0	0	0	2	0

Fig. 6. Map of the Mound of the Hostages with locations of Middle Neolithic and Early Bronze Age activity. Neolithic activity was focused on burial in the tomb chamber and perimeter pits, while the Early Bronze Age had burial in the tomb chamber and the earthen mound. Also note the presence of Early Bronze Age pyre locations from the Early Bronze Age at the margins of the tomb; Neolithic cremation appears to have occurred off-site.

was a large amount of diversity in the treatment of the body during the Middle Neolithic. While cremation was the dominant mortuary rite (81.9% of identifiable individuals), there was a significant amount of unburnt bone (primarily unburnt skulls and bones of infants/children). There is no evidence of pyres in the immediate vicinity of the mound, suggesting that bodies were cremated at some unknown distance from the mound. Grave goods, some of which were burnt, are primarily personal items such as pins, balls, and beads (Table 4). There were multiple spatially discrete contexts for burial during the Middle Neolithic at the Mound of the Hostages, including three chambers, multiple cists, and all around the cairn (Fig. 6).

6.2. Early Bronze Age 1 (2050–1900 cal. BC)

Approximately 16 individuals were buried at the Mound of the Hostages during the initial period of reuse of the Neolithic tomb during the Early Bronze Age (see Table 2). Of the remains, 87.5% of the identifiable individuals were adults (and the two adolescents identified were interred with adults – there were no single isolated adolescent burials) (see Table 3). Within this initial phase, there were three distinct burial modes that are ordered sequentially in time (Fig. 7). The first burials were inhumations within the tomb[8] (see Fig. 6). Next, the burial mode shifted exclusively to cremations placed within the tomb. In the third mode the burials continued to be exclusively cremations, but their placement shifted to burial at the top of the mound. O'Sullivan (2005) argues that the tomb chamber was full at this time.

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[8] There is evidence of cremations during the earliest Early Bronze Age reuse of the passage tomb chamber (Sample 51, GrA-17719, 3760 ± 50 – cremated bone). Given the nature of the cremated deposits, it is possible there is more cremated bone from the Early Bronze Age that has been mixed with Neolithic deposits – only a much more rigorous dating strategy can resolve this issue.
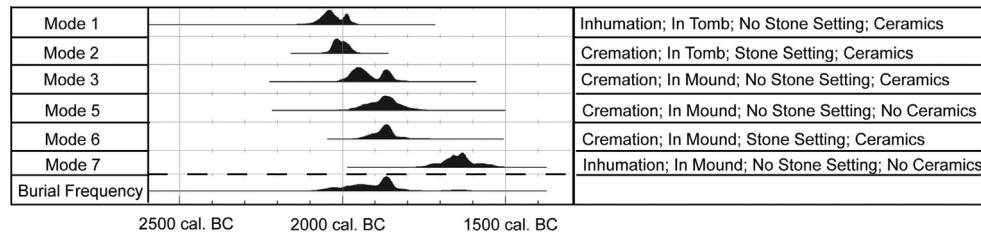
Fig. 7. Burial frequency and burial treatment variability at Mound of the Hostages during the Early Bronze Age. Note the sequential development of burial treatments in the early period of the Early Bronze Age, and the simultaneous overlap of multiple burial treatments in the later period of the Early Bronze Age.

Twenty-one pits containing charcoal and cremated bone fragments encircle the mound. One of the four pits that have been dated produced a date (GrA-17523) associated with this burial tradition (see Fig. 197 in O'Sullivan, 2005). It is possible that cremation took place in the pits in the immediate vicinity of the mound. Ceramics were the most common grave good throughout the period (see Table 4). In addition to ceramics, only the first mode had other associated grave goods which included v-perforated buttons, a variety of beads, a chert flake, and a bronze awl. No other grave goods were associated with the two later modes.

6.3. Early Bronze Age 2 (1900–1850 cal. BC)

Approximately 16 individuals were buried at the Mound of the Hostages during the period between 1900 and 1850 cal. BC. All of the identifiable individuals were adults (see Table 3). Like the previous phase, this mortuary tradition had three burial modes. Unlike the previous phase, however, burials from the three modes in this phase were deposited contemporaneously (see Fig. 7). Burials continued to be placed in the mound, moving farther down the sides in multiple directions towards the southeast and northeast quadrants of the mound (see Fig. 6). Within the mound, two spatially distinct clusters of burials appeared during this period; one in the northeast quadrant and the other in the southeast quadrant (see Fig. 6).

Three out of the four perimeter pits that were likely pyre locations have been dated to this chronological block (GrN-26061; GrN-26060; GrN-26063). Ceramics were again the most common grave goods interred with the burials (see Table 4). Unlike the preceding mortuary tradition, there was a range of grave goods, most of which are non-adornment items, including three bronze daggers (burnt) and other bronze fragments, several stone pebbles and flakes, a pumice stone, and a fragmented and a groundstone battle-axe head (burnt).

6.4. Burial 30

In addition to being temporally separate from all the other burials (see Fig. 7 and Table 2), Burial 30 had a unique combination of body treatment, grave goods, and spatial location. The individual buried has been identified as an adolescent male (O'Sullivan, 2005), although alternatively the individual may have been an adult female (Sheridan et al., 2013) (see Table 3). The burial is an extended inhumation. It has the richest set of grave goods of any burial in the Mound of the Hostages, including a bronze razor, bronze awl, and beads made of bronze, amber, bone, jet, and faience (see Table 4). The burial is the only one located in the northwest quadrant of the mound (see Fig. 6).

7. Building a demographic model at Tara

In order to interpret the larger social significance of the development of the Mound of the Hostages multi-component cemetery, it is necessary to consider who was allowed to be buried at Tara

and why. To do that, we can use population modeling to consider the rules of access to mortuary practices and the characteristics of the overall population from which selected individuals were chosen for burial in the Mound of the Hostages.

The mortuary record at Tara contains several lines of evidence that facilitate modeling of the living population that used the Mound of the Hostages as a cemetery throughout the Middle Neolithic and Early Bronze Age.[9] First, as shown earlier, we know that burial was normally reserved for adults. Second, we know the duration of the different chronological blocks (Middle Neolithic = 100 years, Early Bronze Age 1 = 150 years, Early Bronze Age 2 = 50 years). Third, we know the minimum number of adults buried at the site during each of these blocks (Middle Neolithic = 263, Early Bronze Age 1 = 14, Early Bronze Age 2 = 16).

In addition to the record at Tara, other variables can be estimated based on additional demographic work. Assuming a stable population size and a mean nuclear family size of 4.0, the proportion of the living population under 15 was 41.8% (Weiss, 1973). This can be used to correct for the number of subadults who were not normally eligible for burial at Tara. Based on estimates of prehistoric mortality rates comparable with the social context of Middle Neolithic and Early Bronze Age Ireland, and demographic models derived from the Weiss table 25:50 (Weiss, 1973), life expectancy at birth was 21.5 years. Life expectancy at age 15 was 25 years.

To estimate the source population, I have built a model based on Acsádi and Nemeskéri (1970). The model is:

Source population (*at a particular % of the adults being buried*)

$$= \left(\left[\frac{(\text{Life expectancy at age } 15) * (\text{Adult dead})}{(\text{Duration of deposition})} \right] + \text{Duration of deposition} * 0.1 \right) * (\text{Corrective factor for subadults})$$

Starting with the archaeologically known variables of number of dead adults (number of burials) and duration of deposition, the model varies the percent of adults within the living population being buried at the Mound of the Hostages (a way of determining the restrictiveness of access to burial). The model uses the number of adult dead, duration, life expectancy at age 15, and a corrective factor of 1.418 to account for missing subadults to estimate the size of the source population that would have produced the number of burials found based on the given restrictiveness of burial.

This model has two variables that are currently unknown for Tara: (1) the size of the source population and (2) the percentage of source population that was buried. These variables are co-variable; the number of burials is the direct product of the size of the population and the percentage of the population that was buried (Fig. 8). Future work on the settlement system in North Leinster could address the size of the source population. For now, the lack of this research in the region would require highly speculative population estimates. Instead of picking specific solutions to the

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[9] Demographic modeling was not performed for Burial 30 as it is a singular burial.
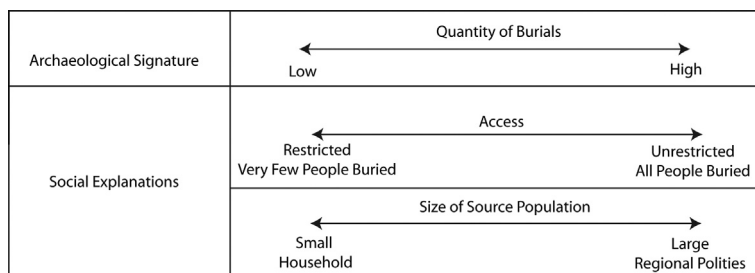
Fig. 8. Schematic of relationship between social processes and the number of burials in the mortuary record.
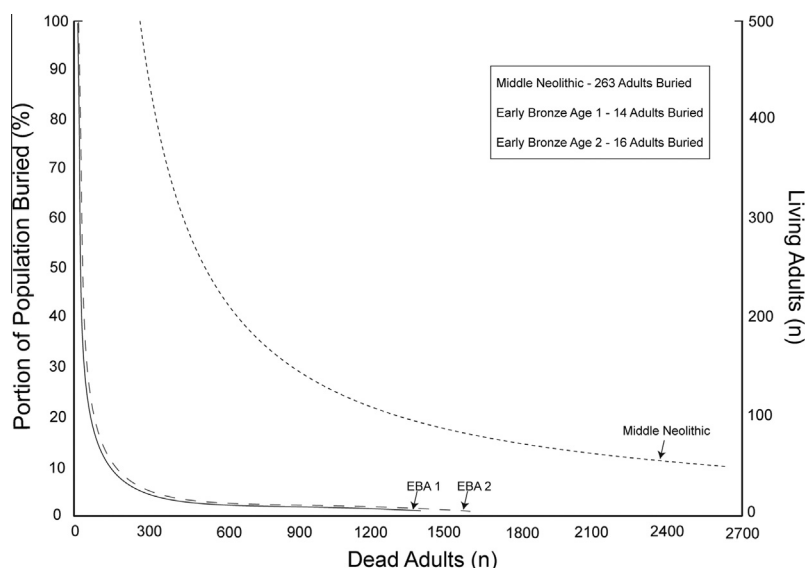
Fig. 9. The model of source population size and the restrictiveness of burial given the number of adults found at Mound of the Hostages for each time period. Solutions will vary depending on the duration of cemetery use as well as these variables. For a range of modeled solutions for each period, please see Table 5.

demographic model, I model all possible solutions (from all adults having access to burial to 1% of adults having such access) and compare them with general knowledge of the mortuary record at Tara and feasibility in prehistoric contexts. Such an analysis will allow for a best fit, albeit tentative, explanation for the data.

The range of all possible solutions for the three different chronological periods is presented in Fig. 9, and several specific solutions to the model are presented in Table 5. It is clear that there are significant differences in the source population and restrictiveness of burial between the Middle Neolithic and the Early Bronze Age. In particular, the Middle Neolithic population is consistently and significantly larger and burial is less restrictive for any given solution to the model. Additionally, the different curves have different inflection points: the Middle Neolithic's inflection is more diffuse over a range of solutions; the Early Bronze Age inflections are much more pronounced. This shape suggests that the Early Bronze Age source population is likely to either have been extremely small with limited restrictions or large with extremely strong restrictions on burial, while the Middle Neolithic source population has a wider range of likely solutions. There is a smaller yet still important distinction between the first and second chronological blocks in the Early Bronze Age.

8. Discussion

8.1. Reconstructing social structure and mortuary rules

Comparing the range of possible solutions of the demographic model (Fig. 9 and Table 5) to what we know about the archaeology of Tara and the structure of prehistoric communities, it is possible to narrow the range of probable solutions to the model. The goal is not to provide specific numbers for access and source population size, but to compare the range of their variable combinations through time at the Mound of the Hostages.

The Middle Neolithic predicted source population ranges from just over 100 people (if 100% of the population was buried) to almost 2000 people (if only 5% of the population was buried). At the less restrictive end, the estimates of over 100 people are feasible if multiple farming hamlets used Tara as a cemetery. The more restrictive end, however, produces estimated source populations that are much larger than likely could have been supported with Neolithic subsistence practices. Additionally, with 52 other known passage tombs in County Meath, the regional population size would be astronomical if only 1% of Neolithic adults were buried in passage tombs. It appears that in the absence of more data, the community using Tara during the Middle Neolithic, can most likely be characterized as a local community (a few hamlets) where a significant portion (perhaps from over 75%) of all adults were buried. More complete archaeological evidence from household and settlement contexts could refine these patterns.

In contrast, there was a massive change in the Early Bronze Age. The population models for the first phase of the Early Bronze Age at the Mound of the Hostages range from 25 people (if 100% of the adults were buried) to 87 people (if 5% of the adults were buried). These numbers would generate extremely low regional population sizes if all adults were buried, particularly because Tara has significantly more burials than the 22 other Early Bronze Age cemeteries in County Meath. Such a configuration, though possible based on

Table 5
A range of possible outcomes for the demographic model (see Fig. 9), with the most likely scenario marked. In the Middle Neolithic, a majority of a local community were buried. In the early part of the Early Bronze Age, burial was much more restrictive but still conducted by a local community. In the later part of the Early Bronze Age, burial continued to be restrictive, but was now conducted by a larger multi-community group.

Burial tradition	Model	Adult dead	Duration	Living adults	Total population	Most likely model
Middle Neolithic	If 100% were buried	263	100	(76)	(107)	X
	If 75% were buried	(351)	100	(98)	(139)	
	If 50% were buried	(526)	100	(142)	(201)	
	If 25% were buried	(1052)	100	(273)	(387)	
	If 10% were buried	(2630)	100	(668)	(947)	
	If 5% were buried	(5260)	100	(1325)	(1879)	
Early Bronze Age 1	If 100% were buried	14	150	(17)	(25)	
	If 75% were buried	(19)	150	(18)	(26)	
	If 50% were buried	(28)	150	(20)	(28)	
	If 25% were buried	(56)	150	(24)	(35)	
	If 10% were buried	(140)	150	(38)	(54)	
	If 5% were buried	(280)	150	(62)	(87)	X
Early Bronze Age 2	If 100% were buried	16	50	(13)	(18)	
	If 75% were buried	(21)	50	(16)	(22)	
	If 50% were buried	(32)	50	(21)	(30)	
	If 25% were buried	(64)	50	(37)	(52)	
	If 10% were buried	(160)	50	(85)	(121)	
	If 5% were buried	(320)	50	(165)	(234)	X

( ) = Estimated.

the demographic model, is not very probable. Instead, it is more likely that burial was much more restricted than the previous period. Lowering the percentage of adults buried puts it more in the range of a few hamlets within the local area. So, even though there was a massive shift in the number of burials between the Middle Neolithic and the first phase of Early Bronze Age activity, the differences in this quantity appears to be the result of a shift in the rules governing who was eligible for burial and not a shift in the scale of the source population. In both cases it appears that Tara was used by a local community. In the first phase of the Early Bronze Age, however, only a small segment of adults were eligible for burial. Given the richness of grave goods at Tara, it is likely that a key social identity related to high status was linked to burial events.

Things changed once again during the brief second phase of Early Bronze Age activity at the Mound of the Hostages. The population models for the second phase of Early Bronze Age range from 18 people (if 100% of adults were buried) to 234 (if 5% of the adults were buried). Like the first phase of the Early Bronze Age, the data suggest that it is unlikely that most of the adults were eligible for burial. At the lower end, however, the source population sizes are more than two times larger than the preceding phase. I suggest then that the spike in burial at Tara that occurred during this phase was not due to a relaxation of burial restrictions. The richness of the graves, which included stone maceheads and bronze daggers (so-called "prestige goods"), suggests that burial did not open up to lower status individuals. If rules of restriction and eligibility for burial remained relatively constant, then it appears that more than one social unit was using Tara as a burial ground. This interpretation is supported by the spatial clustering of burials and the diversity of burial modes at the Mound of the Hostages. Because mortuary rituals are integrative, it is possible that the mortuary rituals at Tara integrated multiple communities into a larger-scale social configuration.

8.2. The politics of returning and reusing and the changing roles of ritual at Tara

Bringing together the multiple lines of evidence presented above, including chronological information, traditional mortuary and osteological analyses, regional comparison, and demographic modeling, it is possible to reconstruct a history of mortuary activity at the Mound of the Hostages that intersects specific human

actions with the social organizations of Middle Neolithic and Early Bronze Age Tara. The links between ritual activity, integration, and scales of social organization have been persuasively demonstrated in the past within anthropology and anthropological archaeology (Alder, 2002; Bernardini, 2004; Case and Carr, 2008; DeBoer and Blitz, 1991; Dillehay, 1990; Goldman, 1975; Howey, 2012; Johnson, 1982; Renfrew, 2001). The trajectories at Tara show both: (1) variable archaeological signatures of ritual organization associated with similar scales of social organization; and (2) changes in the scales of society integrated with ritual activity.

During the Middle Neolithic, Tara served as a ritual aggregation location for the deposition of the dead from a single local community. For approximately 100 years, the community that used the Mound of the Hostages returned to this place to perform mortuary rituals, and probably engaged in a wide range of social interactions. Burial was reserved primarily for adults, though only a subset of eligible adults were actually buried at Tara. The combination of cremation, ossuary deposition, burial within a cemetery, and unassociated grave goods and human remains suggests that mortuary ritual at Tara integrated the participant community. This integrated group participated in the establishment and perpetuation of a communal identity, negotiated in both living and dead arenas that likely downplayed, but did not obliterate other scales of identity (such as individual identity) (see Alder, 2002; Kuijt, 1996). The diversity in the treatment of remains and the multiplicity of contexts (such as perimeter pits, cists, and the tomb itself) suggests that the mortuary rituals were diverse. The monumental construction, open tomb, and communal cemetery suggest that the returning for mortuary rituals at Tara was an important and frequent occurrence for the residents of Middle Neolithic communities, for at least five generations. The reasons for returning may not have been a conscious choice for all of the participants, but in so doing they affirmed membership, belonging, and bonding in a larger social unit.

At the end of the Middle Neolithic, people ceased returning to bury their dead there, instead adopting new burial practices that took them away from Tara. The Mound of the Hostages, sitting on a visually prominent location, lay unused as a burial site for nearly 1000 years.

The site was reused during the Early Bronze Age. The reuse of the Mound of the Hostages during the Early Bronze Age brought with it a different set of peoples, rituals, identities, and reasons

for burial. Most importantly however, the size of the community using the cemetery was the same. At the same time, the Early Bronze Age use was much more restricted since many fewer people were eligible for burial. This limited access suggests that burial at the Mound of the Hostages was restricted to key individuals within the local community between 2050 and 1900 cal. BC.

Multiple lines of evidence support this interpretation. First, the rate of interment was significantly slower in the Early Bronze Age than during the Middle Neolithic. Second, burial was more focused on discrete contexts than on communal deposition (a phenomenon that has long been identified in the archaeological record of Ireland and Britain) (Renfrew, 1974; Shennan, 1982). Third, demographic modeling suggests that the source population was less than one-fifth the size of the population for the Middle Neolithic. This may correspond to household leaders in the local community. The richness of the grave goods throughout the Early Bronze Age suggests that the restricted access to the cemetery was likely reserved for high status individuals. Even among this more restrictive group, only a small portion of the eligible adults were actually buried at the site. As a result, mortuary rituals would have been very infrequent events. Such a pattern may suggest a different role for mortuary rituals during the first part of the Early Bronze Age. Rather than being a context for integrating and promoting intra-group cohesion through both burial and other simultaneously occurring social interactions, the Early Bronze Age rituals served to mark, define, and even contest a degree of differential treatment among all adults. This type of differential treatment in access to burial is often a key aspect of creating and maintaining social inequality within groups.

The change in burial custom observed throughout the first 150 years of the Early Bronze Age is akin to what Landvatter (2013) calls "representational change", in which the social identities remain the same but the way they are materialized varies. The restricted access meant that the process of returning for each burial was infrequent. It also meant that the particulars of participation, identity formation, and social relationship negotiation associated with times of aggregation for mortuary rituals was structurally different than that experienced during the Middle Neolithic.

A dramatic shift in mortuary activity at the site began around 1900 cal. BC. The Mound of the Hostages no longer served as the cemetery for one Early Bronze Age community. Instead, multiple communities came together to inter their dead at Tara. The increase in frequency of burials, the two spatially discrete clusters of burials within the mound, the multiple modes of burial treatment, and the demographic modeling that suggests that the source population doubled from the pre-1900 cal. BC use of the site all combine to suggest that the role of ritual at Tara had shifted. Burial was still highly restricted, but burials became much more common events over the next few decades. The multiple communities who used Tara were integrated together, even more so if mortuary rituals performed by different communities co-occurred (something beyond the current resolution of the chronological dates to determine). Concurrent distinct burial treatments suggest that these communities maintained rather than obscured their distinct communal identities, although the grave goods that have been preserved do not suggest a stylistic marking of difference. The process of returning had taken on a new role. By integrating multiple communities, it became the primary venue for creating and maintaining a regional social integration at a scale not previously seen in the Early Bronze Age.

After this brief period during which multiple communities used the Mound of the Hostages as a cemetery, the site was abandoned as a cemetery. After at least a century, one more individual was buried at Tara: the so-called "Tara Boy" (Burial 30) (see Sheridan et al., 2013). The grave goods, body treatment, and location within

the mound suggest no direct continuity in tradition between this burial and earlier Early Bronze Age activity.

The decisions that led to the next reuse of the mound as a burial location for Burial 30 were different than those made to reuse the mound at the start of the Early Bronze Age. Rather than repurposing the site as a communal cemetery, Burial 30 was placed in the mound as a single, isolated deposition.

8.3. The rise and fall of Tara as a regional mortuary center

The regional trajectory for Tara follows an interesting path. During the Middle Neolithic, the Mound of the Hostages was a significant, yet unimpressive mortuary monument (particularly compared with the megatombs and tomb cemeteries in the Boyne Valley, Fourknocks, and Loughcrew). It appears that any centralization of ritual authority in the region that may have existed during the Middle Neolithic was not based at Tara. The first block of activity during the Early Bronze Age also seems to be less than spectacular. Several other cemeteries in North Leinster would have been of a similar size to that at Tara. Significant social differences are documented, but these appear to have played out at a local, rather than regional, scale.

Things also changed around 1900 cal. BC. No other known cemeteries in the region were as intensively used as the Mound of the Hostages during this period. Indeed, the number of burials and the richness of the grave goods are unique within all of Ireland during the Early Bronze Age. This unmatched and brief period of mortuary activity suggests that something significant was happening at Tara at this time, transforming it from one of many elite burial sites to the key site in the region. The evidence suggests that the prominence of Tara changed dramatically from the Middle Neolithic, when it was a typical cemetery, to the second phase of activity in the Early Bronze Age, when it was an exceptional cemetery.

The purpose for the integration of multiple communities between 1900 and 1850 cal. BC at Tara is as yet unknown, though multiple reasons can be explored at this time. It is possible that groups aggregated, creating and maintaining a collective identity, as a risk minimization strategy in response to environmental or social pressures. The lack of other sites, communities, or regions engaging in similar risk minimization strategies at a similar scale suggests that this is not very likely, but more fine-grained environmental and regional residential data are needed to evaluate them.

It is also possible that access to Tara, and potentially to the Neolithic ancestors in the Mound of the Hostages, was being contested by multiple groups. While this is possible, it begs the question of why Tara became the source of such conflict, when other areas such as the Boyne Valley had far more and larger scale Neolithic ancestor tombs.

A more likely reason for the integration of multiple communities at Tara may have been that they were drawn together, either coercively or by incentive, into a regionally centralized social or political form. Regional centralizations are commonly associated with chiefdom-level political organization, however regional centers can develop without chiefly institutions (Quinn and Barrier, 2014). After fewer than 50 years, mortuary rituals ceased. The exact reasons for the increase in activity at Tara between 1900 and 1850 cal. BC were embedded within a real historical past with historical persons, events, and processes all shaping the archaeological record we see today.

The lag between the Early Bronze Age reuse of the cemetery and Tara's emergence as a regional mortuary center is evidence that monument reuse cannot fully explain the phenomenon. Instead, the mortuary politics among Early Bronze Age communities were "modern day" issues that may have had no relation to the fact that the Mound of the Hostages was originally a Neolithic tomb.

Then why did this regional centralization happen at Tara? If its association with a Neolithic tomb had no bearing on its selection as the place for a multi-community regionally integrative cemetery for local elites, then it is possible that it was due to a specific coercive or persuasive leader who argued for these events to take place at Tara. The longevity and size of the Early Bronze Age cemetery prior to the 1900 pulse may speak to the success of the local community around Tara and its leaders.

If the Mound of the Hostages' origins as a Neolithic tomb did matter, then it was only partially. As noted above, the primary reasons for reusing monuments is as a means of legitimizing authority, marking territory, or intervening with the ancestors. It might be surprising that the very large passage tombs of the Boyne Valley were not reused as cemeteries, though they were the loci of Early Bronze Age ritual activity as seen at Newgrange (e.g., Sweetman et al., 1985). However, ancestors are not always benevolent beings (Tilley, 1996; Whitley, 2002), and it is possible the sheer scale meant the 'ancestors' materialized in these mega-passage tombs were more dangerous than good. Perhaps the smaller tombs that were reused in the Early Bronze Age, such as Tara, Fourknocks, and Loughcrew, provided the right balance of 'controllable' ancestors.

8.4. Cemetery abandonment and transformation

Equally important as considerations of the changes in the reasons for returning to and reuse of mortuary spaces is the end of returning: the abandonment and transformation of the cemetery. At the Mound of the Hostages, there were three separate instances when people chose to stop returning to bury the dead: at the end of the Middle Neolithic, ca. 3050 cal. BC.; in ca. 1850 cal. BC; and immediately after Burial 30, ca.1700 cal. BC. But what is the significance of the abandonment of burial? One of three things likely happened: (1) Tara was replaced by another location for burial by the same community that had been using Tara as a cemetery; (2) burial and mortuary rituals in general were no longer appropriate or socially significant contexts; or (3) the social units that had been using Tara as a cemetery no longer existed. While regional mortuary evidence and evidence from residential contexts are needed to evaluate these options, general trends are identifiable.

The brevity of the multi-community cemetery phase of the Mound of the Hostages speaks to a failed strategy of regional centralization. A pulse in regional centralization can be expected when particular individuals or groups of elite individuals, through charisma or force, use ritual performance to create new social relationships and identities, yet fail to successfully institutionalize them across other social, political, and economic institutions. The lack of inter-generational institutionalization of these new relationships would have resulted in their dissolution after the death or collapse of the elite leaders. The lack of a reorganization of settlement or the economy (as we currently understand), suggests that this new regionally integrated communal identity was not supported by the political economy that we normally associate with the development of regional polities. In effect, this pulse of regional centralization represents an ultimately failed form of regional political organization based on restrictiveness and inequality.

For the Middle Neolithic, with many other tombs in the landscape, including the larger tomb cemeteries of the Boyne Valley, Loughcrew, and Fourknocks, it is possible that the community that had been burying their dead in the Mound of the Hostages changed where they buried their dead for reasons we cannot determine. In the Early Bronze Age, after the period of intense use, it is likely that the short-lived multi-community collective broke down, which precipitated the abandonment of Tara. The single burial at the end of the Early Bronze Age is difficult to assign to one of these options because it is isolated. However, its placement in a

previously unused quadrant in the mound, its non-local grave goods, may suggest the individual was considered 'other', and the burial was not a sign of respect. In the Southeast U.S., later isolated burials in abandoned shell mounds have been suggested to be burials of 'dangerous individuals', or shamans, to control the ancients, distance the powerful dead from the living community (Thomas et al., 1977). If Burial 30 is similar, it would suggest that by 1750 BC, Early Bronze Age communities were distinctly avoiding Tara, fearful of the place, which perhaps was a sign of a social memory of a catastrophic or otherwise unfortunate end of the community using the Early Bronze Age cemetery before it was abandoned.

There was a decreased emphasis on mortuary contexts throughout the rest of the Bronze Age. Instead, ritual activity in the Later Bronze Age became focused on hoards (Eogan, 1983) and stone circles (Grove, 2010, 2011). Whatever the specific reasons, the abandonment of the Mound of the Hostages as a cemetery is equally informative for the role of mortuary politics as the processes that led to the formation of the cemetery in the first place.

9. Conclusion

The patterns at Tara have broad significance for research on multi-component cemeteries and monument reuse. Tara's emergence as a regional mortuary center, which only occurred after 150 years of use as an Early Bronze Age cemetery, cannot be solely attributed to the fact it is a multi-component cemetery associated with a Neolithic tomb. This ultimately failed regional centralization is more likely a product of historically contingent processes, new events, and different people, rather than a product of Tara's association with Neolithic ancestors. The historically specific mechanisms for the emergence of Tara around 1900 cal. BC remain unknown, but this research has shown that it must be problematized as part of Early Bronze Age mortuary politics.

The roles the Mound of the Hostages served were marked by dramatic changes in the exclusivity of this burial ground, the size of social units it integrated, and its prominence within the North Leinster region. These shifts in mortuary rituals are not consistent with traditional archaeological periods, and our ability to discern these shifts has been aided by new dating efforts that allowed us to create a refined chronology with units of short duration. Given the chronological resolution of prehistoric periods around the world, it is likely that similar types of analyses can shed light on cemetery development and corresponding anthropological issues in many other prehistoric contexts.

This case highlights the transformative role mortuary rituals can play in bringing about social change. As distinct events, separate from daily practice, funerals are ideal contexts in which social identities and institutions can be mediated and manipulated. The emergence of Tara as a regional ritual center, and its subsequent abandonment, underscore the dynamic social processes associated with the peaks and valleys of social complexity.

Returning and reuse provide challenges but enormous interpretive potential. The most significant impediment to nuanced consideration of the development of cemeteries is a lack of fine-grained chronologies. Without a detailed chronology, the historical trajectory of a short-lived and ultimately unsuccessful centralization at Tara could not be detected. It is necessary for any anthropological treatment of cemeteries to account for synchronic and diachronic development in cemeteries in order to link material patterns to meaningful social action in the past.

Acknowledgments

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