

Materialising Descent: Lineage Formation and Transformation in Early Neolithic Southern Britain

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This paper builds on the recent aDNA results from Hazleton North chambered tomb to explore how people might have repeatedly negotiated kinship, descent, and affinity in Early Neolithic southern Britain. Hazleton North was constructed around 3700 cal BC, was in use for less than a century, and – unlike many other Cotswold-Severn tombs – was never modified to alter the arrangement of chambers. The aDNA analysis from 35 individuals whose remains were deposited at the site revealed that 27 were biologically related and represented five sequential generations. Here we explore changing practices across those generations. We argue that Hazleton North was constructed to demonstrate the vitality of a lineage at a specific moment in time while choices about who to entomb indicate an inclusive expansion of the lineage in the first two generations which is not evident during the remaining generations. We argue that by the third generation lineage members increasingly chose to dispose of the remains of their dead elsewhere. Hazleton North was built in a landscape rich in earlier tombs, many of which were modified to produce long cairns with multiple chambers: some of those formed opposed pairs similar to the chambered areas at Hazleton North. We argue this was part of a growing trend in ‘kinship work’ which accentuated lineal descent and sub-lineage distinctions in the centuries around 3700 cal BC. However, deposition at Hazleton North was short-lived. This can be set in the local context of not only the construction and use of further chambered tombs but also increasing investment in larger corporate projects like causewayed enclosures. These enclosures formed new arenas where negotiations of descent and community were played out with increased intensity and in different ways to activities at chambered tombs. Overall, we argue that kinship, affiliation, and belonging were repeatedly renegotiated among the monument building communities of Early Neolithic southern Britain.

Keywords: kinship, chambered tombs, aDNA, Neolithic mortuary practice

In the last decade, the analysis of ancient DNA from European Neolithic samples has radically enhanced our understanding of this period, bringing new interpretative challenges and opportunities (see Hofmann 2015; Furrhult 2021; Kristiansen 2022; Whittle *et al.* 2022c). At the large scale, aDNA analysis has established that the transition to the Neolithic in Britain involved a significant influx of people from Mainland Europe (Olalde *et al.* 2018; Brace *et al.* 2019; Cummings *et al.* 2022; Thomas 2022). These results have repercussions for the

interpretation of the Early Neolithic sequence in Britain, suggesting that many early mortuary monuments were produced by people most of whose recent ancestors were migrants from the Continent. However, aDNA results also provide details about finer-grained aspects of people’s lives, for instance, by detecting close biological relatives either buried at the same site or at similar kinds of site some distance apart (Sánchez-Quinto *et al.* 2019; Cassidy *et al.* 2020; Rivollat *et al.* 2022). One example of this is the recent analysis of the aDNA of 35 individuals from the chambered tomb at Hazleton North, Gloucestershire (Fowler *et al.* 2022). The contextualised genetic results have been interpreted as indicating that the tomb was built and used by a group which traced patrilineal descent and was subdivided into at least two

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branches according to descent from one of four first-generation women. In this article we return to those results as a starting point to explore changes in strategies for kinship formation at Hazleton North over time, and set the foundation, use, and cessation of deposition at the tomb in a wider regional context.

Hazleton North chambered tomb is part of the Cotswold-Severn monumental tradition stretching from southern Wales to the west to Oxfordshire in the east (Darvill 2004; Britnell & Whittle 2022). There is considerable diversity in monumental form in this group, and while they all contain one or more chambers enclosed within a mound or cairn, the number of chambers varies considerably as does their location within the encasing mound (Fig. 1). Some monuments have one or more chambers on the lateral axis of the cairn, while others have chambers at the terminal end (Darvill 2004). Excavated examples have often produced considerable amounts of well-preserved human remains and have been interpreted as places for the establishment of Early Neolithic segmentary lineages (Fleming 1972), territorial markers (Renfrew 1973), or for the burial of successive family members (eg, Thomas & Whittle 1986). Recently, one of us has argued that much of the variation in Early Neolithic tomb architecture was bound up with different ways of negotiating kinship, descent, and affinity (Fowler 2022). In this view, many chambered tombs in Britain and Ireland were constructed in celebration and anticipation of lines of descent, projecting descent into the future through architectural form. This included chambered tombs with opposed and separate pairs of chambers such as Hazleton North and Ascott-under-Wychwood (Fig. 1), from which an internal division or duality within the community was inferred. In contrast, at sites like West Kennet, which has a terminal passage with chambers branching off to either side, the architecture may indicate a more unified kin group or community, although pairs of chambers again suggest some internal subdivisions. Following Powell's (2005) interpretation of portal dolmens, Fowler (2022) suggested that single-celled tombs accentuated unity among the community building and using the tomb, although duality could also be conveyed in other ways at such sites, such as through the use of contrasting rock types, colours, or textures. In the Cotswolds, some single-celled structures appear early in the sequence of tomb construction, as evidenced by their later incorporation in long cairns. This modification of an existing tomb may indicate

new claims of kinship with the remains enveloped by such construction, as well as an increasing desire to subdivide the remains of the dead brought together at the tomb overall. Moreover, the expression of kin relations may not always have been realised within a single monument but in pairs or clusters of monuments found in the landscape, or indeed in relation to other Early Neolithic structures such as houses. In sum, it was argued that 'Neolithic kinship can be appreciated as an active process in which the remains of the dead and the structure of a tomb formed ongoing media for the repeated renegotiation of kin relations' (Fowler 2022, 83). To put it another way, the construction and modification of Early Neolithic tombs, and the deposition and manipulation of the remains of the dead within them can be seen as a kind of 'kinship work' (cf. Johnston 2020, 15–18).

The aim of this current article is to extend and refine these ideas in combination with further inferences based on the recent study of kinship at Hazleton North (Fowler *et al.* 2022) to explore the development of kinship at different scales in Early Neolithic southern Britain. We explore the changing demography of those entombed at the site and the implications of this for understanding when the tomb was built and by whom, how the lineage was formed and grew, and how and when it declined, dissipated, or shifted its focus elsewhere in the landscape. Setting Hazleton North alongside contemporaneous and slightly later monuments in the wider area, we argue that lineal descent was a key concept in the formation and transformation of kinship in Early Neolithic southern Britain – though not the only one. This analysis considers not only kinship practices at tombs in the region but also the implications of the construction of causewayed enclosures, which probably began in the region during the mid-37th century cal BC and therefore overlapped with the use of chambered tombs such as Hazleton North. These enclosures formed a different arena for the negotiation of relationships within the community, potentially shifting attention away from lineage formation or acting as a place for interaction between, as well as within, lineages. Since kinship is materialised through practical engagement with the world, we suggest tombs such as Hazleton North were each a materialisation of lineage (though not necessarily at the point of foundation of that lineage; cf. Ray & Thomas 2018), while the short currency of use at Hazleton North suggests that its efficacy was temporary. Indeed, Hazleton North is not the only tomb in

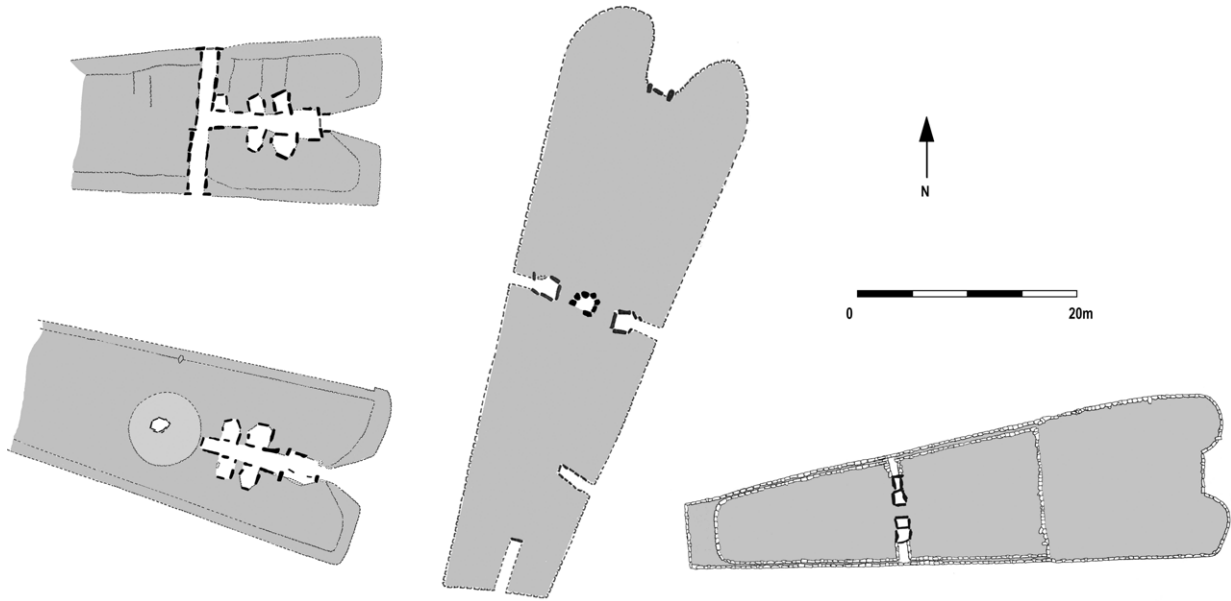


Fig. 1.

Site plans showing the diversity of Cotswold-Severn chambered tombs in the vicinity of Hazleton North: top left: Burn Ground; bottom left: Notgrove; middle: Belas Knap; right: Ascott-Under-Wychwood (after Corcoran 1969; Benson & Whittle 2006)

southern Britain with a short use-life (Bayliss & Whittle 2007), and we draw two inferences from this. First, we argue that the construction of a new tomb in the 38th and 37th centuries cal BC was an important project in demonstrating the vitality of a lineage, and something that lineage leaders might attempt to do in the space of only a few generations since their predecessors last built a tomb. In some cases this might have coincided with shifting residence patterns, including moving into a new area (cf. Thomas 2022). In some cases, an existing tomb was modified rather than building a new one. Secondly, we argue that by the time deposition at Hazleton North waned, negotiations of descent, including collaborative and competitive engagement between lineages, were also negotiated elsewhere in the region at causewayed enclosures.

LINEAGE DYNAMICS AT HAZLETON NORTH

Hazleton North: previous studies

Hazleton North was fully excavated to a high standard by Alan Saville (1990), revealing a well-preserved trapezoidal long cairn divided into bays which seem to have been constructed piecemeal, and

not all simultaneously (Fig. 2). Two lateral stone chambers were located with narrow passages leading to the exterior of the cairn. The chambers and passages contained well-preserved collections of comingled human remains (Fig. 3). The minimum number of individuals in the tomb is estimated at 41 based on osteological assessments by Rogers (1990) and Cuthbert (2019) (see Fowler *et al.* 2022, supplementary information, 2–4 for a discussion of MNI and taphonomy). Two large quarries were also found to the north and south of the monument and the entire monument was preceded by occupation debris as well as evidence for agriculture (Saville 1990).

Hazleton North was one of five chambered tombs from southern Britain considered in a ground-breaking study which applied Bayesian modelling to the radiocarbon dates from individuals interred in the monuments (Bayliss & Whittle 2007). These studies demonstrated that chambered tombs in this region were in use for much shorter periods of time than had previously been considered (eg, Renfrew 1973), and often only received deposits over the course of a few generations. Hazleton North, it was argued, saw remains entombed within the monument for 15–75 years so it was in use for a maximum of three generations (Meadows *et al.* 2007). Modelling of the

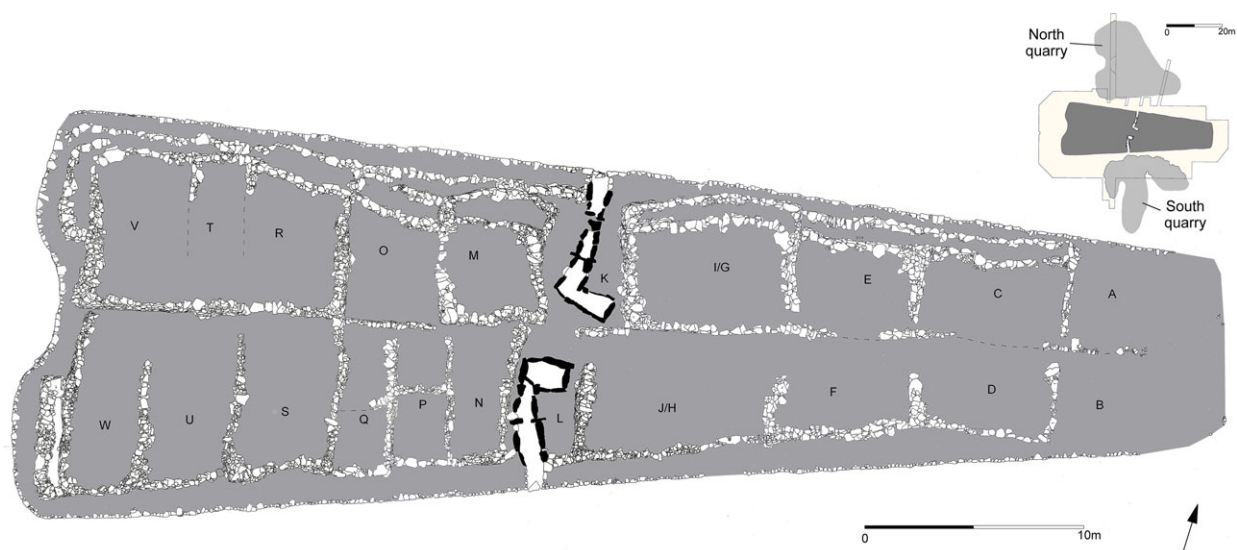


Fig. 2.
Plan of Hazleton North chambered tomb (after Saville 1990)

radiocarbon dates indicated that construction took place between 3695 and 3650 cal BC, and the passage of the northern chambered area collapsed between 3660 and 3630 cal BC, but probably in the 3640s; the site fell out of use in the 3620s cal BC (*ibid.*, 54). These dates for construction, use, and abandonment demonstrate that Hazleton North is not particularly early in the sequence of chambered tomb construction locally, with earlier examples recorded at Burn Ground (Whittle *et al.* 2011, 468) and possibly Sale's Lot and West Tump (*ibid.*, 467–72) – albeit without the chronological precision afforded by the multitude of dates in the 2007 study – and, further west, at Penywylod, Pipton, and possibly Tinkinswood and Ty Isaf (Griffiths 2022; Whittle *et al.* 2022b, 266).

Isotopic studies have revealed that the majority of sampled individuals ate a high protein diet (Hedges *et al.* 2008), and practised residential mobility, utilising at least two different geographical locations for their food (Neil *et al.* 2016). Proteomic evidence from calculus on four teeth from the tomb indicates milk products were consumed (Charlton *et al.* 2019). In the most recent study, aDNA analysis of samples from 74 bones and teeth, obtained 66 results deriving from 35 separate individuals. This study demonstrated that the vast majority of people entombed at this site who were sampled, 27 in total, were biologically related to

one another (Fig. 4). The full presentation of the genetic analyses is published elsewhere (Fowler *et al.* 2022);¹ below, we use the most likely model of genetic relatedness from that study as the starting point for considering what this and other monuments can tell us about changing kinship practices in the Early Neolithic. From the outset it is important to acknowledge that no such comparable genetic data currently exist for any other chambered tomb in the region. We do not infer that all long cairns were constructed by communities with the same kinship system but we do infer a connection between architectural layout and kinship dynamics in which variations in the architecture of long cairns suggest different ways of framing, tracing, and generating kinship.

Patrilineal descent and sub-lineages with female founders

The ancient DNA results from Hazleton North demonstrate that, in the first generation, a single male (NC1m; NC denoting the North Chamber) reproduced with four different women (NC2f, NC3f, SC1f and U3f; with SC being the South Chamber and the U denoting an unsampled individual whose presence in the pedigree is inferred). Some of the resulting male offspring then, themselves, had male children who were also placed within the chambered



Fig. 3. Human remains found in the chambers at Hazleton North chambered tomb (after Saville 1990)

tomb: this practice continued for five generations. The male:female ratio (25 males, nine females) indicates an emphasis on depositing males – this, combined with the presence of 13 direct connections between fathers and their biological sons compared with no cases

where a mother and daughter were both present, suggests that patrilineal descent was predominantly traced during mortuary practice at the tomb (Fowler *et al.* 2022). At the same time the four first generation women were of vital importance in determining where

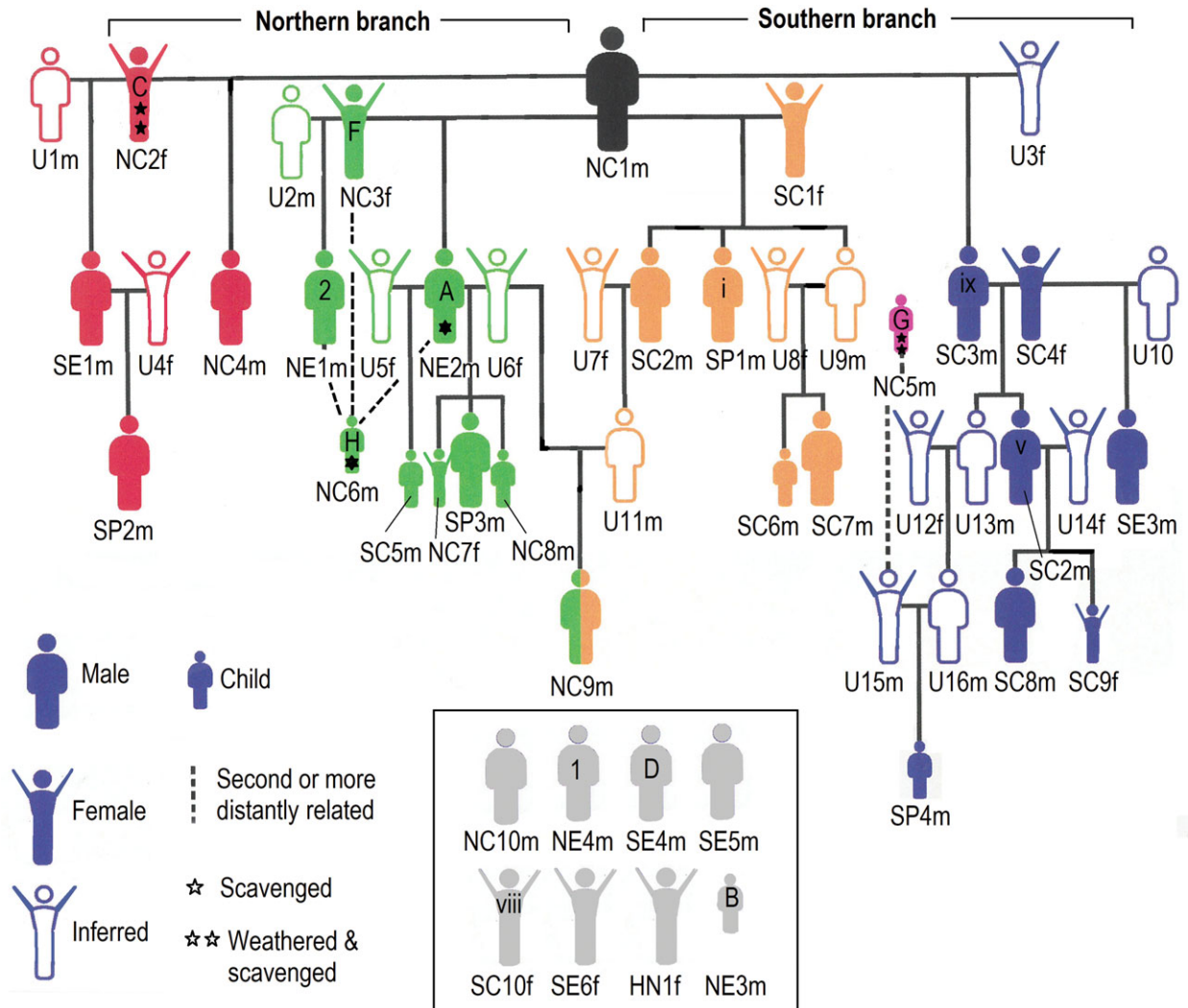


Fig. 4.

The family tree from Hazleton North (after Fowler *et al.* 2022). Individuals in the box at the bottom are not close genetic relatives to individuals in the main tree

most of the second to fifth generation individuals should be entombed: 12 out of 16 of these individuals were entombed in the same side of the monument as the woman who was their mother (generation 2), their paternal grandmother (generation 3), their paternal great-grandmother (generation 4), or their paternal great-great-grandmother (generation 5). Some, or all, of the other four individuals who belong by descent to the ‘northern branch’ may have been entombed on the south side because access to the north chamber had become impossible due to the collapse of the north passage during the use-life of the

tomb (Saville 1990, 91). Combined with the bilateral layout of the tomb chambers, this suggests a dual pattern of descent, with descendants from one of the first generation women (NC3f) entombed predominately in the northern chamber, while descendants from the other three first generation women (and second generation SC4f, who reproduced with a son of U3f, and her descendants) were entombed in the south chamber. We therefore infer that those first and second generation women who were interred in the tomb were selected for deposition precisely because they were *founding ancestors* for the lineage. Deposition

was seemingly not accorded to many other women in the community, marking these women as special. They may perhaps have been the ‘heads’ of sub-lineages during their lifetimes.

It is possible that lineage sons stayed with the kin group while daughters born to the lineage left to join other kin groups (eg, through exogamy), but this does not explain the low female to male ratio at both Hazleton North and other Cotswold-Severn tombs (Smith & Brickley 2009, 88) by itself, so it seems likely that the remains of women were more often disposed of in a different way (cf. Cansfield 2022, 65). Two daughters of lineage males who died in childhood were also included in the tomb, reinforcing the view that adult daughters were actively excluded. As a starting point, then, we can infer that the choice of people for deposition was selective, that lineal descent was important, that patrilineal descent united the majority of those present at the tomb, and that each person’s paternal female ancestor was also important to reckoning descent. Yet we can also go further and explore how each generation pursued differing practices.

The start of the line

It is possible that one or all of the first generation individuals in the tomb considered themselves the founder(s) of a new lineage or line of descent who, as part of the process of forming a new line, sponsored the construction of the tomb during their lifetime. There are well-recorded examples of living individuals pulling together the labour to construct their funerary monument. In Sumba in Indonesia, for example, prominent men construct their own tombs by sponsoring the dragging of a large stone from a quarry 1 km across a bay from the settlement to create a grave (Hoskins 1986). In order to draw together the workforce needed to drag a large stone, the sponsor must put on lavish feasts which consume resources acquired over several years. At the same time, it seems likely that Hazleton North was not constructed until the second generation was established; the presence of two opposing chambered areas could imply that NC1m had produced offspring with at least one partner from the ‘southern branch’ and one from the ‘northern branch’, at the time construction started. The two chambers were contained within one mound but unconnected and directly opposed and, as we have seen, they framed social distinctions in such a way that

no descendants of SC1f or U3f were entombed on the north side. The structure of the cairn at Hazleton North itself was bilateral and cellular, built as a series of 21 drystone walled bays on either side of a central dividing wall. The excavator argued that construction of the mound began in two places on the north side, before other areas on both the north and south sides were infilled, and the mound was completed incrementally (Saville 1990, 243–5, fig. 227). It is not clear whether that process took one season or up to a decade (Meadows *et al.* 2007, 61). The fill of each of the structural components was slightly different, so much so that the different elements would have been visually distinctive (Darvill 2004, 120). Each bay might have been constructed as the lineage grew, or to celebrate the recent growth of the lineage. The mound might have grown as reproductive partnerships yielded offspring and as new members joined the lineage, so that the tomb became a physical manifestation of the growing community. Perhaps the ‘northern branch’ of the lineage worked on the north side of the mound and those in the ‘southern branch’ on the southern side, although there is no evidence to support this either way (cf. Saville 1990, 266).

The bilateral layout of the mound and chambers suggests that the lineage was already divided into two different descent groups *at the time of construction*, each tracing its descent from one or two women. If so, it is also possible that the monument was constructed predominantly by the second generation adult children after one, several, or all of the first generation lineage founders had died. Collectively, these second generation individuals would have constituted a substantial community more than capable of supplying the labour required to build the site, particularly if mobilising their own children, some of whom could have been adults too (see below). The first generation woman U3f was not present among the sampled remains, and may be absent from the tomb – if so, we suggest that she may have died and her remains disposed of before the idea of constructing this tomb was conceived. Equally, given that work started on the north side of the cairn earlier than the south, it is possible that the project was instigated by members of the ‘northern branch’, though that need not mean that branch had produced offspring before the southern branch. Bones from two adults from generations one and two (NC2f, NE2m) and two children around the age of three thought to be entombed contemporary with generations two or

three (NC5m, NC6m) display scavenging marks which might derive from storage in a different location or structure prior to deposition in the tomb (Table 1). This was particularly noted for individuals from the northern chamber, including one of the founding females NC2f and the young child NC5m, whose remains include bones that show signs of exposure to weathering (Cuthbert in Fowler *et al.* 2022 supplementary, 4–5). The introduction of remains that had already seen funerary rites elsewhere may also explain the presence of some cremated remains in the northern chambered area. The storage of some remains might suggest that their more permanent deposition in a chambered tomb was hoped for or anticipated. As noted above, this might not have been the case for U3f when she died. It is worth noting here that, among a range of contemporary groups who use collective monuments, it is common to move the remains of the parents of the sponsors of a monument into the tomb, and sometimes even older ancestors (Couderc 2018). If the tomb was constructed largely by second and even some third generation individuals who entombed the remains of some of their parents who had died some time before, then deposition took place over a shorter period than even the Bayesian models of radiocarbon dates suggest.

In the Sumbanese example, several thousand people are invited to these construction feasts and more than a thousand people work over several days to move such a large stone (Hoskins 1986, 39). By comparison, it has been estimated that Hazleton North took about 14,000 hours to construct (Saville 1990, 242), the bulk of which was quarrying the stone for the cairn, but with some limestone imported from at least a few kilometres away (Saville 2010, 13). This equates to 50 people working 35 hours a week for eight weeks, 100 people working 35 hours for four weeks, 200 people for just two weeks, or 400 people for just a week to construct Hazleton North. As Saville (1990, 242) himself noted, if quarrying and construction took five years, then just six people could complete the work during four weeks per year and could have completed it within a ‘regular routine of residential mobility’ such as that indicated by the isotopic evidence (Neil *et al.* 2016). Saville (1990) noted that ‘[t]he mobilisation of six able-bodied persons would surely be within the capacity of a group of 20 to 30 individuals’. This is consistent with the idea that the tomb was built largely by the second generation of the nascent lineage, potentially without additional assistance from

wider kin or affines beyond the lineage. If so, then there is no need to envision this lineage as celebrated by, or distinguished from, a wider community of other kin groups who were excluded from access to the tomb, and no need to think that the lineage was beholden to, or able to command labour from, other local lineages. However, we cannot exclude the possibility of a shorter construction event with a larger community participating, and therefore cannot rule out the possibility of closer inter-dependence between parallel lineages or the contribution of a wider community of unrelated individuals.

Expanding the lineage

The ‘tomb community’ does not only include the remains of NC1m, his reproductive partners, and their direct biological descendants – there are also eight seemingly unrelated individuals, and three cases of men whose biological father is not in the tomb and not a lineage member but who had a half-brother in the tomb. For instance, as well as having a son by the first generation male NC1m, NC2f reproduced with another male (U1m), and their son (SE1m) was placed in the tomb. This son may have been: a child she had with a previous partner who came along with her into this lineage; the result of an ongoing arrangement of multiple partners, only one of whom was sampled or was in the tomb; or the result of an illicit liaison with U1m, who was actually a distant biological relative of NC1m. Strontium isotope analysis suggests that both SE3m and his mother SC4f resided on non-local geologies with high strontium values in childhood (Neil *et al.* 2016, 4; Table 1, samples numbers 10494 and 3831): again, SE3m’s biological father was not a lineage member and was not among the remains yielding a DNA result. In these cases, perhaps the mother brought her son into the patriline by right when she joined it. Perhaps social paternity was more important than biological paternity, as has been attested among the Nuer (Stone & King 2018, 76–82). If so, this is an example of *elective descent*: those involved chose to trace this individual’s descent via the mother’s relationship with NC1m rather than the biological father’s line.

While it could be argued that the connection to their mother was the basis for including these sons in the tomb, thereby denoting an element of choice about lineage membership consistent with bilateral descent, we note that the majority pattern in the tomb is

TABLE 1. THE AGE AT DEATH, OSTEOLOGICAL INFORMATION AND STRONTIUM ISOTOPIC INTERPRETATION FOR THE INDIVIDUALS FROM HAZLETON NORTH FOR WHICH WE HAVE GENETIC DATA

ID	Age at death	Osteological information/Strontium (Sr) isotope data
NC1m	Adult	
NC2f(C)	17–25	Gnawed, cribra orbitalia, porotic hyperostosis/Sr results become increasingly consistent with local geology during childhood (M1–M3)
NC3f(F)	40+	Osteoarthritis, ankle trauma
NC4m	17–25	
NC5m(G)	3–4	Gnawed
NC6m(H)	2–3	Gnawed, dental abscess/Sr in infancy consistent with non-local geology (M1 sampled)
NC7f	Child	
NC8m	Infant	
NC9m	Adult	
NC10m	Adult	
NE1m(2)	33–60	Tooth loss, osteoarthritis, osteochondritis dissecans, dental abscess
NE2m(A)	23–57	Gnawed, diffuse idiopathic skeletal hyperostosis, septic arthritis, osteoarthritis
NE3m(B)	3–6 mths	
NE4m(1)	c. 40	Fracture L tibia, osteoarthritis, dental abscess, tooth loss/Sr in childhood consistent with local geology (M1–M3)
SC1f	Adult	
SC2m	Adult	
SC3m(ix)	45+	Skull fracture, osteoarthritis, periodontal disease, tooth loss/Sr consistent with local geology (M1 sampled)
SC4f	48–56	Non-local Sr isotope contribution in childhood (M3 sampled)
SC5m(E)	9–15	Sr in infancy consistent with local geology (M1 sampled)
SC6m	5–6	Scurvy?
SC7m	Adult	
SC8m	25–35	Periodontal disease/Sr for M2 consistent with local geology, while M3 indicates contribution from non-local geology.
SC9f	6–9	Scurvy/Sr in infancy consistent with local geology (M1 sampled)
SC10f(viii)	23–35	Cribra orbitalia, periodontal disease, tooth loss
SE1m	Older adult	
SE2m(v)	Adult	
SE3m	35–45	Sr results shift from indicating non-local contribution to being consistent with local geology during childhood (M2–M3)
SE4m(D)	Adult	Fracture r. ulna, polio? Twisted spine/Sr in childhood consistent with local geology (M1–M3)*
SE5m	Adult	
SE6f	Adult	
SP1m(ii)	33–45	
SP2m(vi)	23–35	Sr in childhood consistent with local geology (M1–M3)*
SP3m	45+	Periodontal disease, tooth loss, dental abscess/Sr in infancy consistent with local geology (PM2 sampled)
SP4m(i)	Child	
HN1f		

The ID column provides the individual's identity code which conveys information on the location where the sampled skeletal elements were found (N = North, S = South, C = Chamber, E = Entrance, P = Passage) and sex (m = male, f = female). Numerals in brackets refer to individuals identified in Saville (1990) or Cuthbert (2019). After Fowler *et al.* (2022, extended data table 1), with strontium isotope data from Neil *et al.* (2016). Crown enamel formation for 1st molar (M1) starts soon before birth and ends age c. 4–5; 2nd molar (M2) forms between age 2–3 and 8–9; 3rd molar (M3) forms between c. 8–9 and c. 14–15 (*ibid.*, 6). *Oxygen isotope results also suggest residential mobility for those individuals with multiple Sr results consistent with local geologies, except NE4m(1) (Neil *et al.* 2016, 9–10)

patrilineal descent. In either case, we infer that in the first and second generation the lineage pursued a strategy of *inclusive expansion* through accepting such individuals into the ‘tomb community’. Yet at the same time, SE1m was not placed in the same chamber as either his mother or his ‘adopted’ father, NC1m, raising questions about whether his place in the lineage was set at some remove from them. The opposite is the case for NE1m, whose parentage is parallel to that of SE1m: he was entombed in the north entrance (probably after the north passage had collapsed, closing off access to the north chamber), and thereby kept on the same side of the tomb as his mother and ‘adopted’ father NC1m. We therefore suggest that these choices were part of a complex negotiation of position within the lineage, while the inclusion of such individuals illustrates an inclusive and expansive approach to lineage membership – at least for males.

This inclusivity is perhaps more evident on the northern side of the tomb than the south, since the two first generation females who had offspring with partners other than NC1m were entombed on the northern side, as were three male infants, one of whom was only distantly related to the main lineage (NC5m) and one of whom had no relatives in the tomb (NE3m). We can only speculate as to the circumstances by which these boys were entombed away from their biological parents, but they could have been adopted into the community (with or without the consent of their biological parents) or their remains could have been moved to the tomb sometime after their deaths (eg, at a point where one of the relatives of NC5m had later joined the lineage). Yet we also note that two adult males (SE4m, SE5m) and two adult females (SC10f, SE6f) on the southern side have no close biological relatives in the tomb and could also have been adopted into the lineage for one reason or another. The adult females could, though, also have been partners of lineage males who did not produce any offspring that were entombed at Hazleton North, so their association with the lineage remains unclear. It is also possible that there were additional criteria for inclusion in the tomb, and potentially lineage membership, than we are currently able to discern – including through other kinds of social relationships.

Several first and second generation individuals reproduced with more than one partner, which might also have been key to lineage growth. Two first generation women reproduced with two men, while NC1m

reproduced with four women. In the second generation, NE2m reproduced with two different women, while SC3m reproduced with SC4f who also had a son by another man. This suggests that the same kinds of expansive and inclusive lineage-building approach as seen in generation 1 continued to some extent in generation 2. Indeed, we suggest that the members of this generation who were ultimately interred in the tomb had co-operated in building and using the tomb in life in a way not evident among their parents’ generation; that is, none of the siblings of any of the first generation individuals is present. Indeed, this apparent absence of siblings to any of the first generation individuals forms a counterpoint to the theme of lineage growth in the first and second generation. It is possible they remained with the kin groups in which the first generation individuals at Hazleton North grew up, or that some of them formed alternative lineages elsewhere. In any case, the multiple partnerships and ‘adoptions’ seen in the first two generations are not evident from the third generation onwards, though we do not know in which generations to place most of the eight individuals who are not biological relatives of anyone in the lineage.

Staggered lines

The lineage tree (or pedigree) presents reproductive relationships in terms of five generations, and the individuals in each generation appear in a horizontal line in the visualisation of the tree (Fig. 4). This gives the impression that one generation is chronologically in step, but, while the individual lines of connection in the tree are biologically correct, if we were to depict the temporal character of these relationships then the length of each vertical line would be varied and lines of reproductive partnerships might also be staggered (eg, Fig. 5). The tree is also chronologically imprecise since we do not know the timings of each birth in sequence and, thus, who was contemporary with whom. This could mean that the first and second sons of NC1m were adults by the time his last son was born and that the last woman he reproduced with was the same age as his oldest children. There is therefore a reasonable chance that some first generation people (eg, NC2f in the hypothetical model in Fig. 5) were contemporary with some of the third generation, and were potentially still alive when some fourth generation people were born. For instance, SC3m, the son of NC1m and U3f (the latter who we have posited died

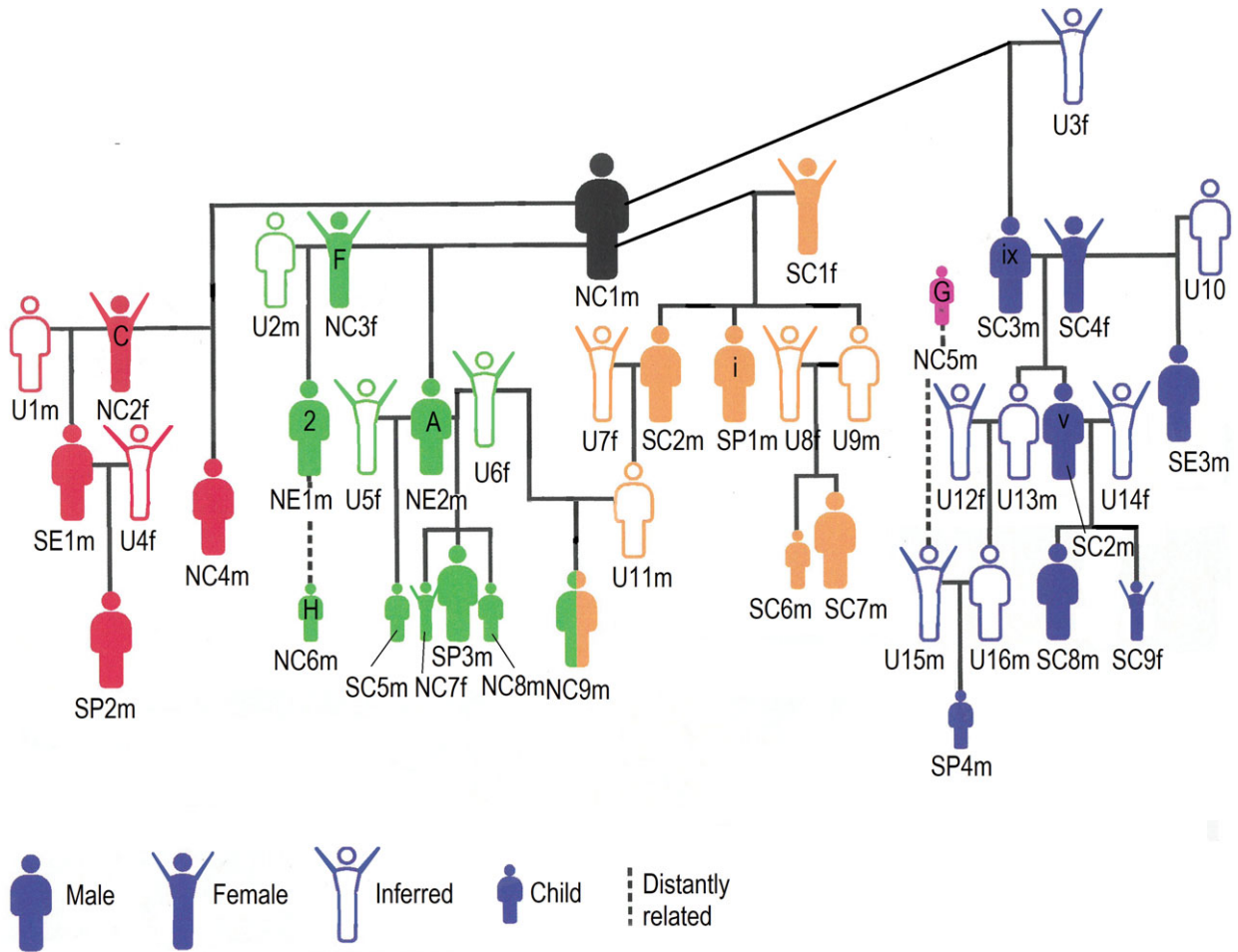


Fig. 5.

A hypothetical ordering of reproductive unions involving NC1m, U3f, SC1f, NC2f, and NC3f at Hazleton North demonstrates how individuals from different genetic generations could be contemporary

before the tomb was conceived of), and his partner, SC4f, likely died in their 40s and could well have produced their offspring at the same time as NC1m and one, or more, of his other partners produced theirs, and were therefore contemporary with some of the first generation. They may have been key second generation individuals in the instigation of tomb construction, with their involvement in that project securing *their* place in the monument. This might mean that SC4f had the equivalent status of a founding female even though she was technically from the second generation.

If, as proposed, the four founding branches commenced at different points in time then the sole fifth generation individual in the tomb, SP4m, who died

in childhood, was likely a contemporary of his fourth generation cousins. Again, this shortens the depositional period for bodies at Hazleton North, leaving us with a picture of a very deliberate set of deposits of selected human remains over a relatively short period of time. This suggests that the construction of the tomb and its first set of deposits might have been an important affirming project for the nascent lineage, intended to illustrate that it belonged to this place in perpetuity.

The end of the line

Both the number of reproductive unions producing offspring in the tomb and the incidence of deposition

peaked with generation two, and there is no evidence of multiple partnerships among third generation individuals. Some of the kinship practices that had been fundamental to the rise of the lineage seem to have been abandoned or were no longer possible. Perhaps some third generation children started their own ‘tomb communities’ elsewhere, but certainly deposition here dwindled, and no-one from the lineage was deposited past generation five. Third generation SC6m and fourth generation SC9f suffered from such poor nutrition that they exhibited reactive new bone formation consistent with scurvy (vitamin C deficiency: Cuthbert 2019; Fowler *et al.* 2022, supplementary, 5–6). Both died in childhood. As yet we have no first or second generation individuals who died in childhood to compare this with, and for reasons set out below, the mid- to late 37th century cal BC does not appear to be a period of demographic stress in the region, so we do not think the lineage ‘died out’. Rather than seeing the increase in remains from those who died in childhood as a sign of higher incidence of child mortality, we have argued above that those first and second generation individuals who would have died in childhood were subjected to mortuary rites which disposed of their remains elsewhere, possibly before the project of building a tomb began or was conceived of. In contrast, the much higher incidence of those who died in childhood compared to adults in the last two generations may well have been the result of the abandonment of deposition at the tomb. Other siblings of these children who survived to adulthood may have lived long enough to see the foundation of a new tomb, for instance, and could have been entombed there instead.

We also have to consider the place of those individuals who were not biologically part of the lineage but were nonetheless placed in the tomb. While these are hard to place in the sequence, the largely-intact articulated remains of NE4m – skeleton 1, also known as ‘the flint knapper’ – was one of the last additions to the northern chamber and we expect him to be contemporary with generations 3–4. While it is possible that lineage membership fragmented, with some descendants budding off to form their own lineages, perhaps building new tombs elsewhere, it is also possible that by the time the fourth generation reached adulthood this kin group abandoned the use of tombs altogether, with attention and effort perhaps shifting to other endeavours. We turn our attention now to the place of Hazleton North and lineage dynamics

in the cultural transformations of the 37th–35th centuries cal BC in the wider region.

LINEAGE FORMATION IN ITS HISTORICAL AND REGIONAL CONTEXT

The aDNA analysis from Hazleton North provides a window on kinship practices over a span of just a few decades at a particular place in the Early Neolithic. Genetic studies further afield suggest that we should expect regional as well as chronological variation in how kinship operated or the extent to which tombs were designed to house close kin. There was a lack of kin any closer than a few fourth or fifth degree relatives at the Early Neolithic portal tomb of Poulabrone and a small court tomb at Parknabinnia (Cassidy *et al.* 2020), both in Co. Clare, while at Primrose Grange, Co. Sligo, a father and daughter were found along with second degree relatives (Sánchez-Quinto *et al.* 2019). Relatives of a Middle Neolithic individual recovered from Newgrange, Co. Meath, were found in other passage tombs over 150 km away in Co. Sligo (Cassidy *et al.* 2020). The presence of so many chambered tombs in the wider Cotswold-Severn region with varied layouts also suggests that different kinship practices may have co-existed or that kinship practices changed over time (Fowler 2022).

There are, at present, no local genetic studies of multiple individuals from the same tomb with which we can compare Hazleton North. The closest comparable coverage of a high proportion of individuals from the same time is the burial monument (a wooden mortuary structure) at Trumpington Meadows, Cambridgeshire (Scheib *et al.* 2019) which contained the remains of two brothers among at least three individuals. That can perhaps be set alongside the osteological assessments of age-at-death and sex from other similar wooden mortuary structures and barrows closer to the Cotswold-Severn region which also show a prevalence of burying adult males. At Wor Barrow, Dorset, there were five males, one probable male and another of indeterminate sex, who died at a time roughly contemporary with some of those deposited at Hazleton North, modelled at between 3695 and 3635 cal BC (Allen *et al.* 2016). Nutbane, Hampshire, contained three articulated adult males and one 12 year old child plus one unsexed adult skull placed outside the chamber (Cuthbert unpublished). Wayland’s Smithy I held the remains of 11 males,

two females and a child who died between 3610 and 3520 cal BC – probably within the earlier 36th century cal BC and for a period of only up to 15 years (Whittle *et al.* 2007, 114). They were placed in the structure as more-or-less complete corpses in an arrangement which indicates a spatial separation between the northernmost burial and the rest, and a space left free of human remains at the southern end (Whittle *et al.* 2007). Some of these sites pre-date Hazleton North but others are likely to be contemporary with it and Wayland's Smithy I is a little later. They all show a preference for burying males over females and might derive from similar concerns with lineage as seen at Hazleton North. While only further aDNA analysis will improve our estimation of whether that is so or not, the architectural development of long cairns seems consistent with this interpretation as we will now explore.

A similar chambered tomb to Hazleton North has been excavated at Ascott-under-Wychwood, which comprises two opposed chambers set within a long cairn (Fig. 6). Here at least six males and three females were identified from the 16 adults and four subadults recovered. Some share a congenital condition which may suggest they were close kin (Galer 2006, 206, 210), though this is not as reliable as genetic analysis. Ascott-under-Wychwood was most likely in use 3769–3695 cal BC (Benson and Whittle 2006), pre-dating the construction of Hazleton North, and we have already noted that similar long cairns with lateral rectangular chambers were built in south Wales prior to the construction of Hazleton North (Whittle *et al.* 2022b). Interestingly, the strontium isotope results for several individuals from Hazleton North, including five with genetic results, are consistent with a non-local geology for which there are candidates in south Wales. Three or four of the individuals with high values (NC2f(c), SC4f and her son SE3m, and possibly NC6m(H)), formed or joined the lineage rather than were born into it, and did so early in its formation. Geology around the tombs at Ty Isaf and Penywyrldod in the Black Mountains exhibits high strontium ratios that fall into the candidate range for the highest strontium results at Hazleton North (ie, above 0.7105: cf. Neil *et al.* 2016, 9 with Neil 2022, 209). The builders of Hazleton North were drawing on and adapting a known form of architecture, then, and may have visited other chambered long cairns in their movements around the landscape. Thus, the construction of a linear tomb with lateral

chambers, potentially used by a group tracing lineal descent, was already an *established strategy* in the wider region when Hazleton North was constructed. Thus, it seems that by the early 3600s *building* a tomb was a project that many communities in the region had engaged in, perhaps even if they already had access to an existing tomb where they could place the remains of their dead.

In other cases, rather than building a new tomb, it seems as though the community *modified* an existing monument. The linear form of both the cairn and the chambered areas at Hazleton North and Ascott-under-Wychwood stand in contrast to the initial form of some other sites in the immediate vicinity. Several of these, such as at Notgrove and Sale's Lot, were initially constructed as small rotunda – small box-like chambers set within sub-circular mounds (Darvill 2004, 69). At Belas Knap, the primary phase may have been a portal dolmen (*ibid.*, 70), again a simple rectangular chamber within a small mound. These sites began as single, undifferentiated chambers which would enable a single grouping of human remains and were later adapted with the addition of further chambers and linear mounds. At Notgrove, for example, a larger terminal chamber with four small box-like chambers set off a central passage and a long cairn were added to the smaller rotunda, establishing a much more complex arrangement than in the primary phase. Likewise, two lateral chambers and a long cairn were added at Belas Knap along with two other chambers to the south. This enabled the deposition of human remains in a linear sequence with spatial ordering and differentiation at monuments that might previously have been associated with quite different kinship practices or, indeed, where kinship was not the key concern, as may be the case in the construction and use of dolmens (Cummings & Richards 2021; Fowler 2022). As noted above, Sale's Lot is likely to have been in use before Hazleton North was built, and we suggest that the modification of such sites into long cairns with lateral chambers which were sometimes paired indicates an increasing concern with lineage and sub-lineages similar to that seen at Hazleton North. In other words, it is possible that many local lineages were burying their dead at chambered tombs in the region at the point that Hazleton North was conceived and constructed, and some parts of those tombs were already generations old in the mid-3600s.

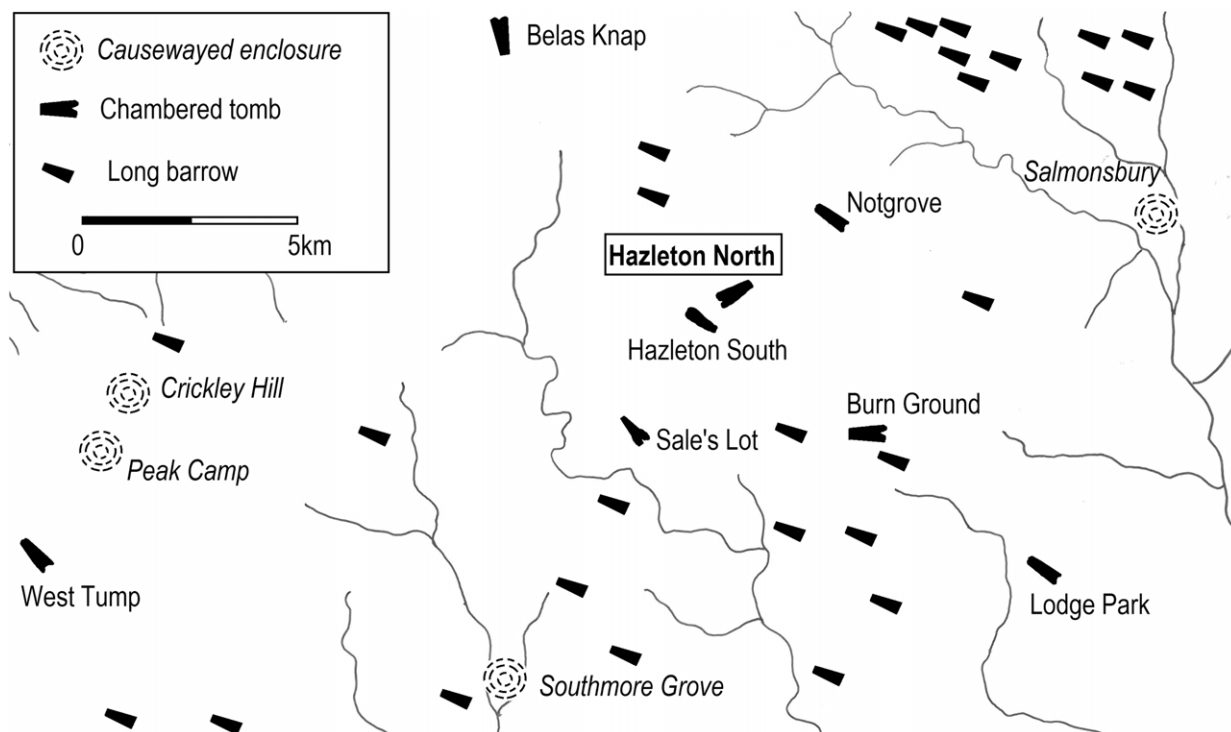


Fig. 6.
Location of Hazleton North in relation to other chambered tombs in the area

Just as the tomb at Hazleton North was a construction with a wider local heritage and significance, it was also built in a meaningful, historic location. Earlier Neolithic occupation consisted of some kind of post-built structure, hearths, pits, and a midden, and an associated Early Neolithic material culture assemblage (Saville 1990). This is similar to another late long cairn which includes two bilateral chambers at Gwernvale, where the tomb terminal was built over what may have been a house and associated midden, and similar to Ascott-under-Wychwood (Britnell 2022, 62–78). In each case there was evidence of cereal production and a domesticated animal bone assemblage as well as flints, pots, and human bone, and at Hazleton North the site was cultivated before the building of a stone monument commenced. This pre-cairn activity began between 4080 and 3800 cal BC, and finished 3880–3660 cal BC (Meadows *et al.* 2007, 51): perhaps some of the biological ancestors of those entombed at Hazleton North had lived in the locale or perhaps they asserted such a connection whether or not it was the case. Indeed, given that the strontium isotope analysis indicates that some of those entombed at Hazleton

North ranged up to 40 km away in their lifetimes (Neil *et al.* 2016) it is possible that this specific location was one of several that had been used by the community for a few generations.

We contend that the construction of Hazleton North was intended to consolidate the emergence of a new lineage who laid claim to this specific place as of ancestral significance. It was materialised in the lineal descent of the bodies of the dead placed in the tomb, in the linear form of the tomb, in the use of a historical locale, and in the connection between the form and substance of this tomb and those that had been built before it elsewhere in this region – and much further afield. Unlike some other long cairns in the region it was not built around an existing tomb but it included the remains of some bodies that might, perhaps, first have rested at another tomb. We interpret the monument as a statement of the unity and longevity of a composite lineage, forged from connections between the natal lineages of the female partners of NC1m and NC1m's natal lineage. The resulting lineage had expanded quickly and used the tomb intensively over perhaps just a few decades. The

absence of any modifications at the site, even after the north passage collapsed, the absence of multiple partnerships and clear cases of ‘adoption’ into the lineage after the second generation, and the diminishing number of individuals placed in the tomb after the first three generations may indicate that the lineage waned or fragmented or that the tomb was no longer the primary focus of mortuary activity for the kin group. Given that tombs could be modified rather than abandoned, the reason for this abandonment needs to be set in a yet wider regional and historical context.

LINEAGE FORMATION AND WIDER SOCIAL DYNAMICS AFTER HAZLETON NORTH

Assuming that the lineage had not all died out, it may have fragmented and some members may have asserted themselves as lineage heads. They or their children may have built new tombs: the closest candidate is Hazleton South long cairn just 80 m from Hazleton North but, while it has at least one lateral chambered area, it remains unexcavated and undated so we do not know if it was in use earlier than, contemporary with, and/or later than Hazleton North. Alternatively, the community may have predominantly adopted a new method of disposing of their dead. Across southern Britain from the late 38th century cal BC, and peaking *c.* 3650–3600 cal BC, some communities started constructing causewayed enclosures (Whittle *et al.* 2022a, 214). The construction of this form of monument involved a more substantial investment of time than tomb-building: indeed Renfrew (1973) calculated ten times the amount of effort was needed compared with constructing a long cairn. Causewayed enclosures are complex monuments, involving the digging of ditches and formation of banks or even sections of walling or ramparts, in some cases the construction of palisades, and the deposition of a variety of materials including pottery, axes, and animal remains (Oswald *et al.* 2001; Last 2022). There is good evidence for occupation activity at and, especially, immediately around some enclosures, which might derive from periodic gatherings but might also indicate substantial ongoing residence (Parmenter *et al.* 2015; Pollard 2022, 29). While there are some well-explored examples where the remains of the dead were clearly manipulated and deposited (eg, Hambledon Hill), not all enclosures include evidence for dealing with the dead. Given the scale of causewayed enclosures, generally more than

100 m in diameter, these may have been places where multiple ‘households’ were brought together and negotiated kinship through different media of expression to chambered tombs.

Indeed, it has previously been suggested that causewayed enclosures were places where kinship and descent were negotiated (eg, Edmonds 1999; Evans & Hodder 2006, 268; Whittle *et al.* 2011, 903–4; 2022a, 218). We think it is possible that these monuments stem from the interaction between different kin groups, some or all of which may have traced lineal descent, in the decades after 3650 cal BC. These communities used the same kind of ceramics and stone and flint tools as those found at Early Neolithic tombs and built the banks and ditches of these new monuments in segments, just as the bayed construction of long cairns like Hazleton North was segmented. Excavated ditches at Peak Camp (Darvill 2011, 147) and Dorstone Hill (Overton *et al.* 2022, 54) have also yielded clusters of stonework or sections of collapsed dry stone walling that had slid or been pushed into enclosure ditches, hinting at greater constructional similarities between these enclosures and local long cairns than might be initially apparent.

Perhaps the construction of separate stretches of sometimes quite straight enclosure banks and ditches might owe something to the practice of constructing one side of a bayed long cairn or long barrow. But given their larger size, smaller number, and evidence for varied activities over the long-term, enclosures cannot simply be seen as equivalents to, or straightforward replacements for, Cotswold-Severn chambered tombs. Most notably, while human remains are found at enclosures elsewhere, few have been found in enclosures in the Cotswolds. Moreover, where it has been possible to determine the sex of adult individuals whose remains have been recovered from enclosure ditches or graves elsewhere in southern Britain these do not display an emphasis on one sex or the other (Cansfield 2022), while the remains from the large and well-studied enclosure at Hambledon Hill in Dorset include high proportions of remains from women and children. For instance, seven of the isolated crania from across the enclosures here were female, three were male, while another five were from subadults (McKinley 2008, 513). Perhaps some Cotswold enclosures could be seen as deriving from acts of community building which drew together kin groups in a different and novel arena to those tombs which had become concerned with the ancestral

remains of a distinct lineage, while some enclosures (especially further afield) brought together funerary rites for different sections of the community in a way that some tombs did not. Enclosure construction also set up different conditions for repeated cycles of activity that involved connections with the material remains of the past, a long-term cyclicality not seen at the tombs of Hazleton North or Ascott-under-Wychwood. Indeed, many enclosures were reworked over extended periods of time, with activity continuing at some sites into the 34th century cal BC (Whittle *et al.* 2011; 2022a, 217).

There are four causewayed enclosures in the vicinity of Hazleton North. Crickley Hill and Peak Camp (Birdlip Hill) lie *c.* 14 km to the west, Southmore Grove *c.* 12 km to the south, and Salmonsbury *c.* 8 km to the east. Of these, Crickley Hill has seen significant excavation (Dixon 1988), Peak Camp and Salmonsbury have seen limited excavation (Darvill 2011; Dixon *et al.* 2011, 435) and Southmore Grove remains unexcavated. All these enclosures were constructed near to existing tombs (Dixon *et al.* 2011, 435), but the view from Crickley Hill does not take in the nearby long barrow at Crippet's Hill and faces away from the distribution of Cotswold long barrows (Durkin 2022, 170, fig 11.3). A full publication of the excavations at Crickley Hill is not yet available, but the most recent Bayesian modelling of dates indicates that it was in use between 3670–3620 cal BC and 3485–3440 cal BC, and the complex as a whole was in use probably for about 150–225 years (Whittle *et al.* 2011, 435–54). While its initial phase was most likely a few decades after the construction of Hazleton North, its use continued for a much longer period of time and the ditches and banks were reworked considerably during that time. The outer causewayed circuit was built between 3660 and 3615 cal BC, and may have pre-dated the inner circuit, built 3650–3610 cal BC, by a decade or so (Dixon *et al.* 2011). This indicates that the primary phase at Crickley Hill would have been contemporary with the end of deposition at Hazleton North, or just post-dated it.

Clearly this is a different order of monument altogether than Hazleton North. The primary phase of enclosure ditches at Crickley Hill, the outer circuit, consisted of 14 ditch segments with bank material placed on the inner sides. The bank was interrupted by at least four entrances (Dixon *et al.* 2011, 447). Some of the entrances of the inner circuit were also aligned with the entrances through the outer circuit

banks. The ditches and banks did not completely circumscribe the enclosed area, with the steep slope away of the south side of the hill lacking evidence for such construction (and potentially counting as a fifth entrance) but worked with the natural topography of the hill to create a distinctly bounded promontory. This formed a different arena for negotiating relationships to the architecture of bilaterally-chambered long cairns: rather than opposing sets of chambers in a long mound, the arrangement of routeways and entrances into the interior of the monument, and stretches of ditch-and-bank, suggest the segmentation of space, and perhaps the community, into four or more elements. We could speculate that construction involved four or more kin groups, each one at least the size of the Hazleton North lineage at its peak. This would be consistent with the amount of labour required to construct the first phase of Crickley Hill (cf. Renfrew 1973). Perhaps the construction of this enclosure acknowledged existing kin networks while also establishing new ones.

The remains of the dead do not often seem to have played a role in this process, remaining lodged at chambered tombs: the paucity of human remains from Peak Camp (where the bones from just two feet have been found, probably redeposited from a surface midden: Darvill 2011, 186) and Crickley Hill suggest other concerns were predominantly brought to the fore in these places of public engagement. Saville entertained the argument that Hazleton North was abandoned due to 'the attainment of stable conditions in the region', but we suggest that it is also possible that it was abandoned because some lineage descendants now founded their own tomb(s), and/or because the construction of such tombs in dispersed locations was no longer the most effective way to support the lineage's social ambitions. Whether or not the role that the tomb played in their communal identity was transferred to another tomb, activities at causewayed enclosures – which brought multiple kin groups together and did not result in the accumulated remains of close kin – may have increasingly drawn the attention of kin groups in the region.

Yet causewayed enclosures were certainly not the only form of monument in the wider region that people built and frequented following the abandonment of Hazleton North. Some Cotswold-Severn tombs, like Wayland's Smithy II, were only constructed in the later 35th century cal BC: perhaps some communities clung to the 'old ways'. Off the edge of the Cotswolds,

linearity was also experimented with at the large scale in the form of cursus monuments such as the one at Lechlade, Gloucestershire. Cursus monuments drew many connections – with rivers, houses, routeways, and long mounds, for instance – but if their linearity also generally referred to descent, then whatever new social formations might have emerged in making and gathering at causewayed enclosures did not permanently do away with tracing lines of descent. Indeed, there was plenty of diversity in 37th–35th century cal BC activity in the wider region, during which time causewayed enclosures saw peaks and troughs in activity. For instance, the northernmost arc of three ditches in the outer circuit at Crickley Hill has no inner ditch equivalent, perhaps noting fewer contributing groups in the latter case, and a hiatus in activity at Crickley Hill was then followed by construction of a single, more continuous, circuit of ditches probably 3565–3535 cal BC (Dixon *et al.* 2011, 450). Then, sometime between 3490 and 3450 cal BC, the wooden palisades were burnt down and hundreds of arrowheads were expended around the boundaries and entranceways. This act of violent destruction was perhaps just the latest example of fluctuating fortunes for specific monument building groups in the region, and could be seen either as an escalation of earlier episodes of violence or simply a snapshot of the kind of violent encounters in which some of those buried in tombs had been fatally wounded (cf. Schulting & Wysocki 2005). It therefore seems that larger aggregations of social units were just as dynamic and fragile as smaller ones were, facing the same needs to balance co-operation and competition – which at times spilled over into violence.

CONCLUSION

We have argued that, in the 37th century cal BC, some descent groups sought to cement themselves in the landscape, acknowledging their past and their ancestors, and sought to project themselves into the future by constructing and modifying chambered tombs, of which Hazleton North was not an early example. Affirming the interpretation that patrilineal descent united many in the tomb, and that sub-lineages were based on patrilineal descent from different female founding ancestors, we have additionally suggested that Hazleton North was conceived and built largely by second generation adults and that the changing demographic of the tomb highlights a strategy of

inclusive lineage expansion in the first two generations. Multiple reproductive partnerships and elective or adoptive descent are not clearly evident from generation three onwards and deposition dwindled in generations four and five. We interpret the whole span of activity at Hazleton North as an indication of the dynamic nature of social relations at the time, in which lineages could be formed as social forces and then fragment within just a few decades. After this point, we suggest that some of those whose immediate ancestors had built chambered tombs increasingly shifted their attention to nearby causewayed enclosures, whether or not they also continued building tombs. These new kinds of places were not used to accumulate the remains of their dead, separated out by factors that seem in some cases to have included linear descent or age and sex: instead, enclosures were arenas with new emphases on communal gathering and interaction, which constituted new ways for building relatedness and negotiating descent.

At Hazleton North, the lineage was an aggregation of 2–4 parallel sub-lineages: perhaps Crickley Hill was built by a larger-scale aggregation of kin groups, potentially bringing together several groups who might have each built (or modified) their own separate chambered tomb but here came together to dig a section of ditch and build a section of bank as part of a larger communal project. Lineal descent groups might have merged into larger corporate descent groups, or coalesced under the umbrella of a large collective, such as a clan consisting of distinct but affiliated lineages. But this was not a simple, singular process, and the construction of circuits at enclosures occurred sporadically alongside the construction of new tombs and probably cursus monuments elsewhere in the wider landscape. Indeed, the kind of kinship work inferred for Hazleton North needs to be seen as just one approach that was pursued by Early Neolithic communities in the region. Much more work is needed to assess biological and social relatedness at tombs, enclosures, and other sites, but based on the current evidence we suggest that the diverse and changing forms, scales, and uses of monuments indicates that kinship and belonging were frequently in a state of renegotiation and transformation in Early Neolithic southern Britain.

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NOTE

¹Due to the commingled nature of the skeletal assemblage it is not possible to deduce exactly how many bodies were initially interred, how many bodies were originally deposited intact and then subsequently disturbed, how many sets of remains were only deposited as partial bodies, or bones and teeth, and whether any bones were removed from the chambers. Some skeletons are fairly well-represented and NE4m(1) was deposited as a probably intact corpse which was not significantly disturbed by later action, but remains in the south chambered area were heavily commingled and dispersed, some remains were weathered, and some showed signs of scavenging by canids (Cuthbert 2019; Fowler *et al.* 2022, supplementary information, 2–4); some genetic results derive from ‘loose’ teeth. Osteological research has only able to associate a small percentage of the overall skeletal elements to others that are likely to be from the same individual, leaving hundreds of bone elements that could belong to any of several individuals, meaning we cannot really calculate the full extent of completeness. Cuthbert (2019, 86) also calculated that over 85% of the bones at Hazleton North were themselves fragmented. However, the calculation of osteological MNI at 41, and the fact that DNA results derive from only 35 individuals despite sampling 66 unconnected skeletal elements seem consistent with the idea that the tomb originally contained remains from a relatively small number of individuals. The tree illustrating biological relatedness between 27 sets of remains also indicates where individuals who contributed to the lineage through biological reproduction were absent from the sample set, though it is not known if their remains are in the tomb and have not yet been sampled or if they were genuinely absent.

BIBLIOGRAPHY

- Allen, M., Smith-Hughes, M., Jay, M., Montgomery, J., Bronk Ramsey, C., Cook, G. & Marshall, P.D. 2016. *Wor Barrow, Cranborne Chase, Dorset. Chronological Modelling*. Portsmouth: Historic England [<https://doi.org/10.5284/1046423>]
- Bayliss, A. & Whittle, A. 2007. Histories of the dead: building chronologies for five southern British long barrows. *Cambridge Archaeological Journal* 17 (1)
- Benson, D. & Whittle, A. (eds). 2006. *Building Memories: the Neolithic Cotswold long barrow at Ascott-under-Wychwood, Oxfordshire*. Oxford: Oxbow Books
- Brace, S., Diekmann, Y., Booth, T.J., van Dorp, L., Faltyskova, Z., Rohland, N., Mallick, S., Olalde, I., Ferry, M., Michel, M., Oppenheimer, J., Broomandkshobacht, N., Stewardson, K., Martiniano, R., Walsh, S., Kayser, M., Charlton, S., Hellenthal, G., Armit, I., Schulting, R., Craig, O.E., Sheridan, A., Parker Pearson, M., Stringer, C., Reich, D., Thomas, M.G. & Barnes, I. 2019. Ancient genomes indicate population replacement in Early Neolithic Britain. *Nature Ecology & Evolution* 3, 765–71 [<https://doi.org/10.1038/s41559-019-0871-9>]
- Britnell, W. 2022. Gwernvale Neolithic long cairn reconsidered. In Britnell & Whittle (eds) 2022, 53–78
- Britnell, W. & Whittle, A. (eds) 2022. *The First Stones: Penywrylod, Gwernvale and the Black Mountains Neolithic long cairns of south-east Wales*. Oxford: Oxbow Books
- Cansfield, D.W. 2022. A demographic perspective on burial practices at early Neolithic enclosures. In Last (ed.) 2022, 61–80
- Cassidy, L.M., Maoldúin, R.Ó., Kador, T., Lynch, A., Jones, C., Woodman, P.C., Murphy, E., Ramsey, G., Dowd, M., Noonan, A., Campbell, C., Jones, E.R., Mattiangeli, V. & Bradley, D.G., 2020. A dynastic elite in monumental Neolithic society. *Nature* 582, 384–8 [<https://doi.org/10.1038/s41586-020-2378-6>]
- Charlton, S., Ramsøe, A., Collins, M., Craig, O., Fischer, R., Alexander, M. & Speller, C. 2019. New insights into Neolithic milk consumption through proteomic analysis of dental calculus. *Archaeological and Anthropological Sciences* 11, 6183–96
- Corcoran, J.X.W.P. 1969. The Cotswold-Severn group: distribution, morphology and artifacts. In T.G.E. Powell, J.X.W.P. Corcoran, F. Lynch & J.G. Scott, *Megalithic Enquiries in the West of Britain*, 13–72. Liverpool: Liverpool University Press.
- Couderc, P. 2018. Houses for bones. Collective disposal of the dead among the Uut Danum of Borneo. In A. Schmitt, S. Déderix & I. Crevecoeur (eds), *Gathered in Death. Archaeological and ethnological perspectives on collective burial and social organisation*, 63–84. Louvain: Presse Universitaires de Leuven
- Cummings, V. & Richards, C. 2021. *Monuments in the Making: building the great dolmens of north-west Europe*. Oxford: Windgather Press
- Cummings, V., Hoffman, D., Bjernevad-Ahlqvist, M. & Iversen, R. 2022. Muddying the waters: reconsidering migration in the Neolithic of Britain, Ireland and Denmark. *Danish Journal of Archaeology* 11 [<https://doi.org/10.7146/dja.v11i.129698>]
- Cuthbert, G.S. 2019. *Enriching the Neolithic: the forgotten people of the barrows*. Unpublished PhD thesis, University of Exeter
- Darvill, T. 2004. *Long Barrows of the Cotswolds and Surrounding Areas*. Stroud: Tempus
- Darvill, T. 2011. Excavations at a Neolithic enclosure on The Peak, near Birdlip, Gloucestershire. *Proceedings of the Prehistoric Society* 77, 139–204
- Dixon, P. 1988. The Neolithic settlements on Crickley Hill. In C. Burgess, P. Topping, C. Mordant & M. Madison (eds), *Enclosures and Defences in the Neolithic of Western Europe*, 75–87. Oxford: British Archaeological Report S403
- Dixon, P., Bayliss, A., Healy, F., Whittle, A. & Darvill, T. 2011. The Cotswolds. In Whittle *et al.* (eds) 2011, 434–75
- Durkin, D. 2022. Gathering space. In Last (ed.) 2022, 167–86

- Edmonds, M. 1999. *Ancestral Geographies of the Neolithic*. London: Routledge
- Evans, C. & Hodder, I. 2006. *A Woodland Archaeology: Neolithic sites at Haddenham*. Cambridge: McDonald Institute for Archaeological Research
- Fleming, A. 1972. Vision and design. Approaches to ceremonial monument typology. *Man* 7 (1), 57–73
- Fowler, C. 2022. Social arrangements. Kinship, descent and affinity in the mortuary architecture of Early Neolithic Britain and Ireland. *Archaeological Dialogues* 29 (1), 67–88 [<https://www.doi.org/10.1017/S1380203821000210>]
- Fowler, C., Olalde, I., Cummings, V., Armit, I., Buster, L., Cuthbert, S., Rohland, N., Cheronet, O., Pinhasi, R. & Reich, D. 2022. A high-resolution picture of kinship practices in an Early Neolithic tomb. *Nature* 601, 584–7 [<https://doi.org/10.1038/s41586-021-04241-4>]
- Furholt, M. 2021. Mobility and social change: understanding the European Neolithic period after the archaeogenetic revolution. *Journal of Archaeological Research* 29, 481–535 [<https://doi.org/10.1007/s10814-020-09153-x>]
- Galer, D. 2006. The human remains. In Benson & Whittle (eds) 2006, 189–220
- Griffiths, S. 2022. A chronology of the Black Mountains tombs and their place in the early Neolithic of south Wales and the Marches. In Britnell & Whittle (eds) 2022, 79–114
- Hedges, R., Saville, A. & O’Connell, T. 2008. Characterizing the diet of individuals at the Neolithic chambered tomb of Hazleton North, Gloucestershire, England, using stable isotopic analysis. *Archaeometry* 50 (1), 114–28 [<https://doi.org/10.1111/j.1475-4754.2007.00379.x>]
- Hofmann, D. 2015. What have genetics ever done for us? The implications of aDNA data for interpreting identity in early Neolithic central Europe. *European Journal of Archaeology* 18, 454–76 [<https://doi.org/10.1179/1461957114y.0000000083>]
- Hoskins, J. 1986. So my name shall live: stone-dragging and grave-building in Kodi, West Sumba. *Bijdragen tot de Taal-, Land- en Volkenkunde* 142, 31–51
- Johnston, B. 2020. *Bronze Age Worlds: a social prehistory of Britain and Ireland*. London: Routledge.
- Kristiansen, K. 2022. *Archaeology and the Genetic Revolution in European Prehistory*. Gothenburg: Gothenburg University Press
- Last, J. (ed.). 2022. *Marking Place: new perspectives on early Neolithic enclosures*. Oxford: Neolithic Studies Group Seminar Papers 18
- McKinley, J. 2008. The human remains. In R. Mercer and F. Healy (eds), *Hambledon Hill, Dorset, England: excavation and survey of a Neolithic monument complex and its surrounding landscape*, 477–521. Swindon: English Heritage
- Meadows, J., Barclay, A. & Bayliss, A. 2007. A short passage of time: the dating of the Hazleton long cairn revisited. In Bayliss & Whittle (eds) 2007, 45–64
- Neil, S. 2022. ‘Local’ or ‘non-local’? Interpreting isotope results from the Black Mountains long cairns. In Britnell & Whittle (eds) 2022, 207–14
- Neil, S., Evans, J., Montgomery, J. & Scarre, C. 2016. Isotopic evidence for residential mobility of farming communities during the transition to agriculture in Britain. *Royal Society Open Science* 3, 1–14 [<https://doi.org/10.1098/rsos.150522>]
- Olalde, I., Brace, S., Allentoft, M., Armin, I., Kristiansen, K., Booth, T. et al. 2018. The Beaker phenomenon and the genomic transformation of northwest Europe. *Nature* 555, 190–6 [<https://doi.org/10.1038/nature25738>]
- Oswald, A., Dyer, C. & Barber, M. 2001. *The Creation of Monuments. Neolithic causewayed enclosures in the British Isles*. London: English Heritage
- Overton, N., Ray, K. & Thomas, J. 2022. Structural and sequential complexity in causewayed enclosures: implications from Dorstone Hill, Herefordshire. In Last (ed.) 2022, 43–60
- Parmenter, P., Johnson, E. & Outram, A. 2015. Inventing the Neolithic? Putting evidence-based interpretation back into the study of faunal remains from causewayed enclosures. *World Archaeology* 47, 819–33
- Pollard, J. 2022. Interrogating the third dimension: enclosures and surface artefact distributions. In Last (ed.) 2022, 15–32
- Powell, A. 2005. The language of lineage: reading Irish court tomb design. *European Journal of Archaeology* 8, 9–28
- Ray, K. & Thomas, J. 2018. *Neolithic Britain: the transformation of social worlds*. Oxford: Oxford University Press.
- Renfrew, C. 1973. Monuments, mobilisation and social organisation in Neolithic Wessex. In C. Renfrew (ed.), *The Explanation of Culture Change*, 539–58. Pittsburgh PA: University of Pittsburgh Press
- Rivollat, M., Thomas, A., Ghesquière, E., Rohrlach, A., Späth, E., Pemonge, M-H, Haak, W., Chambon, P. & Deguilloux, M-F. 2022. Ancient DNA gives new insights into a Norman Neolithic monumental cemetery dedicated to male elites. *Proceedings of the National Academy of Sciences* 119 (18) [<https://doi.org/10.1073/pnas.2120786119>]
- Rogers, J. 1990. The human skeletal material. In Saville 1990, 182–98
- Sánchez-Quinto, F., Malmström, F., Fraser, M., Girdland-Flink, L., Svensson, E., Simões, L., George, R., Hollfelder, N., Burenhult, G., Noble, G., Britton, K., Talamo, S., Curtis, N., Brzobohata, H., Sumberova, R., Götherström, A., Storå, J. & Jakobsson, M. 2019. Megalithic tombs in western and northern Neolithic Europe were linked to a kindred society. *Proceeding of the National Academy of Sciences, USA* 116, 9469–74
- Saville, A. 1990. *Hazleton North: the excavation of a Neolithic long cairn of the Cotswold-Severn group*. London: English Heritage
- Saville, A. 2010. Anatomizing an archaeological project – Hazleton revisited. *Transactions of the Bristol and Gloucestershire Archaeological Society* 128, 9–27
- Scheib, C., Hui, R., D’Atanasio, E., Wohns, A., Inskip, S., Rose, A., Cessford, C., O’Connell, T., Robb, J., Evans, C., Patten, R. & Kivisild, T. 2019. East Anglian early Neolithic monument burial linked to contemporary megaliths. *Annals of Human Biology* 46, 145–9

- Schulting, R. & Wysocki, M. 2005. 'In this chambered tumulus were found cleft skulls ...': an assessment of the evidence for cranial trauma in the British Neolithic. *Proceedings of the Prehistoric Society* 71, 107–38
- Smith, M. & Brickley, M. 2009. *People of the Long Barrows*. Stroud: History Press
- Stone, L. & King, D.E. 2018. *Kinship and Gender: an introduction*. London: Routledge
- Thomas, J. 2013. *The Birth of Neolithic Britain*. Oxford: Oxford University Press
- Thomas, J. 2022. Neolithization and population replacement in Britain: an alternative view. *Cambridge Archaeological Journal* 32 (3), 507–25
- Thomas, J. & Whittle, A. 1986. Anatomy of a tomb – West Kennet revisited. *Oxford Journal of Archaeology* 5, 129–54
- Whittle, A., Bayliss, A. & Wysocki, M. 2007. Once in a lifetime: the date of the Wayland's Smithy long barrow. In Bayliss & Whittle (eds) 2007, 103–21
- Whittle, A., Bayliss, A. & Healy, F. 2022a. A decade on: revised timings for causewayed enclosures in southern Britain. In Last (ed.) 2022, 203–22
- Whittle, A., Britnell, W. & Griffiths, S. 2022b. The first stones: taking and keeping the land. In Britnell & Whittle (eds) 2022, 251–76
- Whittle, A., Healy, F. & Bayliss, A. 2011. *Gathering Time: dating the early Neolithic enclosures of southern Britain and Ireland*. Oxford: Oxbow.
- Whittle, A., Pollard, J. & Greaney, S. (eds). 2022c. *Ancient DNA and the European Neolithic: relations and descent*. Oxford: Neolithic Studies Group Seminar Papers 19

RÉSUMÉ

Descendance matérialisée : formation et transformation de la lignée au début du Néolithique au sud de la Grande Bretagne, de Vicki Cummings et Chris Fowler

Cet article est basé sur les résultats récents de l'ADN ancien provenant du tumulus avec chambres mégalithiques de Hazleton North pour explorer comment les populations auraient pu, à divers reprises, négocier leurs conceptions de parenté, de descendance et d'affinité sociale au début du Néolithique au sud de la Grande-Bretagne. Le monument de Hazleton North, construit vers 3700 av. J.-C., a été utilisé pendant moins d'un siècle et – contrairement à de nombreuses autres tombes de la région des Cotswold-Severn – n'a jamais été modifié afin de changer la disposition des chambres. L'analyse de l'ADN ancien de 35 individus inhumés dans le monument a révélé que 27 étaient biologiquement apparentés et représentaient cinq générations séquentielles. Nous explorons ici l'évolution des pratiques funéraires à travers ces générations. Nous avançons que Hazleton North a été construit pour démontrer la vitalité d'une lignée à un moment précis dans le temps, tandis que les choix concernant les personnes à enterrer indiquent une expansion inclusive de la lignée dans les deux premières générations, ce qui n'est plus évident au cours des générations suivantes. Selon nous, les membres de la lignée ont choisi, à partir de la troisième génération, et de façon croissante, de disposer les restes de leurs morts en d'autres lieux. Hazleton North a été construit dans un paysage riche en tombes antérieures, dont beaucoup ont été modifiées pour produire de longs cairns à plusieurs chambres ; certaines de celles-ci formaient des paires opposées similaires aux deux chambres à l'intérieur du cairn de Hazleton North. Nous soutenons que cela faisait partie d'une tendance croissante au 'travail de parenté' qui a accentué la descendance linéaire et les distinctions de sous-lignage au cours des siècles autour de 3700 av. J.-C. Cependant, le dépôt funéraire à Hazleton North a été de courte durée. Cela peut être placé dans le contexte local non seulement de la construction et de l'utilisation d'autres tumuli avec chambres mégalithiques mais aussi de l'augmentation des investissements dans des projets collectifs plus importants tels que les enceintes à fossés interrompus. Ces enceintes formaient de nouvelles arènes où les négociations de filiation et de communauté se jouaient avec une intensité accrue et de manière différente aux activités des cairns funéraires. Dans l'ensemble, nous soutenons que la parenté, l'affiliation et l'appartenance ont été renégociées à plusieurs reprises parmi les communautés qui construisaient les monuments du sud de la Grande-Bretagne au début du Néolithique.

ZUSAMMENFASSUNG

Die Materialisierung der Herkunft: Die Formierung und Transformation von Abstammung im frühneolithischen Südbritannien, von Vicki Cummings und Chris Fowler

Auf Basis der jüngsten Ergebnisse zur aDNA aus dem Kammergrab von Hazleton North untersucht dieser Beitrag, wie Menschen im Frühneolithikum im Süden Großbritanniens wiederholt Verwandtschaft, Abstammung und Zugehörigkeit ausgehandelt haben könnten. Hazleton North wurde um 3700 BC errichtet,

war weniger als ein Jahrhundert lang in Gebrauch und – anders als viele andere Gräber der Cotswold-Severn-Gruppe – wurde nie umgebaut, um die Anordnung der Kammern zu verändern. Die aDNA-Analysen von 35 Individuen, deren Überreste hier niedergelegt worden waren, zeigen, dass 27 davon biologisch verwandt waren und fünf aufeinanderfolgenden Generationen zugehören. Wir untersuchen hier sich ändernde Praktiken über diese Generationen hinweg. Wir argumentieren, dass Hazleton North errichtet wurde, um die Vitalität der Lineage zu einem bestimmten Zeitpunkt zu demonstrieren, während die Entscheidung darüber, wer hier niedergelegt werden sollte, eine umfassende Erweiterung der Lineage in den ersten beiden Generationen anzeigt, die in den nachfolgenden Generationen nicht mehr erkennbar ist. Wir sprechen uns dafür aus, dass Mitglieder der Lineage ab der dritten Generation zunehmend entschieden, die Überreste ihrer Toten anderswo niederzulegen. Hazleton North war in einer Landschaft angelegt worden, die reich war an älteren Gräbern, von denen viele zu langen Cairns mit vielen Kammern umgearbeitet worden waren: Einige hiervon bildeten gegenüberliegende Paare, vergleichbar mit den Kammern in Hazleton North. Wir argumentieren, dass dies Teil einer in den Jahrhunderten um 3700 BC zunehmenden Entwicklung in „Verwandtschaftsarbeit“ war, die lineare Abstammung und Unterschiede in der Sub-Lineage betonte. Die Niederlegungen in Hazleton North waren jedoch von kurzer Dauer. Dies lässt sich in den lokalen Kontext einordnen, in dem nicht nur weitere Kammergräber gebaut und genutzt wurden, sondern auch vermehrt in größere Gemeinschaftsprojekte wie Causewayed Enclosures investiert wurde. Diese Erdwerke bildeten neue Arenen, in denen Abstammung und Gemeinschaft mit zunehmender Intensität und anders als im Rahmen der Aktivitäten in Kammergräbern ausgehandelt wurden. Insgesamt argumentieren wir, dass Verwandtschaft, Affiliation und Zugehörigkeit wiederholt in den Gemeinschaften, die die Monumente des Frühneolithikums im Süden Großbritanniens erbaut haben, ausgehandelt wurden.

RESUMEN

Materializando la descendencia: la formación de los linajes y su transformación en el Neolítico inicial en el sur de Gran Bretaña, por Vicki Cummings y Chris Fowler

Este artículo se centra en los recientes resultados de ADN antiguo de la tumba con cámara de Hazleton North y explora cómo los distintos grupos humanos podían haber acordado reiteradamente el parentesco, la descendencia y la afinidad durante el Neolítico inicial en el sur de Gran Bretaña. Hazleton North se construyó en torno al 3700 BC y estuvo en uso durante, al menos un siglo, y, a diferencia de muchas otras tumbas de Costwold Severn, nunca se modificó para alterar la disposición de las cámaras. El ADN antiguo de 35 individuos cuyos restos fueron depositados en el sitio revelan que 27 de ellos estaban biológicamente relacionados y representan cinco generaciones secuenciales. Aquí exploramos la modificación de estas prácticas durante estas generaciones. Sostenemos que Hazleton North fue construido para demostrar el vigor de un linaje en un momento específico, mientras que las opciones sobre a quién enterrar indican una expansión inclusiva del linaje en las primeras dos generaciones que no es evidente en las generaciones posteriores. Sostenemos que los miembros de la tercera generación optaron cada vez más por depositar los restos de sus muertos en otros lugares. Hazleton North se construyó en un paisaje rico en tumbas anteriores muchas de las cuales fueron modificadas para producir grandes túmulos con cámaras múltiples: algunos de los cuales formaron pares opuestos similares a las áreas con cámaras de Hazleton North. Sostenemos que esto fue una tendencia creciente en el ‘trabajo de parentesco’ que acentuó la descendencia lineal y las distinciones de los sub-linajes en los siglos en torno al 3700 BC. Sin embargo, la deposición en Hazleton North duró poco. Esto se puede establecer en el contexto no sólo de la construcción y uso de las demás tumbas con cámaras sino también en una inversión creciente en los grandes proyectos corporativos, como los grandes recintos cerrados. Estos recintos formaron nuevos entornos donde las negociaciones entre los descendientes y las comunidades se plantearon con una creciente intensidad y en formas diferentes a las actividades que se estaban desarrollando en las tumbas con cámaras. En general, sostenemos que el parentesco, la filiación, y la pertenencia se renegociaron repetidamente entre las comunidades que llevaron a cabo la construcción de estas estructuras monumentales durante el Neolítico inicial en el sur de Gran Bretaña.