THE SPEAR IN EARLY ANGLO-SAXON ENGLAND: A SOCIAL-TECHNOLOGICAL HISTORY

By

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To Rachel, and to our longsuffering cat.
For five years they received less of my attention than they deserved, and each found little consolation in the other’s company.

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This dissertation studies the history of the early medieval English iron spearhead, an artifact whose interpretation has been central to debates about how Roman Britain transformed into the early medieval English kingdoms. It explores how scholars have historically interpreted this artifact, discusses the challenge of spearheads' corroded condition, and reveals new avenues of analysis for understanding spears' place in early medieval social life. The study examines 900 spearheads buried in human graves between 450-700 CE. It uses theories of material agency to explore these weapons' active participation in the production of new modes of social life following the collapse of the Roman Empire.

The dissertation first examines the effects of spearheads' corroded condition on their surviving form, as it impacts scholars' ability to understand the materiality of spears in their own time, and to classify their shapes in the present. Chapter 3 proposes a new spearhead typology from which the chronology of weapon burial can be re-examined.

Chapters 4 and 5 contextualize spears within early medieval community life. Chapter 4 shows how spears' significance as social objects emerged from the technological practices through which the weapons were made. Chapter 5 traces how spears became embedded in fields

of social action, and in particular how post-Roman men used weapons to express values of community citizenship and masculinity.

The final chapters reassess the funerary practices that resulted in these spears being buried with the early medieval dead. Most spears were broken before burial, and Chapter 6 argues that the weapon burial rite was a field of action in which dangerous social objects were destroyed. Chapter 7 examines how particular practices of archaeological recording and publication have, from the nineteenth century onward, hindered our ability to recognize the variety of roles that spears played in early medieval life and death. Chapter 8 concludes that spearheads offer historians and archaeologists new ways to explore the transformation of Roman Britain into early medieval England. These approaches must, however, overcome the challenges posed by spearheads' corroded condition, as well as structural biases within the archaeological data.

CHAPTER 1
INTRODUCTION

> Happening to be at Ash in the end of the year 1759, on the purpose of copying the monumental inscriptions in that church among others, and inquiring, as I always do on such occasions, whether there were any antiquities or other remarkables in the neighbourhood, I was informed of this famous sand-pit, and of the particulars above mentioned.
>
> I immediately visited the place; and after having looked about it and examined it for some little time, one of the miller's servants came into the pit to me and shewed me something sticking out, about three or four inches out of the sand, at about three feet from the surface of the eastern and deepest part of the pit. It appeared to me to be nothing more than some piece of stick or some root; but he assured me it was the head of a spear; and said he was certain there was a grave there...
>
> The head of the spear (for such indeed it proved) they, at the first or second stroke of their spades, contrived to break all to pieces. Indeed it was very brittle·[1]

The study of early medieval English spears began with Bryan Faussett in the sand-pit of Ash, Kent. Faussett carefully excavated the pit in one of the first antiquarian investigations of an early medieval cemetery.[2] Many of the objects Faussett found survive today in the off-site stores of the Liverpool World Museum, the first collection that I visited during my PhD research. A Nazi bomb struck the Liverpool library and museum in 1941, destroying the labels and records associated with most of these objects. Consequently, although the spearheads Faussett found in the sand-pit survive in remarkably good condition, little more is known about the context in which they were buried. They are objects whose origins are recorded, but whose history is forgotten.

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[1] Bryan Faussett, *Inventorium Sepulchrale: An Account of Some Antiquities Dug Up at Gilton Kingston, Sibertsworld, Barfriston, Beakesbourne, Chartham, and Crundale, in the County of Kent, from A.D. 1757 to A.D. 1773*, edited by Charles Roach Smith (London: T. Richards, 1856), 1-2.

[2] Recounted in full in Faussett.

Relics of a Germanic Past?

Since Faussett's early discovery, we have excavated over 4,000 spearheads from graves of the "early Anglo-Saxon period" (c.450-650), yet—like the spearheads from the sand-pit—we know frustratingly little about most of these objects' history. The fifth, sixth, and seventh centuries from which these spearheads come comprise a pivotal but poorly documented period in England's past. At the start of the fifth century, Britain was a Roman province whose countryside was dotted with stone villas and whose people were Roman citizens whose material culture participated in the wider habitus of the Roman West. By the opening of the seventh-century, Britain's villas were ruined, its material culture transformed, and its politics fractured into dozens of small, rural kingdoms whose rulers often explicitly rejected ties to the Roman past.[3]

The centuries between lie at the heart of modern myths of English identity. The collapse of Roman Britain has, since the Early Middle Ages, been framed in terms of the mass-migration of "Germanic" peoples (Angles, Saxons, and Jutes) from Northern Europe into lowland Britain.[4] These stories are, however, as much myth as fact; they are based on a single text from the sixth century that has been remixed and elaborated over 1500 years into an increasingly detailed origin myth for the "English people."[5] Before the 1980s, this textual story formed the largely

[3] For recent overviews of this transformation, see Robin Fleming, *Britain after Rome* (Penguin, 2011), 30-88; James Gerrard, *The Ruin of Roman Britain* (Cambridge: Cambridge University Press, 2013).

[4] For historiographical overviews of modern versions of these narratives, see Catherine Hills, *Origins of the English* (Duckworth, 2003); Guy Halsall, *Worlds of Arthur* (Oxford: Oxford University Press, 2013), 11-48.

[5] Gildas' *De Excidio Britanniae*, written probably in the sixth century. For discussion of Gildas' legacy in Bede, the *Anglo-Saxon Chronicle*, and later accounts of English origins, see Halsall, *Worlds of Arthur*, 51-86.

unchallenged framework through which archaeological discoveries were interpreted.[6] Even now, following nearly four decades of theoretical revision, the "Germanic interpretation" remains the dominant paradigm for making sense of the meaning and social function of objects buried with the dead.

The 4,000 spearheads found by archaeologists had been interpreted as one of the most important evidences for the arrival of the new "Germanic" culture in the fifth century. Romans did not bury weapons with the dead;[7] but by the end of the fifth century, roughly half the men buried in lowland Britain (i.e. modern southeast England) were buried with a spear in their graves.[8] Nineteenth- and twentieth-century scholars interpreted spears as quintessentially "Germanic" objects whose appearance marked the arrival of these migratory peoples. They read Tacitus, who declared that spears took the place of togas as the symbol of civic membership for Germanic men, against Old Norse sagas which described Oðinn's weapon Gungnir, and from these constructed a pan-Germanic mythology in which the spear embodied the ancient values of freedom that purportedly characterized the English "Anglo-Saxon race."[9] Warriors were buried

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[6] Sam Lucy, *The Anglo-Saxon Way of Death: Burial Rites in Early England* (Stroud: Sutton, 2000), 155-73; Halsall offers nuanced objections to this view, however, in *Worlds of Arthur*, 26-48.

[7] At least, according to received wisdom. Recent studies have problematized this simple dichotomy, in particular

Guy Halsall, "The origins of the Reihengräberzivilisation: forty years on," in J.F. Drinkwater and H. Elton, ed., *Fifth-Century Gaul: A Crisis of Identity?* (Cambridge, 1992), 196-207; Halsall, "Archaeology and the late Roman frontier in Northern Gaul: The so-called Föderatengräber reconsidered," in W. Pohl and H. Reimitz, ed., *Grenze und Differenz im früheren Mittelalter* (Österreichische Akademie der Wissenschaften: Vienna, 2000), 167-80; Gerrard, *The Ruin*, 206-07; Frans Theuws, "Grave Goods, Ethnicity, and the Rhetoric of Burial Rites in Late Antique Northern Gaul," in *Ethnic Constructs in Antiquity: The Role of Power and Tradition*, by Ton Derks and Nico Roymans (Amsterdam: Amsterdam University Press, 2009), 283–320.

[8] Heinrich Härke, "Early Saxon Weapon Burials: Frequencies, Distributions and Weapon Combinations," in *Anglo-Saxon Weapons and Warfare*, ed. by Sonia Chadwick Hawkes, 49–61, Oxford University Committee for Archaeology Monograph 21 (Oxford: Oxford University Committee for Archaeology, 1989), 49.

[9] E.g. May Lansfield Keller, *Anglo-Saxon Weapon Names Treated Archaeologically and Etymologically* (Heidelberg: C. Winter, 1906), 18-30; Richard Wegner, "Die Angriffswaffen de Angelsachsen" (PhD Diss., Albertus-Universität, 1899), 1-10.

with spears because these weapons embodied their identity: as Germans, as free men, and as conquerors who seized England from the ancestors of the Welsh.[10] Where spears were found, Germanic peoples were also.

Spears appear in British archaeology at a key moment in the island's social transformation; yet modern studies have shown that these weapons were not the exclusive property of Germanic cultures. Spears were powerful symbols in the late Roman Empire as well as in the *barbaricum*. In Roman legal commentary, the spear shaft represented the right to property won through service to Rome.[11] In art, the spear represented the emperor's power of *imperium*, and elite mastery over wild beasts through depictions of the hunt.[12] Spears held magical associations in Italic traditions that reach back far into Rome's past, evident in both written texts from the Republic and archaeological deposits from before the city's foundation.[13] The spear—the most common and useful weapon of the Ancient World—held social significance across cultural boundaries at the beginning of the Late Antique "Migration Era." Thus it was that while communities in Britain buried their dead with spears in the sixth century, leading men in Constantinople also surrounded themselves with *doryphoroi*, spear-bearing bodyguards recruited

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[10] Cf. Howard Williams, "Anglo-Saxonism and Victorian Archaeology: William Wylie's Fairford Graves," *Early Medieval Europe* 16 no. 1 (2008): 49-88.

[11] "Festuca autem utebantur quasi hastae loco, signo quodam iusti dominii, quando iusto dominio ea maxime sua esse credebant, quae ex hostibus cepissent; unde in centumuiralibus iudiciis hasta proponitur." Gaius, *Institutionum Commentarii Quattuor*, IV.16, in *Gai Institutionum Commentarii Quattuor: Separatim ex Iurisprudentiae Anteiustinianae Reliquiarum a Ph. Eduardo Huschke Compositarum*, by E. Seckel and B. Kuebler, 6th edition (Leipzig: B.G. Teubner, 1903), 196.

[12] Imperium: Andrew Alföldi, "Hasta--Summa Imperii: The Spear as Embodiment of Sovereignty in Rome," *American Journal of Archaeology* 63 no. 1 (1959): 1–27; Hunting: Theuws, "Grave Goods."

[13] Alföldi, "Hasta--Summa Imperii."

from elite Roman families.[14] Spears in lowland Britain were not unique expressions of "Germanic" culture; they were, rather, a local expression of a wider late antique fascination with instruments of violence, of which the spear was chief.[15]

Social Products, or Producers?

The present study examines spears as a social technology of violence: a tool whose ubiquity in late antique British society transformed social relationships in that far corner of the post-Roman West. Spears are tools, and spears, like the tools of artisans, transform the materials on which they are used. As instruments of violence, spears kill; yet they also hold the power to build connections between persons. Spears can refashion interpersonal relationships by threatening harm or promising protection. Spears build communities by creating insiders and outsiders, those for and against whom violence is practiced. In legal assemblies, spears embody the ability of arbiters of justice to enforce their decisions. On the farmyard, spears drive off predators that threaten livestock. On the road, spears keep travelers from harm. In the hand, spears transform ordinary persons into spearmen who control life and death. As tools of violence in a post-Roman landscape, spears could actively maintain and produce social relationships through violent praxis.

Spears' social significance, however, and their widespread burial in post-Roman lowland Britain (the "weapon burial rite") has long been studied as a product rather than producer of socio-cultural change. Early philological studies of spearheads tried to reconcile the physical

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[14] E.g. Procopius, *Wars*, VII.xxvii.3-4, in H.B. Dewing, *Procopius, with an English translation*, vol. 4, Loeb Classical Library (Cambridge, MA: Harvard University Press, 1912), 387-89.

[15] Philipp von Rummel describes how late antique Roman civilian elite increasingly adopted elements of military habitus; *Habitus barbarus. Kleidung und Repräsentation spätantiker Eliten im 4. und 5. Jahrhundert.* Ergänzungsbände zum Reallexikon der Germanischen Altertumskunde, 55 (Berlin: De Gruyter, 2007).

artifacts with Germanic language-family words for weapons, and explained the weapons' cultural significance by referencing texts considered to be products of a pan-Germanic culture, including Tacitus' first-century Germania and the thirteenth-century Icelandic sagas referenced above.[16] Early archaeological studies followed this lead, identifying spearheads with "pagan" Germanic invaders.[17] In the twentieth century, writing the first book-length study of spear, Michael Swanton carried this Germanic interpretation forward by describing the 2000 spearheads in his project's corpus as exclusively the products of Continental migrants who arrived in England during the middle of the fifth century. Swanton argued that spearheads' distribution across the English countryside directly reflected the spread of Germanic migrant groups.[18]

After Swanton, a range of processual and post-processual archaeological studies re-theorized the relationships between weapons and processes of social change. Arnold, Alcock, Hawkes, and Welch each interpreted spearheads as byproducts of the social (rather than, or in addition to, the ethnic) identity of the deceased.[19] Heinrich Härke, who published the last monograph-length study of weapon burial in 1992, argued that weapons symbolized rather than

[16] Keller, 18-30; Wegner, 1-10.

[17] Cf. Howard Williams, "Anglo-Saxonism and Victorian Archaeology: William Wylie's Fairford Graves," *Early Medieval Europe* 16 no. 1 (2008): 49-88.

[18] Michael Swanton, *The Spearheads of the Anglo-Saxon Settlements* (Royal Archaeological Institute, 1973), 139-45.

[19] C.J. Arnold, "Wealth and Social Structure: a matter of life and death," in *Anglo-Saxon Cemeteries 1979*, edited by P. Rahtz, et al, 81-142, British Archaeology Reports (Oxford: 1980); Leslie Alcock, "Quantity or quality: the Anglian graves of Bernicia," in *Angles, Saxons, and Jutes*, edited by V.I. Evison (Oxford: 1981), 168-86; S.C. Hawkes, "Anglo-Saxon Kent c. 425-725," in *Archaeology in Kent to AD 1500*, edited by P.E. Leach (Council of British Archaeology Research Report, 1982), 64-78; M.G. Welch, *Anglo-Saxon England* (London, 1992); cf. also, Heinrich Härke, "Early Anglo-Saxon social structure," in John Hines, ed., *The Anglo-Saxons from the Migration Period to the Eighth Century: An Ethnographic Perspective* (Woodbridge, Suffolk: Boydell Press, 2003), 125-59.

directly reflected claims to Germanic identity.[20] Following Härke, and embracing post-processual and sometimes poststructuralist theories, a range of recent scholars have interpreted spear burial as a theatrical performance, material text, memorable display, or otherwise performative expression of the identity of the deceased, or else the identity that surviving family members wished to assert at the graveside.[21] In these later studies, spears are used by mourners to actively construct—rather than passively reflect—social relations;[22] yet in so doing, the spears remain little more than passive props within a drama whose construction depends entirely upon the agency of the humans who directed the funeral. Spears' significance within these dramas emerges from the meanings ascribed to them—ethnic affiliations, wealth, gender, or even magical personality—by the living rather than from any inherent properties, histories, or agency within the objects themselves. Spears may represent, reflect, or construct community values, but they are not studied as possible causes of those values.

In the twenty-five years since Härke published his monograph on weapon burial, a wealth of new archaeological material has been excavated and published. This is in part thanks to new

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[20] Heinrich Härke, "'Warrior Graves'? The Background of the Anglo-Saxon Weapon Burial Rite," *Past & Present* 126 (1990): 22–43; Härke, *Angelsächsische Waffengräber des 5. Bis 7. Jahrhunderts*. Zeitschrift für Archäologies des Mittelalters 6 (Köln: Rheinland-Verlag Gmbh, 1992).

[21] E.g. Heinrich Härke, "Material culture as myth: weapons in Anglo-Saxon graves", in C.K. Jensen and K.Høilund Nielsen (eds), *Burial and Society: the Chronological and Social Analysis of Archaeological Burial Data* (Aarhus, 1997), pp. 119-128; Martin Carver, "Burial as poetry: the context of treasure in Anglo-Saxon graves," in *Treasure in the Medieval West*, edited by E.M. Tyler, 25-48 (Woodbridge: Boydell, 2000); Julian Richards, "Anglo-Saxon Symbolism," in Martin O. Carver, ed., *The Age of Sutton Hoo: The Seventh Century in North-Western Europe* (Rochester: Boydell Press, 1999), 131-47, esp. p. 147; Howard Williams, *Death and Memory in Early Medieval Britain* (Cambridge: Cambridge University Press, 2006); Frans Theuws, "Grave Goods, Ethnicity, and the Rhetoric of Burial Rites"; cf. Guy Halsall, "Burial writes: graves, 'Texts' and time in early Merovingian Northern Gaul," in *Erinnerungskultur im Bestattungsritual: Archäologisch-Historisches Forum*, edited by J. Jarnut and M. Wemhoff (Munich, 2003), 61-74. Also, Guy Halsall, "Burial, Ritual and Merovingian Society," in *The Community, the Family, and the Saint: Patterns of Power in Early Medieval Europe*, edited by J. Hill and M. Swan, (Turnhout, 1998), 325-38.

[22] Cf. J. Richards, "Funerary Symbolism in Anglo-Saxon England: Further Social Dimensions of Mortuary Practice," *Scottish Archaeological Review* 3 (1984): 42.

regulations in 1990 that required archaeological investigation in advance of new construction, and in part due to the use of lottery funds to publish older excavated material which had been locked away in museum storerooms for several decades.[23] As a consequence, the archaeology of the early Anglo-Saxon period is experiencing a renaissance in data, matched by a renaissance of methods and theoretical frameworks. New methods including isotopic and genomic analyses of human skeletal remains have further complicated our understanding of early medieval migrations while enriching our understanding of early medieval persons' lives and the social context in which they lived and died.[24] Concurrently, new artifact data from their burials, including technological analyses of spearheads' metallurgy and spear shafts timber, has opened new avenues to explore the manufacture, use, and deposition of the weapons we find in human graves. Together, this data is ripe for reinterpretation.

The Spear as an Agentive Material Thing

Archaeological theories of agency offer an alternative framework for understanding how spears fit into—and helped shape—the dynamic history of Britain's post-Roman population. While "agency" has been a buzzword in historical studies for many decades, its precise meaning

[23] On developer led archaeology, cf. "Building the Future, Transforming Our Past: Celebrating Development-Led Archaeology in England, 1990-2015." Historic England, 2015. https://historicengland.org.uk/images-books/publications/building-the-future-transforming-our-past/ (accessed 28 August 2017).

[24] For a recent survey of isotopic studies, see Janet E. Kay, "Old, New, Borrowed, and Buried: Burial Practices in Fifth-Century Britain, 350-550CE," PhD, Boston College, 2017. For discussion of interpretive issues attendant to using isotopic evidence to study mobility, see Susanne Hakenbeck, "Potentials and Limitations of Isotope Analysis in Early Medieval Archaeology," *Post-Classical Archaeologies* 3 (2013): 109–25. For specific case studies, see in particular Susan S. Hughes, Andrew R. Millard, Sam J. Lucy, Carolyn A. Chenery, Jane A. Evans, Geoff Nowell, and D. Graham Pearson, "Anglo-Saxon Origins Investigated by Isotopic Analysis of Burials from Berinsfield, Oxfordshire, UK," *Journal of Archaeological Science* 42 (2014): 81–92; Paul Budd, Andrew Millard, Carolyn Chenery, Sam Lucy, and Charlotte Roberts, "Investigating Population Movement by Stable Isotope Analysis: A Report from Britain," *Antiquity* 78 no. 299 (2004): 127–41.

is not always clearly defined.[25] Archaeologist John Robb defines agency as “the capacity for effective and meaningful action.”[26] Agency often also connotes a degree of intentionality, and has been traditionally associated with human subject actors.[27] More recent debates have explored agency in the material world, with some arguing that material things’ ability to influence how humans act can be described as a material or object agency.[28] These debates provide useful tools to help untangle how human actions in historical contexts—such as bearing and burying arms in post-Roman Britain—relate to the material things with which and through which people live their lives.

Agency has become, in the past four decades, a central concept in archaeological analysis. Processual archaeologists first began to explore the role of individual agents within political systems in the late 1970s, out of a desire to put people back into archaeological analyses that some felt had become too focused on extrasomatic adaptive processes and cultural ecology.[29] By the 1980s, Sherry Ortner could write about “practice theory,” actors, or praxis as a new theoretical orientation in its own right.[30] While early studies of agency in archaeology had focused on individual and political action, these new approaches argued that agency emerged

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[25] Marcia-Anne Dobres and John E. Robb, “Agency in Archaeology: Paradigm or Platitude?” in *Agency in Archaeology*, edited by Marcia-Anne Dobres and John E. Robb, 3-17 (London: Routledge, 2000)

[26] John Robb, “Beyond Agency,” *World Archaeology* 42 no. 4 (December 2010): 515.

[27] However, cf. L. Malafouris, “At the potter’s wheel: an argument for material agency,” in *Material Agency: Towards a Non-Anthropocentric Approach*, edited by C. Knappett and L. Malafouris, 19–36 (New York: Springer, 2008).

[28] For example, C. Knappet and L. Malafouris, eds., *Material agency: Towards a non-anthropocentric approach* (Springer: 2008); and below.

[29] Robb, “Beyond Agency,” 496-97.

[30] Sherry B Ortner, “Theory in Anthropology since the Sixties,” *Comparative Studies in Society and History* 26 (1984): 126-166.

from a relationship between actors and social structures.[31] Many archaeologists borrowed concepts from anthropologist Pierre Bourdieu's *Theory of Practice* and sociologist Anthony Giddens' structuration theory, both which argued that agency is simultaneously structured by and structuring of human modes of behavior (Bourdieu's "habitus"), institutions, or material conditions.[32] Because the material conditions of social life are both a product, limiting constraint, and productive facilitator of social action, archaeological material can be studied as a historically contingent element of the social practices that happened in particular times, places, and institutions—that is "fields of action" that enabled actors to make meaningful choices.[33] Material culture ought thus to be studied as a subject participant in the actions and history of its social world rather than a mere record of past cultural values or processes.[34]

By the 2000s, many had begun to explore the ways that material culture actively participates in human social relationships. Anthropologist Bruno Latour argued that agency is shared between multiple, networked actors (or "actants"); for example, a gunman requires, to shoot, both a material actant and a human actor (a gun and a man), as well as a network of other material and social actants that support and constitute each (bullets, ethics, etc.).[35] Approaches like Latour's Actor Network Theory asked researchers to shift attention from nodes to networks,

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[31] Ibid.; Robb, "Beyond Agency," 497-99.

[32] Pierre Bourdieu, *Outline of the Theory of Practice*, trans. by Richard Nice (Cambridge University Press, 1977); Anthony Giddens, *The Constitution of Society: Outline of a Theory of Structuration* (Berkeley: University of California Press, 1984).

[33] Robb, 499-501; John C. Barrett calls these "fields of discourse"; Barrett, "Fields of Discourse: Reconstituting a Social Archaeology," *Critique of Anthropology* 7 no. 3 (January 1988): 5-16.

[34] John C. Barrett, "Agency, the Duality of Structure, and the Problem of the Archaeological Record," in *Archaeological Theory Today*, edited by Ian Hodder, 141-164 (Cambridge: Polity Press, 2001).

[35] Bruno Latour, "On Technical Mediation—Philosophy, Sociology, Genealogy," *Common Knowledge* 3 no. 2 (1994): 29-64; B. Latour, *Reassembling the social: an introduction to Actor–network theory* (Oxford: Oxford University Press, 2005).

i.e. away from subject actors and onto the connecting systems—including material things—through which actions are effected (and from which agency is assembled).[36] These networks of material things are not neutral mediators of human action; by acting in the material world, human agency both structures and is structured by the material media through which it acts. As a consequence, agency arises from material things as well as from human actors. Alfred Gell, in a pioneering work, described things' ability act like agents as "abducted agency," a secondary kind of agency derived from primary human actors—that is, an agency that causes humans to act in response to the material things with which they interact.[37] Many others built on Gell, Latour, and earlier work in practice and agency theories to develop diverse theories of material agency and materiality.[38] Some of these stressed material things' role as active mediators of human action. Others framed human interactions with material things as collaborative engagements, with agency produced through the interface between humans and material things.[39] While some followed Gell in asserting that agency begins with human (primary) actors, others proposed a "symmetrical" approach to analysis that does not assume that agency must necessarily derive with human intentionality.[40]

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[36] E.g. C. Knappett, "The neglected networks of material agency: Artefacts pictures and texts," in *Material agency: Towards a non-anthropocentric approach*, edited by C. Knappet and L. Malafouris, 139-156 (Springer: 2008).

[37] Alfred Gell, *Art and Agency: An Anthropological Theory* (Clarendon Press, 1998), esp. 13-19.

[38] Cf. Rosemary Joyce, "History and Materiality," in *Emerging Trends in the Social and Behavioral Sciences*, edited by Robert Scott and Stephan Kosslyn, 1-16 (Hoboken, NJ: John Wiley & Sons, 2015).

[39] E.g. L. Malafouris, "At the potter's wheel: an argument for material agency," in *Material Agency: Towards a Non-Anthropocentric Approach*, edited by C. Knappett and L. Malafouris, 19–36 (New York: Springer, 2008).

[40] B. Olsen, "Keeping things at arm's length: A genealogy of asymmetry," *World Archaeology* 39 no. 4 (2007): 579-588; B. Olsen, "Symmetrical Archaeology," in *Archaeological Theory Today*, edited by I. Hodder, 208-228 (Cambridge: Polity, 2012); M. Shanks, "Symmetrical archaeology," *World Archaeology* 39 no. 4 (2007): 589-596; T. Webmoor, "What about 'one more turn after the social' in archaeological reasoning? Taking things seriously," *World Archaeology* 39 no. 4 (2007): 563-578; C. L. Witmore, "Symmetrical archaeology: Excerpts of a manifesto," *World Archaeology* 39 no. 4 (2007): 546-562.

These approaches provide dynamic ways to talk about humans, things, and the productive relationships that tie us to each other. Some have used these approaches to draw attention to what things do for people. Robb, for example, argues that things are meaningful in part because of how humans use them in our projects, as parts of persistent fields of action.[41] Others look at how things use people. Archaeologist Ian Hodder, for example, argues that as people become dependent on material things, the need to maintain things' material conditions shapes human choices as people feed their dependency.[42] Some have pursued things more directly. Critical theorist Bill Brown's "thing theory" distinguishes between objects (which fit into our interpretive codes, which fall into the background of our lives) and things (which stand out, arrest us, demand our attention). We encounter "things" when objects break and thereby disrupt our sense of subjectivity, forcing us to recognize that the material world exists outside the meanings we ascribe or uses to which we put it.[43] To Brown, the question is not what things do for us, but how they demand our engagement and cause us to change.[44] Archaeologist Bjørnar Olsen, another thing theorist, similarly emphasizes the importance of studying things as themselves for the qualities of their own being rather than the meanings they derive from the subsequent uses to which humans put them. Things, Olsen argues, help make the world meaningful in their own terms as we encounter them; the meanings we design for things emerge from "the qualities that 'slumber' in the material used."[45] Jane Bennett, writing in the New Materialisms, describes these

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[41] Robb, "Beyond Agency," 506.

[42] Ian Hodder, *Entangled: An Archaeology of the Relationship between Humans and Things* (Wiley-Blackwell, 2012).

[43] Bill Brown, "Thing Theory," *Critical Inquiry* 28 no. 1 (Autumn, 2001): 4.

[44] Brown, "Thing Theory," 9.

[45] B. Olsen, *In Defense of Things; Archaeology and the Ontology of Objects* (Rowman Altamira: 2010), 153.

qualities of matter (and especially metal) as “vibrant” or life-like.[46] Tim Ingold, in contrast, minimizes this vital metaphor and focuses instead on materials’ capacity to be in motion. When humans make things (artifacts, knowledge) with the materials around us, we do so by collaborating with materials’ dynamic properties (Ingold calls this collaboration “correspondence”).[47] In the process of making things, we re-make our own subjectivity.[48]

The chapters that follow draw upon these ideas to argue that spears, in the small communities of post-Roman Britain, acted as vital participants in social life. Spears played meaningful roles in humans’ lives and deaths, due to the structured and structuring place they occupied in emergent post-Roman social institutions. Spears fostered opportunities for humans to act with creative agency while also circumscribing social fields with material constraints. As material things, spears’ physical properties—in their iron, wood, and assembled forms—forced their owners to confront the limits and potentialities of early medieval technologies of violence. The smiths, warriors, and funerary mourners who skillfully forged, used, and destroyed these weapons “corresponded” with the wood and metal’s motion and were, through making spears social objects, changed into new kinds of subjects.[49] This dissertation traces the encounters

[46] Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010). Cf. Diana Coole and Samantha Frost, *New Materialisms: Ontology, Agency, and Politics* (Duke University Press, 2010).

[47] Tim Ingold, *Making: Anthropology, Archaeology, Art and Architecture* (London: Routledge, 2013), 27-31.

[48] Ingold, *Making*, 22; Warnier reaches a similar conclusion, drawing on the writings of French phenomenologist Maurice Merleau-Ponty, German psychology Paul Schilder, and Michel Foucault’s writings on subjectivation to demonstrate how the exercise of bodily skill (motricity) shapes a person’s subjectivity. By skillfully moving our bodies, manipulating matter, and forming relationships between ourselves and each other through embodied, material relationships, humans give meaning to matter, create knowledge, and create particular, historically contingent instantiations of our selves. Jean-Pierre Warnier, “A Praxeological Approach to Subjectivation in a Material World,” *Journal of Material Culture* 6 no. 1 (March 2001): 5-24.

[49] Warnier, “Subjectivation,” but also Marilyn Strathern’s observation that as humans bring things into our subjectivity, we objectify parts of ourselves into the material objects that we chain ourselves to. These objects cannot be alienated from our selves, but they can be separated from us, exchanged with others, and thereby allowed to draw us into new relationships within wider social worlds. *The Gender of the Gift: Problems with Women and Problems with Society in Melanesia*, Studies in Melanesian Anthropology 6 (University of California Press, 1988).

between humans, their weapons, and the social worlds that emerged from their interplay in the blacksmith's workshop, the village community, the grave, and the modern archive.

The Spear in Archaeology and Text

This study focuses on two bodies of material evidence. The first is a survey of 890 weapon burials from 81 cemeteries published after 1992. These burials (the "Catalog") have been recorded into a database that allows detailed comparison of a variety of features of the burial practices, the human cadavers in the graves, and the physical measurements and properties of the 901 spearheads these 890 graves contain. I have attempted, where possible, to examine the contents of these graves personally, though in the end I fell short of the final number. The sites included in the Catalog, and the number of graves and spearheads associated with each, are listed in Table 1-1, and their locations are plotted in Figure 1-1. The second body of evidence is a survey and reassessment of metallographic laboratory analyses of the physical composition of 72 spearheads, alongside metallographic studies of 130 knives and 40 swords (for a full list of these studies, see Appendix D). Metallography is a destructive analytical technique which removes a cross-section from a metal artifact, examines it beneath magnification, and thereby identifies the material's chemical composition, hardness, and method of manufacture.[50] Metallographic data allows us to reconstruct how weapons were made, and also how they performed in the hands of the people who used them; together, this allows us to recover these weapons' properties as

[50] Cf. David A. Scott, *Metallography and Microstructure of Ancient and Historic Metals* (Marina del Rey, CA: Getty Conservation Institute / Archetype Books, 1991); Leonard E. Samuels, *Optical Microscopy of Carbon Steels* (Metals Park, OH: American Society for Metals, 1980).

things, and the resulting experiences of the humans who made, used, and sought to understand these things' "thingness" before they cast them into the ground.[51]

The following chapters also draw upon textual sources from early medieval England and its neighbors. These sources are scarce during the early Anglo-Saxon period. With the exception of Gildas' sermon on Britain's moral ruin, St. Patrick's *Life* and *Letter*, and the older portion of Æþelberht's Kentish law code,[52] all our textual sources come either from outside Britain or else from one or more centuries after the events this study seeks to understand. Contemporary Continental texts, and texts written in England in the eighth-century and beyond, may nevertheless serve as helpful analogies to understand the kinds of concerns that neighboring or earlier communities may have faced, if used with care to distinguish their literary contents from the material practices that survive in archaeological contexts.[53] For the majority of this study, the survival of early medieval material dictates that archaeological sources must provide the framework and majority of our evidence, while written texts illustrate, complicate, and supplement the material evidence's narrative.

Making, Living, and Dying with Spears

The story here told emphasizes the relationships between humans and spears: in the workshop, in daily life, at the graveside—and in our present day. The next chapter, Chapter 2, confronts the deteriorated condition of surviving spearheads, and the extent to which these can

[51] For "thingness," see Martin Heidegger, "The Thing," in *Poetry, Language, Thought*, trans. by Albert Hofstadter, 163-184 (New York: Harper and Row, 1971).

[52] Gildas, *De Excidio Britaniae*: M. Winterbottom, *Gildas: The Ruin of Britain and Other Documents* (Phillimore, 1978); Patrick, *Confessio*: 'St Patrick's declaration', in *St Patrick's World. The Christian Culture of Ireland's Apostolic Age*, trans. by Liam de Paor (Dublin, 1993), 96-108; Patrick, *Epistola*: 'St Patrick's Letter against the soldiers of Coroticus', Ibid., 109-16; Lisi Oliver, *The Beginnings of English Law* (Toronto, 2002).

[53] On the responsible use of analogies in archaeology, cf. Ann Brower Stahl, "Concepts of Time and Approaches to Analogical Reasoning in Historical Perspective," *American Antiquity* 58 no. 2 (1993): 235-260.

be reconstructed through conservation, study, and skillful recreation. Surviving spears are rusted, broken, and incomplete—no spear shafts survive intact from early medieval England. This chapter examines material evidence from the 902 spearheads in the Catalog to reconstruct the original size, shape, and weight of spears in early medieval England. This reconstruction is impeded at each step by the nature of the surviving evidence: spearheads' rusted iron resists straightforward description. The spearheads that survive changed in shape while buried, and continue to change as corrosive rust damages their metal following excavation and conservation. Consequently, description of their "original" physical properties is a (re)creative act that requires equal parts experience and imagination.

Chapter 3 discusses changes in spearhead forms and burial practices over time. Spearheads' corroded condition has made their shapes very difficult to classify according to a reliable typo-chronological sequence. Several classificatory schemes have been proposed, most recently by Hines and Bayliss in 2013.[54] This chapter discusses the ultimate failure of Hines and Bayliss' spearhead typology to resolve longstanding challenges of classification that have plagued archaeologists for a century. Their new method proposes that objective measurements of artifacts be used to classify spearheads' surviving forms; but this method fails to account for the full range of transformations of shape that result from corrosion. As a consequence, its implementation is inconsistent and inaccurate. A new typology is needed, and the chapter suggests and tests a new typology whose results appear promising. The new classificatory scheme is used to reconstruct a refined chronology of spearhead types, and weapon burials, across the fifth through seventh centuries.

[54] John Hines and Alex Bayliss, eds. *Anglo-Saxon Graves and Grave Goods of the 6th and 7th Centuries AD: A Chronological Framework*. The Society of Medieval Archaeology Monograph 33. London: The Society for Medieval Archaeology, 2013.

Chapter 4 turns to the materials from which spears were made, and the way that these materials' skillful use by artisans shaped human experiences and perceptions of finished weapons. Spears were made from living trees and poor-quality, often recycled iron. The combination of these materials resulted in weapons whose physical properties were inconsistent and unpredictable. Focus on artisans' choices of materials and their attempts to bring these materials under control, evident from laboratory analysis of surviving spearheads, shows that spears' social properties emerged out of human experiences of their materials. In contrast to a modern understanding of iron and wood as essentially inert or stable materials, early medieval persons experienced spears as changeable, agentive objects whose vibrant, non-human personalities emerged as the weapons were used.

Chapter 5 contextualizes these agentive objects within rural agrarian life c. 500. The majority of spears considered in this study were recovered from farming communities, and occupied important social niches within the rhythms of local life. This chapter examines the relationships that emerged between spears and spearmen within these fields of action, and in particular the role that spears played in the development of different types of social identity and personhood as youths grew to adulthood and took up arms.

Chapter 6 turns, finally, to the burial contexts where spears are found. It advances new interpretations of metallographic evidence and burial contexts and argues that many spears were broken or "unmade" during the course of the funeral. Analysis of grave plans of the weapon burials in the Catalog shows that nearly half the spears buried were snapped in two before being placed in the ground. Analysis of spearheads' metallurgy likewise shows that many were heated before burial, a destructive process that ruined the physical properties within their metal that made them functional and dangerous. This chapter argues that the destruction of weapons was a reaction, indeed a necessary response, to the agency these weapons accrued in relation to the social networks of which they were part. Mourners at the graveside unmade precisely those elements of the spear's material body through which its agency, personality, and "thingness" were experienced. These practices stand separate from the burial of the human corpse, and show that mourners employed funerary practices centered on the spear's own material agency rather than solely the identity of the deceased.

Chapter 7 finally turns to the relationship between spear and corpse in the grave. Debates about the identity of the bodies buried with spears repeatedly return to debates about whether these persons should or should not be identified as belonging to a "Germanic" cultural group. These disagreements have been debated on epistemological grounds (i.e. how can we know the identities of persons in the past), but this chapter argues that we have largely ignored deeper ontological questions about the nature of the object of study, the weapon grave. The search for identity has led two centuries of scholars to treat the grave and its contents as a unitary whole which, taken together, encapsulates the meaning or message of the funeral. Meaning, however, is produced from action—from motion—and the way spears were placed into graves varies widely across the Catalog. Diverse burial practices created diverse experiences among the graveside mourners, and produced diverse sets of meanings within the wider burial rite. These meanings' content is often irrecoverable, as it depends upon interactions between mourners, the corpse, and buried weapons which leave no material traces. Those traces that do survive, however, reveal concerns with thresholds, boundaries, and the separation between the living and the dead. Spears were used, in the grave as in life, to define the limits of community through acts of violence and acts of protective care. Other social identities—including ethnic affiliation—may well have been expressed, but these are not evident in the material in this study's Catalog.

Chapter 8 examines the end of weapon burial in the seventh century, as new elites coopted the funeral practice of weapon burial and opened alternative fields of action within their great feasting halls. By the end of the seventh century, weapon burial was effectively extinct, and negotiations of weapons' materiality and the social relationships with which they were entangled moved from the funeral to other spaces and places such as rivers and, increasingly, story and song.

Spears as "Vibrant Matter"

Within each chapter, small pieces of a story about spears' materials emerge.[55] Iron and wood, the materials from which the spear was made, are unstable things that are not easily reconciled with human projects. Wood is, of course, a living thing: when a tree is killed, its body's desiccated cells are uneven, porous fibers that warp, decay, and split apart if they are not carefully preserved. No intact spear shafts from the early Anglo-Saxon period survive: we have only fragments, captured within the promiscuous accretions of corrosion product that grew outward from the rusting iron of spears' sockets. Iron—elemental ferrite—is not, traditionally, a material we would call alive. Its atoms, however, are like the living fibers of a tree filled with the chemical potential to move and grow. Iron's charged atoms reach outward and try to couple with their surroundings, particularly with oxygen to form the chemical compound rust.[56] Left alone, iron changes shape, color, and size; its shining surfaces transform into tuberous, twisted contortions of multicolored rust. It was one such contortion that Faussett mistook for "nothing

[55] Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010).

[56] Cf. Bennett, 52-61.

more than some piece of stick or some root."[57] Left alone, iron will quickly assume this new form, changing and degrading until nothing of the worked artifact remains.

The spear—made of inert, straight timber and shining metal—suspends these materials' proclivity for motion. Spears are not inert things, but rather materials bound together by carefully, skillfully woven tensions. These tensions gave spears the stiffness, sharpness, and strength that their early medieval users experienced when they shaped, held, and used these weapons, and they inspired the choices that brought so many weapons to the grave. These same tensions within spears' materials confront us today with a problem: the spears we study are not inert things. They are materials in motion. Their wood is decayed, and their metal continues to rust and change despite our best efforts to conserve, classify, and preserve its material. Spears are, as Faussett found 250 years ago, brittle—they to pieces when they're touched. Such is the nature of the material from which they are made. The theme of the chapters which follow, the defining experience of my many years of holding, measuring, and attempting to describe these changeable things, is the unwillingness of spears' material to be fixed in place. The spears of early medieval lowland Britain are vital things: materials in the process of becoming something else. To understand these materials, we must abandon the affectation of dispassionate objectivity and enter into the study as participant observers who experience the subjectivity of our material alongside it as it journeys through time.

A Note on Terminology

In the pages that follow, I use several terms whose meanings have occasioned long debate and should therefore be clarified. The most contentious, of late, is the phrase "Anglo-Saxon." Originating in the Early Middle Ages, this term took on racial and nationalist

[57] Faussett, 2.

associations which it has yet to fully shake. Within the historical disciplines, “Anglo-Saxon” has often further been used to define a distinctly English, and often ahistorical culture group that purportedly emerged in England following the Britain’s fifth-century invasion by violent Angle and Saxon tribesmen. In fact, the cultural practices and identities of the post-Roman lowland British countryside were far more complicated, and it would be inaccurate to speak of an “Anglo-Saxon England” until many centuries after the period discussed in the present study. I have consequently refrained from describing the cultures, peoples, identities, or territories discussed in the following chapters as “Anglo-Saxon,” with the exception of this dissertation’s title. I have, however, continued to identify this study’s time period as the “early Anglo-Saxon period”—a convention which has become so well established as to have taken on a meaning of its own. Similarly, I frequently refer to England as lowland Britain in recognition of the fact that the cultural distinction between the Anglo-Saxon English and the British Welsh had not yet ossified in the sixth century. The people studied below were not yet either English or British, and creating such a distinction before its time would inject modern politics unnecessarily into the early medieval past.

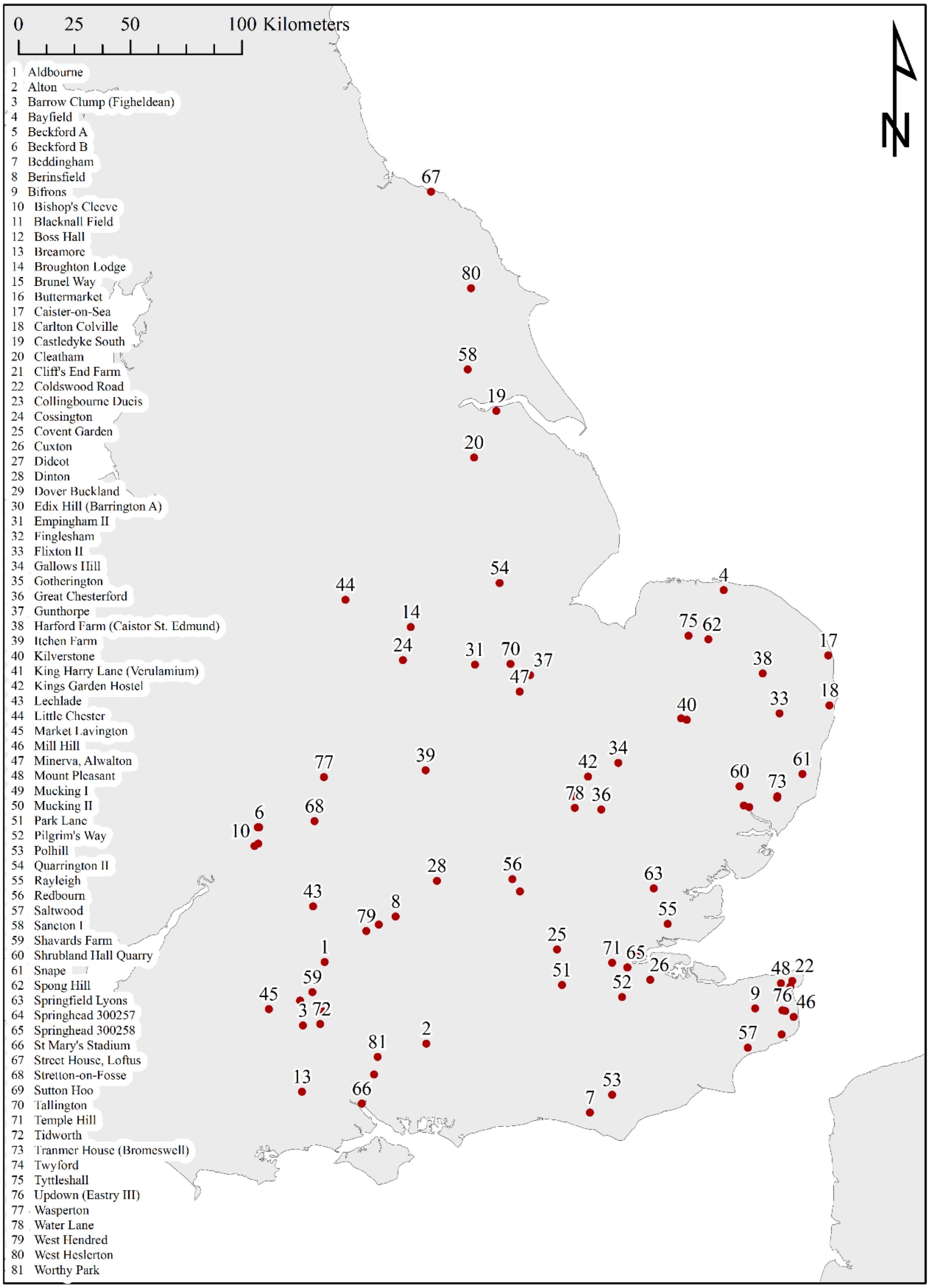

Figure 1-1. The 82 cemeteries studied by this project.

Table 1-1. List of sites studied by this project.

Site	Number of Spears
Aldbourne	0
Alton	18
Barrow Clump, Figheldean	10
Bayfield	1
Beckford A	11
Beckford B	30
Beddingham	1
Berinsfield	19
Bifrons	23
Bishop's Cleeve	4
Blacknall Field, Pewsey	16
Bloodmoor Hill, Carlton Colville	4
Boss Hall	10
Breamore	11
Broughton Lodge	34
Brunel Way	2
Buttermarket	2
Caister-on-sea	5
Castledyke South	10
Cleatham	14
Cliff's End Farm, Ramsgate	4
Coldswood Road	1
Collingbourne Ducis	15
Cossington	4
Covent Garden	1
Cuxton	9
Didcot	1
Dinton	2
Dover Buckland	60
Edix Hill (Barrington A)	22
Empingham II	41
Finglesham	21
Flixton II	16
Gallows Hill	2
Gotherington	7
Great Chesterford	21
Gunthorpe	10
Harford Farm, Caistor St. Edmund	1
Itchen Farm, Winchester	0
Kilverstone	4
King Harry Lane, Verulamium	4

Table 1-1. Continued

Site	Number of Spears
Kings Garden Hostel	1
Lechlade	28
Little Chester, Derby	1
Market Lavington	10
Mill Hill	20
Minerva, Alwalton	1
Mount Pleasant	3
Mucking I	14
Mucking II	60
Park Lane	12
Pilgrim's Way	5
Polhill*	4
Quarrington II	1
Rayleigh	2
Redbourn	1
Saltwood Tunnel	53
Sancton I	1
Shavards Farm	3
Shrubland Hall Quarry	4
Snape	15
Spong Hill	12
Springfield Lyons	9
Springhead I (300257)	4
Springhead II (300258)	8
St Mary's Stadium	9
Street House, Loftus	0
Stretton-on-Fosse	17
Sutton Hoo	3
Tallington	1
Temple Hill	12
Tidworth	4
Tranmer House, Bromeswell	14
Twyford	0
Tyttleshall	1
Updown (Eastry III)	21
Wasperton	24
Water Lane, Melbourn	6
West Hendred	1
West Heslerton	28
Worthy Park, Kingsworthy	17

CHAPTER 2
RECOVERING THE SPEAR AS A PHYSICAL THING

This project studies the spears of the early Anglo-Saxon period as material things, physical objects whose symbolic place in early medieval communities cannot be isolated from how their substantive materiality impacted the experiences of the humans who made and used them. No complete spears from the early Anglo-Saxon period, however, survive. Before we can study spears as material things, we first have to reconstruct them from the fragmentary traces that persist to the present.

Excepting several dozen well-preserved spearheads that Mudlarks dredged from the River Thames, spears survive only as rusted blades recovered from human graves. Time has not been kind to these objects' integrity. Iron is at the best of times a highly reactive substance, and fifteen-hundred years in the soil has changed these objects' form, in many cases almost beyond recognition. Traces of the original forms remain. Compositional analyses of these fragmentary artifacts can sometimes reveal the types of metals smiths had originally used to forge them, and fragments of the decomposed wooden shafts often survive inside the sockets. This makes it possible to infer many of the weapons' properties from before their decomposition. In addition, experimental recreation of complete weapons, alongside material scientific data of their constituent components, lets us imagine the appearance of uncorroded spearheads as well as how it might have felt to hold them in the hand. The ultimately reality, however, is that spears from the early Anglo-Saxon period are one of the more fragmentary and challenging types of metal artifacts to study.

This chapter attempts to peel back the corrosive effects of time to describe the physical properties of the spears of post-Roman lowland Britain as they were before their burial. The discussion begins with the metal and metallurgy of the spearheads that survive. It then turns to consider the absent shaft, whose properties can be inferred through laboratory identification of the timber species used combined with experimental recreation. Finally, it considers how the union of spearhead and shaft combined to create an effective tool whose practical utility has been obscured through the fragmentary nature of the surviving evidence. Scholarship has not been kind to these artifacts, dismissing them as crude, disposable, or ineffectual. One recent study questioned whether the spearheads found in graves were ever meant to be used, suggesting that their poor quality might indicate a purely symbolic function as purpose-built grave goods. This chapter argues that such critical views are misguided, that the thousands of spearheads recovered from graves were functional objects, and that their workmanship reveals skillful engineering that produced effective instruments of death.

The Effects of Corrosion

Although several thousand spearheads survive from the early Anglo-Saxon period, most have been fundamentally altered by the ravages of extensive corrosion (Figure 2-1). Rust has changed most spearheads' size, shape, and weight. Rust has stripped away their original surfaces. It has dulled their edges, and broken their blades apart at the seams. Rust eats away at surviving traces of spearheads' metallurgy, replacing their iron with dusty shards. Rust is the natural state to which iron artifacts, left on their own, will always return. Conservators exert significant labor to reverse corrosion's effects, and museum curators strive to retard its progress once artifacts are accessioned into museum collections. These efforts have only mixed success; among the hundreds of spearheads I have examined for this project, ongoing corrosion has caused many to become more fragmentary in the decades since their excavation, and some have entirely crumbled into dust.

As iron rusts, it changes shape. Ferrous oxides spread outward from the object, and these often form large tumorous concretions around the object, so that many spearheads now resemble brown, crumbling roots or tubers rather than sharp blades when they are taken from the ground (Figure 2-2). As the blades' metal corrodes and expands, the blade beneath is consumed and crumbles away. As a consequence, the weapons' original blade shapes are altered, sometimes radically, and it takes a measure of experienced imagination to determine how these objects originally appeared.

After excavation, spearheads are generally taken to archaeological conservators who attempt to stabilize their materials, and often also to reverse the worst effects of corrosion by restoring the blade to a semblance of its original shape. The purpose of this conservation is three-fold. First, the objects are examined for traces of organic materials trapped in the corrosion layers. These often include textiles, plant remains, and wood surviving from the shaft. The second goal of conservation is to stabilize the material so that it does not continue to corrode once it is placed into storage. Conservators might treat the metal with solutions, such as sodium hydroxide, to neutralize chemical salts in the material that contribute to ongoing corrosion. Other chemicals and surface treatments have been used in the past, including sulphuric acid and lacquer. However, many of these substances change artifacts' appearance and have consequently fallen out of favor. Sulphuric acid, for example, effectively halts corrosion, but in the process turns iron dark black. Lacquer, likewise, effectively shields iron from moisture, but at the cost of concealing its surface beneath a thick, obscuring barrier. Most spearheads are now merely cleaned and packed in silica gel to reduce ambient moisture; a minimalist approach that does not further alter their materials, but which sometimes fails to effectively control the alterations already begun by active processes of corrosion.

Conservation's third goal is to discover, and sometimes to restore, the appearance of the artifact as it would have been before corrosion began. This is an interpretive process which involves both investigation of the artifact's form and the subjective creativity of the conservator. It is recommended to x-ray iron artifacts at this stage, to reveal structures within the metal that might indicate its original shape.[1] Spearheads are usually next sandblasted with an abrasive to remove the outermost layers of corrosion product and reveal the metal beneath. Conservators may choose to use the radiograph of the object—which shows the outline of the higher-density metal which survives beneath the lower-density corrosion—to guide how much material they choose to remove, sandblasting until the artifact resembles the radiograph. This process is interpretive; conservators must choose how much material to remove, and how significantly to alter the object. In the past, aggressive conservation often stripped so much material from spearheads' surfaces that their shapes were unrecognizably altered. In one case, a zealous conservator used a bench grinder to cut a spearhead down to what they thought was the proper form.[2] Conservators now generally strive to remove no more material than is necessary to reveal the blade's original profile, sometimes stripping corrosion from only a portion of the blade and leaving the rest encased in corrosion product to avoid unnecessary destruction of the artifact. More frequently, however, a technician will sandblast corrosion product from the entire blade, but will generally stop once the object resembles what they believe its form to have been when it was new. The role of conservation in shaping the form of the artifacts we see in site reports and museum archives cannot be overstressed. Most spearheads have passed through a conservation lab before being sketched, displayed, or stored. Consequently, every object is a product of conservatorial interpretation. Surviving spearheads are products of the present as well as the past—we cannot go to the objects themselves to encounter unmediated originality.

[1] "Guidelines on the X-Radiography of Archaeological Metalwork," English Heritage, 2006.

[2] The marks left by the grinder—a regrettable tool choice—are still visible on a spearhead now held at Nottingham, accession number NCM 1966-38/624, from the Broughton Lodge cemetery (unstratified, SF 112).

Following conservation, spearheads undergo two final changes to their forms. First, the artifact is sketched by an artist, and this sketch—rather than a photograph—is usually the only form in which the spearhead is published outside the museum archive. This introduces a further layer of interpretation, as the artist must decide how to present the corroded and restored object in a way which meaningfully communicates its true form. The second transformation happens quietly in the archive, where the conserved spearhead slowly begins to corrode again until, in many cases, the artifact crumbles into hundreds of shards. This second round of corrosion results from the introduction of the spearhead to new environmental conditions following excavation. Iron buried in a grave will eventually reach a chemical equilibrium with the soil that surrounds it and will cease to rust further (or else it will fail to reach an equilibrium and completely corrode so that no metal remains). When these objects are excavated and conserved, this equilibrium is disturbed, and the spearheads immediately begin to rust again. Numerous methods have been attempted to slow to prevent this process, with mixed efficacy. The current accepted practice is to place iron artifacts into dry storage, in which relative humidity is held below 15%, or else to pack them in silicon gel to prevent moisture from activating further corrosion. Dry storage is not always successful on its own, however.[3] Further, not all archives have dry storage space available. Many spearheads which I examined had not been handled for one or two decades, and had significantly degraded since being sketched for publication. Several collections had been stored in warehouses which were not climate controlled, and these spearheads had collapsed into hundreds of tiny shards of rust within the tissue paper in which the conserved objects had been wrapped a decade or two before. Consequently, the only surviving record of these objects is the

[3] S. Keene, "Real-time survival rates for treatments of archaeological iron," in *Ancient and Historic Metals: Conservation and Scientific Research*, edited by D. Scott, J. Podany, and B.B. Considine, 249-264 (Getty: 1994).

artist's sketch, taken from the conserved spearhead, whose form was produced from a conservator's attempt to restore the object based on a radiograph, the surviving material within the rust, and the conservator's own experience of how this object should appear. These layers of mediation limit the certainty with which we can speak about the forms, properties, and physical reality of spearheads before the onset of post depositional decay.

The influence of these layers of mediation, interpretation, and transformation upon the surviving form of spearheads in the published literature must be understood in the subsequent discussions of these weapons' form and purpose. Conserved artifacts create the illusion of collapsed temporality: they allow us to imagine that we hold a piece of the past in our hands, the illusion that we can reach across time to share an experience with people who touched this object in the past.[4] The spearheads of the early Anglo-Saxon period are, in fact, products of the present as well as of the past, and their travel along itineraries that traverse from grave through to the conservator, the printed page, and the physical archive repeatedly transformed the object's physical form, as well as rewriting its social significance from burial good to object of scientific study to printed record and museum piece. By attempting to reverse these processes, the discussion below in fact paints a further layer of transformative mediation onto the artifacts it studies.

The Iron Spearhead

Bloomery Iron

Smiths forged spearheads from bloomery (or 'wrought') iron, a local product smelted in small clay and earth furnaces.[5] The product of these furnaces (the 'bloom') was unlike modern

[4] Cf. Gavin Lucas, *The Archaeology of Time*, Themes in Archaeology (New York: Routledge, 2005), 128.

[5] For a detailed discussion of the bloomery process, see Radomír Pleiner, *Iron in Archaeology: The European Bloomery Smelters* (Praha: Archeologický ústav AVČR, 2000).

alloys of iron in several important ways. Bloomery iron was a heterogeneous material. It contained significant amounts of slag and other alloying elements that altered its physical properties. Slag is a glassy compound of silicon, iron, and other trace elements derived from the initial iron ore. Slag became mixed into the metal as a byproduct of the smelting process.[6] Modern furnaces liquify iron while it is being smelted, and this separates the slag from the metal to create a pure, elemental iron (Fe). Early medieval smelting furnaces were only rarely hot enough to produce liquid (cast) iron, however, and as a consequence smiths could only remove excess slag from their product by repeatedly heating, hammering, and folding the heterogeneous metal to increase its homogeneity and drive out the larger slag inclusions.[7]

The slag that remained in wrought iron caused the material to behave differently from modern, purer alloys.[8] Although large slag inclusions could compromise the durability of iron (by providing weak stress points around which the metal could snap), the slag itself offered several advantages to the material's physical properties. The chief of this is that the silicon in slag acts as a natural flux, making it easier to forge weld multiple pieces of iron together into composite blades.[9] The important role played by forge welding in the manufacture of spearheads (and other iron objects) will be discussed below. The fibrous properties of wrought / bloomery iron in fact necessitate forging the material at the high temperatures necessary to forge weld: wrought iron has a tendency to delaminate (split apart) if forged at cooler, orange heat. As a

[6] Pleiner, 251-67.

[7] H. Hodges, *Artifacts. An Introduction to Early Materials and Technology* (London: Duckworth, 1989), 81–82.

[8] John D. Light, "Observations Concerning the Hand Forging of Wrought Iron," *Materials Characterization* 45, no. 4–5 (October 2000): 327–40.

[9] Light, 335.

consequence, forge welding was not only easy, but also a very natural extension of the slaggy material's physical properties.

Iron Alloys

The bloomery iron that was used in the early middle ages can be roughly grouped into three categories, depending on the chemical elements with which the metal was alloyed. Archaeometallurgists have analyzed samples of, now, hundreds of iron objects from the early Anglo-Saxon period (the majority of these being knives, spearheads, and sword blades) using metallography and scanning electron microscopes. These studies reveal that three alloys of iron were common: 'pure' ferrite, phosphoric iron, and carbon steel.[10] 'Pure' ferrite (iron) is, of course, a relative term as even fine, homogeneous medieval ferrite contained slag inclusions from the bloomery furnace in which it was smelted. Pure ferrite is a soft material, easy to bend but very tough (ie, difficult to snap).[11] Modern ferrite makes a blade edge which is easily blunted.

The majority of iron used in the early Anglo-Saxon period contained some traces of phosphorus.[12] Phosphorus is naturally found in bog iron (iron ore gathered from wetlands), and these ores were popular in the early middle ages.[13] When phosphoric ore is smelted, much of the phosphorus is transferred into the finished bloom. Many iron samples contained enough phosphorus (about 1% of the metal's composition) to significantly alter the material's properties.

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[10] G. McDonnell, "Iron and Its Alloys in the Fifth to Eleventh Centuries AD in England," *World Archaeology* 20, no. 3 (February 1989): 375-76.

[11] For experimental data on the toughness of wrought iron compared to other medieval alloys, see A. Thiele, J. Hošek, P. Kucypera, and L. Dévényi, "The Role of Pattern-Welding in Historical Swords-Mechanical Testing of Materials Used in Their Manufacture: The Role of Pattern-Welding in Historical Swords," *Archaeometry* 57, no. 4 (August 2015): 720–39.

[12] McDonnell, 375; For a discussion of phosphoric alloys, see E.G. Godfrey, "The Technology of Ancient and Medieval Directly Reduced Phosphoric Iron," PhD dissertation, University of Bradford, 2007.

[13] Godfrey, 226.

Phosphorus makes iron harder but also more brittle and cold short (liable to snap in cold temperatures). When phosphoric iron is hammered, its hardness increases (this is called work hardening). Work hardened phosphoric iron can become up to three times harder than plain ferrite.[14] As a consequence, thin sections of high-phosphoric iron were often welded onto the edges of ferritic blades to improve their cutting ability while retaining the ferrite's greater toughness (resistance to snapping).[15]

The other significant alloying element is carbon, which transforms iron into steel if enough is present in the metal. Carbon from the charcoal used to smelt iron ore could become mixed into iron in the smelting furnace, if the furnace's oxygen levels and temperature were carefully (and skillfully) controlled. Carbon can also be added to smelted iron in a blacksmith's forge, provided that the iron does not contain significant amounts of phosphorus (phosphorus blocks diffusion of carbon into iron).[16] Carbon forms hard platelets of cementite or pearlite within iron, and these platelets increase the metal's hardness by inhibiting the growth of large, soft ferrite crystals. If carbon steel is heated above the critical eutechtoid temperature (about 800°C for steel that contains 0.8% carbon), the metal's interior microstructure transitions from a body-centered cubic configuration to a face-centered cubic configuration, called austenite. That is, it takes on a more open structure. Carbon can diffuse into (mix with) this open structure. If this mix of austenite and carbon is rapidly cooled (quenched, by immersion in water or oil), the

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[14] R.F. Tylecote, and B.J.J. Gilmour, *The Metallography of Early Ferrous Edge Tools and Edged Weapons*, BAR British Series 155 (Oxford, England: B.A.R, 1986), 14.

[15] Tylecote and Gilmour, 2-3.

[16] J.W. Stewart, J.A. Charles, and E.R. Wallach, "Iron-phosphorus-carbon system: part 1 – mechanical properties of low carbon iron-phosphorus alloys," *Mat. Sci. Technol.* 16 no. 3 (2000), 275–82, 276; E.G. Godfrey, A. Vizcaino, and J.G. McDonnell, "The role of phosphorus in early ironworking," in *Prehistoric and Medieval Direct Iron Smelting in Scandinavia and Europe: Aspects of Technology and Society*, edited by L. C. Nørbach, 191–94 (Aarhus: Aarhus University Press, 2003).

solution is frozen in place, the carbon cannot escape, and the metal crystalizes into a hard but brittle structure called martensite. Martensite can be as much as 10x harder than soft ferrite, but can easily fracture. This hard material's toughness can be improved, however, by tempering. To temper steel, the metal is slowly heated to about 300°C, which transforms some of the martensite into bainite, a less brittle microstructure whose hardness and toughness are superior to both pure ferrite and phosphoric iron. Heat-treated (quenched and tempered) steel is harder, tougher, and more flexible than any other iron medieval alloy.[17] Its use in England, however, was not common until the emergence of specialized steel smithing workshops in seventh-century urban centers.[18] In the sixth-century, unquenched mid-carbon steels and phosphoric irons were more common.

Different alloys were different colors. Ferrite is dull grey, and rough ferrite with large slag particles has a streaked, grainy appearance not unlike the grains and fibers in wood. Phosphoric iron is a lighter white color, while steel is dark, approaching black when it is etched. Smiths frequently took advantage of these visual contrasts (light vs dark, slaggy vs. clean) to produce decorative effects on the surfaces of finished blades.[19] This will be discussed below.

In practice, the lines between these three alloys often blur. The heterogeneity of early medieval iron is hard to over-state. Many blades were made from ferrite which contained small amounts of both phosphorus and carbon (though neither in sufficient quantities to significantly

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[17] Thiele et al.

[18] E. Blakelock and G. McDonnell, "Early medieval knife manufacture in Britain; a comparison between rural and urban settlements (AD 400-1000)," in *The Archaeometallurgy of Iron: Recent Developments in Archaeological and Scientific Research*, edited by Jiri Hosek, Henry Cleere and Lubomír Mihok, 123-136 (Prague: Institute of Archaeology of the ASCR, 2011), 134-5.

[19] Brian Gilmour. "Swords, seaxes, and Saxons: pattern-welding and edged weapon technology from Late Roman Britain to Anglo-Saxon England," in M. Henig and T. J. Smith (eds) *Collectanea Antiqua: Essays in Memory of Sonia Chadwick Hawkes*, 91–109, BAR International Series 1673 (Oxford: Archaeopress, 2007).

improve the metal's hardness).[20] Others were forged from heterogeneous materials which contained patches of phosphoric or carbon iron; an indication that the iron used had not been refined significantly after smelting.[21] Much steel contained too little carbon to be successfully hardened through quenching (less than 0.4% carbon is insufficient to harden steel, while 0.8% carbon is ideal). As a consequence, descriptions like 'phosphoric iron' or 'carbon steel' delimit wide categories within which much variety—and inconsistency—was possible.

Forging Bloomery Iron

Spearheads were forged from careful combinations of these three alloys, which smiths welded together to take advantage of different alloys' unique physical properties. Steel was, as already noted, rare in the early Anglo-Saxon period, and is generally assumed to have been expensive. Soft and more widely available low-carbon alloys were frequently used for the body of spearheads. Hard edges of phosphoric iron or carbon steel were frequently then welded onto this soft core, improving the cutting edge. From a modern perspective, this might seem like a significant investment of extra effort, but recall that early medieval iron typically had to be forged at welding temperatures already, that the material was already itself a composite that was often folded and welded to itself repeatedly during forging, and that the slag which the metal contained made forge welding significantly easier than it is with modern, purer alloys. To the

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[20] B. Gilmour and C. Salter, "Ironwork: technological examination of the knives, spearheads, and sword/weaving batten," in *The Anglo-Saxon Cemetery at Edix* Hill (Barrington A), Cambridgeshire, edited by T. Malim, J. Hines and C. Duhig, 250–56, CBA Research Report 112 (York: Council for British Archaeology, 1998), 250.

[21] G. McDonnell, E. Blakelock, and S. Rubinson, "The Iron Economy of Wharram Percy - Modelling the Anglo-Saxon Iron Working Landscape," in S. Wrathmell, *Wharram Percy Archive*, Archaeology Data Service (2012), available at http://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-1031-1/dissemination/pdf/wp_vol_xiii_ch_10_iron_economy.pdf (accessed 1 April 2017), 14.

early medieval smith, the combination of multiple pieces of iron was a natural and normal part of the craft.[22]

It is possible to identify the weld lines between the pieces of iron from which spearheads were forged through laboratory analysis. Weld lines are occasionally visible through x-radiography, which can identify differences in density between the metallic iron and the corrosion which often develops along the lines between the two halves of poorly joined welds.[23] The most reliable method to identify weld lines, however, is metallography, a destructive laboratory analysis in which a cross-section is cut from a blade, polished, etched with acid, and examined under magnification.[24] 72 spearheads have been studied with metallography (Table 2-1).[25] These analyses reveal several common methods by which spears were forged. Figure 2-3 shows the cross-sections of the most common blade construction observed through metallography. Most of these methods involved insertion of a small piece of a harder alloy into a softer metallic body, including welding steel (or harder phosphoric iron) onto the edge of a blade (Type 2) and inserting steel (or phosphoric iron) between two outside layers of soft ferrite (Type 1).

Many spearheads (18.5%) were forged from a single piece of plain iron (Type 0). Sometimes this iron shows evidence of having been folded and welded to itself, perhaps to

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[22] Light, 334.

[23] E.g. Janet Lang and Barry Ager, 'Swords of the Anglo-Saxon and Viking Periods in the British Museum: a Radiographic Study', in Sonia Chadwick Hawkes, *Weapons and Warfare in Anglo-Saxon England*, Oxford University Committee for Archaeology 21, 85-122 (Oxford: Oxford University Committee for Archaeology, 1989); David Starley, "A Technological Study of Knives and Spearheads from the Excavations at Mucking, Essex," Ancient Monument Laboratry Report 37/96 (1996).

[24] Cf. David A. Scott, *Metallography and Microstructure of Ancient and Historic Metals* (Marina del Rey, CA: Getty Conservation Institute / Archetype Books, 1991); Leonard E. Samuels, *Optical Microscopy of Carbon Steels* (Metals Park, OH: American Society for Metals, 1980).

[25] For a full list, see Table 2-1.

increase the thickness of the starting billet or else to improve its homogeneity. Occasionally, numerous fine bands within the metal reveal that it was folded and welded to itself many times, a 'piling' process which could increase the metal's homogeneity and provide a pleasing, striped pattern on its surface when the blade was polished (Type 3).

Spearheads forged from a single piece of ferrite were simply heated and hammered to shape with no additional hardening. For a small spearhead with a blade width of about 25mm, the smith would have chosen (or forged) a round or square-profiled rod of about 10-15mm diameter. One end of this rod would be fanned outward into a triangle using the chisel-shaped cross peen on the back of most early medieval hammers, its thickness decreasing as the triangle grew wider. The apex of the triangle would be split with a chisel. Hammering the fanned-out triangle with the hammer's cross peen creates a natural curve in the widening material, and this curve is easily increased with the hammer's flat face to form the cone of the socket once the triangle has been forged to the desired thickness and width. Sockets may have been forged around a mandrel to improve the consistency of their shape. Mandrels have been found in later Scandinavian tool hoards, but not in early Anglo-Saxon contexts.[26] In my own experience, a mandrel is not necessary to form the cone; the socket can be rolled using only a hammer and flat-faced stump anvil, with only a small amount of practice. With few exceptions, no attempt was made to weld the two curved edges of early Anglo-Saxon period spearheads together into a seamless cone. Instead, the socket was left split open, perhaps to allow it to be more precisely sized to fit around the wooden shaft to which it would be mounted.

[26] For example, two mandrels were found in the Mästermyr tool hoard. Arwidsson, Greta, and Gösta Berg, *The Mästermyr Find: A Viking Age Tool Chest from Gotland* (Lompoc, CA: Larson Pub. Co., 1999), 15.

Once the socket was formed (or perhaps after the socket has been fanned open into a triangle, but before it was closed into a cone), the rod's other end was flattened, widened, and tapered toward its tip to form the blade. Once the correct spine thickness was achieved (typically 7mm in the early Anglo-Saxon period), the sides were tapered outward to form the blade edges. Sometimes this taper was forged with a lozengiform profile (a diamond of 4 flat faces). Other times, a lenticular, curve-sided profile was forged. Both shapes are easy to achieve by changing the angle with which the hammer strikes the metal as the edge is being thinned. A lenticular edge is less likely to dull rapidly, as it contains more material to resist deformation.

After the socket and blade were formed, the space between them—the shank—was often tapered to a narrower diameter over the anvil. This compressed the top of the socket's split, creating the acute apex angle typical of the early Anglo-Saxon period. Sometimes the shank was rotated as it was hammered, creating a round profile. More often, however, it was hammered on 6 or 8 planes, creating a hexagonal or octagonal profile which was gradually tapered into the smooth-sided socket. These angular shank profiles are especially easy to forge, as these shapes develop naturally on the shank when the blade's profile is being hammered out on the anvil.

Many spearheads were forged from iron onto which phosphoric or steel edges were welded. Thirty-six (51%) of the spearheads examined were made with joins of Type 1, in which a harder layer of metal was sandwiched between two softer layers of iron. To forge these blades, the smith would first have stacked three layers of iron together, heated them in the forge, and welded them into a single billet for the blade. This billet would then have been drawn out through hammering into the correct length for the finished blade. A fourth piece of iron may then have been welded onto the base of this billet to form the socket, or perhaps the socket was forged into one end of the composite rod; no sockets and only one shank have been examined with metallography, so it is not possible to clarify which method was most common.[27] After the layered billet was forged to size, the spearhead would have been shaped in the same manner as a billet forged from plain wrought iron. Care would have had to be taken to avoid twisting the billet and pushing the steel edge off center; this mistake was in fact made in the forging of one spearhead from Edix Hill (Barrington A).[28]

Six early Anglo-Saxon spearheads were forged by welding a harder material onto the outside edges of an iron core (a Type 2 construction). In these cases, the billet would have been prepared, and perhaps its socket forged, before the edges were added. A hot strip of phosphoric iron or steel was then folded around the outside edge of the core; or else two strips were welded onto the core, one on each edge to meet at the tip. The composite blade was then forged out to its final shape. The visual contrast between the blade edges (white phosphoric iron or dark steel) and the gray iron core would have been visible on the finished artifact, and this construction became increasingly popular after the seventh century likely for its visual appeal as well as its functional advantage. Many spearheads from the Later Anglo-Saxon period were forged using variations of this technique in which a purely decorative band (or bands) of twisted iron was welded between the core and edge, creating a patterned border between the contrasting-colored edge and core alloys.[29] This decorative technique is known as pattern welding.

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[27] V. Fell and D. Starley also noted evidence of recycling, in “A technological study of ferrous blades from the Anglo-Saxon cemeteries at Boss Hall and St Stephen’s Lane Buttermarket, Ipswich, Suffolk,” *Ancient Monuments Laboratory Report* 99 no. 18 (1999), available at: http://services.english-heritage.org.uk/ResearchReportsPdfs/018-1999.pdf (accessed 3 April 2017), 12.

[28] Spearhead 727:1, Edix Hill (Barrington A) grave 115. T. Malim, J. Hines and C. Duhig, eds., *The Anglo-Saxon Cemetery at Edix Hill (Barrington A), Cambridgeshire*, CBA Research Report 112 (York: Council for British Archaeology, 1998), 252.

[29] Two such spearheads are discussed in Tylecote and Gilmour, 117-23, and dozens of similar specimens are held in the Museum of London’s collection of spearheads dredged from the River Thames.

In many spearheads, two rods were welded together side by side, with the seam running through the edge or, less often, through the spine of the blade. Some of these rods appear to be made of the same material, and it may be that a long but narrow rod had been folded in half and welded to itself to provide the smith with a wider billet to forge a broader blade. In some cases, however, the two halves are of different alloys, which suggests that the smith combined two separate pieces of iron. In several cases, one half of the spearhead has significantly more carbon or phosphorus than the other, so that the spearhead would have had one sharp and one dull edge. Brian Gilmour has suggested that one such case was a deliberate choice to create a visual contrast, as the two alloys would have been different colors, one white and the other steely blue.[30] It may also be that some warriors invested ritual significance into a weapon which had a strong and a weak, a dark and a light, cutting edge. It is also possible, however, that these represent mistakes made by smiths who failed to recognize the different physical properties of the two billets that they welded together. Such errors in alloy identification were indeed frequent, and their consequences are discussed in Chapter 4.

A significant number of spearheads were forged from recycled iron scraps. Eighteen (25%) of the spearheads examined were made from multiple small pieces of iron which had been roughly, even crudely welded together into a billet large enough to forge into the spearhead. The weld lines between these scraps are easy to see under magnification, and indeed many of these lines would have been visible to the naked eye as a colored contrast on the surfaces of the finished artifact. The purposes of this crude recycling are also discussed in Chapter 4.

[30] B. Gilmour, “Metallurgical analyses on Early Anglo-Saxon grave goods from Saltwood Tunnel,” CTRL specialist report series [unpublished] (2006), 18-19.

Surface Finishes and Decoration

Once the spearhead was forged, its shape could be refined by removing excess material with a file, and then polished with an abrasive such as sand or rottenstone suspended on a damp piece of leather or fabric. Most spearheads recovered from inhumation graves are now so heavily corroded that their original surfaces no longer survive. Some of the spearheads dredged from the River Thames, however, still have their original surfaces, which are polished to a smooth shine.[31] These would, when new, have reflected light and revealed the contrasting colors of the composite metals from which they were made.

Complex decorative effects—pattern welding—were occasionally incorporated into the blades of spearheads of the early Anglo-Saxon period.[32] To achieve these effects, a smith must start with relatively pure, homogeneous alloys. Such alloys were difficult to produce in the early middle ages, and their use was largely restricted to sword blades, perhaps a reflection of the high status and greater expense of these rarer, elite weapons.[33]

Simpler forms of decoration were, however, common. The combination of plain, phosphoric, and carbon alloys resulted in varying shades of color on the polished blades of many finished spearheads.[34] Steel edges frequently outlined paler iron cores with a dark gray boundary, while phosphoric iron would have shone white against the grey metal to which it was welded. Piled or banded spearheads originally had striped surfaces, and even the heterogeneous blades

[31] These can be viewed the Museum of London's collections, such as (for example) accession number O.2070.

[32] Of the seventy spearheads examined with metallography, only between three and five show evidence of pattern welding. These are Wasperton 1223/2 and 3139/1, a spearhead from Broom Hill Quarry, Sandy (Beds.), and possibly two spearheads from Saltwood Tunnel, Kent (SF 2149, and SF 1106). In contrast, roughly 90% of contemporary swords were made with complex pattern-welded designs (Gilmour, 'Swords, Seaxes, and Saxons').

[33] Cf. Gilmour, "Swords, Seaxes, and Saxons."

[34] E.g. Gilmour, "Metallurgical analyses on Early Anglo-Saxon grave goods from Saltwood Tunnel."

forged from a single, poor piece of iron would have looked like they were carved from polished wood due to the strings of slag that streaked their polished surfaces.

Some spearheads may have been given additional surface color treatments to enhance their appearances. Two spearheads from East Anglia (one from Flixton II, the other from the cemetery next to Tranmer House) showed metallurgical evidence of having been heated to around 300°C as a final step in their forging;[35] this would have caused their surfaces to oxidize to a bright blue color. Heating to slightly cooler or hotter temperatures could turn blades a rainbow of other colors as well. Hydatius, a fifth-century Galician author, describes a miracle in which the spearheads of Gothic envoys are turned green, red, yellow, and black. Hydatius describes this event as supernatural, but these are all colors which might be achieved with careful application of heat, and which might have been used as surface finishes on contemporary spearheads.[36] Spears could also have been blackened by heating their blades and coating them in linseed oil. Additionally, several spearheads from Mucking were examined using XRF, and this revealed traces of a thin copper alloy surface treatment on their sockets, suggesting a braised copper finish which did not survive corrosion.[37] A spearhead from Kent, now in the Liverpool World Museum,

[35] Flixton II 1/1, and Tranmer House 27.1. J. Lang and Q. Wang, "Metallurgical analysis of the spearheads," in *Before Sutton Hoo: The Prehistoric Remains and Early Anglo-Saxon Cemetery at Tranmer House, Bromeswell, Suffolk*, edited by C.J.R. Fern, 121-23, East Anglia Archaeology Report 155 (Bury St Edmunds, Suffolk County Council, 2015); J. Lang, "Flixton Spearheads: A Technical Examination," Unpublished metallographic analysis.

[36] "When the Goths had gathered together on a certain day for their assembly, the iron sections and the blades of the spears which they carried in their hands had for a time not kept their natural appearance of iron but changed colour: some were green, some red, others yellow or black" ("*congregatis etiam quodam die concilii sui Gothis tela que habebant in manibus a parte ferri uel acie alia uiridi, alia roseo, alia croceo, alia nigro colore naturalem ferri speciem aliquandiu non habuisse mutata*"). Idatius, and R. W. Burgess (ed). *The Chronicle of Hydatius and the Consularia Constantinopolitana*, Oxford Classical Monographs (Oxford : Oxford University Press, 1993), 120-21.

[37] S.M. Hirst and Dido Clark, *Excavations at Mucking. Volume 3, The Anglo-Saxon Cemeteries*, part ii, Mucking Monograph Series (London, England: Museum of London Archaeology, 2009), 569.

had a surface plated in a gray-white metal, probably tin.[38] When new and polished, this spear would have appeared to be made from silver, and this treatment (which in no way compromised the weapon's effectiveness) has prevented the blade from rusting to the present day.

Some spearheads were decorated with inlays of contrasting-colored metals other than iron.[39] The most common inlays are narrow bands or rings which circle the socket, or small rings which are set into the flat surfaces of the blade. These inlays are usually made from copper alloys, but other metals including silver were also sometimes used. Occasionally, symbols other than rings were inlaid or cut into the blade. These are often enigmatic and difficult to interpret; some might be makers' marks, or rune-like symbols whose meanings were known to their makers or other contemporaries. One pair, scratched (rather than inlayed) into the blade of a spearhead from Buckland, Dover (Kent), has been somewhat tenuously identified as representing a bow and arrow and clashing shield wall.[40] Another, made from copper inlay, has been identified as a fish.[41] Whether these identifications are correct, and whether indeed these symbols were intended to be pictorial representations at all, are not questions that can be definitively answered. Inlay was rare across England; it can be identified on only 42 of 902 (4.7%) spearheads examined for this project. These spearheads were concentrated in the south of England, especially in Hampshire, but also in Kent and Essex. A complete list of inlayed in

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[38] Liverpool World Museum accession number LIV.2012.3.298. The surface has not been tested to positively identify the plating.

[39] The classic study on inlaid metalwork, including spearheads, is Vera Evison, "Early Anglo-Saxon Inlaid Metalwork." *Antiquaries Journal* 35, no. 1–2 (1955): 20–45.

[40] Keith Parfitt and Trevor Anderson. *Buckland Anglo-Saxon Cemetery, Dover Excavations 1994*, The Archaeology of Canterbury 6 (Canterbury Archaeological Trust, 2012), 66-67.

[41] Vera Evison, "The Anglo-Saxon finds from Hardown Hill," *Proceedings of the Dorset Natural History and Archaeological Society* 90 (1968), 235.

incised spearheads is given in Table 2-2, and a heatmap of their find locations is presented in Figure 2-4.

The visual impact of inlaid metals would have been enhanced if the blades into which they were set were colored or blackened. Brian Gilmour has suggested that colored surfaces were common across the middle ages, and many of the spearheads which do not appear otherwise decorated could have been so decorated with a variety of striking colors and surface finishes now lost to corrosion.[42]

Physical Properties of the Iron Spearhead

The spearheads of the early Anglo-Saxon period have been widely criticized for their poor quality. Michael Swanton argued that their ubiquitous split sockets indicated a loss of technological skill among the smiths of the fifth and sixth centuries.[43] More recently, several laboratory reports on metallographic analyses of spearheads have remarked upon the generally poor quality of their iron, their lack of heat treatment, and their comparatively soft (ie, bendable) blades.[44] One study suggested that spears must have been disposable, single-use objects meant to

[42] Brian Gilmour and Alessandra Giumlia-Mair, "What Did Iron Really Look Like? Patination and Coloring Treatments on Iron and Steel," *Materials and Manufacturing Processes* 24, no. 9 (2009): 999–1006.

[43] Swanton, *Settlements,* 8. Swanton based this argument on a comparison of the early Anglo-Saxon split-socketed spearheads with the closed-welded sockets of the fourth-century spearheads from Nydam, Denmark. Swanton was not aware, however, that split sockets had been common in Roman Britain.

[44] Gilmour and Salter, 255; V. Fell and D. Starley, "A technological study of ferrous blades from the Anglo-Saxon cemeteries at Boss Hall and St Stephen's Lane Buttermarket, Ipswich, Suffolk," *Ancient Monuments Laboratory Report* 99 no. 18 (1999), available at: http://services.english-heritage.org.uk/ResearchReportsPdfs/018-1999.pdf (accessed 3 April 2017), 15; David Starley, "The Metallurgical Examination of Ferrous Grave Goods from Wasperton: Anglo-Saxon Cemetery MN80-85," Royal Armouries Technological Report, 2006, available at: http://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-810-1/dissemination/pdf/Archive_Starley_iron_work_07.pdf (accessed 1 April 2017), 28–30; J. Lang, "Metallographic study: Four spearheads," in *Buckland Anglo-Saxon cemetery: Dover excavations 1994*, edited by K. Parfitt & T. Anderson, 269-73 (Canterbury Archaeological Trust, 2012), 273.

be thrown once at an opponent and then abandoned.[45] Another has argued that spearheads were forged specifically for use as disposable grave goods, simulacra of weapons meant to represent functional spearheads for the purposes of the funeral display.[46] That study noted a comparison between the hardness of spear blades and that of knives; the latter were nearly twice as hard as spearheads (it argued), which reflected the fact that knives had been forged from better metal, and meant that spears would blunt and bend more easily.

It is true that spearheads, on the whole, are much softer than contemporary knives (with averages of 207 HV vs. 347 HV respectively).[47] Further, many spearheads were not heat treated to maximize their hardness. Twenty-nine of the seventy spearheads analyzed with metallography had steel edges that could have benefitted from quench hardening, but only 9 of these spearheads (31%) showed evidence of having actually undergone this process. Those spearheads that were heat treated were, in many cases, cooled so slowly that their blades did not receive the full benefit of the hardening treatment. One spearhead, from a seventh-century grave in Broom Hill Quarry (Beds.) was quenched to a brittle hardness of 847 HV, but the remainder of the 9 spearheads that were heat-treated have an average hardness of only 219 HV. Smiths could easily have made these blades two or even three times harder without compromising their strength. The smiths who made these blades did not exploit the full potential of their materials. Many of the remaining spearheads were made from metal whose heterogeneity prevented it from being

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[45] D. Moir, "The metallographic and scanning electron microscope analysis of nine spearheads from the Anglian cemetery at West Heslerton, North Yorkshire," Unpublished MA thesis, University of Bradford, 1990, 68.

[46] Starley, "The Metallurgical Examination of Ferrous Grave Goods from Wasperton," 29-30.

[47] These calculations compare the 111 hardness values in Eleanor Blakelock's PhD Thesis with the 33 values available for spearheads, which are recorded in Table 2-1. Eleanor S. Blakelock, "The Early Medieval Cutting Edge of Technology: An Archaeometallurgical, Technological and Social Study of the Manufacture and Use of Anglo-Saxon and Viking Iron Knives, and Their Contribution to the Early Medieval Iron Economy," PhD, University of Bradford, 2012.

hardened at all—soft alloys that show little effort to maximize the metallurgical properties of the finished blades.

This is, however, good reason to reject the argument that spearheads were forged carelessly, or were intended to be disposable or merely ceremonial objects. While it is true that spearheads' edges are softer than those of household knives, their hardness is consistent with the edge hardness of contemporary swords.[48] The outlay of labor and materials invested into swords' blades does stand in marked contrast to the blades of spearheads. Almost all swords were made from fine, homogeneous alloys of phosphoric and mid-carbon iron which were carefully, artistically twisted together into decorative pattern-welded figures.[49] Almost all of the swords that Tylecote and Gilmour examined, however, had edges which were made from soft, relatively unalloyed ferrite. The makers of these weapons had access to a variety of high-quality materials, but chose to use softer alloys for the cutting edge.

Smiths' preference for soft iron edges on both swords and spearheads suggests that these craftspersons had particular priorities when they forged weapons that differed from both the priorities when making knife blades, and modern expectations for the properties required by effective weapons. Smiths forged spear and sword blades to prioritize ductility, toughness, and impact resistance over hardness. Both swords and spears had to survive repeated high-stress impacts in combat without shattering. The soft edges on both kinds of weapons were less likely to shatter, and would when over-stressed blunt before they would break.[50] This reduced the chance that a blade would snap at an inopportune moment (as happens in literary works, as for

[48] Cf. Tylecote and Gilmour.

[49] Gilmour, "Swords, Seaxes, and Saxons."

[50] See Thiele et al. for experimental comparison of the performance of different medieval alloys.

example the eighth-century poem *Beowulf*). This ductile material also made a damaged blade easier to repair. A blunted iron edge could be hammered back to shape, but a shattered blade would be difficult or impossible to repair without extensive reforging. Some degree of visible wear on a blade's edge may also have been regarded as a signal of a weapon's quality and its owner's prowess. Notches marked a blade as a survivor of battle, a weapon which had been tested in action without breaking (see Chapter 4). They also marked its user as someone who had fought and won. The soft edges of spearheads should be regarded as a technological choice consistent with the practices of smiths who wished to create tough weapons which would blunt before they would shatter.

Comparison can also be made between the spearheads of the early Anglo-Saxon period and those of the preceding Roman centuries. Fewer spearheads from Roman Britain have been analyzed with metallography. Those that have been studied, however, are similar in quality to the softest and most crudely forged blades from the subsequent early Anglo-Saxon period. Three third-century spearheads from the Roman villa at Gestingthorpe, for example, had edge hardnesses of 83, 133, and 99 HV, the hardness of pure unalloyed ferrite.[51] The average and median for the early Anglo-Saxon period in contrast were 207 and 176 HV, respectively—i.e. 50% harder than the hardest of the Roman spearheads. The Gestingthorpe Roman-era spearheads were found on a villa, not buried in graves, and they appear to have been functional tools probably used to hunt local wild fauna.[52] The Roman blades' inferiority to their early medieval

[51] Tylecote and Gilmour, 110.

[52] Cf. Theuws, Frans. "Grave Goods, Ethnicity, and the Rhetoric of Burial Rites in Late Antique Northern Gaul," in *Ethnic Constructs in Antiquity: The Role of Power and Tradition*, by Ton Derks and Nico Roymans, 283–320. Amsterdam: Amsterdam University Press, 2009.

counterparts is not an outlier; Tylecote and Gilmour examined dozens of other artifacts from both periods, and found the Roman iron to be softer and of poorer quality materials in all cases.[53]

There are other factors to consider as well. A significant number of spearheads appear to have been annealed (softened) before burial with the deceased, perhaps as a kind of ritualized 'killing' (discussed further in Chapter 6). Many of these softened blades have metallurgical traces which indicate that they had once been hardened, but this hardness was removed before deposition. As a consequence, the measured hardness of these blades is, in many cases, significantly lower now than when they were being used.[54]

It is also possible that many of the rural smiths who forged spearheads lacked the specialized skills needed to forge hardened steel edges successfully onto wrought iron cores. Wrought iron, it has already been noted, must be forged at very high temperatures—so hot that the metal glows white instead of orange. At this heat, carbon in steel can catch fire, destroying the metal irreparably. Consequently, to weld these materials together successfully a smith must have a very carefully controlled hearth temperature and a detailed knowledge of the particular alloys with which they are working, else the steel will burn and be ruined. Many surviving spearheads have decarburized steel edges, which indicates that the smiths who forged them struggled to control these variables and preserve the steel's carbon content as they forged the blades.[55] Similar errors have been identified in knife blades from rural communities dating through the end of the Anglo-Saxon period,[56] and Blakelock and McDonnell have recently

[53] Tylecote and Gilmour, 99.

[54] Cf. Starley, "The Metallurgical Examination of Ferrous Grave Goods from Wasperton," 28.

[55] For example, West Heslerton 852791; Sancton 307A.

[56] Cf. Blakelock, "The Cutting Edge."

argued that consistent use of successfully heat-treated steel in knife blades became common only with the development of specialized urban production centers in the late seventh century.[57] If spearheads were, as seems likely, forged in local communities by non-professional blacksmith farmers, these blades' comparative low quality may indicate nothing more than the skill gap between sixth-century rural farmer-craftsmen and specialist, professional seventh-century proto-urban bladesmiths. It should also be stressed again, however, that the products of these rural settlements made more frequent and successful use of hardened steel edges than their Roman predecessors had. We err when we judge the technology of the sixth century against later seventh-century innovations, instead of against the (in many ways) inferior technological practices upon which they built.

Finally, the few spearheads found in non-funerary contexts and analyzed with metallography show a similar construction, quality, and hardness to those from cemeteries.[58] Unless we are prepared to argue that all spearheads from the early Anglo-Saxon period (and not merely those found in graves) were ceremonial rather than practical objects, the suggestion that spears excavated from mortuary contexts were not functional weapons should be rejected.

Consequently, there is little reason to believe that the spearheads recovered from inhumation burials do not reflect the technological practices of sixth- and seventh-century weapon smiths. These blades did not maximize the potentials of their materials from a modern material-scientific perspective, but they are consistent with the skills demonstrated by the smiths who made other contemporary objects. They are not as fine in appearance or workmanship as contemporary elite sword blades, but they were as strong, and their edges as hard. They

[57] Blakelock and McDonnell, "Early medieval knife manufacture in Britain," 134-5.

[58] E.g. Tylecote & Gilmour, 113-15.

sacrificed some hardness (compared with knife blades) to achieve greater toughness, reflecting the contemporary fear that weapons might break in battle, leaving their users defenseless and vulnerable (see Chapter 4). Their metallurgy was superior to the weapons which came before them in the late Roman period. The spears of the early Anglo-Saxon period should be recognized as a testimony to their makers' skill.

The Shapes of Blades

Although most of the spearheads studied from this project came from a narrow period of only about 150 years, the corpus contains a bewildering variety of blade shapes. These have traditionally been divided, on the basis of their blade shape, into leaf-bladed, angular, and concave (or ogival) forms. Michael Swanton, whose spearhead typology remained until 2013 the only national scheme to categorize this material, further divided these general shapes into 30 types and subtypes.[59] Swanton's typology was concerned primarily with blade shape and length, although some types were defined by their socket length (Types D, F) or blade cross-section (I-L) in addition to blade shape. In 2013, Hines and Bayliss published an alternate typology which, like Swanton's, was primarily concerned with blade shape (but also, socket length and profile).[60]

Both projects struggle to cope with the incredible variety of forms found in archaeological contexts.[61] Many spearheads can be clearly placed into categories like leaf- or

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[59] Swanton's typology is outlined in full in Swanton, *Settlements*. An abbreviated version is published in Michael Swanton, *A Corpus of Pagan Anglo-Saxon Spear Types*, British Archaeological Reports 7 (Oxford: British Archaeological Reports, 1974).

[60] John Hines and Alex Bayliss, eds., *Anglo-Saxon Graves and Grave Goods of the 6th and 7th Centuries AD: A Chronological Framework*, The Society of Medieval Archaeology Monograph 33 (London: The Society for Medieval Archaeology, 2013). This typology was developed by Karen Høiland Nielsen, who published an earlier version in Kenneth Penn and Birte Brugmann, *Aspects of Anglo-Saxon Inhumation Burial: Morning Thorpe, Spong Hill, Bergh Apton and Westgarth Gardensi*, East Anglian Archaeology 119 (Dereham: Norfolk Museums and Archaeology Service, 2007).

[61] Swanton, *Spearheads*, 5; Hines and Bayliss, 163.

angular-bladed blade shapes. A significant minority, however, fall between these divisions.[62] Swanton's typology depends, for these liminal cases, on the subjective judgment of the observer. Hines and Bayliss sought to mitigate this subjectivity by defining hard ratios of measurements between their types; yet many spearheads still fall on the boundary lines, and small differences in measurement can push a classification from one type into another. The underlying difficulty faced by all these approaches arises from the fact that spearheads were forged, individually, by hundreds of rural smiths who lived, scattered, across thousands of square kilometers of countryside. No two blades look quite the same, nor should they be expected to.[63]

Further, many blades' profiles have been permanently altered by corrosion, rendering their original profiles difficult to identify with accuracy. Several transformations in shape are especially common. The thinnest portions of the blade are the first to corrode. This almost always includes the weapon's tip, which is thin and sharply pointed on the well-preserved spearheads recovered from the anaerobic silt and gravel on the bed of the River Thames, but rounded and blunt on spearheads recovered from inhumations. The widest portion of leaf-bladed spearheads is also likely to corrode first, as this point is forged to a thin, acute section that is easily penetrated by rust. This corrosion often creates a false appearance of damage or wear along the blade's edge (e.g. Figure 2-6). The most confusing corrosion, however, affects the wide wings of concave-sided spearheads. These are forged very thin, and as a consequence are almost always damaged by corrosion. In extreme cases, they are so degraded that the spearhead appears to have a leaf-bladed profile. The original form can often only be identified from the

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[62] Tania Dickinson created additional boundary types to capture some of these intermediate forms; this has, however, the effect of merely multiplying the number of boundaries across which intermediate forms can sprawl. Tania Dickinson, "The Anglo-Saxon Burial Sites of the Upper Thames Region, and Their Bearing on the History of Wessex, Circa AD 400-700, Vol. 1," Ph.D. dissertation, University of Oxford, 1976.

[63] Swanton, *Settlements*, 9.

shape of the junction between the shank and the blade's base (see Chapter 3, and esp. Figure 3-6, for an extended discussion). Many concave spearheads have been misidentified as leaf-bladed spearheads through the site report author's failure to recognize traces of this original shape (especially if the author is not an early medieval specialist who is familiar with the range of spear forms).

These errors can significantly change the interpretation of a site. Spearhead typologies form the cornerstones of male burial chronologies, and have also been used to map regional settlement patterns and social identities. Consequently, disagreements regarding classification can produce markedly different interpretations of sites. At Gunthorpe, Peterborough, for example many of the spearheads were identified having leaf-bladed profiles, which led the authors of the site report to propose dates of c.500-600 CE for the cemetery. When I personally examined them, however, I found that the spearheads were actually heavily corroded concave-profiled blades of a type which first appear in the fifth century, and are rarely found after 550. In conjunction with the shield bosses, whose shapes were also misidentified due to their corroded state, this difference shifted the cemetery two full generations earlier, making it contemporary with other regional sites against which it can now be compared.[64] For these reasons, questions of classification continue to receive significant attention in spearhead studies, despite their many challenges; a matter examined at length in Chapter 3.

Blades were forged in a variety of lengths and weights, but tended to be light and nimble. The average length of spearheads from the whole period is 283mm (median 262mm), but spearheads ranged in size from miniature blades of less than 100mm (sometimes identified as

[64] Cf. Philippa Patrick, Charles French, and Christine Osborne, "Rescue Excavation of an Early Anglo-Saxon Cemetery at Gunthorpe, Peterborough," *Anglo-Saxon Studies in Archaeology and History* 14 (2007): 204–37.

arrowheads) to several long blades of >600mm.[65] Spearheads ranged in weight from 37 - 385g, with an average weight of 147g (median 132g). Their blades, which varied in width, were uniformly slender when measured flat to flat, most falling within one or two millimeters of the average thickness of 7mm. The length and weight of spearheads increased during the early Anglo-Saxon period (see Table 2-4), with several seventh-century spearheads reaching lengths of half a meter or more.

Blades were forged with several different cross-section shapes. The two most common are lenticular and lozengiform (or diamond), but spearheads were also forged with ribbed, corrugated, fullered, and (occasionally) square cross-sections. The line between lenticular and lozengiform cross-sections is often difficult to determine, and I have been forced to unhelpfully group many of these together, in this project's catalog, as 'lenticular/diamond'. Richard Underwood has claimed that most leaf-bladed spearheads were forged with lenticular cross-sections while angular spearheads were lozengiform.[66] In fact, such an association is weak. Twenty-eight percent of angular spearheads have lenticular profiles, and leaf-bladed spearheads are equally likely to have either profile.

Spearheads' shanks, as already noted, were also forged into a variety of shapes. Many, perhaps the majority, were faced with either 6 or 8 corners. Some were square or rectangular, and some oval or round. Many spearheads, however, are now so corroded that it is difficult to determine the original shape of the shank. These shapes were all easy to form on the small stump anvils used during this period, and their variation must have depended upon the preference of the smith or the desires of the persons for whom he or she labored.

[65] For example, Berinsfield grave 28, Updown (Eastry III) 76:4, or Mill Hill 74.

[66] Richard Underwood, *Anglo-Saxon Weapons and Warfare* (Tempus, 1999), 40-41.

The splits on spearheads' sockets, as well, show variation. Some splits are long, extending to or beyond the narrowest point of the spear's shank. Others are much shorter, taking up nearer to 1/2 or 2/3 of the socket's length. The width of the split varies, as well, with some spearheads having a wide, splayed split while others were tightly closed, so that the split was barely perceptible. Very occasionally, spearheads are forged with sockets that have been welded closed. Swanton argued that closed sockets reflected the greater sophistication of pre-migration Germanic tribes, who lost this skill as a consequence of their migration to England.[67] Swanton developed this thesis in the early 1960s, so he did not know that split-socketed spearheads would soon be discovered in a number of late Roman sites.[68] Early Anglo-Saxon smiths routinely forge-welded piece of iron together, and the preference for split rather than welded sockets must have therefore represented a choice rather than a necessity (see Chapter 4 for further discussion).

Various authors have attempted to define functional differences between different shapes of spearheads. One type, the barbed, long-shanked spearheads which Swanton classified as A2, is almost certainly a descendant of the javelins used in the late Roman army.[69] This style, often called an "angon" (after the Byzantine author Agathias' description of the throwing spears of a sixth-century Frankish army), is found mostly on the Continent; only 20 are known from

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[67] Swanton, *Spearheads*, 8.

[68] Swanton's PhD thesis was submitted in 1966, and his fieldwork was completed in 1962 (Swanton, *Settlements*, 6; Michael Swanton, "The Spear in Anglo-Saxon Times," Ph.D. dissertation, Durham University, 1966). Manning's influential typology of Roman spearheads (which includes many with split sockets) was not published until 1976 (W.H. Manning, *Catalogue of Romano-British Ironwork in the Museum of Antiquities, Newcastle upon Tyne* [Newcastle: University of Newcastle Upon Tyne Department of Archaeology, 1976]). Subsequent excavations have uncovered a number of split-socketed spearheads from the Roman period.

[69] Swanton, *Spearheads*, 28-37.

England .[70] These spears were very likely meant to be thrown. This style aside, however, it is difficult to assign specific functions to the majority of the remaining corpus. It can be safely assumed that especially long spearheads were intended to be used in the hand; the 407mm-long sword-shaped blade of a spearhead from Wasperton grave 22, for example, would have made a clumsy javelin.[71] The majority of spearheads, however, were of a size and shape that could lend itself to use in the hand or as a thrown javelin, and they were probably designed with this versatility in mind.

The Shaft and its Fittings

Timber Selection

Spear shafts were made from wood, which was fit into the cone-like socket on the base of the spearhead. No complete shafts survive from the early Anglo-Saxon period, but fragments of wood are often preserved inside the spears' socket (where they are protected from decay by the surrounding corrosion product produced by the iron). Laboratory analysts can frequently identify the species of timber from these remains.[72] Traces of wood frequently adhere to the bottom edge of the spear socket as well as inside the socket's split side. This shows that most—though not all—spear shafts were cut to be the same width as the exterior of the spear socket, with a stepped taper that fit smoothly into the spearhead's socket and filled the triangular opening of its split

[70] Agathias, *The Histories*, trans. by Joseph D. Frendo (Berlin: De Gruyter, 1975), II.5, p. 37. Angons have been found, in England, at Abingdon, Beddington, Bifrons, Blockley, Croydon, High Down, Melton Mowbray, Northfleet, Saltwood, Sarre, Sibertswold, Strood II, Sutton Hoo, and Taplow.

[71] M.O.H. Carver, Catherine Hills, and Jonathan Scheschkewitz, *Wasperton: A Roman, British and Anglo-Saxon Community in Central England*, Anglo-Saxon Studies 11 (Woodbridge: Boydell Press, 2009), 167.

[72] Cf. Jacqui Watson, "The Identification of Organic Materials Preserved by Metal Corrosion Products," in *Scanning Electron Microscopy in Archaeology*, edited by Sandra L. Olsen, 65–76 (BAR International Series 452, 1988).

side. A similar technique was used for the well-preserved third-century spear shafts from the Continental bog deposit at Thorsberg, Germany, one of which is illustrated in Figure 2-5.[73]

Several species of timber were used. Ash was the most common, and literary references to spears' timber refer to ash exclusively. The ash shaft was so common that spears in later texts were often called, simply, *æsc* (ash), and the *Dictionary of Old English* lists numerous martial compounds which begin with "ash," including *æsc-berend* (spear-bearer), *æsc-holt* (forest of spears, i.e. an army), *æsc-stede* (battlefield), *æsc-tīr* (fame in war), *æsc-þracu* (battle), *æsc-plega* (spear-play), and *æsc-wiga* (spear-warrior). In the early Anglo-Saxon period, ash was used in only 47% of the 352 spears whose timber species could be identified. The second most common wood was hazel (28%), followed by willow/poplar (the two species' timber is indistinguishable in the laboratory; together, they make up 13% of the total spear shafts). The remaining 12% of shafts were made from a variety of timber, including alder (4%), maple (2%), beech (1.5%), birch (1%), holly (1%), and several other fruit- and hardwoods.[74]

These timbers all share a similar balance of strength, stiffness, and elasticity. Ash in particular is a medium-high density wood, with a correspondingly high stiffness and strength. Ash shafts were almost always cut from mature timber (96%, n = 59); that is, they were split out of larger tree boles or planks, and then shaved to shape with a knife or specialized blade.[75] Hazel shafts, in contrast, were usually made from saplings. Saplings grow naturally straight and require

[73] Klaus Raddatz, *Der Thorsberger Moorfund Katalog: Teile von Waffen Und Pferdegeschirr, Sonstige Funstüke Aus Metall Und Glas, Ton- Und Holzgefäße, Steingeräte* (Karl Wachholtz Verlag Neumünster, 1987), Taf. 35.

[74] These numbers are very comparable to those from contemporary Continental spearheads. See Willy Tegel, Bernhard Muigg, and Ulf Büntgen. "The Wood of Merovingian Weaponry." *Journal of Archaeological Science* 65 (2016): 148–53.

[75] This is the method still used by modern walking stick makers. Cf. Theo Fossel. *Walking & Working Sticks* (The Apostle Press, 1986).

little cutting or carving to shape into a shaft, but they are rarely good choices for spear shafts. This is because saplings do not have a uniform elasticity along their full length. Their narrower tops are whippy (ie, a low elastic modulus), while their bases range from stiff to, near the roots, flexible again. Hazel, however, is an exception to this rule. Its naturally straight and fast-growing shoots are uniform in elasticity and strength along their length. They tend also to be stiffer than other saplings of comparable size.[76] Hazel saplings grow to a height of about 4 meters, and are one of the most common shrubs across lowland Britain. They are lightweight when dried, but retain their stiffness and strength.[77] Hazel saplings were a common choice or spear shafts on the Continent as well as in England, and the Roman author Pliny mentions them as a popular choice for spear shafts (alongside ash) in his own time.[78] Willow/poplar shafts were made from both mature and immature (withy) timbers. Willow and poplar withies have soft, pith cores, and would as a consequence have been light-weight but comparatively weak.[79] This choice might have been serviceable as a javelin shaft, but would not have served so well for a melee weapon. The other timbers chosen (particularly beech and fruit woods) remain popular choices for modern walking sticks because of their hard, sturdy timbers. The only technologically poor choices observed among these samples are a few rare cases of oak and pine. Oak is comparable to ash in weight, but its grain structure makes it liable to break under stress. Only one shaft in the sample was made from oak, buried with an old and battered man in Lechlade, but four other oak

[76] Alexia Stokes, François-Xavier Mine, Zhun Mao, and Loic Brancheriau, "Multi-Stemming and Mechanical Traits Ensure Persistence of Subalpine Woody Plants Exposed to a Disturbance Gradient," *Journal of Vegetation Science* 23, no. 2 (April 2012): 331-33.

[77] Fossel, *Walking & Working Sticks*.

[78] Tegel, Muigg, and Büntgen; Pliny, *Natural History*, XVI.83.

[79] Modern walking stick makers disparage both woods, cf. Fossel, *Walking & Working Sticks*.

shafts were found in graves at Polhill, Kent that are not included in this project's Catalog.[80] Pine is lightweight but less durable than the other timbers. Pine was used on three spears which were also buried at Lechlade. Pine was not native to this region, and these spear shafts may have been valued for their exotic origins rather than their mechanical properties.[81]

The Physical Dimensions of the Shaft

The length of spear shafts cannot be firmly established as no complete shafts survive, but it can be inferred in many cases by the position of spearheads and ferrules in the grave. Ninety-five of the 902 spears examined for this study were buried with iron or copper alloy caps (ferrules) on their lower ends. By measuring the distance between these ferrules and their accompanying spearheads, it is possible to determine the length of the shaft that stretched between them, and from this to estimate the length of the complete weapon. In some cases, post-depositional disturbance (such as plowing or animal burrows) may have moved the position of spearhead or ferrule, and many spear shafts were broken in two before they were buried (see Chapter 6). More than 50% of the spears appear, however, to have been buried whole and undisturbed, allowing their length to be estimated.

These 49 spears range in total length from 1.2 – 2.6 m, with an average length of 1.9m. This length is well-suited for use in a single hand. Longer spears were buried in fourth-century Continental bog deposits in Nydam, Denmark (2.8 - 3.1m), and it is possible that longer spears

[80] Lechlade 65. Angela Boyle, David Jennings, David Miles, and Simon Palmer, *The Anglo-Saxon Cemetery at Butler's Field, Lechlade, Gloucestershire. Volume 1: Prehistoric and Roman Activity and Anglo-Saxon Grave Catalogue*, Thames Valley Landscapes Monograph 10 (Eynsham: Oxford Archaeological Unit, 1998), 82-83, 165, 216-17. Oak shafts were buried at Polhill in graves 68, 81, 84, and 97; see Brian Philp, *Excavations in West Kent 1960-1970: The Discovery and Excavation of Prehistoric, Roman, Saxon an Medieval Sites, Mainly in the Bromley Area and in the Darent Valley*, Kent Series Research Report 2 (Dover: West Kent Border Archaeological Group, 1973), 202.

[81] Angela Boyle, ed., *The Anglo-Saxon Cemetery at Butler's Field, Lechlade, Gloucestershire*, Thames Valley Landscapes Monograph 33 (Oxford: Oxford Archaeology, 2011), 102.

were also used in the early Anglo-Saxon period, but could not be fit into the grave without being broken in two (rendering their length impossible to measure today).[82] Spears of closer to two meters in length are more easily held in one hand for use with a small shield, however, where speed and dexterity are necessary. It is likely that the lengths found in graves do represent the reality of most spears' dimensions, and we may therefore say that most spears from the early Anglo-Saxon period were near an average total length of 2m.

The width of the shaft can be estimated from the sockets of surviving spearheads. As noted above, spear shafts were often the same diameter as the outer diameter of the base of the spearhead's socket, which averaged 20mm. When ferrules survive, however, they are often significantly narrower than the spearhead sockets they accompany. This suggests a tapering shaft which narrowed toward its base.[83] Whether all shafts tapered, or only those fitted with ferrules, cannot be known. It is also not known whether shafts tapered evenly along their whole length, or whether their shapes were more complex. Surviving nineteenth-century spears from the British Museum's online catalog demonstrate a variety of shaft tapers. Changes to the shaft taper alter the distribution of mass within the weapon and consequently alter its balance in the hand. Careful modifications to a shaft's mass and taper will change the ease which a spear's user can effect different types of thrusts and cuts. It is reasonable to assume that early medieval spear makers tuned the balance of shafts to ensure their weapons felt appropriately lively in the hand, facilitating the types of thrust and parties that their users wished to execute.

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[82] Conrad Engelhardt, *Nydam Mosefund 1859-1863* (Copenhagen: 1865), 26-27.

[83] This is noted, for example, by Härke in F.K. Annable and Bruce N. Eagles, *The Anglo-Saxon Cemetery at Blacknall Field, Pewsey, Wiltshire*. Wiltshire Archaeological and Natural History Society 4 (Devizes: Wiltshire Archaeological and Natural History Society, 2010), 13.

We can estimate the weight of shafts, based upon modern measurements of the density of various timber types. Mature European ash has a density of approximately 620kg/m3, and a 2m length of ash that tapered evenly from 2cm diameter to 1.5cm would consequently weigh approximately 300g. Hazel's density is nearer 580kg/m3, meaning a tapered 2m shaft might weigh only 280g. Both shafts would feel very light in the hand.[84]

Surface Finishes and Decoration

It is not clear how spear shafts might have been decorated. The poor preservation of wood in English soil means that few shaft fragments survive, and these rarely give evidence of ornamentation. Several spear shafts from the Iron Age bog deposits in Kragehul, Denmark were decorated with carved interlace beneath the junction between the shaft and spearhead, and another bore a long runic inscription.[85] One example of this kind of carved decoration survives among the fragments of shafts from England, on a spear from the seventh-century chamber grave of the Prittlewell "Prince." Fine interlace patterns had been carved into the wood exposed within the weapon's split socket.[86] This carving is so far unique among English finds. It is possible that some shafts made from saplings retained the bark; however, Adomnán' seventh-century Irish *Life of St. Columba* describes a man cutting the bark away from a sapling he was preparing to make into a spear shaft, and among the several spearheads which contain fragments of shaft that extend several mm beyond the socket's mouth, none retain their bark.[87]

[84] See H.G. Richter and M.J. Dallwitz, "Commercial timbers: descriptions, illustrations, identification, and information retrieval" (2000), http://delta-intkey.com (accessed December 15, 2017).

[85] Conrad Engelhardt, *Kragehul Mosefund. 1751-1865: Et Overgangsfund Mellem den Ældre Jernalder og Mellem-jernalderen* (Copenhagen: Commission hos G.E.C. Gad, 1867), plate II; Mindy MacLeod and Bernard Mees, *Runic Amulets and Magic Objects* (Woodbridge: Boydell, 2006), 77-78.

[86] This spearhead has not been published, but was conserved by Museum of London Archaeology.

[87] Adomnán, *Vita Sancti Columbae*, I.xxxv, in *Adomnan's Life of Columba*, ed. by A.O. Anderson and M.O. Anderson, Oxford Medieval Texts (Oxford: Oxford University Press, 1991), 331.

Joining Spearhead to Shaft

The juncture between spearhead and shaft is one of the most failure-prone portions of the weapon, and great care was taken to ensure a firm join between the two materials. Many spearheads (39% of those examined for this study) were secured to the shaft by one or two rivets or nails which passed through both sides of the spearhead socket and the shaft between. These rivets were usually made of iron, although in at least four cases copper alloy rivets were used instead, and one early sixth-century spearhead had a lead cap over its rivet, which may have once soldered a (now lost) copper-alloy decorative terminal over the rivet head, as was sometimes done on Continental spears.[88] Several spearheads in Kent and Essex were also secured with rings, sometimes made from iron and sometimes copper alloy, which circled the socket's split and prevented it from pulling open (see Table 2-3). These rings must have been slipped onto the spearhead while its socket's split edges were closed tightly together. Once the ring was in place around the spearhead' shank, the split was expanded so that the ring could not be removed. After the socket was fixed in place on the shaft, the ring was hammered downward toward the socket's base until it was tight around the socket, which prevented the socket from expanding further and loosening. Several spearheads' sockets were wrapped in organic material, including leather thongs, cord, and a tablet woven band.[89] The latter must have been decorative, but the former may have served a similar purpose as the metal rings, holding the socket tightly closed to prevent it from loosening from the shaft.

[88] Blacknall Field grave 22.

[89] Leather wrapping: West Heslerton 136, Mucking II 629, Barrow Clump (with Skeleton 6002); Cord wrapping: Buckland 233, Buckland 297; Tablet Weaving: Mucking II 662

These steps served a practical function, as loose spearheads could be knocked off the shaft in battle, compromising their wielders. A ninth-century Irish text credits a victorious army's success to the fact that they had the support of skilled craftspersons who, in the night between the first and second day of a drawn-out battle, re-fitted her army's loose spearheads to their shafts. Their opponents had no such help, and their loose, rattling weapons brought them defeat.[90] Bindings may have served an apotropaic function as well, for a skilled juncture provided physical testimony to the craftsperson's successful attempt to bend the agency of living timber to an unnatural union with murderous iron (see Chapter 4).

The Ferrule

Ferrules are an often overlooked element of spears. They are infrequently found, appearing in only 10.7% of spear graves. There is no clear pattern of which spears did and did not receive a ferrule. Ferrules are evenly distributed across the funerary landscape: they are not associated with any specific spearhead types, geographic regions, or time periods, but rather seem to come and go at random. Why they appear on the ends of certain spears, and at this frequency, is unclear. Their use may have been a personal preference of their makers, or of the warriors who used these weapons. It is also possible that many ferrules were removed before burial, if for example the spear shaft was too long to fit into the grave, or as part of a funerary ritual of destruction or fragmentation (see Chapter 6).

Most ferrules were forged from iron, and took the form of a sharp, tapering cone. This cone fit around the end of the spear shaft, and was occasionally nailed or riveted in place. A smaller number of ferrules were made from copper alloy, and took the form of a ring which was

[90] E.A. Gray, *Cath Maige Tuired: The Second Battle of Mag Tuired* (Naas: Irish Texts Society 1982), 55.

wrapped around the base of the shaft. An iron nail was often then hammered into the end of the wood, sealing off the open base of the copper alloy ring. In one case, a sharp iron spike was hammered into the base of the spear shaft.[91] In several graves, a single small nail has been found near where the base of the spear shaft would have been (had it not decayed before the grave was excavated).[92] These nails may have secured an organic (?rawhide) wrapping which could have performed a similar protective function to the copper alloy bands.

When present, the ferrule could serve several purposes. The most basic was to prevent the base of the spear shaft from splitting. If a spear is used to as a walking aid, the base will over time mushroom outward. The copper bands and iron nails which capped the bottom of some shafts resemble the finials used today on wooden walking sticks to prevent their bases from splitting. Pointed iron ferrules may have served a similar purpose, though the unblunted, sharp tips of surviving specimens suggest that these ferrules were not used for walking with enough frequency to deform the soft iron. These pointed iron ferrules also allow a shaft to be thrust into the soil, enabling a warrior to free his or her hand without dropping the spear onto the ground, and allowing the weapon to be displayed, upright, for others to see and perhaps recognize (if the blade were particularly iconic or well known). One ferrule, found in the fill above a grave in East Anglia, was buried with its opening facing upward.[93] Its position was interpreted by the excavators as the result of plough disturbance, but it is possible that the ferrule is all that remains

[91] Finglesham grave 17. Sonia Chadwick Hawkes and Guy Grainger, *The Anglo-Saxon Cemetery at Finglesham, Kent*, Oxford University School of Archaeology Monograph 64 (Oxford: Oxford University School of Archaeology, 2006), 272.

[92] Wasperton graves 91 and 107; Edix Hill (Barrington A) grave 88; Lechlade grave 40; Great Chesterford grave 122; Mucking II grave 682; Updown (Eastry III) graves 76:3 and 76:14; Mill Hill grave 93.

[93] Snape grave 32. William Filmer-Sankey and Tim Pestell, *Snape Anglo-Saxon Cemetery: Excavations and Surveys 1824-1992*, East Anglian Archaeology Report 95 (Suffolk County Council, 2001), 75, 77-79, 145.

of a spear which was thrust, butt-first, into the soil at the head of the grave, to serve as a physical marker or memorial for the deceased.

Ferrules could also have helped to counterbalance the weight of the spearhead, in order to make the finished weapon more responsive in the hand. Ferrules were generally very lightweight. Fifty-nine were weighed and recorded in the ASKED database, and their average and median weights were only 50.4g and 40g respectively.[94] At such a light weight, they would have done little to counterweight a spear shaft. They might however help to fine-tune the balance of a shaft whose weight was nearly, but not entirely, correct. This fine-tuning might be desired by a skilled warrior with particular preferences for the weight and balance of their equipment.

Ferrules may have served other functions. Pointed ferrules might have been used as a weapon, although their form is much cruder than that of the spearheads they accompanied. The ferrule also covered the open pores of the wood at the shaft's end, limiting its ability to absorb water. This was important for ensuring that the shaft did not warp and lose its straightness,[95] and may have served—with ring, rivets, and binding cords—to assert the wooden shaft's subjugation to the will of the carpenter and spearman (see Chapter 4).

All these functions made ferrules useful, but they do not appear to have been necessary to the function of the weapon. This may help to explain ferrules' rarity in archaeological contexts. There is little reason, therefore, to doubt that the rare and seemingly random discovery of ferrules reflects their real, infrequent incidence among the living, though some ferrules were

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[94] S. Harrington and S. Brookes, "Anglo-Saxon Kent Electronic Database (ASKED)," *Archaeology Data Service* (2008), http://archaeologydataservice.ac.uk/archives/view/asked_ahrc_2008/overview.cfm (accessed 24 May 2017).

[95]Fossel, *Walking & Working Sticks* (The Apostle Press, 1986); Douglas, *Blackthorn lore and the art of making walking sticks* (Stenlake Publishing, 2011).

broken off from the rest of the spear before burial and, occasionally, subsequently reburied in other contexts (Chapter 6).

Assembling the Spear

When we bring their pieces together, we can begin to form a picture of the spear as it would have existed outside the grave in sixth-century communities. The majority of spears were slender, light, and nimble weapons. A spearhead of average weight (147g) with a 2m tapered ash shaft would weight approximately 500g. A spear with a short blade of Swanton's C1, E1, or H1 type and a hazel shaft could weigh even less. These lightweight weapons could have easily been thrown, but would have excelled especially in the hand, where their weight and balance would have contrasted favorably with that of other contemporary weapons, particularly swords (which might weigh twice the weight of a spear, and have none of its nimble balance). Swords of the early Anglo-Saxon Period were not built for nimble fencing, though that is not to say that they were clumsy weapons. Swords could, and did, split open the skull of more than one of the 890 persons whose graves were examined for this project's Catalog. A 500g spear, however, is subtle and lightning fast, and can deliver a flurry of rapid thrusts in place of a sword blows.

Much speculation has sought to establish the relative status associations of spears versus swords and other weapons (spears, typically, have been ranked at the bottom), but it should be recognized that spears filled a different functional niche than their rarer and, probably, dearer counterparts. No other weapon extended a fighter's arm so far, moved so rapidly, or could be thrown or held in the hand so easily as a spear. This weapon's ubiquity in graves reflects its utility as well as its relatively available materials and ease of manufacture. Spears were the common weapon of the early Anglo-Saxon Period; a consequence of their value as tools as much as their easy of manufacture.

Conclusions

This chapter has argued that the spears we find in graves of the sixth century were real, effective weapons. Their utility has been often underappreciated, perhaps because their makers did not share the priorities expected by modern metallurgists. Early medieval smiths repeatedly demonstrated a preference for ductility over hardness, through the choice of soft iron, or else unhardened steel, for the edges of both spears and swords. This stands in contrast to knives, whose harder blades were well suited for domestic use where they might be exposed to fewer shocks than weapons in the hunt or battlefield. Spearheads' metallurgy shows these preferences, and the attendant hopes and fears of the persons who forged tools meant to bring their users safely through danger, preserved from harm.

These weapons' craftsmanship, far from experiencing a decline in skill as Swanton once suspected, advanced on earlier Roman methods in several ways. The split sockets of these spearheads continued a tradition of craftsmanship common in the British Isles during the Roman era, and may suggest a continuity of craftspersons rather than an influx of Germanic craftspersons as Swanton had assumed. Regardless of the identity of the persons who made these blades, it is empirically demonstrated that the quality of iron used, even in the poorest quality spearheads of the early Anglo-Saxon period, surpassed that found in spearheads from Roman Britain. These observations nuance recent discussions of economic and material decline in post-Roman Britain; the island's iron products, far from experiencing a sudden collapse in quality, were more skillfully made by the communities that followed the empire's collapse.

At every stage, however, our ability to apprehend the properties of the spears of the early Anglo-Saxon period is hindered by the fragmentary nature of our evidence. In many graves, rust is all that remains of these objects, and we see the artifacts' original forms only dimly through inference, analogy, and recreation. The processes of corrosion that obscure blades' shapes, moreover, do not end with conservation. Spearheads' iron continues to react with its environment after it is placed in storage, and most spearheads' conditions ensure that the physical objects have an effective expiration date. Swanton lamented, in 1973, that many of the spearheads he had personally examined in the 1960s were, a decade later, too corroded to be studied again.[96] My own experience of spearheads crumbling into fragments mirrors Swanton's account. Iron is a promiscuous material, and careful conservation and storage are often not enough to restrain this metal's desire to transform itself from metallic iron back into the rusty dust from which it was, 1500 years before, reluctantly smelted.[97] The spearheads of the early Anglo-Saxon period, long dormant in the soil, awaken into active objects once again when they leave the ground, and the succeeding contexts through which they pass repeatedly transform their substance until, in the end, they depart our world entirely.

[96] Swanton, *Spearheads*, 6.

[97] For a similar description of iron as a living substance, see Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010).

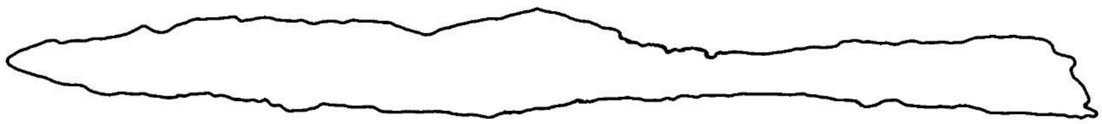

Figure 2-1. Corroded spearhead from Breamore, Hants. This spearhead from Breamore, grave 506, shows extensive surface corrosion from 1500 years in the ground.

Figure 2-2. Spearhead covered in tuber-like concretions of rust. This spearhead, from St. Mary's Stadium grave 5486, is covered in corrosion product that has expanded outward, concealing the original blade within a mass of concreted rust.

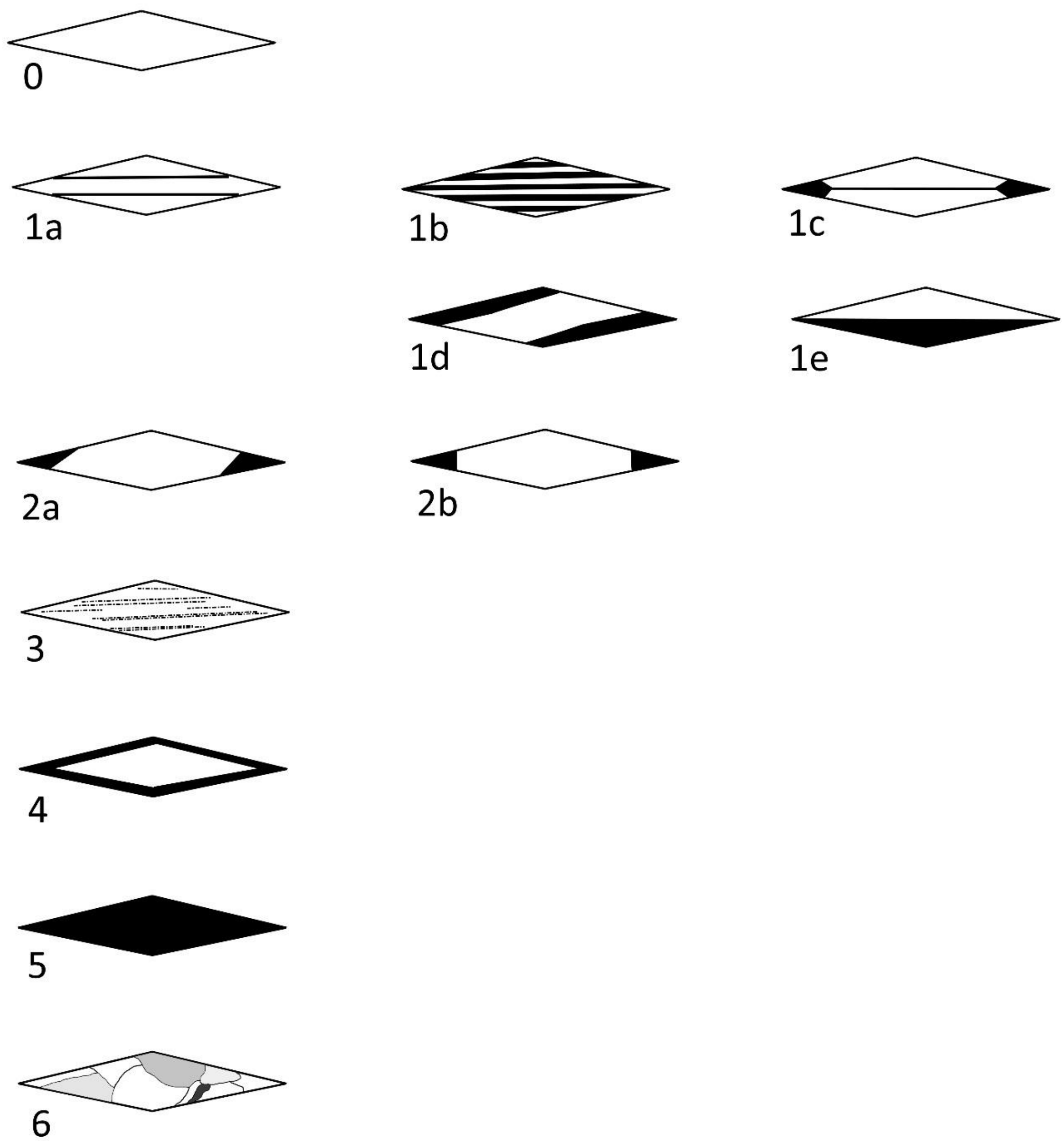

Figure 2-3. Common blade construction techniques. This figure shows several common blade constructions, in cross-section. The darker colors typically represent carbon steel or high phosphoric iron welded onto soft iron, though some spearheads weld multiple pieces of plain iron, phosphoric iron, or steel together into these configurations. The classification scheme used in this image is based on B. Gilmour and C. Salter, "Ironwork: technological examination of the knives, spearheads, and sword/weaving batten," in The Anglo-Saxon Cemetery at Edix Hill (Barrington A), Cambridgeshire, edited by T. Malim, J. Hines and C. Duhig, 250–56, CBA Research Report 112 (York: Council for British Archaeology, 1998), 254.

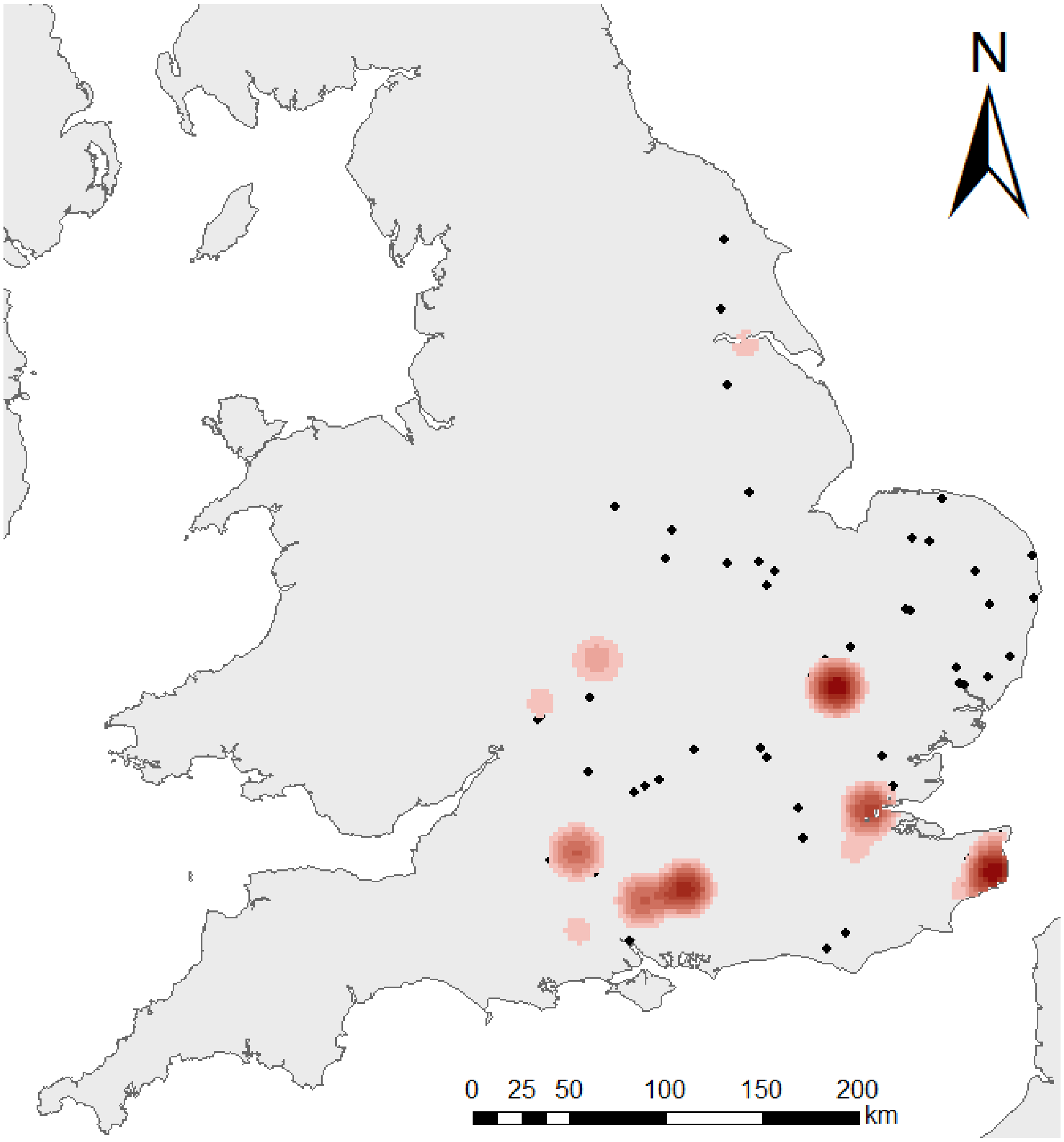

Figure 2-4. Inlaid spearheads from the study sample. This heat map shows the concentration of inlaid spearheads within the study sample (red circles), against the backdrop of the sites studies (black points).

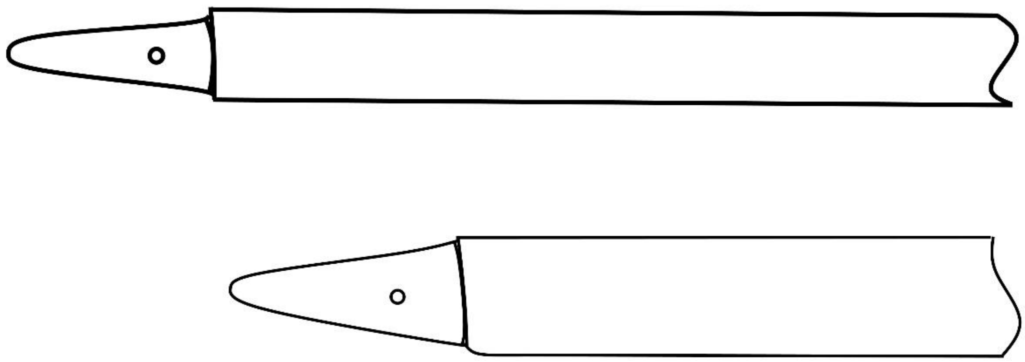

Figure 2-5. Spear shaft tips from Thorsberg. Wooden Iron Age spear shafts were recovered from Thorsberg, Germany. These well-preserved third-century CE shafts illustrate the type of recessed or stepped junction that was commonly used in England during the early Anglo-Saxon period, but which often survives as only thin fragments of mineral-preserved timber rusted to the base of the iron spear socket. This image is sketched after Klaus Raddatz, Der Thorsberger Moorfund Katalog: Teile von Waffen Und Pferdegeschirr, Sonstige Funstüke Aus Metall Und Glas, Ton- Und Holzgefäße, Steingeräte (Karl Wachholtz Verlag Neumünster, 1987), Taf. 35.

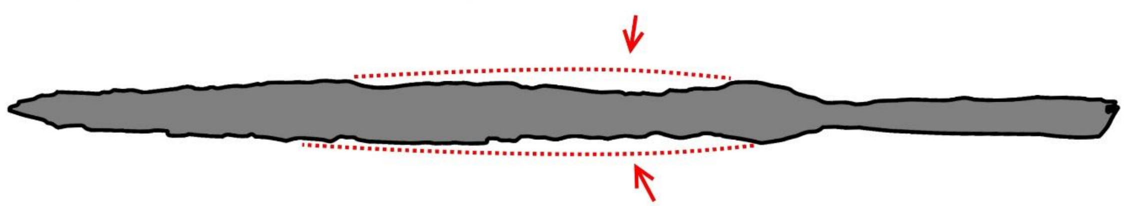

Figure 2-6. Leaf-bladed spearhead with heavily corroded edge. This leaf-bladed spearhead's edge has corroded, giving it the false appearance of heavy wear. The edge corrodes first where it is widest, as this is also the place where the metal has been hammered thinnest and, therefore, rusts must rapidly and is most easily broken.

Table 2-1. Spearheads evaluated with metallography.

Site	Grave	Artefact Number	Hardness (Edge, HV)	Hardness (Core, HV)	Construction	Reference
Barrington A	7	11.1	-	-	1d	Malim et al. 1998: 45, 100, 137; Gilmour & Salter 1998: 252.
Barrington A	12	19.1	-	-	0	Malim et al. 1998: 48, 103, 138; Gilmour & Salter 1998: 252.
Barrington A	12	19.2	-	-	1e	Malim et al. 1998: 48, 103, 138; Gilmour & Salter 1998: 252.
Barrington A	33	112.1	-	-	6	Malim et al. 1998: 58, 114, 141; Gilmour & Salter 1998: 252.
Barrington A	36	125.1	-	-	1a	Malim et al. 1998: 59, 115, 141; Gilmour & Salter 1998: 252.
Barrington A	46	146.1	-	-	1a	Malim et al. 1998: 62, 117, 143; Gilmour & Salter 1998: 252.
Barrington A	47	147.2	-	-	5	Malim et al. 1998: 63, 117, 143; Gilmour & Salter 1998: 252.
Barrington A	48	148.1	-	-	-	Malim et al. 1998: 63, 118, 143; Gilmour & Salter 1998: 252.
Barrington A	50	1000/100 120:100	-	-	6	Malim et al. 1998: 64, 118, 143; Gilmour & Salter 1998: 252.
Barrington A	51	151.7	-	-	1c	Malim et al. 1998: 65, 118, 144; Gilmour & Salter 1998: 252.
Barrington A	62	188.3	-	-	1e	Malim et al. 1998: 69, 121, 145; Gilmour & Salter 1998: 252.
Barrington A	76	405.1	-	-	1e	Malim et al. 1998: 74, 124, 147; Gilmour & Salter 1998: 252.
Barrington A	88	453.2	-	-	1a	Malim et al. 1998: 79-80, 28,149; Gilmour & Salter 1998: 252.
Barrington A	98	553.3	-	-	1b	Malim et al. 1998: 83, 130, 151; Gilmour & Salter 1998: 252.
Barrington A	107	632.1	-	-	0	Malim et al. 1998: 86, 132, 152; Gilmour & Salter 1998: 252.
Barrington A	115	727.1	-	-	1a	Malim et al. 1998: 89, 133, 153; Gilmour & Salter 1998: 252.
Barrington A	1000	1000.11	-	-	1d	Gilmour & Salter 1998: 252-53; Malim et al. 1998: fiche 29
Barrington A	1000	1000.12	-	-	3	Gilmour & Salter 1998: 252-53; Malim et al. 1998: fiche 29-30
Barrington A	106B	626.152	-	-	6	Malim et al. 1998: 85, 132, 152; Gilmour & Salter 1998: 252.

Table 2-1. Continued

Site	Grave	Artefact Number	Hardness (Edge, HV)	Hardness (Core, HV)	Construction	Reference
Barrington A	66A	322.2	-	-	1b	Malim et al. 1998: 70,122, 146; Gilmour & Salter 1998: 252.
Barrington A	9A	13.1	-	-	6	Malim et al. 1998: 46, 101, 137; Gilmour & Salter 1998: 252.
Boss Hall	51	21/F	155	117	0	Scull 2009: 12-13, 27, 36; Fell & Starley 1999: 7.
Boss Hall	74	78/F	138	1:168 2:173	1e	Scull 2009: 13-14, 28, 38; Fell & Starley 1999: 11.
Boss Hall	87	19/F, 33/F	116	1:204 2:138	1a	Scull 2009: 15, 28, 40; Fell & Starley 1999: 12.
Broom Hill Quarry	U	U	847	-	PW	Leahy, 127-28.
Buckland	264	264a	260	211	3?	Parfitt & Anderson 2012: 405, 264, 535; Lang 2012a: 269-70.
Buckland	299	299a	203	147	-	Parfitt & Anderson 2012: 413, 483, 541; Lang 2012a: 270.
Buckland	323	323a	382	290	1e	Parfitt & Anderson 2012: 416-17, 486, 547; Lang 2012a: 270.
Buckland	393A	393Aa	165	148	3	Parfitt & Anderson 2012: 438, 507, 561; Lang 2012a: 270-71.
Flixton II	1	1/1; 0119	148	127	0	Boulter & Rogers 2012: 200-201; Lang n.d.: 1-2; Lang 2012b: 131-32.
Flixton II	1	1/2; 0120	211	164	1a	Boulter & Rogers 2012: 200-201; Lang n.d.: 2; Lang 2012b: 131-32.
Flixton II	23	23/1; 1281	128	164	0	Boulter & Rogers 2012: 219-224; Lang n.d.: 2; Lang 2012b: 131-32.
Flixton II	37	37/6; 1380	125	219	1b	Boulter & Rogers 2012: 236-39; Lang n.d.: 2-3; Lang 2012b: 131-32.
Flixton II	41	41/1; 1388	181	191	1b	Boulter & Rogers 2012: 239-42; Lang n.d.: 3; Lang 2012b: 131-32.
Saltwood	C1048	865	-	-	4	Gilmour n.d., 15
Saltwood	C1081	916,917	-	-	4	Gilmour n.d., 15-16

Table 2-1. Continued

Site	Grave	Artefact Number	Hardness (Edge, HV)	Hardness (Core, HV)	Construction	Reference
Saltwood	C1159	1183	-	-	2b	Gilmour n.d., 17
Saltwood	C1197	1106	-	-	1a	Gilmour n.d., 21
Saltwood	C3779	2005	-	-	1a	Gilmour n.d., 20-21
Saltwood	C3885	2258	-	-	1e	Gilmour n.d., 18-19
Saltwood	C4680	2149	-	-	1a	Gilmour n.d., 19-20
Saltwood	C6231	2406	-	-	0	Gilmour n.d., 21-22
Saltwood	C6532	2508	-	-	0	Gilmour n.d., 19
Saltwood	C6653	2459	-	-	4/2b	Gilmour n.d., 16-17
Sancton	A307	A307/1	180	144	1e	Gilmour 1993: M 2/25; Timby 282-84; 355, 360.
Sewerby	11	590167 11/1	159	138	3	Tylecote 1982; Hirst 1985, 90-91, M1:A11.
Tranmer House	18	18.1			-	Lang and Wang 2015, 121-123
Tranmer House	20	20.1	283	208	1a	Lang and Wang 2015, 121-123
Tranmer House	23	23.1	164	170	1e	Lang and Wang 2015, 121-123
Tranmer House	24	24.1i	184	152	0	Lang and Wang 2015, 121-123
Tranmer House	25	25.1	-	-	-	Lang and Wang 2015, 121-123
Tranmer House	27	27.1	218	226	0	Lang and Wang 2015, 121-123
Tranmer House	28	28.1	137	125	0	Lang and Wang 2015, 121-123
Wasperton	22	1223/2	224	113	2b	Carver et al. 2009: 167; Starley 2006: 15-16.
Wasperton	44	1325/2	-	165	0	Carver et al. 2009: 189; Starley 2006: 16-17.
Wasperton	58	2300/1	-	129	0	Carver et al. 2009: 205; Starley 2006: 17-18.
Wasperton	91	3139/1	201	116	2b	Carver et al. 2009: 241; Starley 2006: 18-19.
Wasperton	104	3214/1	-	120/ 173.7	3	Carver et al. 2009: 251; Starley 2006: 19-20.
Wasperton	107	3217/1	221	90	1d	Carver et al. 2009: 253; Starley 2006: 20-21.
Wasperton	108	3228/1	1:114 2:167	1:114 2:167	2a	Carver et al. 2009: 254; Starley 2006: 22-23.

Table 2-1. Continued

Site	Grave	Artefact Number	Hardness (Edge, HV)	Hardness (Core, HV)	Construction	Reference
Wasperton	126	3315/1	134	95/ 169	3/6	Carver et al. 2009: 271; Starley 2006: 23-24.
West Heslerton	72	900566, 2B84AF	162	-	0	Haughton & Powlesland 1999: 107-109; Moir 1990: 39-40; Moir 1995: 454.
West Heslerton	73	900587, 2B68AA (900567 in Moir 1990)	-	175	1e	Haughton & Powlesland 1999: 110-111; Moir 1990: 40-41; Moir 1995: 454.
West Heslerton	85	867652, 2BA443AC	270	185	5	Haughton & Powlesland 1999: 135; Moir 1990: 32-33; Moir 1995: 454.
West Heslerton	87	867612, 2BA62AD	-	-	1e	Haughton & Powlesland 1999: 141; Moir 1995: 457.
West Heslerton	98	867621, 2BA137AB	165	141	1e	Haughton & Powlesland 1999: 159; Moir 1990: 31-32; Moir 1995: 453-54.
West Heslerton	144	873655, 2BA820AI	-	-	1e	Haughton & Powlesland 1999: 249-50; Moir 1995: 457.
West Heslerton	151	872468, 2BA903AA	176	157	1e	Haughton & Powlesland 1999: 261-63; Moir 1990: 34-35; Moir 1995: 454.
West Heslerton	151	872470, 2BA903AC	1:186 2:213	1:132 2:150	1: 6? 2: 3	Haughton & Powlesland 1999: 261-63; Moir 1990: 35-37; Moir 1995: 454.
West Heslerton	158	872477, 2BA938BG	222	180	1a	Haughton & Powlesland 1999: 278-280; Moir 1990: 38-39; Moir 1995: 454.
West Heslerton	179	852785, 8AA89AL	-	-	1b	Haughton & Powlesland 1999: 314-16; Moir 1995: 457.
West Heslerton	183	852791, 8AA112AL	1:183 2:132	1:133 2:142	1e/3	Haughton & Powlesland 1999: 322-25; Moir 1990: 27-29; Moir 1995: 453.
West Heslerton	184	852799, 8AA168AD	163	116	1e	Haughton & Powlesland 1999: 326-28; Moir 1990: 30; Moir 1995: 453.

Table 2-2. Spearheads with inlay or incised decoration from the study sample.

Site	Grave	Comment
Alton	4.2	Grooves on socket (lost inlay)
Alton	6.1	Grooves on socket (lost inlay); ring on blade face
Alton	7	Probable ring on each blade face
Alton	16	2 sets of decorative grooves on socket
Alton	16.5	6 dense bands around socket (x-ray)
Alton	34	Probable ring on each blade face
Beckford B	56	2 inlaid bands on socket (x-ray)
Blacknall Field	8	5 groups of 3 bands on socket, no inlay now present; ring and dot on blade face
Blacknall Field	12	2 groups of 2 bands on socket, no inlay now present
Blacknall Field	22	5 inlaid bands around socket mouth, 3 bands at socket top, 20 short strips along sides of shank / base of blade.
Blacknall Field	64	1 inlaid band on socket (x-ray)
Breamore	Unstrat.	4 grooves on socket base
Castledyke South	4	rings around socket (x-ray)
Dover Buckland	87	Thin dense line on socket, unclear whether inlay
Dover Buckland	93	Inlaid circle and swastika on blade face
Dover Buckland	156	horizontal bands around socket (x-ray)
Dover Buckland	94b	5 inlaid bands of yellow metal around socket
Dover Buckland	301	Two symbols scratched onto the blade faces; perhaps a bow and arrow and a clashing shields
Finglesham	102	at least two grooves around base of socket
Finglesham	107	2 grooves around socket butt
Finglesham	117	2 grooves near base of socket
Finglesham	204	2 grooves around socket (x-ray)
Great Chesterford	19	4 rings inlaid on blade face
Great Chesterford	51	gilt bronze band, two grooves around socket, ring-and-dots in faces of blade (4 per side)
Great Chesterford	115	2 rings-and-dots on blade faces
Great Chesterford	140	circle on blade face
Great Chesterford	140	circle on blade face
Great Chesterford	142	Possible inlaid rings on blade face
Great Chesterford	157	circle on blade face
Mucking I	Unstrat. 4	ring around (broken) socket
Mucking II	575	possible inlaid bands on socket (x-ray)
Mucking II	731	2 inlaid bands of brass
Mucking II	764	possible inlay on socket
Mucking II	849	2 inlaid bands of brass
Pilgrim's Way	7049	cross, lozenge-and-arrow on blade face
Saltwood Tunnel	C1204	cross, circle on blade face

Table 2-2. Continued

Site	Grave	Comment
Wasperton	126	inlaid bands on socket of white metal (not recorded in publication)
Wasperton	58	Faint knotwork tracery carved into socket (not recorded in publication)
Worthy Park, Kingsworthy	44	possible inlay groove at butt end
Worthy Park, Kingsworthy	49	5 inlaid bands of copper alloy
Worthy Park, Kingsworthy	83	2 broad inlaid bands on socket of copper alloy
Worthy Park, Kingsworthy	87	1 inlaid band of copper alloy

Table 2-3. Spearheads with rings circling the mouth of their socket.

Site	Grave	Material	Swanton Type	Hines & Bayliss
Breamore	505	Fe	J	SP5
Dover Buckland	240	Cu alloy	D2	SP4
Dover Buckland	249C	Cu alloy	H3	SP2-b1a3
Dover Buckland	301	Fe	E4	SP3-a
Dover Buckland	375	Only visible on x-ray	E3	SP3-a
Dover Buckland	33	-	G2	SP3-a
Dover Buckland	50	Fe with inlaid Cu alloy	C2	SP1-a3
Dover Buckland	135	Fe	C5	SP4
Great Chesterford	51	Cu alloy, gilded	H3	SP2-b1b
Great Chesterford	157	Fe	J	SP5
Lechlade	191/192	Cu alloy	C5	SP1-a2
Mucking I	128	-	D2	SP1-a3
Mucking II	572	Fe	H2	SP2-b1b
Mucking II	682	Fe (x3)	B1	SP2-b1a3
Saltwood Tunnel	C1048	Fe wire	A2	-
Saltwood Tunnel	C6653	Fe (x3)	A2	-
Saltwood Tunnel	C1081	Fe (x3)	A2	-
Spong Hill	13	-	L	SP5

Table 2-4. Spearhead weight and length by chronological phase (see Chapter 3 for a description of the phases).

Phase	Average Length	Median Length	Average Weight	Median Weight
A	236.9	224	161.2	147.2
B	278.2	248	157.0	128.1
C	315.1	281.5	189.8	168.2

Table 2-4. Continued

Phase	Average Length	Median Length	Average Weight	Median Weight
D	312.8	303	128.6	128.6
E	316.8	305	185.9	193.3
F	279.3	277	196.9	196.9
TOTAL	296.6	268	172.4	189.8

CHAPTER 3
CHRONOLOGY, TYPOLOGY, AND THE PROBLEM OF CORROSION

Spearheads' corroded condition, discussed in the previous chapter, has significantly hindered archaeologists' attempts to classify these artifacts within a comprehensive typology. Typologies, popularized by archaeologists in the nineteenth century and now regarded as somewhat old-fashioned, remain a necessary tool to establish site and artifact chronologies. Particularities of artifacts' style and shape are often the only means by which a burial's date can be inferred, and consequently immense effort has been put toward developing reliable and valid classification systems for a variety of artifact types whose styles are known to have varied across generations. Iron artifacts have proven the most resistant to classification, however, due to their corroded condition. A comprehensive typology for spearheads from the early Anglo-Saxon period was not developed until the 1970s,[1] and there remains today no complete typology for iron knives from early medieval England.[2]

Since the 1970s, a series of studies have refined the chronologies of early medieval burial in England, culminating in an English Heritage funded project edited by John Hines and Alex Bayliss in 2013 which combined the latest scientific and statistical methods for modeling chronological relationships between artifacts.[3] Spearheads, as one of the most common artifacts

[1] I.e. Michael Swanton, *The Spearheads of the Anglo-Saxon Settlements* (Royal Archaeological Institute, 1973); Swanton, *A Corpus of Pagan Anglo-Saxon Spear Types*, British Archaeological Reports 7 (Oxford: British Archaeological Reports, 1974). Swanton' published typology was modified from an earlier version developed in his Ph.D. dissertation: Michael Swanton, "The Spear in Anglo-Saxon Times," Ph.D. dissertation, Durham University, 1966.

[2] This is true in Continental studies as well. The first typology of spearheads from the Avar-age, for example, was published only three years ago: Gergely Csiky, *Avar-Age Polearms and Edged Weapons: Classification, Typology, Chronology and Technology*. East Central and Eastern Europe in the Middle Ages, 450-1450, 32 (Leiden: Brill, 2015).

[3] John Hines and Alex Bayliss, eds., *Anglo-Saxon Graves and Grave Goods of the 6th and 7th Centuries AD: A Chronological Framework,* The Society of Medieval Archaeology Monograph 33 (London: The Society for Medieval Archaeology, 2013).

in the graves of osteologically sexed males (along with shields, buckles, and knives), play a key role in these new chronological models; yet their corroded condition makes it difficult to reliably and validly classify their forms. This chapter examines the history of how English spearheads' shapes have been classified into typologies, in particular through Michael Swanton's pioneering work in the 1960s and '70s. It argues that recent attempts to reclassify this material—especially Hines and Bayliss' recent study—have failed to accommodate the subjectivity inherent in the study of rusted artifacts, with the consequence that their results are unstable, difficult to reproduce, and unlikely to be accurate. The chapter discusses these issues of reliability and validity, and from this discussion develops a new typological method. This method is tested, and the results are used to create a new chronological model for male weapon burials in the early Anglo-Saxon period. The chapter concludes with a discussion of how this new model changes our understanding of social-historical processes in the fifth through seventh centuries, as well as a caution regarding the continuing limitations of what iron artifacts can and cannot tell us about historical processes through time.

The Search for Chronology

The dates at which spears were buried have long proved difficult to identify. Antiquarians have for more than two centuries recognized iron spearheads buried in human graves as products of a distinct historical moment at the beginning of the early middle ages. James Douglass, writing in 1793, argued that these weapons belonged to the 'pagan' 'Saxons' of the centuries following the collapse of Roman rule.[4] For nearly two centuries after Douglass published this argument, however, archaeologists struggled to be more precise. Burials from the fifth through

[4] E.g. James Douglas, *Nenia Britannica* (London, 1793), 128; Sam Lucy, *The Anglo-Saxon Way of Death* (Stroud: Sutton Publishing, 2000), 155-73; Howard Williams, 'Anglo-Saxonism and Victorian Archaeology: William Wylie's Fairford Graves,' *Early Medieval Europe* 16 no. 1 (2008): 49-88 (esp. 49-51).

seventh centuries rarely give direct evidence of the year in which they were dug. No inscriptions record the dates of persons' deaths. The early Anglo-Saxon dead were not buried with headstones (or if they were, none survive). Inside the grave itself, few objects give direct indication of their date of origin. Coins can provide a *terminus post quem* for a burial, but few coins were buried with these early medieval dead.

Since the nineteenth century, archaeologists have painstakingly labored to overcome these challenges by developing detailed artifact typologies. These typological projects grew from the work of Christian Thomsen in the Danish Museum of Northern Antiquities in the early nineteenth century. Thomsen proposed that artifacts buried in "closed finds," that is a single deposit such as in a grave or hoard, were probably contemporary with each other. He sorted the prehistoric collections of the Museum of Northern Antiquities into types based on their function, material, shape, and decoration, and then compared these groups against the closed finds in which multiple types of artifacts were found. On this basis, Thomsen was able to organize artifacts into chronological groups of contemporary types, and from there into longer sequences of stylistic variation over time.[5] Following Thomsen's methodology, which was presented to the Danish public in 1819 and published following 1836, antiquarians and archaeologists interested in early medieval burials began the painstaking labor of classifying graves' contents into chronologically significant typological groups based on the artifacts' shape and decoration.[6]

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[5] Bruce G. Trigger, *A History of Archaeological Thought*, second ed. (Cambridge: Cambridge University Press, 2006), 121-29.

[6] Charles Roach Smith is credited with beginning this work in English archaeology, but it was not until the twentieth century that artifact typologies for the early Anglo-Saxon period were sufficiently developed to offer an independent counterpoint to textual narratives of Britain's fifth through seventh centuries. Charles Roach Smith, *Collectanea Antiqua: Etchings and Notices of Ancient Remains, Illustrative of the Habits, Customs, and History of Past Ages*, 7 volumes (London: J.R. Smith, 1848-80); Hines and Bayliss, 22-25.

It was not until the 1970s, however, that anyone successfully catalogued spearheads into a comprehensive typology. Early typologies for early Anglo-Saxon period burials focused on female dress accessories such as brooches, whose artistic motifs facilitated stylistic comparisons. Spears, in contrast, were undecorated, distorted by corrosion, and widely believed to be inferior products unworthy of close study.[7] One researcher wrote, of a collection of spearheads dredged from the River Thames, that

> On the whole, however, [the Saxon iron-smith's] work throughout the Pagan period savoured of mass-production rather than of true craftsmanship, and showed comparatively little progress until it received fresh stimulus from abroad. ... The re-emergence of London as a commercial centre in the 7th and 8th centuries must have been an important factor in this revival...[8]

This view—that spearheads showed "little progress" before the seventh century—prevented their use as a chronological index, and consequently most male burials (those that contained only a spear and, perhaps, an undecorated belt buckle and knife) could not be dated more precisely than to the "Pagan period," e.g. the fifth through seventh centuries.

Michael Swanton's Spearhead Typology

Michael Swanton published the first comprehensive spearhead typology in 1973 and 1974, and this revolutionized archaeologists' ability to date not only spearheads, but also male inhumations across the whole of the early Anglo-Saxon period. Swanton first developed the typology in his unpublished 1966 doctoral dissertation. His published typology renumbered and modified several of the types. Nearly half a century later, Swanton's typology remains the standard system through which spearheads are classified and dated.

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[7] Swanton, *Settlements*, 1-2, 5.

[8] R.E.M. Wheeler, *London and the Saxons*, London Museum Catalogues 6 (London: Lancaster House, 1935), 169.

Swanton's published typology included twenty-eight spearhead types. These were divided into groups based on blade shape, overall size, socket length, and several other factors. Swanton recognized three chief divisions of blade shape: angular, leaf-bladed, and ogival or concave-sided blades. He also recognized four common cross-sectional shapes: lozengiform and lenticular (the two most common), as well as spears with ribs and stepped or fullered blades.

Swanton illustrated each type with line drawings of real spearheads (rather than idealized types), and he often chose his examples from the exceptionally well-preserved artifacts in the Museum of London's Thames River collection.[9] The arrangement of spearheads in the Museum of London's collection drawers may have helped suggest some of Swanton's typological relationships. Several of the types Swanton suggested mirror the arrangement of artifacts in the Museum of London's drawers, and he proposed developmental relationships between several specific styles that shared a drawer together. For example, Swanton argued that early medieval fullered spearheads (his types I-J) evolved from an otherwise unique (in England) pair of fullered spearheads that were stored in the same drawer (he identified these as 'La Tene III' spearheads).[10] In fact, those spearheads had come from Germany, where they are an established sixth-century type that post-dates the fullered English spearheads Swanton suggested they inspired.[11]

Swanton dated each of his twenty-eight types on the basis of spearheads found in closed contexts with other types of artifacts whose dates were already established. These included

[9] For example, Figure 52 in Swanton, *Settlements*, 132.

[10] Swanton, *Settlements*, 117.

[11] Cf. Matthias Friedrich, *Archäologische Chronologie Und Historische Interpretation: Die Merowingerzeit in Süddeutschland*, Ergänzungsbände Zum Reallexikon Der Germanischen Altertumskunde 96 (Berlin: De Gruyter, 2016), 118. This was in fact recognized by Wheeler a half century before, cf. Wheeler, 166-67.

ceramics, glass vessels, female jewelry from double burials (graves containing the bodies of a man and woman buried together), and whenever possible coins. Swanton's methods were rigorous, and his conclusions have received only minor revision in the half century that followed. Tania Dickinson revised Swanton's dating of several spearhead types in her 1976 doctoral thesis,[12] but Swanton's conclusions have received few subsequent revisions. Swanton's typology has been used in nearly every English cemetery study since the 1970s.

Although Swanton's spearhead typology has been widely adopted, many have commented that it is difficult to use. Indeed, while Swanton's types are amply illustrated in his two publications, the criteria separating adjacent types are often ill defined. Swanton for example never states how to distinguish between a leaf-bladed and an angular spearhead. Many who have used his typology choose to group all spearheads with corners on the edges of their blades into his angular series, but some have considered the overall triangular or lenticular shape of the blade (regardless of whether corners are present) to be the deciding difference. These disagreements are complicated by spearheads which appear to satisfy the criteria of multiple classifications. Swanton's illustrations of medium-sized straight-sided angular spearheads (type E2), for example, include several with concave edges, while his examples of medium-sized concave-sided spearheads (type H2) include several whose edges are straighter than those used to illustrate the straight-sided group (E2).[13] These fuzzy boundaries between types reflect a real ambiguity within the corpus of artifacts (whose forms range across a spectrum of overlapping

[12] Dickinson, "Burial Sites," 291-329. These revised dates have been generally accepted by subsequent studies, e.g. Härke, *Waffengräber*, 86.

[13] Compare Swanton's Fig. 25.b and Fig. 39.b, in *Settlements*, pages 80 and 106. These two spearheads—one a type E2 and one an H2—are for all typological purposes indistinguishable.

shapes).[14] In many cases, Swanton offers insufficient guidance for how to resolve these ambiguous boundary cases, and researchers frequently disagree in their assignment of types.

Tania Dickinson, in her 1976 doctoral dissertation, critiqued many of Swanton's types for these fuzzy boundaries. She proposed several new transitional types to include objects which met the criteria of multiple of Swanton's categories (e.g. type C/E, for spearheads which had both angular and leaf-bladed characteristics). Dickinson also noted imprecisions in Swanton's length divisions between several types and proposed further transitional categories to capture this ambiguity.[15] Dickinson's revised types (particularly her C/E classification)[16] are occasionally used in preference to Swanton's.

I classified over 900 spearheads for this study using Swanton's types, and I found myself struggling in many cases to reproduce the results of earlier researchers. Some researchers clearly misunderstood Swanton's types, and classified their material incorrectly. Many morespearheads had severely corroded, and researchers unfamiliar with the effects of corrosion on spearhead blade shapes had mistaken their corroded forms for their original shapes (for example, many angular spearheads were misclassified as leaf-bladed, in consequence of the corrosion of the corners of their originally angular blades). In total, I disagreed with 41% of the Swanton types assigned to the spearheads I examined. I am not alone in this finding. Both Dickinson and Härke, who each examined similarly large corpuses of material, contested many of Swanton's own classifications of spearheads that he published in his 1974 corpus,[17] and Härke frequently

[14] Swanton is honest about this fact; cf. *Settlements,* 10.

[15] Dickinson, "Burial Sites," 291-329.

[16] Dickinson, "Burial Sites," 304.

[17] E.g. Dickinson, "Burial Sites," 318.

recorded two or even three conflicting classifications of individual spearheads in the database he prepared for his 1992 publication (usually these disagreements were between himself, Dickinson, and Swanton).[18] In my own study, I noted I more frequently agreed with early medieval specialists like Härke, Dickinson, and Vera Evison who had extensive experience using Swanton's typology than with non-medieval specialists who had less experience of these particular artifacts various shapes. That is, using Swanton's typology with consistency requires (like many other types of skilled archaeological classification) a trained subjectivity that improves through practice.

New Developments in Chronological Methods after Swanton

In the half century following Swanton's publication, new artifact chronologies, methodologies, and scientific advances have resulted in increasingly precise chronologies of early medieval burial evidence. Archaeologists have developed new artifact typologies which, used in combination, can sometimes narrow specific graves' range of possible dates to within several decades.[19] Recent studies have used statistical methods like Multiple Correspondence Analysis (MCA) to refine the chronological relationships between burial assemblages (the contents of individual graves, a kind of closed find) within one and sometime several cemeteries.[20] MCA, like Thomsen's analysis of closed finds, arranges burials into a sequence or

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[18] Härke has kindly shared this unpublished data with me.

[19] For example, the shield boss chronologies of Tania Dickinson and Heinrich Härke, *Early Anglo-Saxon Shields*, *Archaeologia* 110 (London: The Society for Medieval Archaeology, 1992); Sonja Marzinzik, *Early Anglo-Saxon belt buckles (late 5th to early 8th centuries A.D.): their classification and context*, BAR British Series 357 (Oxford: Archaeopress, 2003).

[20] For an introduction to MCA, see Michael Greenacre and Jorg Blasius, *Multiple Correspondence Analysis and Related Methods* (CRC Press, 2006); for an introduction of MCA's value in an archaeological context, see C. Kjeld Jensen and K. HØilund Nielsen, "Burial data and Correspondence Analysis," in *Burials & Society: The Chronological and Social Analysis of Archaeological Burial Data*, edited by C. Kjeld Jensen and K. Hoilund Nielsen, 29-61 (Aarhus, Aarhus University Press: 1997).

seriation based on the similarities and dissimilarities of individual burials' contents, following the logic that graves which share similar types of objects are more likely to be contemporary in date. The resulting seriation provides a relative chronology or timeline of burials, from early to late, which can be used in conjunction with artifact typologies to narrow the absolute dates of individual burials to shorter spans of time than is possible with artifact chronologies alone.[21] The most significant development, however, has been the increasing affordability and precision of radiocarbon dates. High precision radiocarbon dating of human bone can now frequently identify the year of an individual's death within several decades.[22] Radiocarbon dates offer an independent source of chronological information outside artifact chronologies, and are increasingly used as a control or supplement for dates from traditional artifact chronologies.[23] Radiocarbon dates remain expensive, however, and not all graves have enough well-preserved bone (specifically, collagen) to be successfully radiocarbon dated. Consequently, radiocarbon dates typically complement, rather than substitute for, artifact typologies in studies of burial chronology.[24]

Recent studies have combined these methods together to produce detailed, high-precision chronologies of early medieval burials.[25] The most notable for the early Anglo-Saxon period, an

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[21] For a comprehensive example of this approach in action, see Kenneth Penn and Birte Brugmann, *Aspects of Anglo-Saxon Inhumation Burial: Morning Thorpe, Spong Hill, Bergh Apton and Westgarth Gardens*, East Anglian Archaeology 119 (Dereham: Norfolk Museums and Archaeology Service, 2007).

[22] For an overview of recent advances in radiocarbon dating, see Hines and Bayliss, 37-48.

[23] E.g. Saltwood Tunnel. Ian Riddler, Jacqueline McKinley, and Simon Skittrell, The prehistoric, Roman and Anglo-Saxon funerary landscape at Saltwood Tunnel, Kent: The grave catalogue, CTLR Integrated Site Report Series (Archaeology Data Service, 2006, http://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-335-1/dissemination/pdf/PT1_Int_Site_Reps/30_Saltwood_Tunnel/SLT_ISR_GraveCatalogue/SLT_ISR_cat_text.pdf)

[24] Cf. Gerrard, "Synthesis."

[25] For example, Peter Stadler's study of Avar-age burials in Hungary, and the burial chronology of an early Anglo-Saxon period cemetery at Buttermarket, Ipswich. Peter Stadler, *Quantitative Studien zur Archäologie der Awaren I* (Wien: Verlag der Österreichischen Akademie der Wissenschaften, 2005); Christopher Scull and Marion Archibald,

English Heritage funded project published in 2013, used Bayesian statistical modeling to combine an MCA analysis of burial assemblages with high-precision radiocarbon dates of human remains into a comprehensive chronology of male and female burials from sixth- and seventh-century lowland Britain.[26] This project's methodology promised a more consistent, precise, and reliable chronology for the early Anglo-Saxon period. Notably, it included a new spearhead typology which was designed to reduce the user error associated with Swanton's typology by substituting objective measurements of spearheads' blade profiles for subjective visual identification of spearhead blade shapes.[27] Hines and Bayliss' study produced results precise enough to track processes of social change by the generation,[28] making it possible to bring history and archaeology into closer conversation than ever before.

Hines and Bayliss' study used a four-step process to create chronological models for male and female burials. First, they classified the contents of 700 burials using a variety of typologies, some of which (including the typology for spearheads) were created especially for their project. Because few artifact types overlapped between the male and the female graves, they decided to study each set of gendered burials independently. Second, after classifying the burials' contents, they used MCA to create a seriation of graves from list of their contents. They split this series into six groups, each representing a sequential chronological phase. Simultaneously, other members of the project team had collected samples of human bone from

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Early Medieval (Late 5th-Early 8th Centuries AD) Cemeteries at Boss Hall and Buttermarket, Ipswich, Suffolk, Society for Medieval Archaeology Monograph 27 (Leeds: Society for Medieval Archaeology, 2009), 261-70.

[26] Hines and Bayliss, *Anglo-Saxon Graves and Grave Goods.*

[27] Hines and Bayliss, 163-181. An earlier version of this typology was developed for East Anglian spearhead types, and was published in Penn and Brugmann, 17-22.

[28] See in particular the summary chart on page 485.

roughly one hundred of these same burials which they then radiocarbon dated.[29] Once the relative chronological phases and radiocarbon dates had been determined, they fourthly used Bayesian statistics to combine the two sets of data into high-precision probability estimates of the beginning and ending dates of each of phase.[30] Few studies have had the chance to use this system yet, and its potential to improve the precision with which we date artifacts, burials, and events remains mostly untested.[31]

The Limitations of Current Typologies: Testing Hines and Bayliss

One of this dissertation's goals was to test Hines and Bayliss' spearhead typology in order to determine whether their new methodology could provide a more precise model for how spearheads' forms, technology, and the social practices within which they were entangled changed across the fifth, sixth, and seventh centuries. To that end, I recorded the contents of the 890 weapon burials in my catalog using the new typologies outlined in Hines and Bayliss' text. I then repeated the steps of their process with my corpus of burials and created a new, high-precision model of spearhead and weapon burial chronology. The results, however, exposed problems with Hines and Bayliss' new spearhead typology that were similar to the problems of Swanton's earlier typology. Namely, despite the new typology's reliance on objective measurements of the spearheads' blades (in contrast to Swanton's more subjective approach of visually assessing spearheads' shape), I found it almost impossible to consistently judge which type to assign each spearhead. The problems with the typology affected every subsequent step in

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[29] Ibid., 101.

[30] The full methodology is explained in Hines and Bayliss, 231-338. For an abbreviated discussion of the methodology, see M. Baxter, "Anglo-Saxon Chronology I – the male graves" (2014), http://www.academia.edu/5990242 (accessed December 13, 2017).

[31] As of the time of writing, the only published study to use these new typologies is Tranmer House, Bromeswell. C.J.R. Fern, *Before Sutton Hoo: The Prehistoric Remains and Early Anglo-Saxon Cemetery at Tranmer House, Bromeswell, Suffolk*, East Anglia Archaeology Report 155 (Bury St Edmunds, Suffolk County Council, 2015).

the analysis. The new methodology's promised precision was blocked by the problem that every study of iron spearheads has had to confront, which is the 1500 years of corrosion that separates us from the object we are trying to study.

The new spearhead typology in Hines and Bayliss' study, designed by Karen Høiland Nielsen, sought to minimize the user's need to subjectively interpret the artifacts' shape. Swanton's types proved difficult to apply because they depended on the user's trained ability to recognize which type a corroded artifact should be assigned. Holland Nielsen's new typology replaced this subjective decision with a set of simple measurement rules that, when followed, would objectively determine the type to which a spearhead belonged. In addition to removing the need for a skilled qualitative evaluation of a spearhead's shape, this method also resolved the question of borderline / marginal cases that fell between Swanton's types by defining clear quantitative boundaries between each of the different type groups. Høiland Nielsen tested this new typology in a 2008 study of East Anglian burials and refined it during the data collection phase of Hines and Bayliss' project.[32] The finished typology was based on measurements of roughly 500 spearheads.[33] It is important to note that Høiland Nielsen took these measurements from published line drawings of the artifacts, not the physical artifacts themselves.[34]

The new typology outlines a series of simple measurements that, together, describe a spearhead's total length, width, socket length, blade length, shoulder length, and blade taper

[32] Penn and Brugmann, 17-22.

[33] Helpfully, the project's authors published these measurements as a supplement to the printed text. John Hines, "Anglo-Saxon Graves and Grave Goods of the 6th and 7th Centuries AD: A Chronological Framework," *York: Archaeology Data Service* (2013), https://doi.org/10.5284/1018290.

[34] John Hines, pers. comm.

(including its concavity).[35] The typology uses these measurements to divide spearheads into twenty-six types whose shapes reflect the general divisions recognized by Swanton's typology of leaf-bladed, angular, and concave-profiled spearheads, though with subtle differences from Swanton's divisions of these forms.[36]

In theory, these new typologies promised greater consistency, objectivity, and precision; in practice, however, I found them to require a surprising degree of interpretive subjectivity. The method itself was easy to use, and I recorded the measurements of 900 line drawings of spearheads over a period of two years. From these measurements, I assigned each spearhead to the corresponding type following to the methods outlined in the publication. These methods directly mirrored those of Hines and Bayliss' study. Høiland Nielsen had measured more than 200 of the same line drawings as I, and her measurements and the resulting spearhead types had been published with the supplemental materials that accompanied Hines and Bayliss' report.[37] I was therefore able to compare the measurements I had taken and the types I had assigned these 200 spearheads with those of the original study. Because the typology was based on quantitative measurements of the line drawings, I expected consistent results. I found, however, that we had assigned different types to the same spearheads in 39% of the cases compared—a substantial difference significant enough to make it impossible for me to replicate Hines and Bayliss' correspondence analysis results and radiocarbon models.

These differences resulted from flaws in Hines and Bayliss' typology, rather than errors in my or Høiland Nielsen's measurements. I checked both sets of measurements against the

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[35] Hines and Bayliss, 163.

[36] Ibid., 163-81.

[37] John Hines, "Anglo-Saxon Graves and Grave Goods of the 6th and 7th Centuries AD: A Chronological Framework," *York: Archaeology Data Service* (2013), https://doi.org/10.5284/1018290.

original line drawings. I met with John Hines, who confirmed that I was measuring the spearheads correctly. I then re-measured the 200 overlapping spearheads, in case my initial measurements (which were taken over the course of nearly two years) had been inconsistent or inaccurate. This second set of measurements surprisingly produced a third set of independent results which agreed with neither those published by Hines and Bayliss nor with the results from my first measurements. After reviewing all three sets of data, I identified three factors that contributed to this measurement inconsistency. The first factor was user error, mistakes resulting from carelessness in measuring the line drawings. The second factor resulted from the typology's lack of guidance for how to measure drawings of highly corroded artifacts. The third, related to the second, was the typology's high sensitivity to minor differences in measurement. Together, these three factors made the typology's results erratically inconsistent.

Of the 212 spearheads shared between my study and Hine and Bayliss', we disagreed on the type assigned to eighty-three individual artifacts. Nine of these disagreements resulted from user error.[38] The remaining seventy-four disagreements resulted from the second and third factors: the difficulty of consistently measuring drawings of corroded artifacts, and the typology's extreme sensitivity to the resulting differences in measurement.

Despite its reliance on seemingly objective measurements of artifacts' shapes, Hines and Bayliss' new typology required a high degree of interpretive subjectivity in practice. This is because measurements which are easy to take on an idealized or pristine spearhead (such as the

[38] For five spearheads, Hines and Bayliss' team had mis-recorded the spearheads' stepped / corrugated cross-sections (which should always result in a spearhead being assigned to their type SP5, if identified). It is not clear why these stepped profiles had not been recorded in their data. Two further stepped spearheads were overlooked because their stepped profiles were not correctly recorded in the published site reports (I discovered this when I examined the spearheads in person). These spearheads were Alton 4.1 and Broughton Lodge 36.2. In another case, Hines and Bayliss failed to assign a spearhead the type that corresponds to its measurements. In the final case, the discrepancy resulted from a data entry error on my part.

blade's width at its widest point) are not always obvious on sketches of highly corroded artifacts. The user must decide where along the fragmented profile each measurement should be taken. Furthermore, because the typology's goal is to compare the shapes of the spearheads when they were made and used rather than the shapes of corroded artifacts in the present day, these measurements need to be adjusted to compensate for material lost to corrosion—an on-the-fly adjustment. Comparison of the three sets of measurements showed that these judgments are often difficult to replicate. These interpretive tasks are not, however, discussed in the text. Consequently, in practice, the measurements feel more objective than they are. It was only through repetition and comparison that the extent of the interpretive subjectivity was revealed.

Interpretive subjectivity is not in itself a problem, but the lack of clear instructions for how these interpretations should be made caused significant confusion in the results. I found disagreements in measurement methods within as well as between each of the three independent sets of measurements. For example, I found that Høiland Nielsen had added several centimeters to the measured length of spearheads from Dover Buckland whose tips had broken off after burial. This adjustment was obviously correct, as the spearheads were clearly broken due to disturbance after their burial. However, the length was not adjusted / corrected for the similarly damaged spearheads from Empingham II. Instead, the length of the surviving artifact was given. My own measurements were no more consistent between sites; I sometimes, like Høiland Nielsen, added centimeters of missing length to spearheads, but sometimes failed to do so. There was no consistency between our two datasets regarding which spearheads' measurements we "reconstructed"; our choices seem to have depended upon our feelings on the day we took the measurements. Comparison showed that our measurements of spearhead width (W1) and upper blade length (BLU) were most subject to variation in this manner. Most of these differences were not the result of obvious mistakes. Rather, they reflected the subjectivity and resulting inconsistency inherent in the unsystematic measurement of drawings of corroded, broken iron artifacts.

These measurement inconsistencies frequently resulted in a spearhead being assigned to different types by different measurements. This is because Hines and Bayliss' typology defines the boundaries between spearhead types with high precision, making the typology sensitive to variations in measurement ratios as small as a few percentage points.[39] Figure 3-1 shows the measurement variations recorded for one key ratio that separated several spearhead types, which cause many artifacts to fall across one or more typological boundaries. In short, the typology expects a degree of measurement precision far beyond what could actually be achieved. This false expectation resulted from a failure to fully account for the effects of rust on iron artifacts' shape.

These small variations significantly impacted the results of the seriation. I created a MCA plot using each of the three parallel sets of spearhead measurements (Figures 3-2, 3-3, and 3-4). Only one set of measurements—the original measurements by the Hines and Bayliss team—produced the horseshoe-shaped curve of a successful chronological seriation. The success of Hines and Bayliss' own dataset in the correspondence analysis does not imply that their measurements were more accurate. Rather, it shows how the typological boundaries were carefully drawn to produce results that were meaningful only in the context of their specific

[39] The boundaries defined between the types depend on four important ratios of measurements: the ratio of socket length to blade length (SR), the ratio of blade length to the length of the upper portion of the blade (PM), and two ratios of blade width (RD, RDD).[39] Small, precise differences in any of these ratios can shift a spearhead across the boundary of one type into another. For example, the three types SP2-a1, -a2, and -a3 are separated by lines drawn at 76% and 84%, i.e. a difference of 8% defines three separate types. The average standard error measured between the three sets of measurements for this ratio (PM), however, gives a 95% confidence interval of ±2.86, a large enough range that many spearheads fall across boundary lines and land within multiple types.

measurement data, but which cannot be replicated with independent measurements of the same artifacts. That is, their categories were overfitted to their data, and their results could not be reproduced. This problem was rooted in the spearhead typology, and cascaded downward into the results of every subsequent step.

A New Spearhead Typology

Classification is an interpretive act, and an effective spearhead typology should consequently balance rather than replace interpretive subjectivity with objective rules and procedures. Swanton's spearhead typology rightly recognized that spearheads' original form must be qualitatively inferred rather than quantitatively measured from the portion of the artifact that survives. Hines and Bayliss, in contrast, provided clear rules for quantitatively sorting the result of that qualitative inference. Swanton failed to define such sorting rules, making his typology difficult to apply in many cases. Hines and Bayliss, for their part, failed to define the interpretive steps that needed to precede quantitative classification, and their type boundaries were too rigid to respond to the uncertainties inherent in the material they sought to classify. Given the continued importance of artifact typologies in our chronological models, these problems require a solution.

Given the inescapability of corrosion, the first step to classify spearheads into a comprehensive typology must be to reconstruct the spearheads' original shapes. This requires producing a new object of study. Hines and Bayliss' typology was based on measurements of published line drawings of excavated artifacts. These sketches were produced to preserve a record of the artifacts as they appeared after their corrosion, excavation, and conservation. A chronological typology, in contrast, seeks to classify the forms of artifacts at the time of their manufacture, use, and burial. With many artifact types this distinction is unimportant; copper alloy brooches, for example, typically retain their shape after their surfaces have corroded.

Excavated spearheads, in contrast, resemble their original forms too little for the surviving artifacts to be used as the basis of a typological system without an intermediate step.

To classify the spearheads studied in this dissertation, I first digitally re-drew what I propose to be the original outlines of 316 of the 901 spearheads in my catalog (Figure 3-5). Sketching spearheads' "original" outlines is an interpretive act that requires a combination of educated guesswork, creative invention, and extrapolation. It requires, like Swanton's typology, skill based on first-hand experience of the artifacts being reconstructed. The new sketches I have produced (Appendix A) draw particularly upon my observations of hundreds of well-preserved artifacts in person, and my experience forging iron by hand. My sketches are biased, like Swanton's types, toward better-preserved spearheads, in particular the Museum of London's River Thames collection.[40] This is balanced, however, by my experience of forging reproduction spearheads. Iron worked by hand moves in particular ways between the hammer and the anvil, so that certain shapes are natural and others unlikely. The combination of first-hand observation of well-preserved artifacts with experimental recreation shapes my judgment of corroded artifacts' former profiles.

The resulting sketches suffer several obvious limitations. They necessarily tend toward homogenization of the material. Unusual or exceptional shapes, once corroded, risk being reconstructed along more conventional lines. Sketches are also highly sensitive to the quality of the material upon which the sketch is based—a poor photograph or line drawing of a rusted spearhead that I have not personally observed will necessarily result in a sketch that magnifies

[40] Many of these spearheads, which were preserved from corrosion by the anaerobic mud of the river's bottom, still have their original shapes and surfaces. I have examined three hundred of these well-preserved artifacts, and noted a variety of common blade shape elements across the collection. Those same elements are also evident on the better-preserved spearheads from dry earth burials across England, and are likely common across most artifacts in the whole corpus.

these errors. Sketches must also confront the layers of previous interpretation through which artifacts have passed before being sketched, stored, and photographed, in particular the decisions made during conservation to remove corrosion layers and “restore” the artifact’s original outline. More fundamentally problematic is the notion of “originality” itself. Spears’ profiles could and often did change during the course of their use. In particular, a straight edge might, though repeated resharpening, become increasingly concave. What, then, is the original form of the artifact that should be reconstructed? “Originality” is its own layer of interpretation, imposed onto the artifact.[41] The consequences of this imposition are difficult to quantify.

Sketching spearheads affords, however, a two-fold advantage. First, sketching a spearhead brings an observer into closer contact with the form of the object than visual analysis alone. When tracing an artifact, preconceptions about a blade’s form confront the hard lines and physical edges of the object around which the pencil moves. This physical contact between artifact, pencil, and artist reveals details of the shape that can otherwise escape notice. I experienced the same interplay between preconception and physical form when I digitally traced sketches around photographs and line drawings of artifacts. As Ian Hodder notes, objects “object” when our preconceived categories fail to correspond with their physicality.[42] The second advantage is that sketching spearheads’ outlines separates the interpretive step of qualitative reconstruction from the more easily systematized step of quantitatively categorizing the reconstructed object. Simple sketches, once completed, can easily be compared using a variety of precise, reproducible methods ranging from measurement with digital calipers to computerized shape recognition.

[41] Cf. Gavin Lucas, *The Archaeology of Time*. Themes in Archaeology (New York: Routledge, 2005), 128.

[42] Hodder, *Entangled*, 7-14.

The sketches themselves are included below in Appendix A. They are, in all cases except where such were unavailable, based upon the published line drawings of each spearhead. In as many cases as possible, I have also handled the artifact in person, or else referenced photographs of the artifact in making my sketch, and compared these observations with the sketches I produced.

From Sketch to Data

The 316 sketches of spearheads reproduced in Appendix A formed the basis of a new spearhead typology that I used as the basis of a new chronological model for male burials of fifth- through seventh-century lowland Britain. I substituted these new types in place of Hines and Bayliss' spearhead typology, and then recreated the subsequent steps of their study's chronological analysis. For the other artifacts in the grave, I retained Hines and Bayliss' published types.

For my new analysis, I sketched and classified only the 316 spearheads that came from graves that contained two or more classifiable objects. This choice was dictated by the analytical method. MCA requires that there be at least two variables per object analyzed (i.e., two or more artifacts per grave); graves that contained only a single spearhead would, therefore, automatically be excluded by the algorithm from the analysis. I consequently was forced to omit the 585 spearheads that came from graves without other classifiable artifacts (i.e., graves that contained only a spearhead, or a spearhead alongside an unclassifiable knife, plain buckle, or other grave good not included among those used in Hines and Bayliss' typological system).

I used a mixture of categorical descriptions and statistical clustering analyses to sort the spearhead sketches into twenty-two distinct types.[43] Visual examination of the sketches revealed two clear categorical divisions within the corpus. The first was between spearheads with fullered and stepped blade cross-sections (Swanton's types I-L, Hines and Bayliss' SP5), and those with lozengiform and lenticular profiles. These distinctions were, with only one or two exceptions, easy to identify even on the most corroded spearheads. The second categorical division was between angular and leaf-bladed spearheads, i.e. spearheads with corners on the sides of their blades versus those whose blade edges were curved or smooth. This distinction is often subtle on surviving artifacts, due to the tendency of rust to preferentially corrode thin cross-sections like the corners of spearheads' blades. As a consequence, most surviving spearheads have rounded corners regardless of their original shapes. The original presence of corners on a blade can, however, be in most cases identified by sketching along blade's base (see Figure 3-6). Across my 316 sketches, it was possible to identify spearheads with corners (angular) or without (leaf-bladed) in all but 5 cases. I therefore first divided the sketches into three groups on the basis of their cross-section profile: those with fullered blades, stepped blades, and all other cross-sections. I next divided each of these three groups into two further subgroups: angular and leaf-bladed.

I then subdivided the angular and leaf-bladed spearheads without stepped or fullered cross-sections (the "all other cross-section" group) into several further subtypes. I first printed out the 316 sketches and arranged them into groups based on visual assessment of their similarity. This revealed several features that divided the corpus. Among the angular spearheads,

[43] Alternatively, groups might be formed from sketches by using shape recognition software to directly compare images against one another.

the most important features were the concavity of the blade's edges, the rate at which the blade tapered, the relationship between the blade's width and length, the length of the socket, and the overall size. Among the leaf-bladed spearheads, variations were most evident in ratios of blade width to length, socket length, and overall size. In classifying these distinguishing features, my goal was to avoid Swanton's subjective boundary definitions as well as the arbitrary, over-fitted boundaries that separated types in Hines and Bayliss' study. Consequently, I chose to mathematically sort the spearheads into groups using a statistical algorithm that would calculate similarities between spearheads on the basis of the extent to which they did or did not share these key features.

To mathematically compare spearheads across the corpus, I adapted Hines and Bayliss' system of measurements to quantify the key ratios of each spearhead's blade shape. The new sketches facilitated these measurements by separating the interpretive step of reconstruction from the simpler action of measuring the reconstructed form. I measured each spearhead's overall length, socket length, and width, employing a method similar to Hines and Bayliss' initial approach.[44] As Hines and Bayliss had, I then reduced these measurements to several key ratios:

- Edge taper
- Concavity
- Socket length as a proportion of overall length
- Blade width as a proportion of blade length

Unlike in Hines and Bayliss' typology, these measurements did not require the subjective on-the-fly interpretive creativity needed to measure a corroded blade's outline. The sketch had already compensated for the effects of corrosion, and any inconsistencies in measuring the sketch are easily corrected.

[44] Hines and Bayliss, 163-65.

I then analyzed this measurement data using an Agglomerative Hierarchical Clustering (AHC) algorithm to identify groups of spearheads that shared common shape features. Hines and Bayliss' typology had defined arbitrary lines between spearhead types, with the consequence that small differences in measurement could cause spearheads to jump boundaries into completely different types despite their similarity to spearheads on the other side of these arbitrary boundaries. Rather than replicate their approach of imposing top-down boundary lines across continuous point clouds of individual measurements, I used a bottom-up clustering algorithm, AHC, to identify mathematical relationships of similarity between each of the 316 spearheads as the basis for their classification.[45] AHC recursively identifies pairs of objects that share greatest similarity, merging each successive pair into a new single object and repeating the analysis again and again until all the objects are linked into a dendrogram or tree whose branches delineate relationships of greatest similarity across the whole dataset. These branches can be truncated at different levels into larger or smaller sub-groups. When branches are cut nearer their tips, their homogeneity is high; when they are cut nearer the trunk, they include a greater variety of related forms. Consequently, AHC produces a nested, multi-scalar hierarchical model of the similarity within and continuity across a complex dataset. AHC thereby avoids the pitfall arbitrary type boundaries that separate similar spearheads into artificial, unstable groups. Figures 3-7, 3-8, and 3-9 show the results of the analysis, and the final groups into which the spearheads were divided. The full list of spearheads and the types to which each was assigned is recorded in Appendix B, below.

[45] I used the statistical package XLSTAT to conduct this analysis, available from https://www.xlstat.com/ .

From Data to Chronology

Once the new spearhead types were prepared, I used Multiple Correspondence Analysis (MCA) to create a chronological seriation of the 288 graves in which the sketched spearheads were buried. MCA, as discussed above, sorts objects (in this case, the grave and everything it contains is the "object") onto a multi-dimensional graph that visually represents the similarity and difference between the objects on the basis of each object's variables (i.e., the contents of each grave). This analysis combined the new spearhead types with the other contents of the graves which I had classified using Hines and Bayliss' other published typologies.[46] This analysis included every burial from my catalog that contained at least two artifacts with defined types (the minimum needed for MCA), plus two burials from Hines and Bayliss' project—Eriswell 104 and Gally Hills—which had been radiocarbon dated to near the beginning and end of the burial sequence. I completed the initial MCA using the Excel add-in CAPCA (v 3.1), an MCA algorithm developed specifically for archaeological seriation.[47]

I conducted the analysis using the limited list of artifact types that Hines and Bayliss had concluded were most sensitive to chronological variation.[48] The resulting parabolic horseshoe shape indicated of a successful seriation (Figure 3-10). This horseshoe was not as clean as that published in Hines and Bayliss' study, but this reflects the real-world messiness of a random data sample.

[46] I.e. Hines and Bayliss, 133-230.

[47] Torsten Madsen, CAPCA v3.1 (2016), http://www.archaeoinfo.dk/capca.htm.

[48] Summarized in e-Fig. 6.6, in John Hines, "Anglo-Saxon Graves and Grave Goods of the 6th and 7th Centuries AD: A Chronological Framework," *York: Archaeology Data Service* (2013), https://doi.org/10.5284/1018290.

I next used OxCal[49] to integrate the radiocarbon dates with this seriation into a chronological model of the burial sequence. Following Hines and Bayliss, I split the seriation into six clusters (A-F; see Figure 3-11) of points, all but one of which contained at least two radiocarbon dated burials.[50] I entered an additional input to the first of these models, instructing it to assume that the earliest burials began after c. 475 CE (this assumption is discussed below). The model's structure and output is illustrated in Figure 3-12.

Two notes should be made before moving forward to discuss the results of this analysis. First, the seriation "horseshoe" in the correspondence analysis plot passes close to the origin (0,0). In MCA, objects that are poorly differentiated from their neighbors are plotted close to the origin.[51] Consequently, the portion of the graph that approaches the origin should be interpreted with caution, as these burials' location within the sequence is clearly defined as those farther from the graph's center. Although the group of points identified as Phase C in Figure 3-11 contains the largest number of objects, some of these graves may have been grouped into this "phase" because of their ambiguous date. Second, the present study was only able to incorporate 17 radiocarbon dates into the model, fewer than the 39 used in Hines and Bayliss' study.[52] If more radiocarbon dates were included, the chronological model might become more precise. In

[49] C. Bronk Ramsey, OxCal v4.3.2 (2007), https://c14.arch.ox.ac.uk/oxcal.html; P.J. Reimer et al., "IntCal13 and Marine13 Radiocarbon Age Calibration Curves 0-50,000 Years cal BP," *Radiocarbon*, 55 no. 4 (2013); C. Bronk Ramsey, "Bayesian analysis of radiocarbon dates," *Radiocarbon*, 51 no. 1 (2009), 337-360.

[50] The complete list of graves with their assigned phases is included in Appendix C. Hines and Bayliss used the same method to adapt their seriation into groups for the Bayesian model, e.g. 254. The majority of radiocarbon dates were taken from those published by Hines and Bayliss, 233-36.

[51] Greenacre and Blasius, 10.

[52] Hines and Bayliss, 323.

particular, few radiocarbon dates were available for the earliest graves in the seriation.[53] Both these considerations should be remembered in the discussion of the results, below.

The new model dates the majority of weapon burials to the middle of the sixth century. Figure 3-13 visualizes the changing incidence of weapon burial across the 250 years during which it was practiced, both as individual overlapping phases (the six colored curves and boxes) and as an overall trend (the heavy black line). This figure shows that weapon burial increased in popularity from the late fifth century, peaked in the 540s, and declined by 600. The practice continued across the seventh century at a much lower rate than the previous 150 years, ending circa 700 CE.

This model incorporates several assumptions that influence its output. The first relates to the division of the seriation into six groups or phases. I adopted this assumption from Hines and Bayliss' study. Grouping the seriation into phases makes it easier to incorporate the undated burials into the resultant model, because the model estimates the probable start and conclusion of each of the six broad phases as well as the probable dates of each individual radiocarbon dated grave. This method assumes, however, that the graves grouped together inside each phase belong to a distinct contemporary period. As an alternative, the radiocarbon dated burials could be modeled individually as seventeen sequential events.[54] I ran this model as well (its parameters and output are summarized in Figure 3-14). I then grouped the undated burials onto a chart by treating each calibrated radiocarbon date as its own phase boundary within the seriation. The resulting chart (Figure 3-15) shows that this model moves the peak of weapon burial roughly two

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[53] Hines and Bayliss' project was designed to date graves immediately before and after 600, and their radiocarbon sampling strategy reflected that concern. More radiocarbon dates for the fifth century will soon become available, however, with e.g. the forthcoming publication of the RAF Lakenheath cemetery (John Hines, pers. comm.).

[54] Stadler uses a similar method, see pages 122-23.

decades earlier than in the first model but leaves the later sixth and seventh-centuries unchanged. Figure 3-16 overlays the two models for comparison. The difference between how the two models graph the late fifth and early sixth centuries results from the comparatively low number of radiocarbon dates currently available for graves from this part of the sequence, which makes the results highly sensitive to changes in the model.

The second assumption concerns the date at which weapon burials begin. Both models above assume that the weapon burials in this study date to after circa 475 CE. Several weapon burials have been dated earlier, in particular the burial of a man with an axe at Dorchester on Thames, which was radiocarbon dated to circa 400 CE.[55] This burial's artifacts matched its early date, particularly the man's belt buckle (a typical early fifth-century Hawkes and Dunning type).[56] Only one burial in my dissertation's catalog contained a similarly early type of belt buckle, however, and when I added the Dorchester on Thames burial to the MCA analysis (creating a Hawkes and Dunning buckle type), both graves fell entirely outside the seriation. The difference in artifact styles / types between these two early burials and the remainder of the catalog suggest that they may represent discontinuous social practices. This view is supported by recent chronological studies of the cemeteries at Wasperton and Spong Hill. Both studies found that furnished inhumation (including burial with weapons) began circa 470/480.[57] The cemetery publications surveyed for this dissertation indeed widely agree that weapon burials rarely date before the last decades of the fifth century. This view rests on consensus, site-specific

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[55] Paul Booth, "A Late Roman Military Burial from the Dyke Hills, Dorchester on Thames, Oxfordshire,." *Britannia* 45 (November 2014): 243–73.

[56] For a description of these types of buckle, see S.C. Hawkes and G. Dunning, "Soldiers and Settlers in Britain: fourth to fifth century," *Medieval Archaeology* 5 (2961): 1-70. For a discussion of current views on the dating of these artifact types, see Gerrard, *The Ruin*, 105-06.

[57] Hills and Lucy, 229; Carver, Hills, and Scheschkewitz, 116.

chronologies, and comparison with parallel artifact typologies from the Continent, however, rather than a robust sample of radiocarbon dated early burials.

To examine the influence of assuming a late fifth-century starting date, I ran two versions of the Bayesian model without this condition. The first (Figure 3-17) preserved the six phases of the initial model, while the second (Figure 3-18) arranged the seventeen radiocarbon dated burials into a series of sequential events. I charted the frequency of weapon burial over time using both these new models (overlaid with the first two models in Figure 3-19). Removing the condition that weapon burials begin in the late fifth century caused the dates of the earlier burials to spread across a significantly larger span of time in both the new models, to such a significant extent that the early burials became separated from the later phases by a gap of several decade. The dates for the later sixth and seventh centuries do not differ between any of the four models. The spread and separation of the fifth- and early sixth-century dates in the models that were not unconstrained by a starting date probably results from limitations of the input data rather than the actual dates of the burials. The low number of radiocarbon dates from the earliest part of the burial sequence makes each model's output highly sensitive to small variations in the model's structure. Further, the radiocarbon calibration curve's fifth-century plateau causes several of the early radiocarbon samples to return calibrated dates in both the fourth and the late fifth centuries (especially, the horse burial from RAF Lakenheath). The artifacts in these early burials appear, stylistically, to belong to the fifth century, and consequently the fourth-century calibrated dates are unlikely to be accurate. Consequently, constraining the date range of furnished inhumation to the fifth century on the basis of the current consensus can be defended. Nevertheless, the two unconstrained models demonstrate how sensitive this analysis is to this initial assumption. As additional high-precision radiocarbon dates from the earlier phases of weapon burial are published, these models may become more robust. For this dissertation, I have preferred the six-phased model in which weapon burial begins circa 475 (Figure 3-13), but the contingency of this model's earlier dates—and the possibility that weapon burial became widespread earlier in the fifth-century than hitherto generally accepted[58]—should not be forgotten.

Chronological Trends and Comparisons

This study's preferred chronological model gives a similar account of the duration and frequency of weapon burial as earlier studies of the practice, but the new results show a sharper distinction between chronological periods. Heinrich Härke, for example, modeled the changing rate of weapon burial over time in several studies published in the 1990s, using a combination of (now) well-established artifact typologies.[59] I have reproduced a frequency distribution that he published in 1990, overlaid on top of the new frequency distribution from this chapter, in Figure 3-20.[60] Härke's results reveal a peak in weapon burial frequency c. 540, just as does the present study. Härke's curve is, however, much flatter than the new results. In Härke's analysis, weapon burial increased in frequency steadily during the early sixth century, and then dropped by 40% between circa 540 and 640. The present analysis, in contrast, finds a much more rapid decrease of 89% between 540 and 640.

The extreme height and subsequent drop of in the new results may have interpretive significance. As noted above, it is possible that the new model over-states this difference as the height of the central phase in the new model could partly result from the tendency of MCA to locate poorly associate objects near the origin (note on Figure 3-11 that Phase C, which

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[58] Cf. Gerrard's argument for continuity between early Anglo-Saxon period weapon burial and late Roman displays of militarized masculinity, e.g. 198-205.

[59] Härke discusses his chronological method in *Waffengräber*, 81-96.

[60] Härke, "Warrior graves?", 30.

comprises the majority of the circa 540 peak, passes close to the origin). The shape of Härke's model may, however, also suffer from the limitations of his own methodology. In particular, the imprecise, broad dating of many artifact types across the entirety of the sixth and seventh centuries (e.g. Swanton's common E2 and C2 spearheads) has a flattening effect on his chronology, obscuring what might be real differences between the sixth and seventh centuries. The present study provides narrower partitions for many artifact types, and this reveals that weapon burial underwent far sharper changes in frequency during the centuries in which it was practiced than had hitherto been recognized. Weapon burial, though spanning more than two centuries from its inception through its end, was primarily restricted to the decades immediately before and after circa 540 CE, and had nearly ended by the beginning of the seventh century.

Interpreting Spears and Spear Burials through Time

The Beginning of Weapon Burial

This study cannot resolve the question of when weapon burial became a common social practice, though this was most likely during the fifth rather than later fourth century. This model presented here follows the current consensus in placing that date near the end of the fifth century, but testing this assumption would require more high-precision radiocarbon dates of early weapon burials than are currently available. Future research will hopefully bring great clarity to the prevalence of weapon burial in fifth-century Britain.

The early burials—whether dated to the mid or late fifth century—were typically male and aged in their mid to late 20s (average and median age at death: 27 and 24). These early weapon graves appear across lowland Britain with no regional preferences evident—that is, there is no evidence that they appeared first in one region and then spread into others. The bodies in these early graves were buried supine, and the spears were more often placed on the right-hand side of the cadaver rather than to the cadaver's left, although both positions were common. These patterns held through most of the sixth century.

Figure 3-21 shows where each of the new spearhead types defined above appears in the chronological sequence. The earliest spearheads were mostly small, lightweight, and had concave-profiled blade edges. Fullered spearheads (Swanton's I and J series, labeled SP-ang-fuller and SP-leaf-fuller in Figure 3-9), and step-profiled leaf-bladed spearheads (Swanton's K series, SP-leaf-step in this study) appear early, being favored in the fifth and early sixth century alone. The stepped, angular spearheads (Swanton's type L, SP-ang-step in Figure 3-9) appear somewhat later in the middle of the sixth century.[61] In addition to these, a variety of angular, and especially concave-sided spearhead forms were widespread. Swanton identified several leaf-bladed forms which might date to the late fifth and early sixth centuries, but this study's model sorted almost all of these into the later phases (D, E, and F, after 538). The few leaf-bladed spearheads that do appear on the seriation before the middle of the sixth century had fullered or corrugated profiles. The average weight for all the spearheads from the earliest phase was just over 160g. These blades were mounted on a variety of timber species; indeed, there are no discernible patterns in the choice of timber in any phases between the fifth and seventh centuries.

The Sixth-Century Zenith

Weapon burial's frequency peaks in the model during the first half of the sixth century (Period C). During this peak, a greater variety of spearhead forms appear within burial assemblages. All of the concave profiled angular spearheads are centered around this phase. Step cross-sectioned angular spearheads were also still in use, although fullered spearheads were mostly restricted to the earlier phases. Several leaf-bladed spearheads were buried during this

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[61] Swanton, *Settlements*,115-38.

period but remained rare compared to the angular varieties. Overall, the average weight of spearheads in comparison to Period A, but their length increased.

The Seventh-Century Twilight

By the middle of the sixth century (Phase D), weapon burial practices began to change. The sex-association of the burials gradually broke down as an increasing number of weapons were buried in graves of female-sexed bodies. Few of these female-sexed burials made it into the present chronological model, as most contained only a single spear and no other artifacts (excluding them from the correspondence analysis).[62] The types of spearheads in these excluded female-sexed graves, however, fell almost exclusively into the final three phases of the chronology, dating to the late sixth and seventh centuries. These burials are discussed in more detail in Chapter 5.

As weapon burial's sex-association changed, its frequency decreased. By c.600, weapon burial had reached its lowest rate since its beginning, and while the practice continued for the remainder of the century it never regained its former popularity. This decrease in weapon burial as a whole made the increase in female sexed weapon burials comparatively more prominent in the seventh-century burial rite.

The spearheads from Phase D and after were different than those from the earlier phases. Figure 3-21 shows a sharp break in the seriation between the spearheads of Phases C and D. In Phase D, leaf bladed spearheads replaced concave-profiled weapons. In fact, all five leaf-bladed types were centered in the last three phases. Several longer, straight-sided angular spearhead types joined these. The new weapons were generally larger than spearheads of the earlier periods, though their weight was only slightly increased compared to the nimble spearheads of a

[62] For example, Lechlade, Grave 95/1, which contains a pendant and a large, leaf-bladed spearhead.

century before. Some were impressively ostentatious, but all appear to have been serviceable weapons rather than objects for display alone. The social historical implication of this change in weapon form and burial practice are discussed in Chapter 8.

A Framework for Historical Processes

This rough survey of spear burials offers a framework of historical change upon which the following chapters will build. This framework aligns with several recent interpretations of the early Anglo-Saxon period, but also offers new insights and challenges. The following chapters will explore these in depth, but several preliminary observations can be made.

The first is that weapon burial appears to be a practice not so much of the fifth through seventh centuries as of the middle of the sixth. The fifth-century origins of the lowland British weapon burial continue to remain obscure, and weapon burial continued long into the seventh century. Most of the burials in the present model, however, fall squarely in the sixth century, centered around c. 540. 31% of weapon burials fall into the central Phase C, which comprises a span of only 53 years. Chapter 5 explores the social context surrounding these early sixth-century burials

In contrast to the sixth century, the weapon burials of the later sixth and seventh centuries are comparatively rare or restricted. Other differences emerge between these two centuries, in particular the appearance of osteologically female bodies buried with weapons in the seventh century. The numerical restriction of weapon burial, and the increasing association of weapon burial with female gendered bodies, both began in the middle of the sixth century, at the same time as lowland Britain's political landscape began to develop new social hierarchies and the growth of new, larger kingdoms—a transformation explored further in Chapter 8.

The chronological association of weapon burials with the middle of the sixth century challenges interpretations that seek to situate weapon burial within historical events of the fifth century: the arrival of “Germanic” migrants or the militarization of the Late Roman aristocracy. Britain’s earliest weapon burials, like those at Dorchester, may well represent the bodies of barbarian foederati or a militarized Late Roman elite. As discussed above, however, the chronology of the fifth century remains uncertain, and most weapon burials most likely belong to the sixth century rather than fifth. The social context of sixth century life should, therefore, frame our discussion of spears’ social role rather than the events of Britain’s fifth-century collapse.

Future Directions and Continuing Challenges

Future studies must continue to grapple with how best to classify corroded and ambiguous spearhead shapes into data that can form the basis of a reliable chronological model. Bottom-up analysis methods like agglomerative hierarchical clustering, which groups artifacts into types based on their similarity, help to mitigate the problems of imposing hard typological boundaries from the top-down. The need to divide the resulting dendrograms into distinct types to feed back into methods like MCA, however, unravels much of this complexity, thereby reintroducing the false certainty of discrete, bounded typological groups. Future studies might explore whether MCA seriation is the best method to identify chronological patterns within burial evidence.

The more fundamental challenge, however, is the extensive, irreparable corrosion of the spearheads upon whose classification our chronological models depend. Subjective interpretation of spearheads’ original forms will always be a necessary first step in their classification. This is rooted in the nature of the material under study. Pure iron exists in transformation: it is always changing to return to the ferrous oxides from which it was created. Spearheads are not static objects, will never return to the forms created by early medieval smiths, and thereby defy the precision of statistical classification methods. Swanton acknowledge the need for subjectivity in classification, but his typology left this necessary subjectivity ill-defined. Hines and Bayliss also acknowledged this challenge, but their substitution of rigidly "objective" methods of direct measurement of the corroded artifacts for Swanton's ill-defined subjectivity did nothing to solve the underlying challenges. A successful scheme must strike a balance between necessary skilled subjectivity and objective classification. Subjective reconstruction of the artifacts' form must come first, whether through creative sketching as modeled in this chapter or some other method. Only once this reconstruction is complete can the relationships between the reconstructed artifacts' forms be established.

In the future, new methods may render artifact classification less crucial for establishing site chronologies. Scientific dating of human remains and, indeed, of artifacts themselves is becoming increasingly cost effective, and offers an alternative avenue for establishing the chronology of human burials. As radiocarbon dating technology and calibration curves improve, radiocarbon dating of human remains is yielding higher precision results. Iron itself may be radiocarbon dated, as well, if the metal contains sufficient carbon in its slag or steel, and if the metal has not suffered too much contamination from corrosion.[63] Direct dating of carbon in iron could reveal not only the age of the charcoal with which it was forged, but also whether the artifact had been forged from older recycled metal from earlier centuries (discussed in Chapter 4). These methods are presently too expensive to be widely used, and in particular radiocarbon dating iron is still poorly tested; this may, however, change in the future.

For now, we must honestly confront the uncertainty that remains in our methods. Hines and Bayliss' recent project promised to enable more precise and confident dating of the burials of the sixth and seventh centuries, allowing archaeological data to converse with historical events

[63] E.g. Heidi Nordqvist, "Radiocarbon dating of iron," MA thesis, University of Helsinki, 2011; Andrea C. Cook, "AMS radiocarbon dating of ancient iron artifacts: A new carbon extraction method in use at LLNL," *Radiocarbon* 43 no. 2A (2001): 221-27.

and generational change, a precision rarely available to mortuary archaeologists. The present study aims to improve upon and refine their methods. The promises of chronology have not yet been fully realized, however, and will not be so until the methodological limitations of classifying rusted metal are overcome. As our methods grow more precise and our margins of error shrink, we find ourselves confronting a limitation that we cannot easily control: the instability and vibrant materiality of iron.

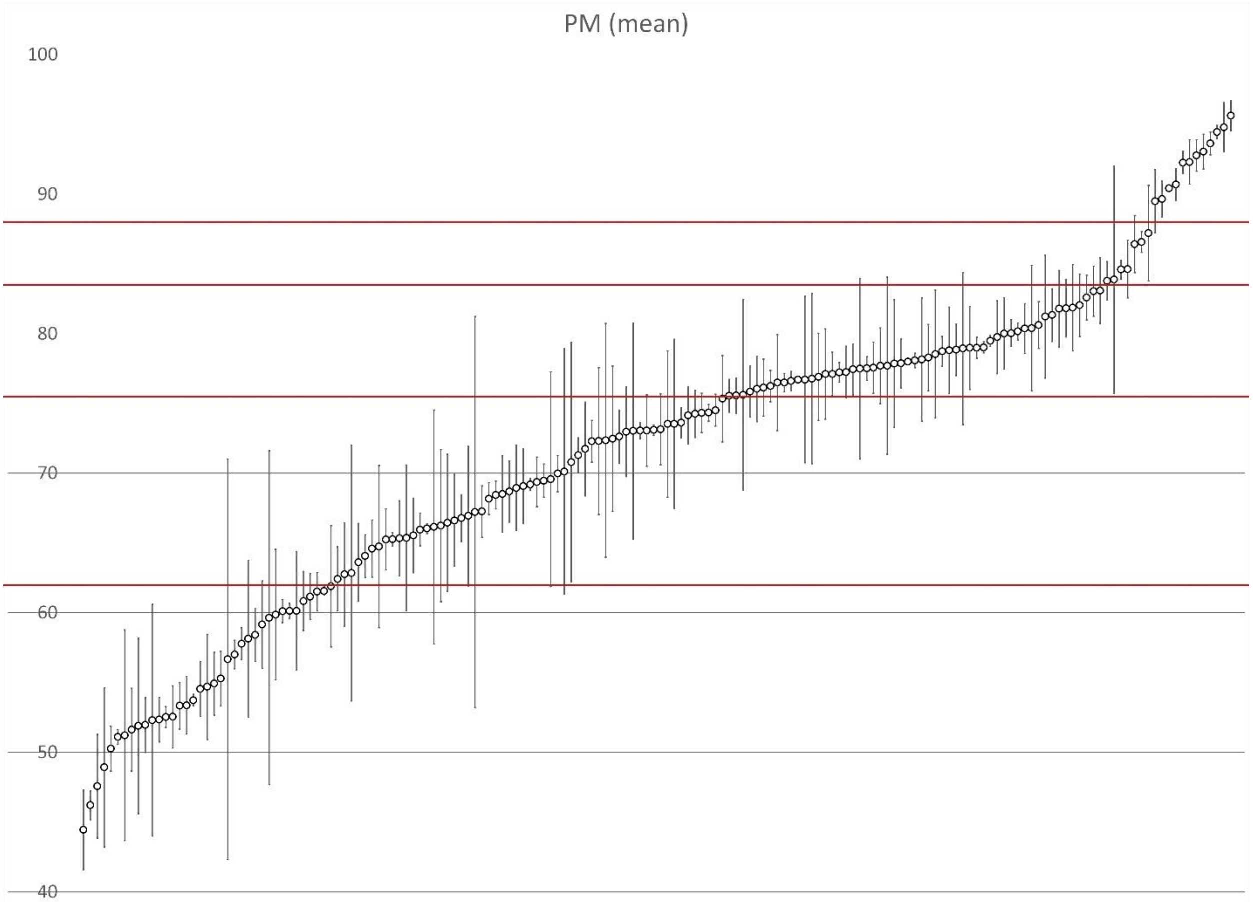

Figure 3-1. Measured error rates for ratio PM. This chart shows the 95% confidence intervals for each of the PM values as measured once by Hines and Bayliss and twice by myself. The ratio PM is one of the four ratios by which Hines and Bayliss divided spearheads into types. The red horizontal lines indicate boundaries between these types. Note how many objects' error ranges cross one or two of these type boundaries.

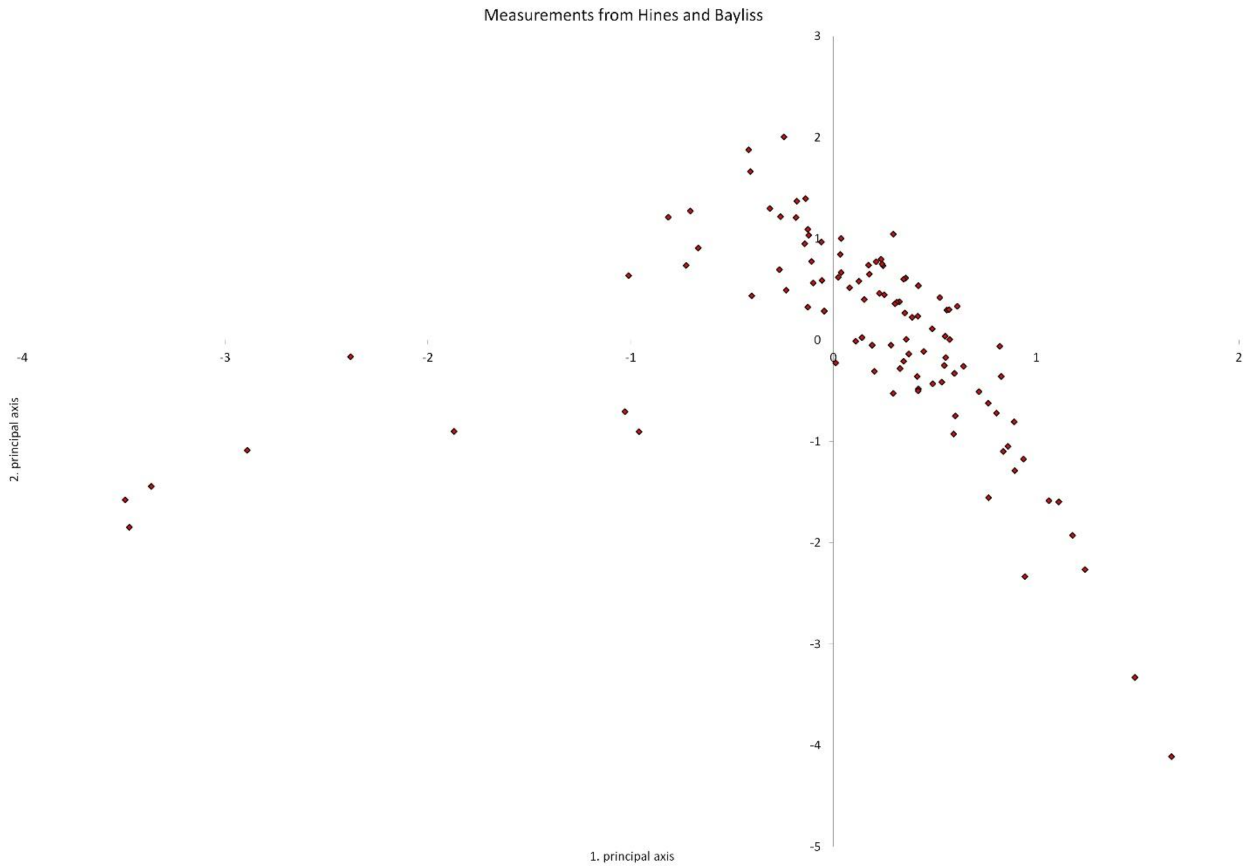

Figure 3-2. Correspondence analysis results using the spearhead types assigned by Hines and Bayliss. This chart shows the results of correspondence analysis of the graves that are shared between Hines and Bayliss' database and my own. The plot is not as clean as that published in their text, because fewer graves were used for the analysis. Nevertheless, a clear horseshoe-shape appears as is expected from a successful chronological seriation.

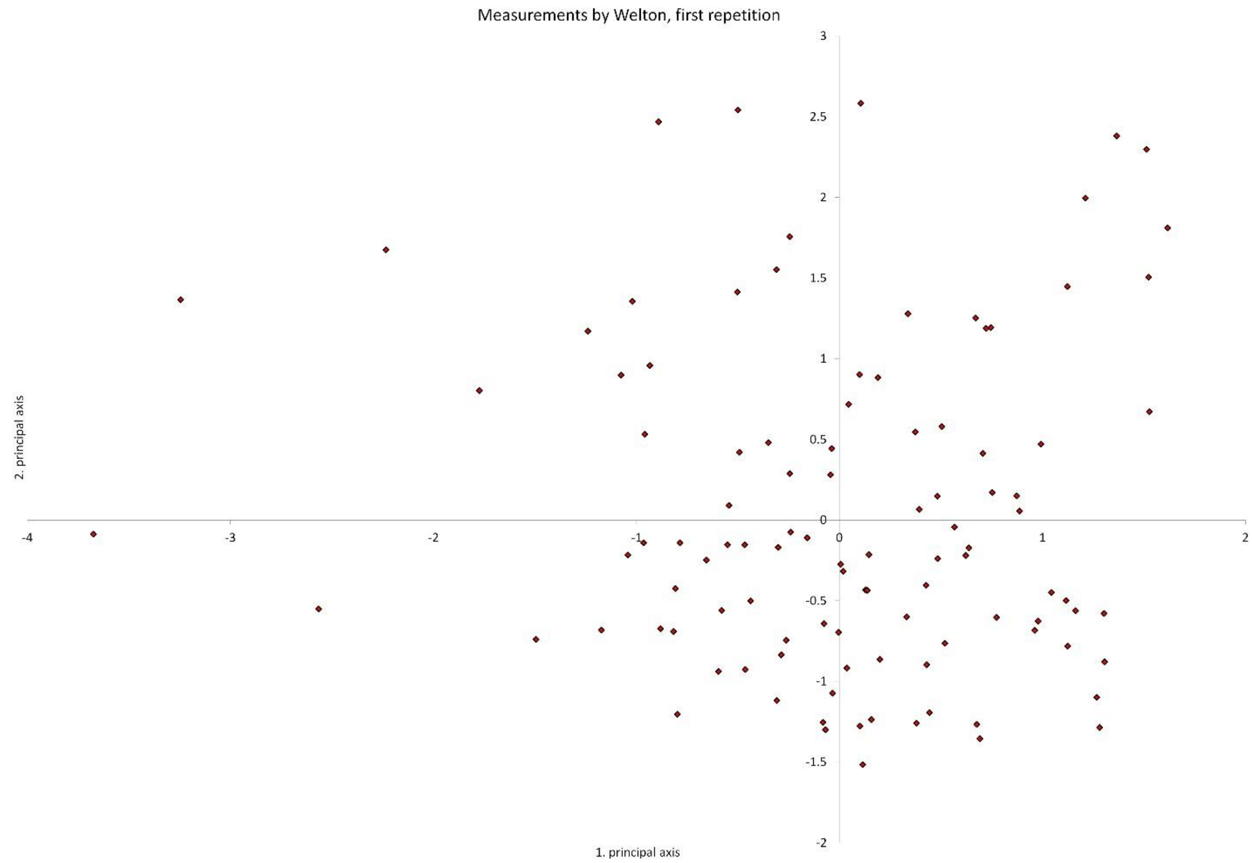

Figure 3-3. Correspondence analysis results using the spearhead types determined by my first set of measurements. This chart shows the results of a correspondence analysis of the same graves as Figure 3-2. For this analysis, however, the spearhead types were replaced with the types determined using my own measurements of the artifacts. These types disagree in nearly 40% of all cases. For this analysis, only the spear types were substituted. The results are clearly noise, with no meaningful patterns of evidence of a seriation cure.

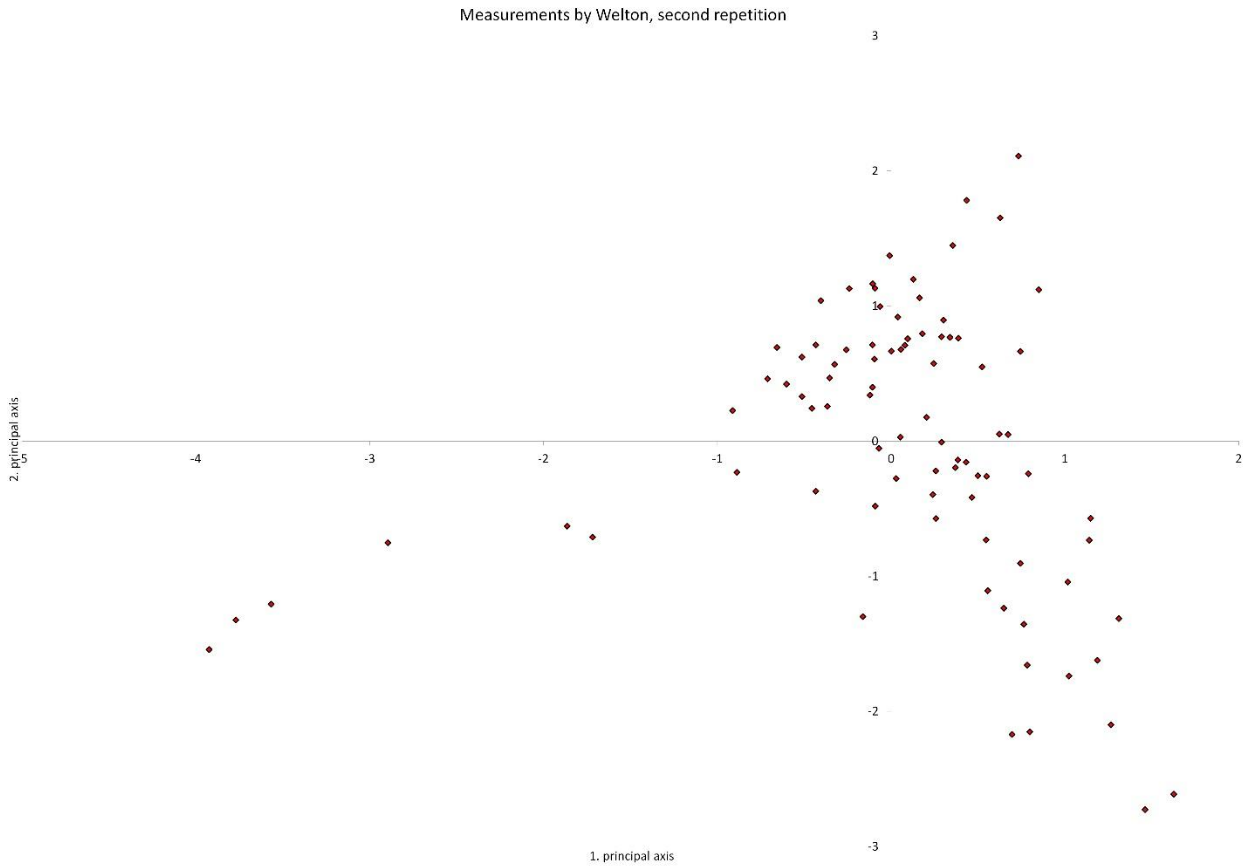

Figure 3-4. Correspondence analysis results using the spearhead types determined by my second set of measurement. This chart shows the results of a correspondence analysis of the same graves as Figures 3-2 and 3-3. This analysis was completed using the spearhead types from my second set of measurements. This analysis is more successful than the first; some clustering appears, and refining the included graves and artifacts might make the seriation more evident. Nevertheless, the difference between this chart and Figure 3-2 is clear. Only in Figure 3-2 was the seriation successful.

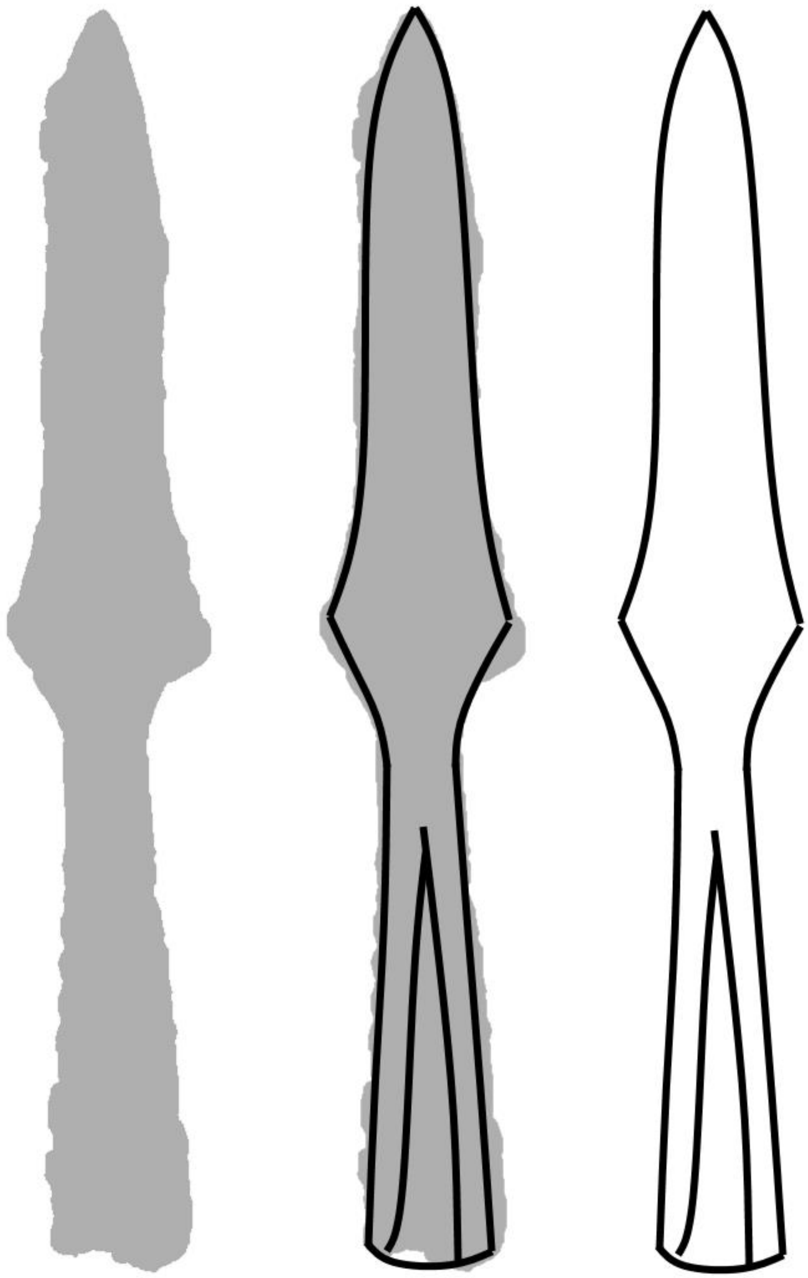

Figure 3-5. A corroded spearhead transformed into a sketch. For this project, I created over 300 sketches of corroded spearheads like the one above. The sketched spearhead is from Mucking II, grave 618.

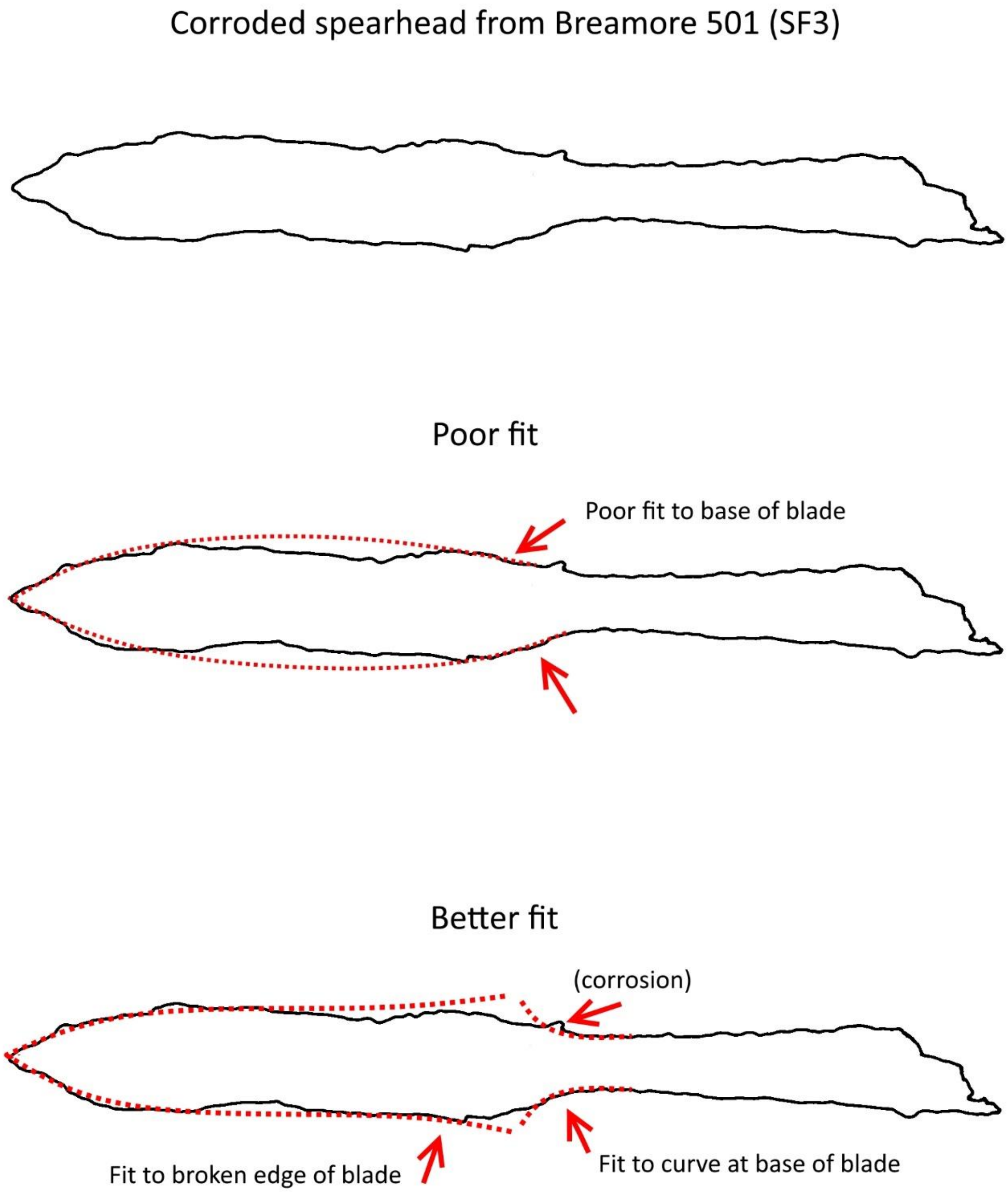

Figure 3-6. Sketches of a corroded spearhead from Breamore. This spearhead is heavily corroded, and at a glance could be classified as one of several types (leaf-bladed or angular, with convex, straight, or concave sides). The first sketch attempts to reconstruct this spearhead as a leaf-bladed form. This form proves, however, to be a poor fit because it does not mirror the subtle concavity at the base of the blade. The second sketch began by first tracing this concavity at the base of the spearhead, after which it became clear that the blade originally had a concave profile. Note the lump of corrosion which is ignored by the sketch.

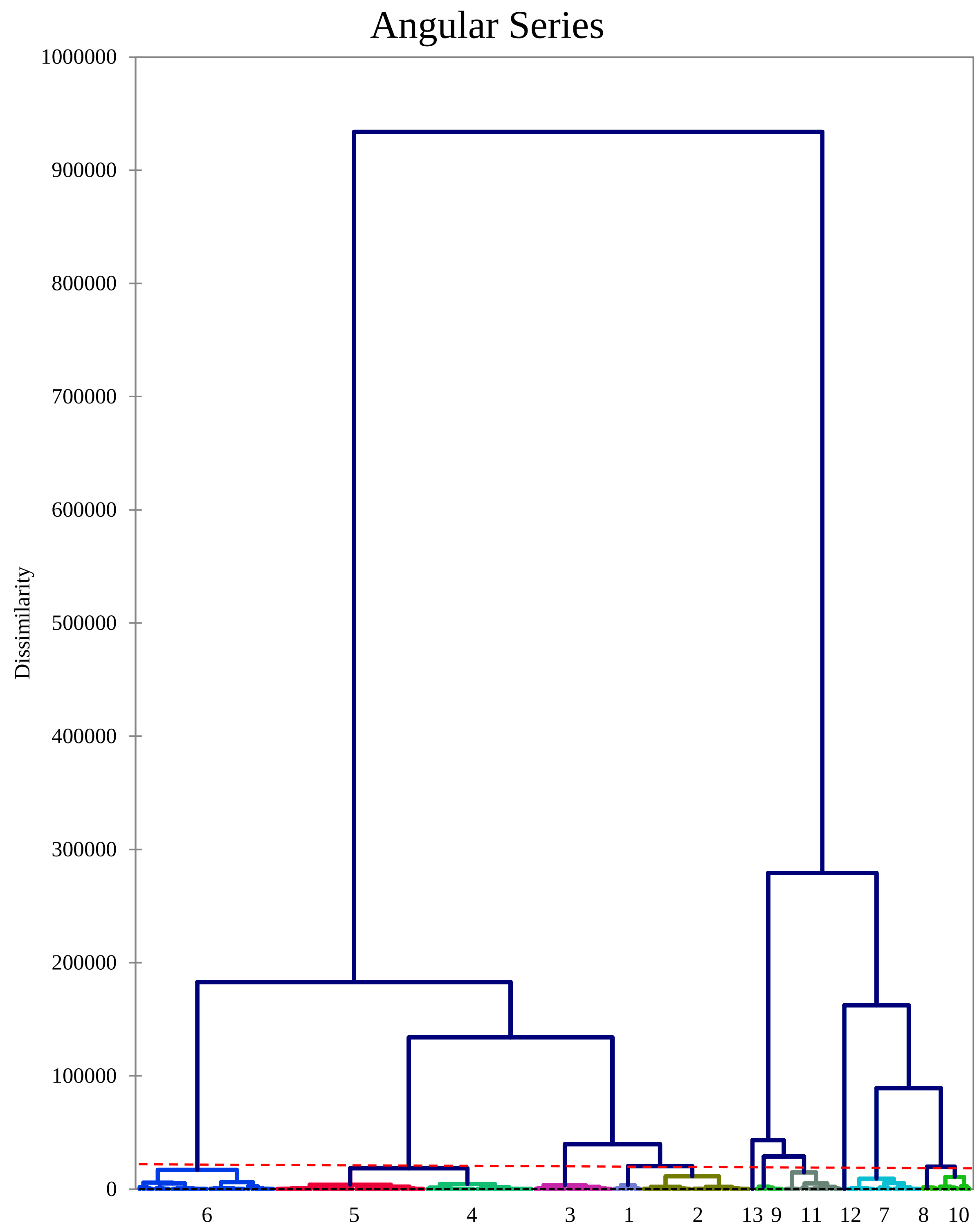

Figure 3-7. The results of the AHC analysis of the angular spearheads. This dendrogram shows the relationships between the angular spearheads, determined using an Agglomerative Hierarchical Clustering algorithm. The spearheads were divided into thirteen sub-groups.

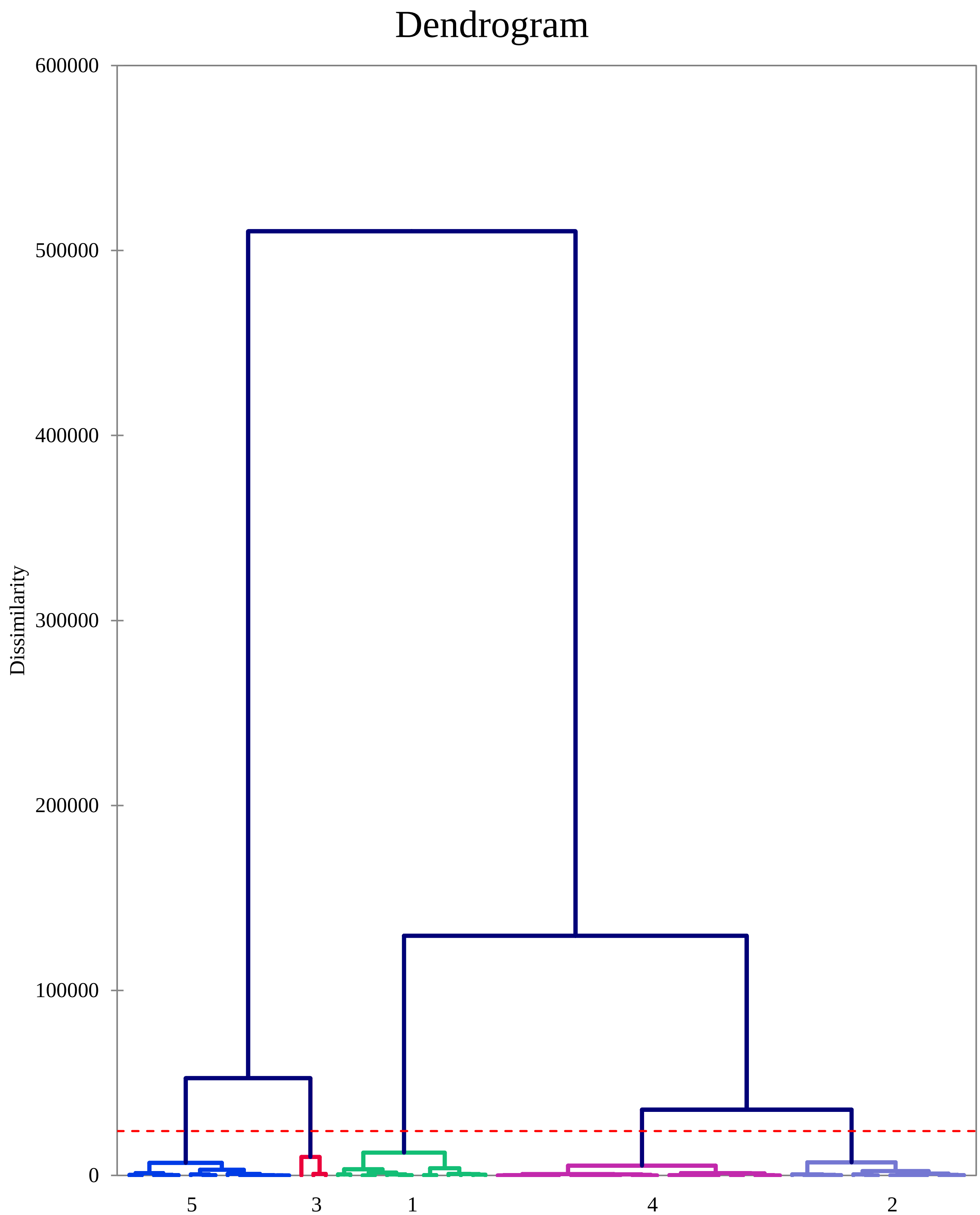

Figure 3-8. The results of the AHC analysis of the leaf-bladed spearheads. This dendrogram shows the relationships between the leaf-bladed spearheads, determined using an Agglomerative Hierarchical Clustering algorithm. The spearheads were divided into five sub-groups.

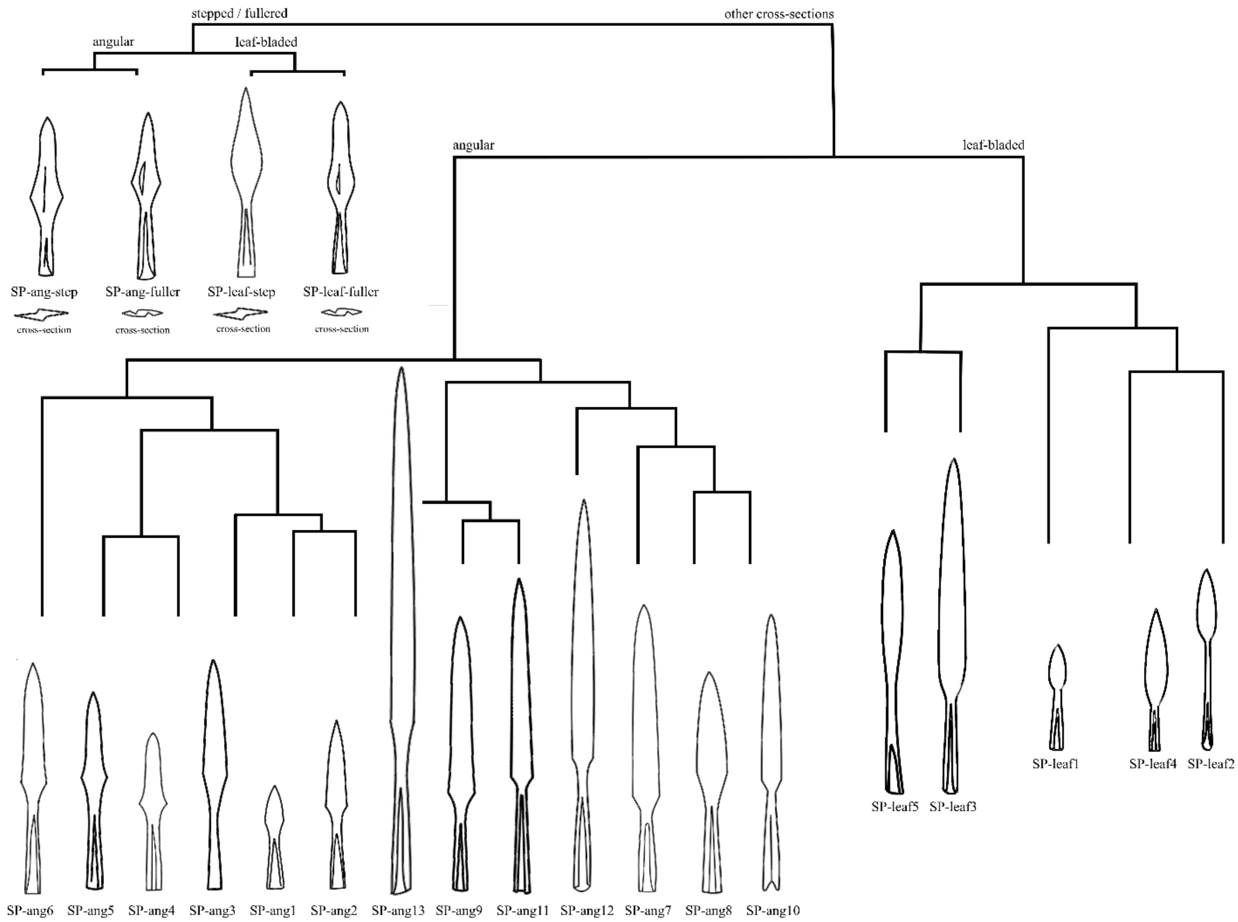

Figure 3-9. The twenty-two spearhead types, and their relationships to one another. This figure illustrates each of the twenty-two spearhead types using a representative example from the group. The types' relationships of similarity and dissimilarity are show by the dendrogram structure that connects them to one another.

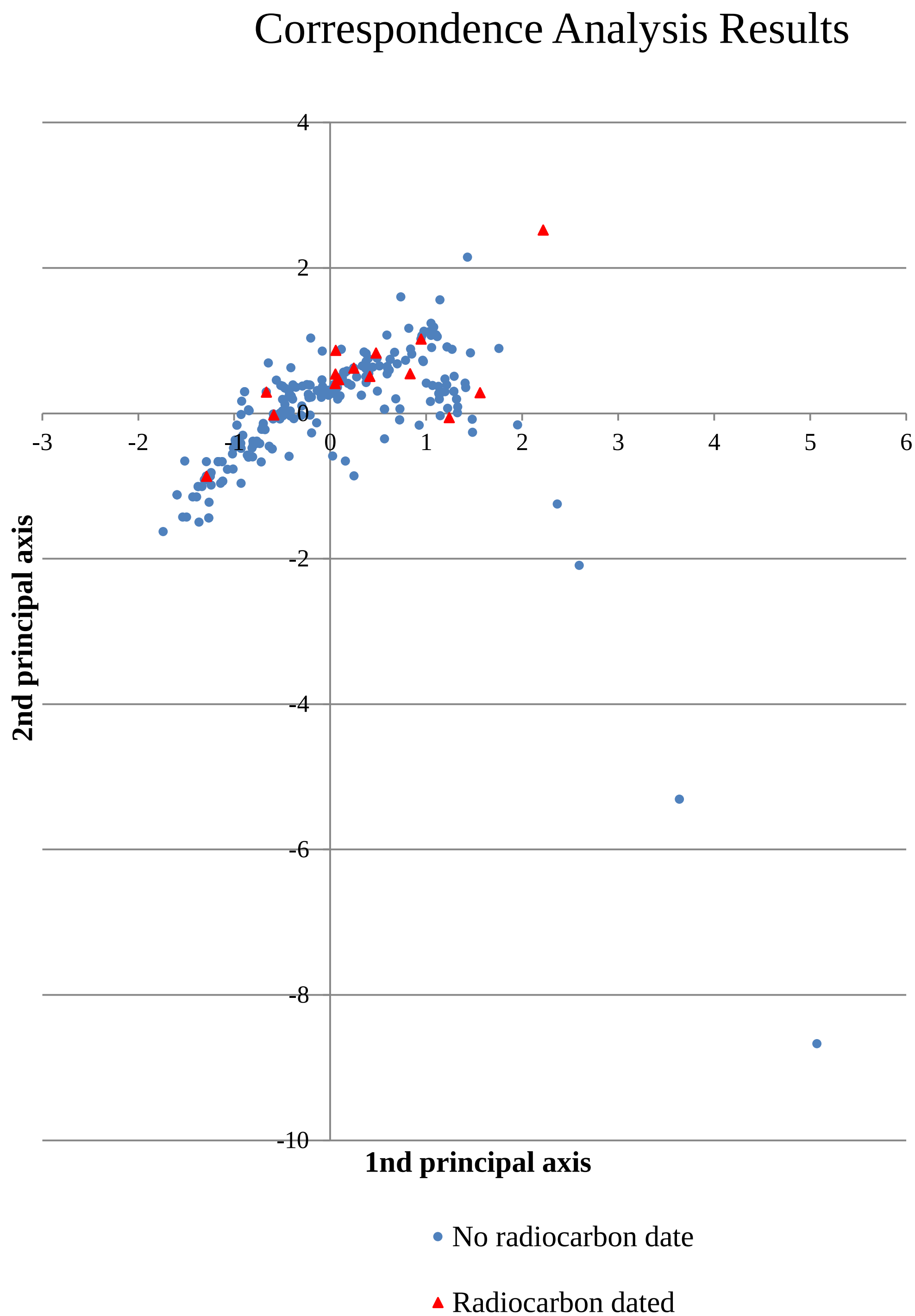

Figure 3-10. The results of MCA using the new spearhead types. This plot shows the MCA seriation using the new spearhead types developed in this chapter. The plot shows a clear sequence and distinct horseshoe curve, though a number of outliers are visible. Graves that have been radiocarbon dated are identified by red triangles.

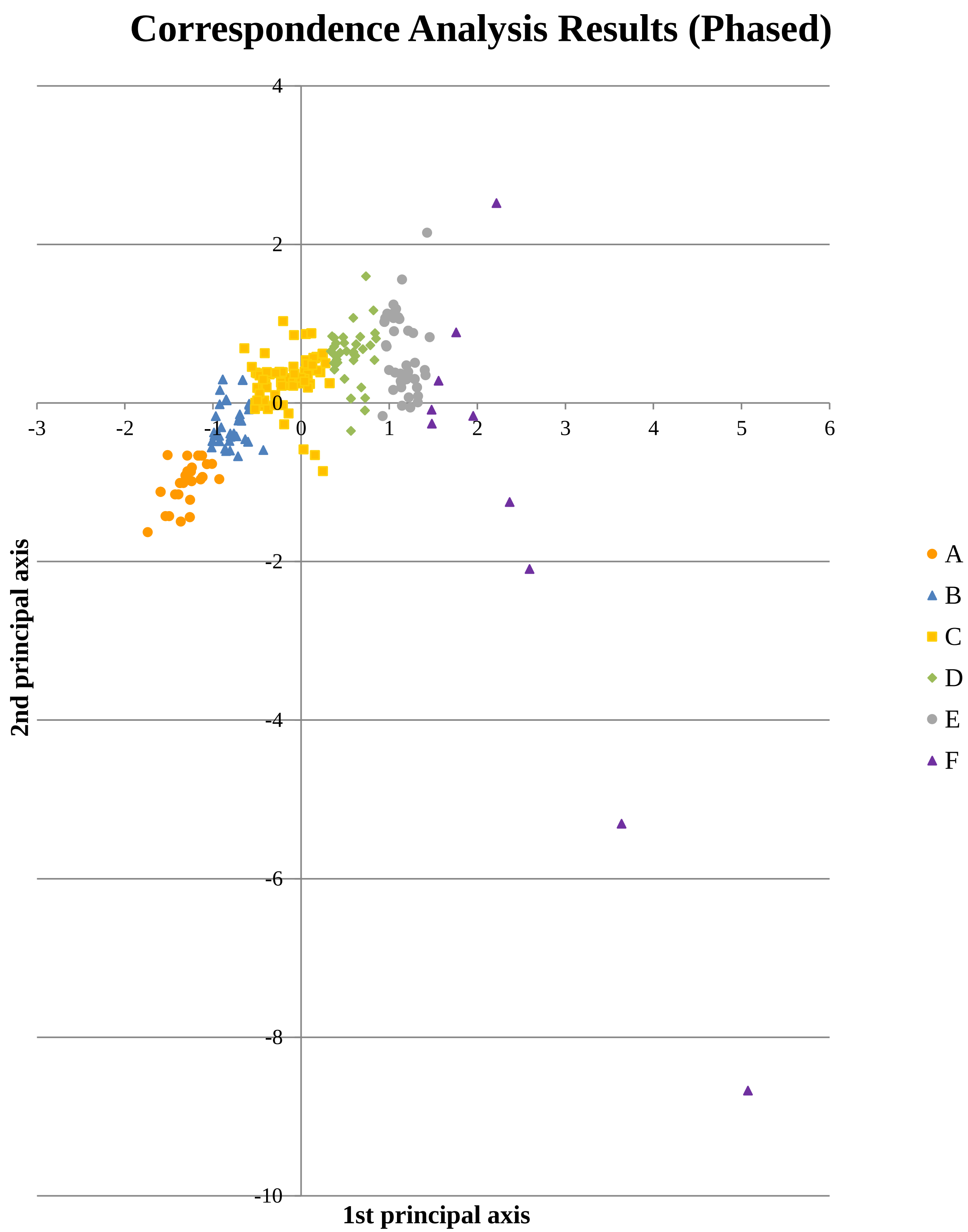

Figure 3-11. MCA seriation and associated phase groups. This plot shows the results of the MCA divided into six phases. These phases were separated by identifying gaps or thin regions in the seriation sequence, the same method used by Hines and Baylis in their study.

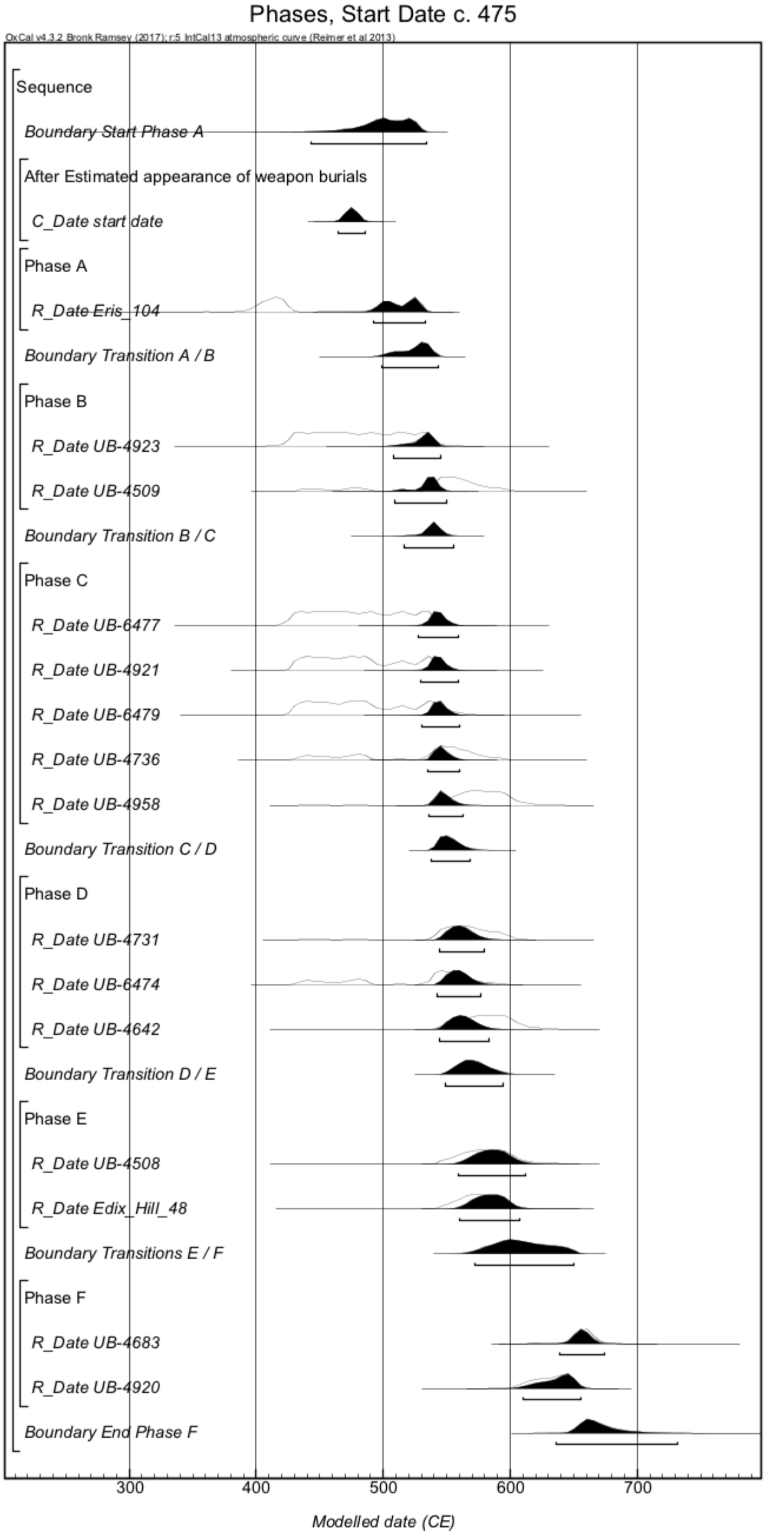

Figure 3-12. The results of the Bayesian model using phases and an assumed start date. This figure shows the structure of the Bayesian model and its results, achieved using OxCal. This model assumed a starting date of c. 475 CE, and split the radiocarbon dates into six separate groups.

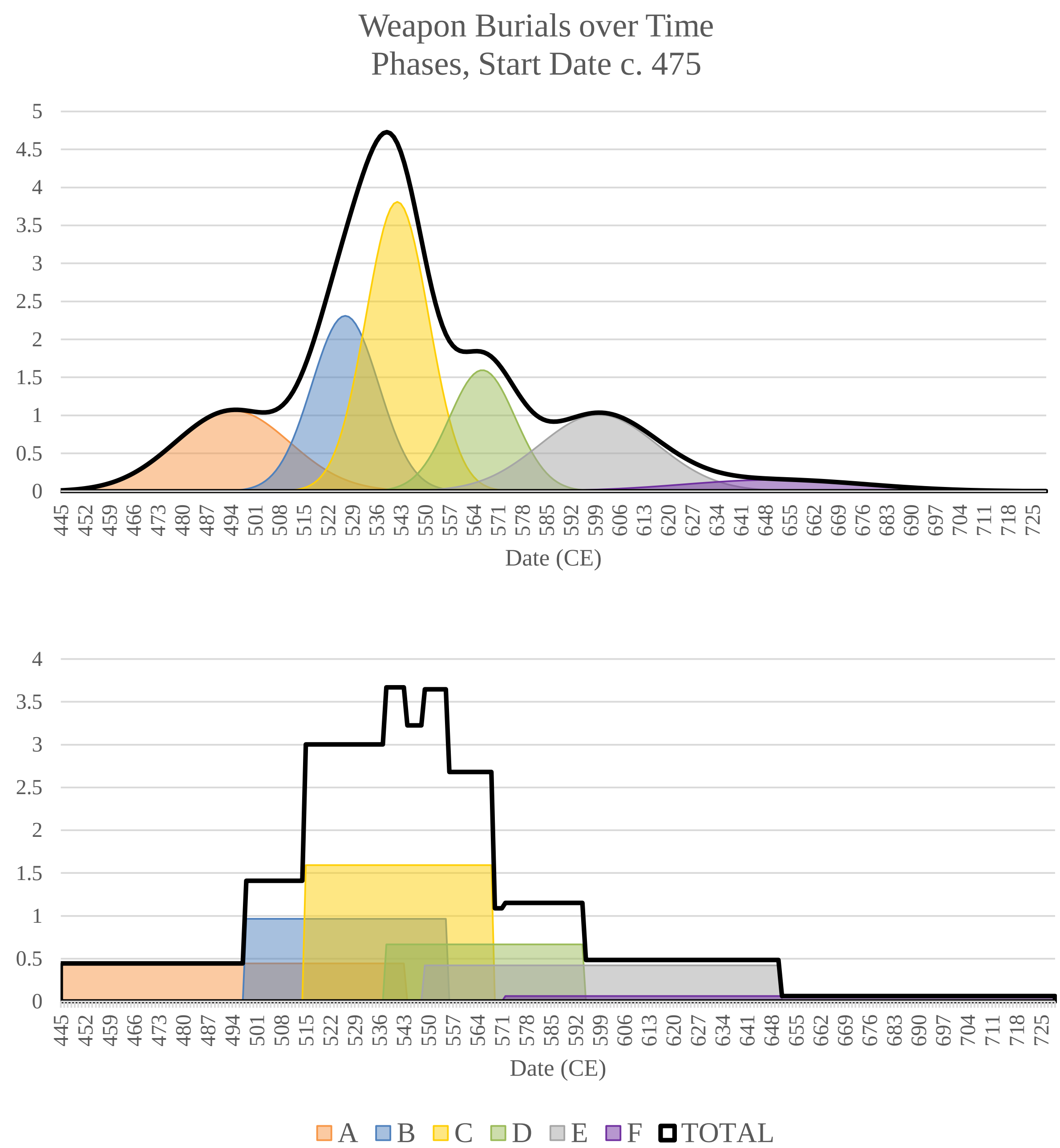

Figure 3-13. Weapon burial frequency over time. This chart plots the frequency of weapon burial over time, using the results of the radiocarbon model described in Figure 3-12. To create these charts, the six overlapping phases were added together using two methods. The top chart assumed that burials within each phase are normally distributed. These normal curves were then added together, giving the total proportion of weapon burials for each year as the heavy black line. The bottom chart assumed, in contrast, that burials within each phase were evenly distributed across the period. Overlapping phases were added together, and the results again plotted as a heavy black line. Both methods are approximations, and the dips between individual peaks are unlikely to be real or significant.

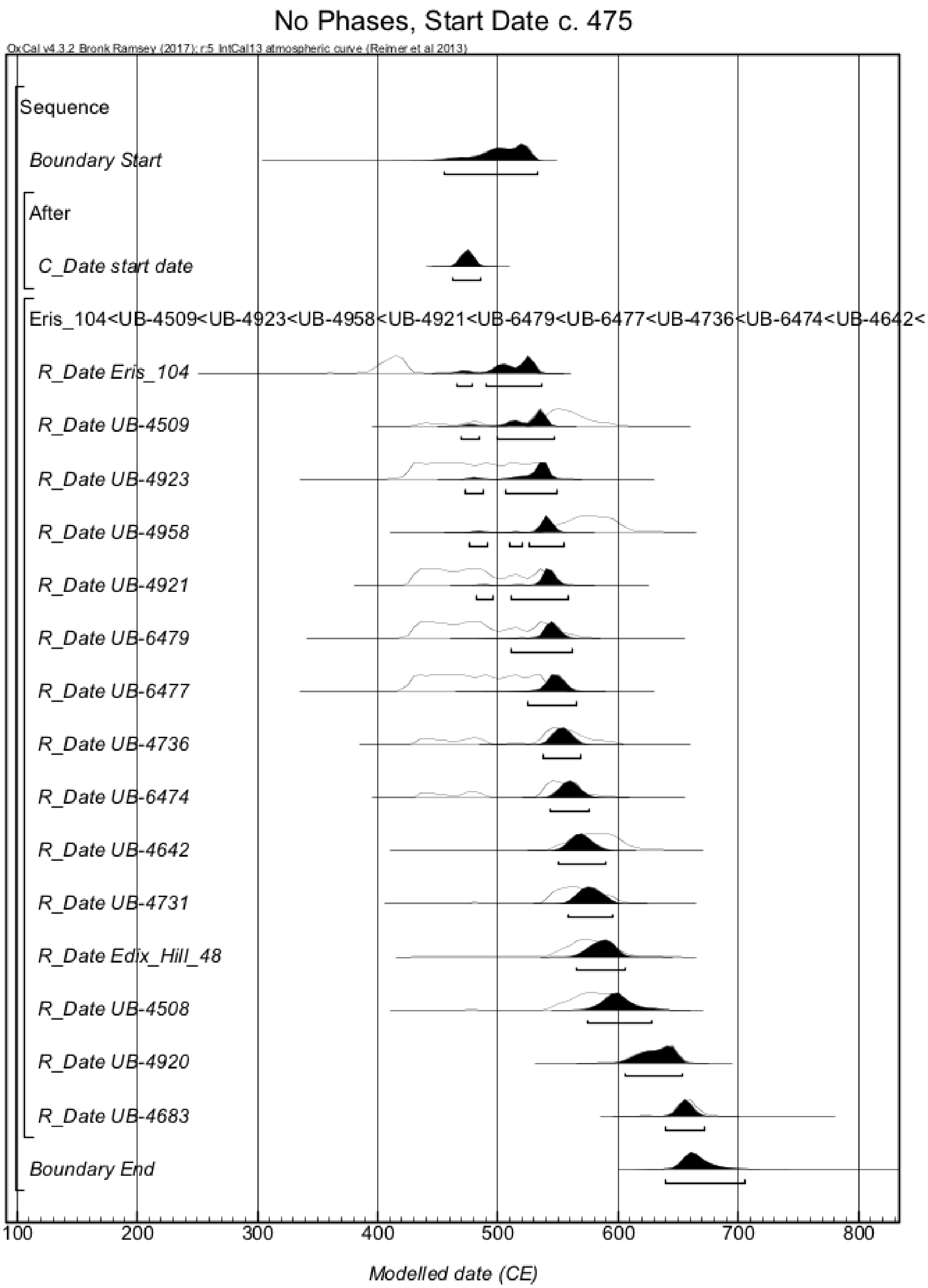

Figure 3-14. The results of the Bayesian model without phases and an assumed start date. In this model, the radiocarbon dates were arranged sequentially without phase groups. A start date of c. 475 CE was once again assumed.

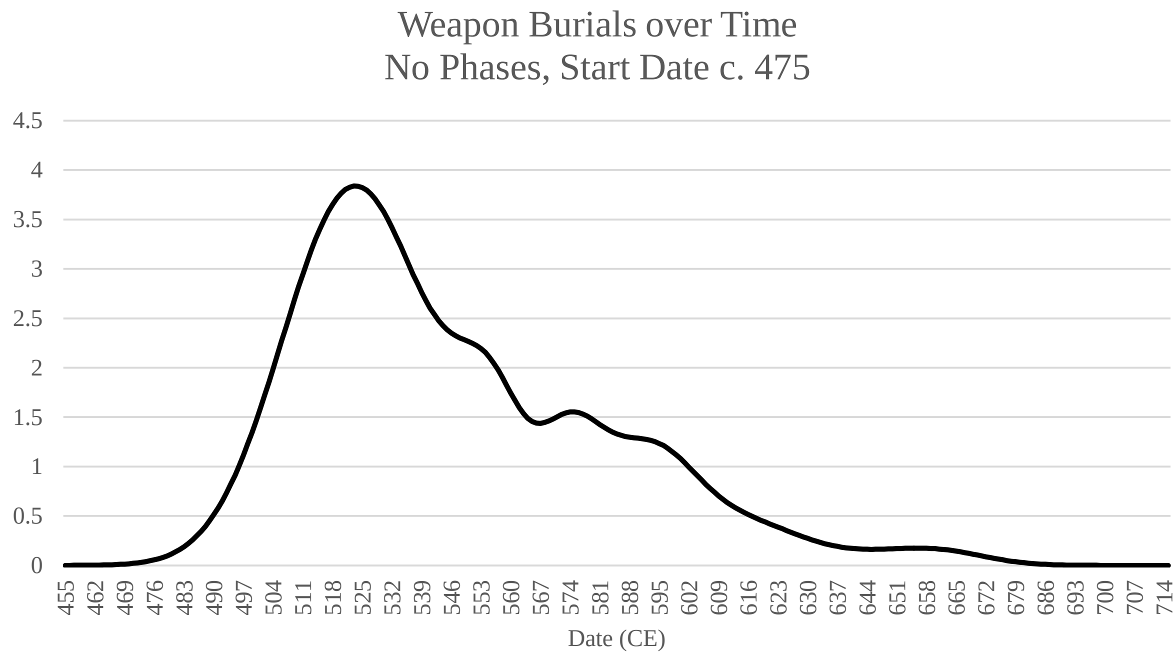

Figure 3-15. Weapon burial frequency over time without phase groups. This chart shows the frequency of weapon burial over time made using the model in Figure 3-14. Graves that were not radiocarbon dated were grouped with the nearest radiocarbon date (as a normal distribution around its mean). The results were combined into a histogram, as in Figure 3-13.

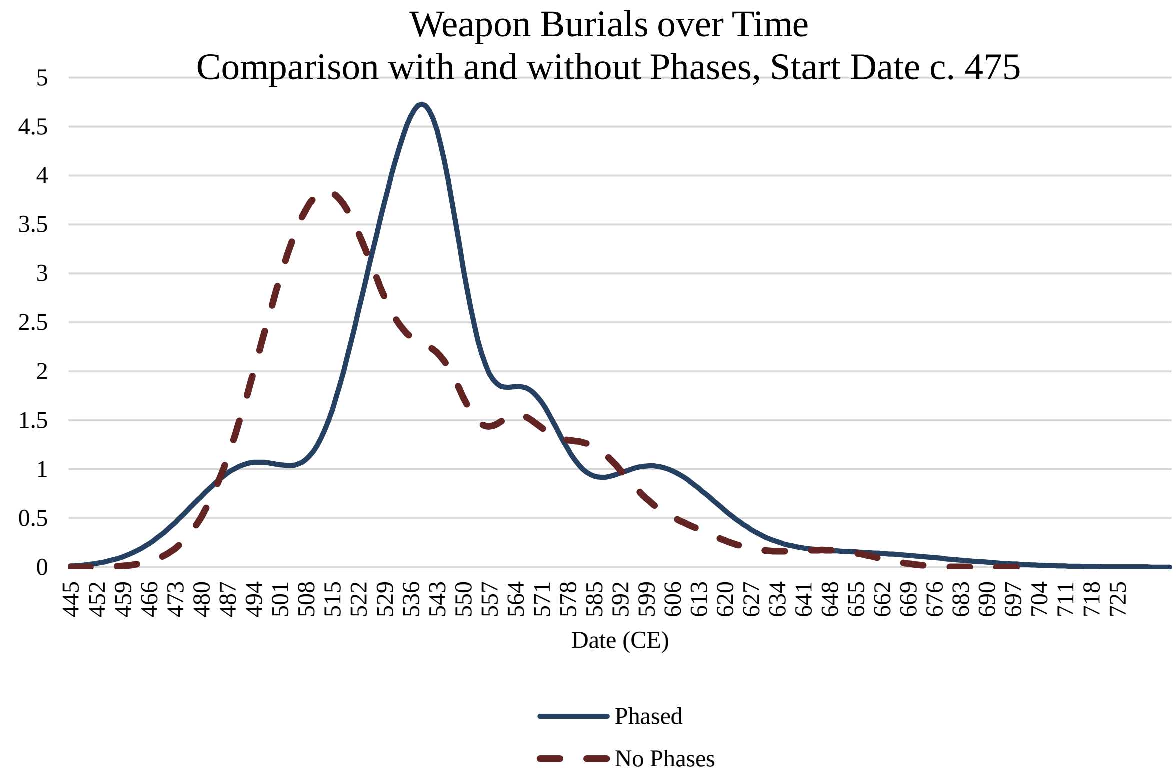

Figure 3-16. A comparison of the first two frequency plots. This figure overlays the weapon burial frequencies from Figures 3-13 and 3.15.

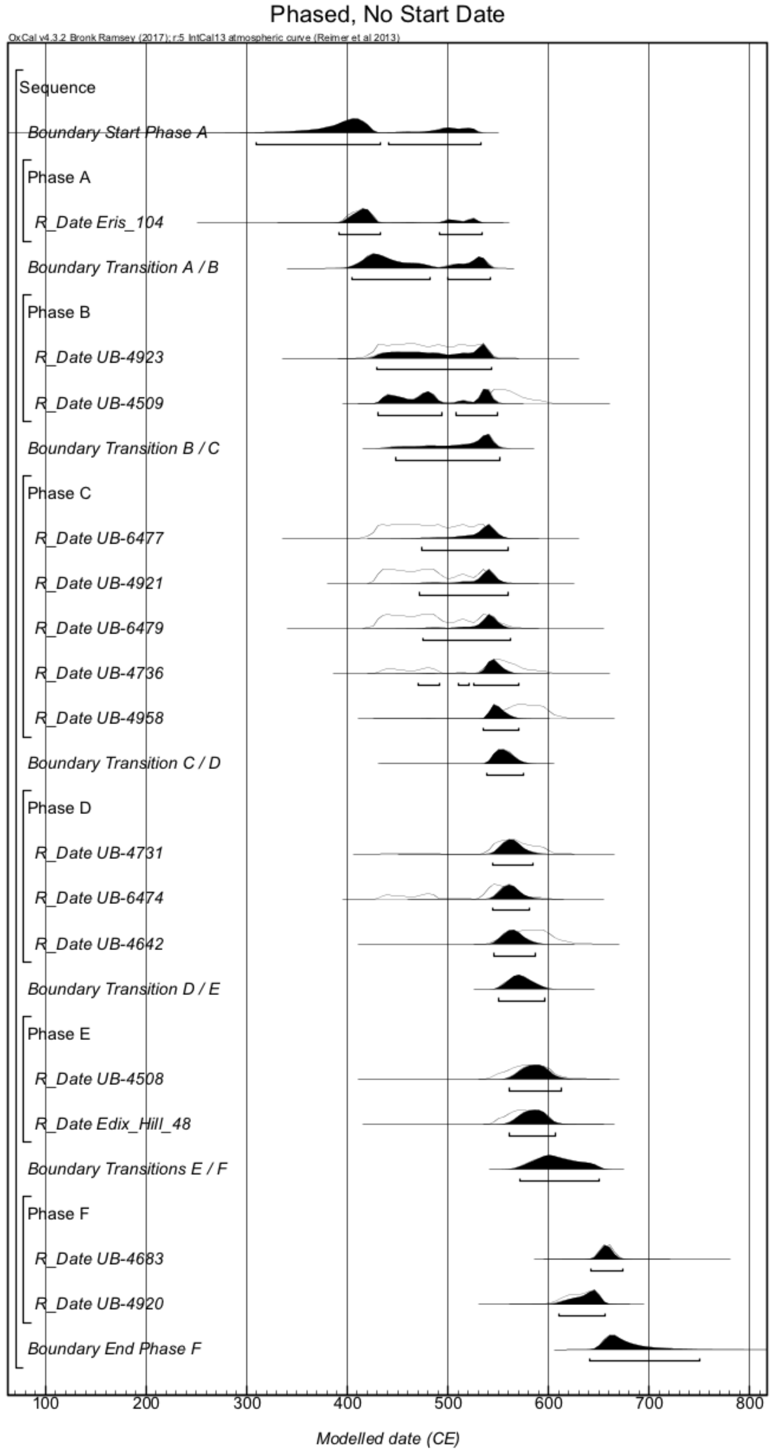

Figure 3-17. The results of the Bayesian model with neither phases nor an assumed start date. In this model, the radiocarbon dates were arranged sequentially without phase groups or a beginning date. The results spread across the fifth century, due to a combination of limited early radiocarbon dates and a plateau in the radiocarbon calibration curve for this period.

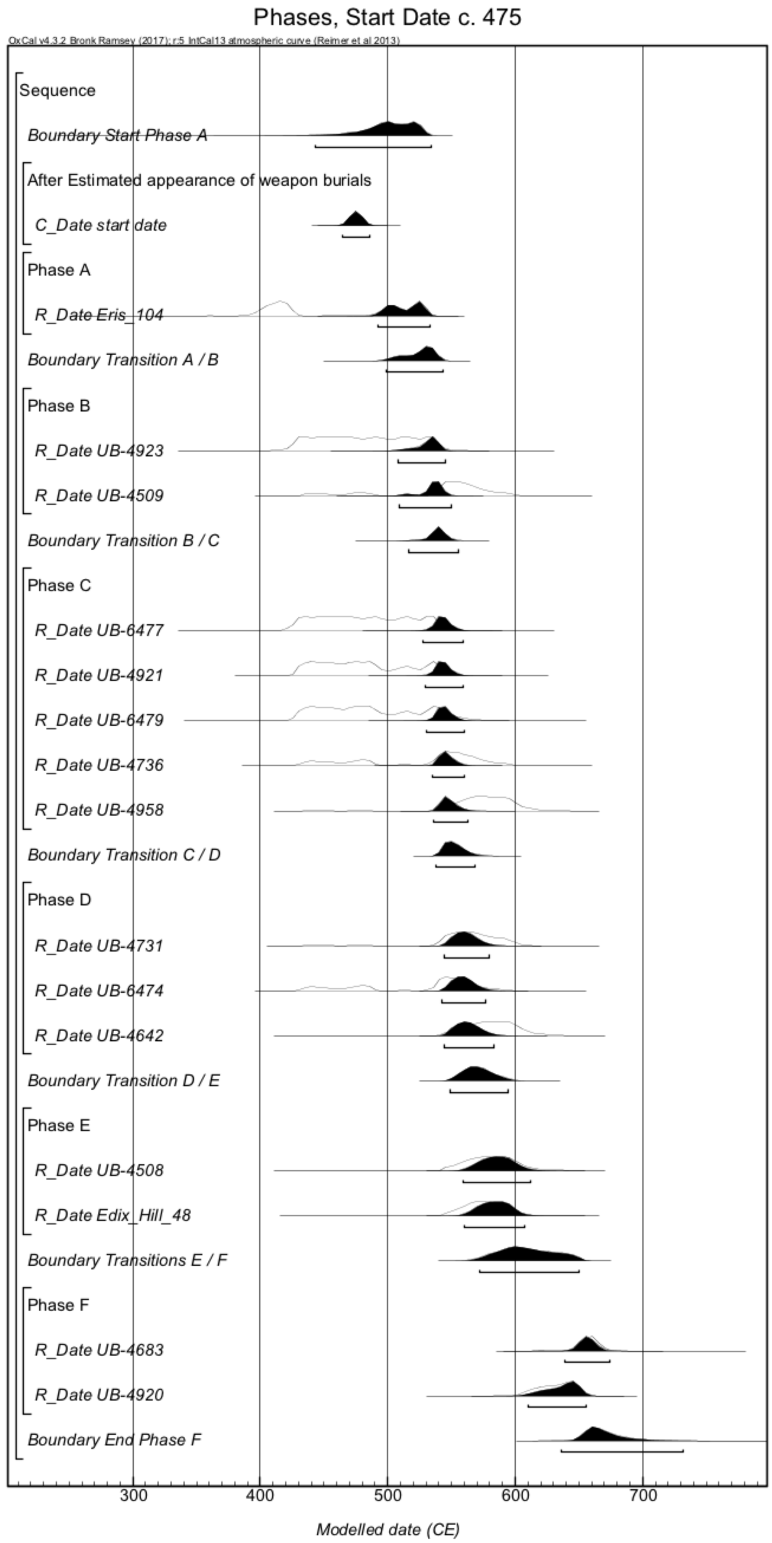

Figure 3-18. The results of the Bayesian model using phases without an assumed start date. In this model, no starting date was assumed. The radiocarbon dates were once again split into six separate groups.

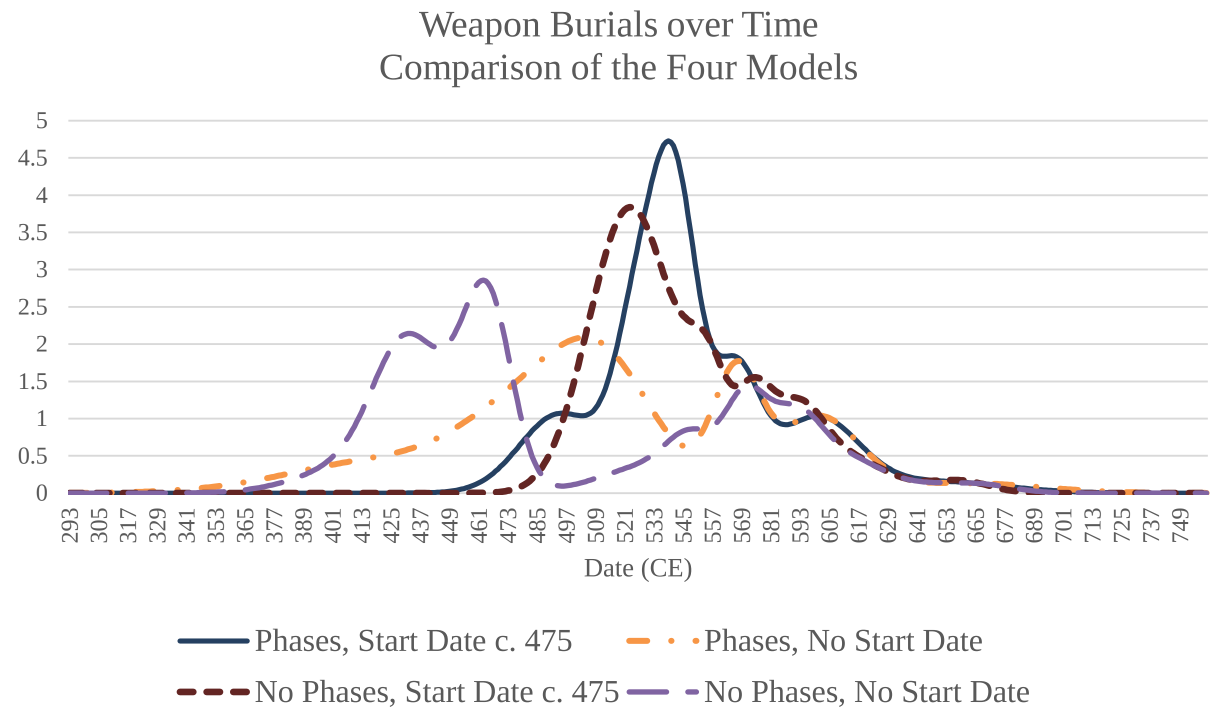

Figure 3-19. A comparison of the four frequency plots. This figure overlays the weapon burial frequencies measured by each of the four radiocarbon models.

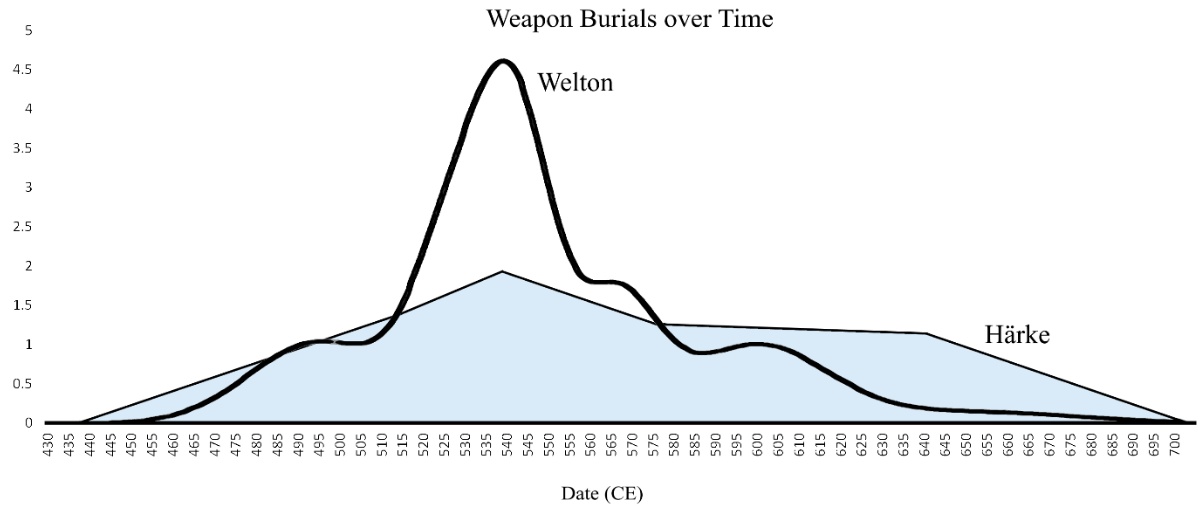

Figure 3-20. Comparison between Härke's frequency distribution and my own. This chart layers Heinrich Härke's chart of weapon burial frequency over my own, enabling direct comparison of the different in frequency distribution produced by our two modeling approaches. The area inside the two curves is equal. Härke's chart is redrawn from Härke, "Warrior Graves?," 30.

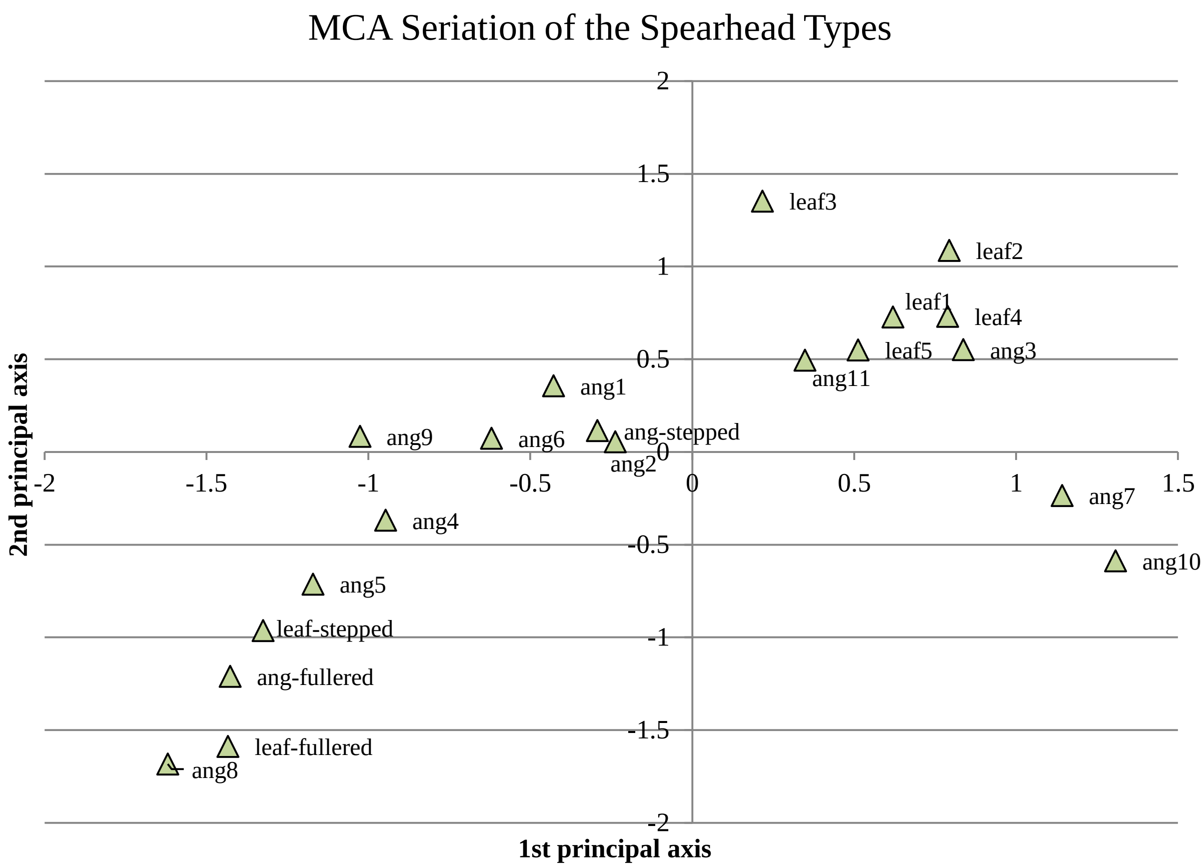

Figure 3-21. MCA seriation of spearhead types. This chart shows the MCA seriation of this study's new spearhead types. It should be read from left to right, beginning with the earliest types SP-ang8 and SP-leaf-fuller.

Table 3-1. Dates of the six phases identified by the Bayesian model (assumes start date c. 475).

Phase	Dates
A	445 – 543 CE
B	498 - 555
C	515 - 568
D	538 - 594
E	549 - 650
F	572 - 729

CHAPTER 4
SPEARS' VIBRANT MATERIALS: WOOD, IRON, AND CRAFTSMANSHIP

To date, roughly 4,000 spearheads have been excavated from graves of the early Anglo-Saxon period. What did these weapons mean to the living, that they should be so often placed with the dead? Numerous interpretations have been advanced, and some of these will be considered in later chapters. They can be largely grouped, however, into several common threads. The first accords spearheads—and the spears to which they were attached—significance as "Germanic" objects, valued since prehistory by all who claimed (or were born into) the cultures of north-west Europe.[1] This identification depends on an ahistorical reading of scattered literary references from Tacitus, early medieval law codes, and the Norse sagas, texts whose compositions span 1,200 years, and whose applicability to the specific context of sixth-century southeastern Britain is at best conjectural (and at worst, a product of nineteenth-century romantic nationalism).[2] The second thread uses ethnographic analogies and anthropological theories to propose that iron weapons in the Early Middle Ages were social persons, living objects whose magical power required careful deposition.[3] These interpretations, like the first, struggle to find

[1] This is exemplified in Michael Swanton, "The Spear in Anglo-Saxon Times," Ph.D. dissertation, Durham University, 1966, 469-568; 637-733; and Swanton, *Spearheads of the Anglo-Saxon Settlements* (London: Royal Archaeological Institute, 1973), 2-4; older works such as May Lansfield Keller, *Anglo-Saxon Weapon Names Treated Archaeologically and Etymologically* (Heidelberg: C. Winter, 1906), 18-30; Richard Wegner, 'Die Angriffswaffen der Angelsachsen' (PhD Diss., Albertus-Universität, 1899), 1-10. Heinrich Härke offers a similar Germanic interpretation of weapons, through a more creative combination of anthropological methods with a traditional reading of the written sources; Heinrich Härke, *Angelsächsische Waffengräber des 5. Bis 7. Jahrhunderts*, Zeitschrift für Archäologies des Mittelalters 6 (Köln: Rheinland-Verlag Gmbh, 1992).

[2] Cf. James Harland, "Deconstructing Anglo-Saxon Archaeology: A Critical Enquiry into the Study of Ethnicity in Lowland Britain in Late Antiquity (c. 376-568)," Ph.D. thesis, University of York, 2017; Guy Halsall, *Barbarian Migrations and the Roman West, 376-568* (Cambridge Medieval Textbooks. Cambridge: Cambridge University Press, 2007), 22-25.

[3] E.g. Sarah Semple and Andrew Reynolds, "Anglo-Saxon Non-Funerary Weapon Depositions," in *Studies in Early Anglo-Saxon Art and Archaeology: Papers in Honour of Martin G. Welch*, edited by Stuart Brookes, Sue Harrington, and Andrew Reynolds, 40–48, BAR British Series 527 (Oxford: Archaeopress, 2011);

an empirical connection to the specific practices of early medieval England. Iron is certainly treated as a living and magical substance in many cultures, but that does not mean it was so in early medieval England. In the final thread, iron objects are accorded value as a consequence of their social lives and biographies.[4] The following chapters build on this thread by considering how the uses to which spears were put shaped perceptions of their value and agency. Reducing spears to commodities whose value emerged solely from their use, however, risks ignoring spears' proximate reality as physical things with material properties that shaped the experiences and subjectivity of the people who tried to use them.[5]

This chapter considers the origins of spears: where did they come from, and what can the ways they were made tell us about the place they came to occupy in the early medieval fields of action and knowledge? This chapter follows Brown's admonition that things reveal themselves when objects break, and looks at how failures in the workshop reveal early medieval artisans' knowledge and beliefs about their materials' fundamental properties.[6] These failures are combined with journeys—into the woods, and into ruins—from which artisans return carrying materials laden with history and stubborn properties that had to be skillfully tamed.[7] These

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Sue Brunning, "The Living Sword in Early Medieval Northern Europe: An Interdisciplinary Study," Ph.D. thesis, University College London, 2013; Julie Lund, "At the water's edge," in *Signals of Belief in Early England: Anglo-Saxon Paganism Revisited*, edited by M. Carver, S. Semple, and A. Sanmark, 49–66 (Oxford: Oxbow Books, 2010); Lotte Hedeager, *Iron Age Myth and Materiality: An Archaeology of Scandinavia, AD 400-1000* (London ; New York: Routledge, 2011).

[4] Much less has been written in this vein, though cf. Gabor Thomas, Gerry McDonnell, John Merkel, and Peter Marshall, "Technology, Ritual and Anglo-Saxon Agriculture: The Biography of a Plough Coulter from Lyminge, Kent," *Antiquity* 90, no. 351 (June 2016): 742–58; Lund, "At the water's edge."

[5] See Tim Ingold, "Materials against Materiality," *Archaeological Dialogues* 14, no. 1 (2007): 1-3.

[6] Brown, "Thing Theory," 4.

[7] On skill and making, see for example Ingold, *Making*; Ingold, "When ANT meets SPIDER: Social theory for arthropods," in *Material Agency*, edited by C. Knappett and L. Malafouris (Springer, 2008), 209-215; Warnier, "Praxeological Approach."

experiences of materials' physical properties, histories, and wildness shaped the physical forms that spears took, but also shaped the knowledge smiths derived about the properties and potentialities of their materials and the objects they became. Shaft makers gained embodied knowledge of wood by cutting, drying, and bending it; smiths studied iron by hammering, heating, and polishing it.[8] By the time that spears were finished, they already possessed a deep and detailed history of human engagement that shaped the later uses to which they were put. Through study of spears' organic and metallurgical properties, and the technological choices of the stick cutters and blacksmiths who made these weapons, we can gain insight into how early medieval persons perceived these things, why they made them as they did, and what they expected them to accomplish.

This chapter draws on organic data about spear shafts from investigative conservation reports of excavated metalwork and a corpus of metallurgical data about spearheads' blades from metallographic studies, both introduced already in Chapter 2. Mineralized traces of the timber shaft found during investigative conservation of spearheads' sockets is often all the evidence that survives of the wooden shafts to which these spearheads were fixed. These analyses reveal the species of timber used, however, and study of these species' properties alongside traditional methods used by walking stick makers unveils much about spear shafts' manufacture. Metallographic studies reveal which alloys of iron and steel smiths chose to forge together into spearheads' blades, and how they forged these components together. Metallography also reveals, however, the sequence of decisions smiths made along each step of the construction process. These decisions allow us to glimpse the projects, reactions, and knowledge of the people who made these blades—especially when their projects went awry. Metallography also allows us to

[8] Cf. Warnier, "Praxeological Approach"; also Ingold, *Making*; Conneller, *Archaeology of Materials*.

identify spearheads made from recycled iron, often scavenged from Roman ruins in the landscape, and used in particular ways that betray the preoccupations of their makers.

At the heart of this chapter is the question of how experience relates to understanding, and how both are tangled up with the things that we make.[9] In our modern scientific-industrial economy, wood and iron come to us as packaged materials that have been highly processed to increase their stability and to meet the needs of a specific project and intended outcome. Medieval wood cutters and smiths, however, made—or at least, significantly changed—their materials as they worked with them. Trees were still transitioning from plant to timber as they were being cut, dried, and bent into inorganic shapes, and iron's physical properties emerged inside the forge fire alongside the shape of finished artifacts. Craftsmanship made things and materials concurrently one another, and generated knowledge along the way that fed back into the choices that determined the final form and properties that craft products assumed. This process was emergent, transformative, recursive, and ultimately possible only through the mutual interaction of maker and material. Studying these processes opens a window into the technological and material experiences that underlay the knowledge and experience systems from which spears gained value and significance.[10]

Struggle characterized the processes through which spears were made. Wood is a living thing, and iron on the blacksmith's anvil often acts like a living thing. Attempts to tame these materials frequently backfired, and successful makers achieve their goals by confronting the

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[9] Cf. Chantal Conneller, *An Archaeology of Materials: Substantial Transformations in Early Prehistoric Europe* (London: Routledge, 2011), 4-9; Tim Ingold, *Making: Anthropology, Archaeology, Art and Architecture* (London: Routledge, 2013), 110-24; Warnier, "Praxeological Approach."

[10] Cf. M. Holbraad, "Ontology, ethnography, archaeology: An afterword on the ontography of things," *Cambridge Archaeological Journal* 19 no. 3 (2009): 433.

agency of their materials.[11] This struggle spilled over into the experiences of the people who used these products, and shaped perceptions of spears' character and suitability for use. The technological properties of spears' shafts and blades—details that often interest few besides historians of technology and collectors of militaria—structured the social experience of all who worked closely with these objects. At the same time, spears' physical forms were shaped by these human experiences, as carpenters and smiths adapted their technological efforts in response to their perception of finished artefacts. The confluence of human agency and material resistance—subjective perception and technological constraint—created a unique understanding of spears as vibrant agents of social power.

Bent Against its Will: The Timber Spear Shaft

> onwendan mine wisan, wegedon mec of earde,
> gedydon þæt ic sceolde wiþ gesceape minum
> on bonan willan bugan hwilum.[12]
>
> (They ripped me from my birthplace and changed my disposition. They made me go against my natural inclinations and bent me to serve a murderer's will.)

Spears began their lives as trees. The previous two chapters have focused primarily on iron, as the iron spear points are typically the only portion of the weapon to survive. Spears, however, were mostly made from wood, and their wooden shafts were the portion of the weapon that spearmen held, thrust, threw, and leaned upon. These shafts, as well, were once living creatures, and the traces of the living tree could never be completely removed from the timber it became. Anglo-Saxon texts repeatedly refer to spears using words for trees, e.g. *æsc* ("ash"; cf. Chapter 2). It is fitting, therefore, to begin this section with the epigram above, from Exeter

[11] Cf. Conneller, *An Archaeology of Materials*; Tim Ingold, "Materials against Materiality," *Archaeological Dialogues* 14, no. 1 (2007): 14.

[12] Exeter Riddle 73, lines 5-7, in C. Williamson, ed., *The Old English Riddles of the Exeter Book* (Chapel Hill: University of North Carolina Press, 1977), 108.

Riddle 73, which describes a living tree that was captured, cut, and bent to serve a murderer's purpose when a man felled it and shaped it into a spear shaft. Only fragments of shafts survive, however, and as a consequence archaeologists have frequently forgotten that spears were wooden composites tipped with iron, rather than the other way round.

The evidence that survives, trapped in mineralized form within the rust that encases spearhead's sockets, shows that shafts were carefully selected by persons who understood how to tame trees into timber. Artisans cut spear shafts from several kinds of wood. Whichever timber was chosen had to be stiff enough to respond to subtle gestures of the hand, yet not so brittle as to be easily broken. It had to be light without sacrificing strength; straight, but with its natural grain uncut so that it would not easily shear in twain. As discussed in Chapter 2, most spears were made from ash, but many were also cut from hazel, followed next by willow or poplar. Ash shafts were almost always cut from mature timber (84%, 49/58), while hazel shafts were grown to size as saplings (76%, 16/21). The manner in which each type of shaft was cut and dried differed, therefore; but both required skill from the shaft makers, and both forced the human craftsperson to confront the fact that they were working with a living plant rather than a static, homogeneous material.

The artisans who made spears shafts are almost invisible in our sources. We do not know if they were male or female, skilled artisans or practiced amateurs, nor whether they were the same person as the smith who forged the spearhead. In modern Wales, several families of blacksmiths have also made walking sticks for generations, using the heat from their forges to straighten and harden the stick shafts.[13] A humble shaft maker appears in Adomnán's seventh-

[13] Meurig Owen, *Hedges, sticks and baskets* (Gwasg Carreg Gwalch, 2007), 68.

century Ionan *Life of St. Columba*, which describes a man who whittles his own shaft from a sapling while resting beneath an overturned boat.[14] Tare fragments of two well-preserved spear shafts survive from the "princely" grave at Prittlewell, and both are decorated with fine carving.[15] Were these shafts made by a skilled royal spear shaft fitter, or by an amateur farmer-warrior in the "prince's" service? We cannot say.

We know how they were made, however, because the timber from which they were cut imposes certain restraints upon the craftsperson and reward particular preparations. Saplings like hazel, for example, dry best when cut in midwinter, the time of year when trees are dormant and the least amount of sap is flowing inside the wood. Saplings cut in the summer and autumn, and especially the spring, are so filled with moisture that they often crack or split while they dry and shrink. Makers of traditional-style English walking sticks, who work with these materials using methods not unlike those of the Early Middle Ages, recommend cutting shafts between December and February.[16]

Once cut, saplings of hazel or willow/poplar must be dried slowly, else they will split and crack. Walking stick makers, experienced in these trees' physical properties, recommend at least a year of drying to ensure a strong and dimensionally stable stick, though many season their sticks for two or three years before straightening them into finished shafts. One stick maker recommends allowing cut shanks to first dry six months out of doors, lest indoor heat dry the wood so rapidly that it split. Following this, he recommends six months seasoning inside an

[14] Adomnán, *Vita Sancti Columbae*, I.xxxv, in *Adomnan's Life of Columba*, ed. by A.O. Anderson and M.O. Anderson, Oxford Medieval Texts (Oxford: Oxford University Press, 1991), 331.

[15] The shaft fragment is not yet published, and is being conserved by Museum of London Archaeology.

[16] Theo Fossel, *Walking & Working Sticks* (The Apostle Press, 1986).

unheated shed, again to reduce the chance of rapid, damaging desiccation. The same stick maker advises that sticks be rotated and sometimes splashed with water to ensure even drying, lest they split at one end.[17] Alternatively, sticks can be placed, flat, on the ground to dry beneath the eaves of a work shed beside its door, so that the stick maker can, every few days or weeks, pick one up in passing and bend it straighter in their hands.[18] All the while, care must be taken to protect the sticks against pests, such as woodworm, which are particularly attracted to hazel.[19] This casually attentive mindfulness during the drying process ensures that sticks do not warp as they season. Most makers agree moreover that sticks should be dried with the bark on. The bark provides an outer layer of moisture protection which prevents the drying wood from drying so rapidly that its shrinking causes it to split apart.[20] That is to say, drying sticks requires knowledge, skill, and patience—all rooted in practiced experience with the materials over time.

All these practices add up to a process best described as skillful, mindful neglect. The drying shaft cannot be hurried without risking the integrity of the material. Consequently, the principle mechanism by which trees were transformed into timber shafts was time, blended with just the right amount of human intervention. When successful, a sapling can be transformed from a wet, flexible, living, growing creature into a stable, hard, and resilient material that is difficult to break—the properties necessary for a spear's shaft. The skill of properly seasoning a sapling remains today a one best learned through hands-on experience—it is, and always has been, more art than science. Seasoning a spear shaft is what Tim Ingold calls *correspondence*: a

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[17] Ibid.

[18] Fossel, 55; J.M. Douglas, *Blackthorn Lore and the Art of Making Walking Sticks* (Stenlake Publishing, 2011).

[19] Owen, 41.

[20] E.g. Fossel, *Walking & Working Sticks*.

collaboration of human and non-human agency, rather than an imposition of human will onto inert matter.[21]

Once dried, most saplings will need to undergo a final step of straightening before they are ready to become a spear shaft. While hazel and other sapling woods naturally grow straight-ish, kinks, knots, and small natural curves develop on even the straightest saplings. A bent or kinked shaft can be straightened with a combination of heat and mechanical force. Modern stick makers heat the shaft in a sealed box that they fill with steam, but open flame can also be used. Once the wood it heated, it is bent into a straighter shape using the hands alone, or clamped into a simple jig (tightened with ropes or wedges), or else bent against a stationary object. Once the shaft has cooled, it will retain this new, straighter shape after the clamp or bending pressure is removed.[22] This straightening process can expose faults and weaknesses in a stick from inconsistent drying; some sticks snap instead of bending straight.[23] The sticks that survive, however, can be made straight as a plumb line. Straightened sticks can, however, return to their original, knotted shapes if they are allowed to absorb too much moisture. The wood's grain, which grows year by year through the formation of successive rings of timber within the sapling's core, always remembers the material's natural form. This memory can be suppressed with heat and pressure, but not erased by the artisan's hands. Like the tree in Exeter Riddle 73 (above), spear shafts could be "bent to a murderer's purpose," but their materials never forgot the trees from which they came.

[21] Ingold, *Making*, 7-8.

[22] Fossel, *Walking & Working Sticks*; Douglas, *Blackthorn Lore*.

[23] Meurig Owen describes this process as one of "fine judgment, recognizing how the stick is responding to the treatment and knowing when and if more heat needs to be applied" (Owen, 44).

Sticks made from mature timbers such as ash underwent a similarly extended process of seasoning and shaping. Cutting mature timber into spear shafts required the same skilled attention to the wood's slow desiccation, changing shape, and persistent grain. Ash shafts would not, like mass-produced modern dowels or broom handles, have been sawn from larger timbers in a mill. The Early Middle Ages had saw; the Carolingian *Biblia Sancti Petri Rodensis*, for example, depicts a large frame saw such as could have been used to cut planks. No such saw has been found in Britain in the early Anglo-Saxon period, however, and most planks would instead have been split from logs using wedges, hammers, and axes.[24] Splitting timber had the advantage of allowing the wood to separate along natural grain lines. Splitting thus preserved the long, unbroken fibers which give ash its elasticity and tensile strength. The resulting shaft is much stronger than a modern machine-milled dowel.

Once felled timber had been seasoned (perhaps for several years) and split into planks, a spear maker could select a board with suitably straight grain lines to cut down into a shaft. This board would first be further split into rough-edged poles, and these would then be shaved down into round shafts of the appropriate diameter (about 2cm) and taper (typically narrowing toward the base; see Chapter 2). This shaping could have been done initially with a small axe, but would have been finished using knives or rasps. Walking stick makers say that it is difficult to round a rough plank into a pole on a lathe, because the pole's length and flexibility allow it to bend away from the cutting blade.[25] Modern stick makers use a variety of handheld blades instead, including draw knives, traps, and frazes to trim away excess material.[26] This hand trimming has an

[24] Bibliothèque nationale de France, Département des manuscrits, Latin 6 (3).

[25] Fossel, *Walking & Walking Sticks*.

[26] Ibid.

advantage over the lathe, which is that it allows the artisan to follow the grain lines inside the timber closely as they trim the material. In this way, few longitudinal fibers are cut and the shaft retains its full potential strength against shearing. If the timber's grain wanders or curves, the carver might even choose to follow these curving lines and straighten the pole later using heat in the same way that a dried sapling was straightened to shape.

The steps of making a stick into a spear shaft forced stick makers to be mindful of the fact that their material was once a living creature. In both the processes for preparing saplings and mature timber, stick makers learned to look, feel, and even hear subtle signals from the dying, drying tree body as it slowly became useful timber. Stick makers looked, felt, and listened for the signs of faults and evidence of strength beneath the bark as the wood replaced its green suppleness with hardness. Each specimen was unique, because each had been its own tree. Shaping timber was therefore not only a process of creation; it was also a process of study. Stick makers learned to interpret wood's inner properties and potentialities from transformations in its outer physical form as they dried, straightened, and cut it. A spear shaft's future potential as a weapon was measured by its response to craftsmanship. Making was a form of knowing, or rather of discovering and persuading, for timber never loses its connection to the living thing it once was.[27] As engineer and woodworker Bruce Hoadley remarked:

> Wood comes from trees. This is the most important fact to remember in understanding the nature of wood. Whatever qualities or shortcomings wood possesses are traceable to the tree whence it came. Wood evolved as a functional tissue of plants and not as a material designed to satisfy the needs of woodworkers. Thus, knowing wood as it grows in nature is basic to working successfully with it.[28]

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[27] Cf. Ingold, *Making*, 7-8.

[28] R. Bruce Hoadley, *Understanding Wood: A Craftsman's Guide to Wood Technology* (Taunton Press, 2000), 7.

Early medieval shaft cutters and stick makers were, by necessity, conscious of these facts. They felt them in their hands when they cut wood, dried, and straightened timber; and they knew them from their experience of harvesting timber from the wood lots that surrounded the peripheries of early medieval settlements.

Timber came from the wild. The forests of early Anglo-Saxon England were not true wildernesses. Pollen samples from across England show that the forests, cut back by Roman and prehistoric agriculturalists, did not overtake the landscape after the collapse of Britain's rural villa estates.[29] The forests were contained, were in many cases almost certainly heavily managed through coppicing and pollarding, and were frequent sources of resource exploitation by the settlements that they bordered.[30] The forest was a familiar place, and not a wilderness in any literal sense.

The forest often appears, however, as a wilderness in the early medieval imagination. Up on the ridge tops, within the coppice scrub of managed forest or the broader boles of free-growing wild trees, a woodcutter left behind the sights and sounds of home life and was surrounded by the birds and animals that kept their distance from the farmyard. This experience of stepping into the marginal land up-ridge of the cultivated river valleys must have been a common part of mundane life, but literary sources accord significance to the boundary between

[29] E.g. S.P. Dark, "Paleoecological evidence for landscape and rural continuity and change in Britain ca A.D. 400-800," in *External Contacts and the Economy of Late Roman and Post-Roman Britain*, ed. by K.R. Dark, 23-51 (Woodbridge, 1996; O.J. Rackham, *The History of the Countryside* (London: 1986), 75-85; P. Murphy, "The Anglo-Saxon landscape and rural economy: Some results from sites in East Anglia and Essex," in *Environment and Economy in Anglo-Saxon England*, ed. by J. Rackham, 23-39 (York, 1994).

[30] Christopher Grocok, "Barriers to Knowledge: Coppicing the Landscape Usage in the Anglo-Saxon Economy," in *The Landscape Archaeology of Anglo-Saxon England*, 23-37 (Boydell & Brewer, 2010).

forest and field.[31] A woodcutter was unlikely to encounter any dangerous wild beasts in the sixth-century forests, but such creatures abound in Old English poetry.[32] The woods were, in practical terms, tamed, but their place on the margins allowed them to become an other space contrasted against the inhabited land of the river valleys. Thomas Birch describes this liminality with the Scandinavian term “Utgard,” outlands—a cosmological as much as practical boundary that separated hearth and home from the chaos without.[33] When early Anglo-Saxon shaft makers entered the woods, they journeyed into liminal spaces where imagination could glimpse civilization’s edges.

The wild wood could inflected the spear’s shaft with further layers of attributed personality beyond those experienced directly in the fibers of its timber. In the wild wood, stick makers hunted for a living tree that could be captured and transformed into a new instrument of violence. They tracked it, captured it, brought it home, shut it away until it was dry and dead, and finally re-enlivened it with new purpose by joining it to a living iron spearhead. Later Old English texts describe trees that grew in marginal spaces as natural and innocent, kept apart from the corruption of sinful and violent men. Plow land was violent and the woods were agriculture's victim, their fringes cut back by the ox and plow whom one of the Exeter Riddles dubbed “the enemy of the forest.”[34] In two other riddles, including Exeter Riddle 73 quoted above, unfelled trees are described as living lives of innocence, until murderous men with axes corrupt their

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[31] E.g. Exeter Riddle 21, in Williamson, 80; Della Hooke, *Trees in Anglo-Saxon England: Literature, Lore and Landscape*, Anglo-Saxon Studies (Boydell, 2010), 116, 130.

[32] E.g. Audrey L. Meaney, “The Hunted and the Hunters: British Mammals in Old English Poetry,” *Anglo-Saxon Studies in Archaeology and History* 11 (2000): 95-96.

[33] T. Birch, ‘Living on the Edge: Making and Moving Iron from the “outside” in Anglo-Saxon England.’ *Landscape History* 32 no. 1 (January 2011), 9.

[34] Exeter Riddle 21, in Williamson, 80.

nature. In 73, the word used to describe the tree's transformation from innocent creature to murderous weapon is *bugan*, to bend. This word recurs elsewhere in descriptions of wood and violence. The Rood, for example, wishes to bend (*bugan*) down and slay Christ's enemies, but is restrained by its master (Christ, here presented as a bold warrior).[35] In *Beowulf*, a weapon that survives the death of its lord will not bend (*bugan*) from its desire for revenge.[36] In both cases, the refusal to bend indicates the timber's commitment to the task for which it was designed: neither Rood nor spear can be turned from the purpose instilled within it by its human master. In the case of the innocent tree, however, this stiffness is not yet present (just as it is absent from green, unseasoned timber). Instead, the innocent tree must be bent (*bugan*) until it accords with its maker's wishes. The poet describes this as an act of violence: the tree' s desire for a peaceful life is twisted or warped by a slayer's agency. Is the slayer the one who fells and kills the tree, or the weapon maker who makes the tree capable of killing in its own right? The poet challenges the reader to ponder this double meaning, but at the same time literally describes the physical processes through which artisans transformed timber into spear shafts via careful bending and straightening. The poet reminds readers that timber never completely stops being something wild and free; the tension between arboreal innocence, the tree's own hopes and projects, and the crooked fibers of captured woodgrain held unnaturally straight within the body of the captured shaft.

Spear shafts thus never truly left behind their origins as living creatures. When shafts were cut, cured, and straightened into human weapons, they brought pieces of their own history, the wood, and the wild with them. In addition to the life trapped within each timber's grain, and

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[35] Michael Swanton, *The Dream of the Rood* (Manchester University Press, 1970), 91, line 36, also 42.

[36] *Beowulf*, lines 2029-2031, in Fulk, Bjork, and Niles, 69.

the general associations between trees and the wilderness, individual trees could have their own histories known to the persons who felled them. If shafts were chosen from any tree that had a promising shape, the timber's story might be imagined, perhaps in idealistic terms like Exeter Riddle 73 above, or perhaps as one filled with wild beasts of the forest. Shafts could, however, have also been selected from famous trees with known stories. Trees were potent characters in early medieval legend, and early Anglo-Saxon cultic sites included wooden poles whose use and meaning remain obscure.[37] Old trees could even have names.[38] If mature timber such as ash were sought, an aged tree with a long history might be felled, bringing storied timber into the workshop for transformation into a weapon. A storied, potent ash tree could be cut into dozens of shafts, and might have been fragmented to outfit many men across a dispersed community. Coppiced hazel shrubs can live for many generations, producing continual thickets of renewable shafts that could arm a community of warriors for many generations.[39] The legends, magic, and memories an old tree or coppice carried could be remembered by those who knew the spear shaft's origin. These tales added to the materiality of the shafts themselves, whose grain, stiffness, and straightness already communicated the individual life history of each piece of timber to every hand that gripped them.

[37] S.J. Semple, "In the Open Air," in *Signals of Belief in Early England: Anglo-Saxon Paganism Revisited*, ed. by M. Carver, A. Sanmark, and S.J. Semple, 21-48 (Oxford: Oxbow, 2010), 40-41.

[38] E.g. Hooke, 169.

[39] Ralph Harmer, "Management of Coppice Stools," The Forestry Authority, Research Information Note 259 (1995), 3.

Bloomery Iron: A Vibrant Material?[40]

It takes little imagination to understand how poets like the author of Exeter Riddle 73 could imagine a spear's shaft, or the wood of the Rood, to speak with the voice of a living creature. Trees are alive, and felled timber permanently preserves organic traces of a tree's life that are easy to see on the material's surface and feel in its properties. In contrast, we who live with industrial metals experience iron and steel as inert substances. Steel is cold, unchanging, and associated with the sterility of hospital furnishings and lifeless machines. We are accustomed to speak of metal as something onto which we impose form or meaning, a perfect object to contrast with the subjectivity of living things.[41] Medieval iron, however, differs from modern metals. Wrought iron, like wood, has a grain that will split if a smith is careless. Wrought iron, like wood, becomes temperamental if its maker fails to consider how the material's history shapes its potentiality for future transformation.

Early medieval bloomery iron came in as many varieties as timber. Chapter 2 discussed the range of alloys available to smiths, which they skillfully welded together to take advantage of the materials' different hardness, toughness, scarcity, and color. The functional and aesthetic properties of a finished iron spearhead depended upon its maker's ability to select the iron alloys best suited to a desired outcome. Moreover, smiths had to match their processes to their alloys, as each had unique physical properties. Steel and phosphoric iron work and harden differently,

[40] An earlier version of this section has been published as Andrew J. Welton, "Encounters with Iron: An Archaeometallurgical Reassessment of Early Anglo-Saxon Spearheads and Knives," *Archaeological Journal* 173, no. 2 (July 2, 2016): 206–44.

[41] Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010), 52-61.

for example, and a smith had to know which trace elements their material contained to achieve satisfactory results in the forge.[42]

Smiths could not, however, directly identify the presence of trace elements in iron before the advent of modern laboratory equipment. Instead, smiths watched for the effects different alloying elements had on the metal's performance and appearance. A smith might, for example, observe differences in the color of the polished metal; darker iron (caused by higher carbon) was more likely to harden when quenched, while bright white iron (caused by phosphorus) would not.[43] Experienced smiths can also learn to feel the difference between alloys with more or less phosphorus and carbon by the response of the material beneath their hammer blows.[44] Smiths could forge out test samples of metal, and directly observe each sample's response to work hardening (the primary method for hardening phosphoric iron) and quenching (to harden carbon steel). None of these methods revealed an alloy's chemical composition, but they demonstrated something of more immediate importance to a blacksmith: how a piece of iron might be expected to respond to whatever use it might be put.

As a consequence of the methods described above, smiths developed an understanding of iron's physical properties as a material that differs markedly from our own.[45] Modern metallurgists describe iron as a pure element, ferrite (Fe), which can be alloyed with other

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[42] For a discussion of the differences between steel and phosphoric iron, see Chapter 2, and R.F. Tylecote and Brian J. J. Gilmour, *The Metallography of Early Ferrous Edge Tools and Edged Weapons*, BAR British Series 155 (Oxford, England: B.A.R, 1986), 7-18.

[43] Cf. R.G. Hoyland and B. Gilmour, *Medieval Islamic Swords and Swordmaking* (Warminster: Gibb Memorial Trust, 2006).

[44] S.R. Rubinson, "An Archaeometallurgical Study of Early Medieval Iron Technology," Ph.D. dissertation, University of Bradford, 2010, 226; Peter Johnsson pers. comm.

[45] For discussion of the relationship between tools and knowledge, cf. B. Latour and S. Woolgar, *Laboratory Life: The Construction of Scientific Facts* (Princeton: Princeton University Press, 1986), 64; Conneller, 9-11.

elements—a cocktail of mixed molecular ingredients. Certain manufacturing processes like direct reduction in an early medieval bloomery furnace, from a laboratory perspective, produce an especially impure or polluted mixture of trace elements with ferrite, including silicon slag. Underneath the alloys and impurities, however, the atomic essence of the chemical element Fe remains unchanged and could theoretically be separated from its surrounding impurities given the right chemical processes. A consequence of this understanding is that modern metallurgists frequently describe early medieval iron as impure, heterogeneous, or low quality;[46] all terms that begin from the assumption that iron's natural state is a purity which, through inferior technological processes, early medieval smiths failed to achieve.

We go to great lengths to make the iron we encounter in the world around us conform to this ideal of chemical purity. Iron atoms are highly reactive, and pure iron is vanishingly rare in nature. Modern steel mills now, however, produce dozens of specific, constituent, named iron alloys with carefully measured and controlled properties described on technical data sheets. Tests like metallography were developed to help manufacturers ensure the consistency of these industrial products. Stainless steels, iron alloyed with elements like chromium, give the appearance of being impervious to change altogether by resisting corrosion for long periods of time. Elemental iron is promiscuous when found in nature, but modern processes have sterilized the material into something enduring, stable, and pure.[47]

Early medieval smiths never encountered this modern material. Their iron—when new—was rusty earth that had to be roasted, smelted, sorted and consolidated before being repeatedly

[46]Cf. discussion in Chapter 2, as well.

[47] Cf Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham: Duke University Press, 2010), 52-61.

folded and hammered to drive out excess slag.[48] After these intensive acts of heating and hammering were complete, the iron was ready to be worked—but the metal remained full of heterogeneous variations whose effects on the performance of finished artifacts continued to emerge as the material was further refined in the forge.[49] Smiths rarely achieved true homogeneity; but their processes, with the exception of pattern welding—which was reserved for the rarest, finest products—did not require a homogeneous substance to succeed. Iron as experienced by early medieval smiths was an essentially variable material, and their methods of refining this material directed rather than eliminated this variability toward productive outcomes. As smiths refined new-smelted billets (or re-forged recycled metal), they encouraged their material to assume the shape, color, and physical traits useful for finished objects; and they watched to see whether the billet resisted or acquiesced to this intention. Thereby, smiths revealed properties within the material that could be exploited for best effect. This experience of iron as a material that revealed itself beneath the hammer is crucial for understanding how smiths' work in the forge related to the work of the stick cutter (if these persons were not in fact one and the same); both crafts brought human artisans into contact with materials whose finished properties emerged as they were shaped into their finished forms.

Through the processes of refining and reshaping slag-filled bloomery iron, a skilled early medieval smith could begin to understand a particular piece of metal's potential uses as a material. Through careful observation of the color and feel of iron beneath the hammer, a smith

[48] H. Hodges, *Artifacts. An Introduction to Early Materials and Technology* (London: Duckworth, 1989), 81-82.

[49] For the continuing heterogeneity of bloomery iron, cf. B. Gilmour and C. Salter, "Ironwork: technological examination of the knives, spearheads, and sword/weaving batten," in *The Anglo-Saxon Cemetery at Edix Hill (Barrington A), Cambridgeshire*, edited by T. Malim, J. Hines and C. Duhig, 250–56, CBA Research Report 112 (York: Council for British Archaeology, 1998), 250–51; P. Crew, "Twenty five years of bloomery experiments: perspectives and prospects," in *Accidental and Experimental Archaemetallurgy*, edited by D. Dungworth and R. Doonan, 25–50, HMS Occasional Publication 7 (London: Historical Metallurgy Society, 2013), 34, 46–47.

could choose which pieces of the bloom might, when combined, produce objects with desirable properties. As the smith hammered and consolidated these sections, the felt response of the material, the shapes into which it was formed, changes in its hardness, and the shifting appearance of the metal's surface as it heated and cooled through a rainbow of meaningful colors, all gave ongoing feedback about the properties that the material was assuming as it was refined. This transforming dialogue, through which the smith (re)shaped iron's form, and through which the iron in turn shaped the smith's understanding of its hidden but emergent inner qualities, continued during every step of the forging process until the object was complete. Smiths experienced the properties of iron alloys as unfolding sequences of transformations in time, measured by tools that (unlike our objectifying laboratory instruments) subjectively transformed the material's shape and properties even as these properties were revealed.[50] Iron's properties were only fully realized, and fully intelligible, when this process ended and the object's hardness, strength, color, and shape were finally resolved.

This process often failed, and the failure was not always clear even when the forging had been completed. Chapter 2 discussed how smiths usually welded multiple alloys together to take advantage of their different properties, such as welding harder steel or phosphoric iron edges onto soft iron cores, as was done for example on two spearheads from Wasperton and several from West Heslerton.[51] The smiths who made 12 of the 73 spearheads examined for this study, however, appear to have misidentified the alloys they used in these compound constructions. In

[50] Cf. Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (Minneapolis: University of Minnesota Press, 1987), 450–54; L. Malafouris, "At the potter's wheel: an argument for material agency," in *Material Agency: Towards a Non-Anthropocentric Approach*, edited by C. Knappett and L. Malafouris, 19–36 (New York: Springer, 2008); Ingold, *Making*, 24–26.

[51] Wasperton 3139/1, 3217, and e.g. West Heslerton 872477.

each of these cases, materials were welded together and subjected to hardening treatments in a manner which suggests that their makers expected to be working with one kind of alloy, but in fact were working with another (for a full list, see Table 4-1).[52] An Ipswich smith, for example, forged a spearhead from three layers of metal as was so common, but substituted a layer of soft, plain iron for the usual hard steel or phosphoric iron core.[53] The blade would have dulled quickly, frustrating its owner. A Wasperton smith forged a spearhead which he attempted to both heat-treat and work-harden, but the blade's iron contained too little carbon or phosphorus for either treatment to improve its hardness.[54] Another spear from the same site was made from two halves of fresh, low-slag iron, but only one of the halves contained enough carbon to be hardened; the resulting weapon would have had only one hard cutting edge.[55]

Similar mistakes can be found across the study sample, and speak to the difficulty smiths experienced as they attempted to identify and create the correct combinations of iron alloy and technological process needed to achieve a satisfactory result. Early medieval iron was a heterogeneous and unpredictable material, and although smiths frequently produced masterful results, they also frequently failed. Some mistakes were easy to identify; a blade might fail to satisfactorily harden,[56] or internal stresses could cause the metal to warp or crack when it was quenched. However, some problems might only be revealed slowly, even long after a weapon had left the workshop. A faulty weld, residual stress from ineffective tempering, or large

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52 For a more complete discussion of these errors, see Welton, "Encounters with Iron."

53 Boss Hall 19/F, 33/F.

54 Wasperton 3200/1.

55 Wasperton 3228/1.

56 E.g. Wasperton 2300/1.

particles of slag hidden beneath the metal's surface (which would eventually cause a blade to fracture) might reveal themselves only when they caused a blade to break while it was being used.[57] A smith's true success or failure might, in this way, only slowly emerge well after the forging was complete, as blades weathered (or succumbed to) the tasks to which they were subjected. The uncertainty that resulted from this breaking in period shaped the social trajectories that knives and weapons followed once they began to circulate outside the workshop.

When weapons left the forge and began to circulate, their makers and users had limited options to assess the quality of their blades and predict whether they might unexpectedly fail. A blade's appearance offered some guide;[58] decorative techniques like pattern welding only produced visible results when the blade's alloys had been successfully chosen and refined, and thereby testified to successful craftsmanship.[59] Part of the purpose of pattern welding, indeed, may have been to offer visible evidence that hoped-for but unseen qualities of strength and surety lay within the artful exterior.[60] Spearheads were rarely pattern welded, however, and their guarantee must have rested on faith in the maker's reputation gained through using and testing their wares. Hands-on experience was the best guarantee of quality: to use a blade over an extended period of time and deduce its character from its response.

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[57] E.g. Flixton 23/1, see Janet Lang, "The metallurgy of the spearheads," in S. Boulter and P. Walton Rogers, *Circles and Cemeteries: Excavations at Flixton*, 131–32, East Anglian Archaeol. Rep. 147 (Bury St Edmunds: Suffolk County Council Archaeological Service), 131.

[58] Cf. Hoyland and Gilmour.

[59] Brian Gilmour. "Swords, seaxes, and Saxons: pattern-welding and edged weapon technology from Late Roman Britain to Anglo-Saxon England," in *Collectanea Antiqua: Essays in Memory of Sonia Chadwick Hawkes,* edited by M. Henig and T. J. Smith, 91-109, Brit. Archaeol. Rep. Int. Ser. 1673 (Oxford: Archaeopress, 2007).

[60] Pattern welding has often been described as a functional process which improved blades' strength or ductility; recent laboratory tests question this wisdom, e.g. A. Thiele, J. Hošek, P. Kucypera, and L. Dévényi, "The Role of Pattern-Welding in Historical Swords-Mechanical Testing of Materials Used in Their Manufacture: The Role of Pattern-Welding in Historical Swords," *Archaeometry* 57, no. 4 (August 2015): 720–39.

The stakes for this testing were high, but the opportunities were limited. An everyday iron knife could be tested in low-pressure farmyard chores,[61] but the agrarian society of early medieval England provided far fewer opportunities to field test a spearhead. Spears could be used to hunt as well as in war, but few in the early Anglo-Saxon period appear to have used their weapons in this manner (see Chapter 5 for more discussion of spears and hunting).[62] The need to test was real, however: poor quality that was inconvenient in a knife could be fatal in a spear. Poetic accounts of heroes like Beowulf, whose weapons repeatedly failed at inconvenient moments, communicate deep anxiety about these weapons' performance.[63]

These unresolved material concerns provide a new context for understanding the value placed on old and proven blades in later literary sources.[64] Weapons could gain worth through their life biographies (see Chapter 5), and much has been written about old weapons' social importance as gifts, heirlooms, and links to the past.[65] Their proven iron was, however, valuable in itself. Blades' tested metal is praised in *Beowulf*, whose probably eighth-century author draws attention to the "blood-hardened" iron of Unferth's ancient sword Hrunting: "edge was iron … hardened by battle-blood" ("ecg wæs īren … āhyrded heaþoswāte").[66] Later, the poet again

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[61] And knives were better quality than sword blades, perhaps because of this testing. Cf. Welton, "Encounters with Iron."

[62] Naomi Sykes, "Deer, Land, Knives and Halls: Social Change in Early Medieval England," *The Antiquaries Journal* 90 (September 2010): 175–93.

[63] E.g. *Beowulf* lines 2677-87, in Robert Fulk, Robert Bjork, and John Niles, *Klaeber's Beowulf and The Fight at Finnsburg*, fourth edition (Toronto: University of Toronto Press, 2008), 91-92.

[64] Brunning, 189, 235-38.

[65] E.g. Heinrich Härke, "The circulation of weapons in Anglo-Saxon society," in *Rituals of Power from Late Antiquity to the Early Middle Ages*, edited by F. Theuws and J. L. Nelson, 377–99 (Leiden: Brill, 2000).

[66] *Beowulf*, lines 1459-60, in Fulk, Bjork, and Niles, 50. On the eighth-century authorship, see L. Neidorf, ed., *The Dating of Beowulf: A Reassessment* (Woodbridge: D.S. Brewer, 2014); but cf. C. Abram, "Review of Leonard Neidorf, (ed.) The dating of *Beowulf*: A reassessment," *Saga-Book* 39 (2015): 133–37.

distinguishes between the edges of ordinary blades and a purportedly superior “weapon hardened by wounds” (“wǣpen wundum heard”),[67] and finally describes Beowulf’s knife (which is, appropriately enough, the only blade that never failed him) as being “hard battle-notched” (“hearde heaðoscearde”).[68] Exeter Riddle 73, an early text probably contemporary with *Beowulf* and discussed above, describes the weapon being “pleasantly fed” (“fægre feormað”) when it is skillfully carried into battle (“on fyrd wigeð, cræfte on hæfte”),[69] and this experience shapes it into something so terrifying that warriors run away from it (this is the same spear which began its life as an innocent tree before being bent to a murderer’s purpose).[70] These texts, though several generations separated from the primarily sixth-century archaeological material here discussed, express a shared experience of the role of battle in demonstrating and even enhancing the hardness, sharpness, and potency of iron blades. Given the uncertainties of early medieval iron, such “blood hardening” or battle testing could have been the final step in a blade’s making. This might be regarded as the last of the sequence of refining stresses that began in the smelting furnace through which the material's traits were shaped, revealed, and fixed in place.

Just as the slow emergence of iron’s properties in the workshop caused smiths to understand the material as transformative in essence rather than chemically static, the slow emergence of weapons’ properties through use caused their owners to understand their nature as independent, wild, yet capable of being tamed or trained. In the decisive moments of battlefield

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[67] *Beowulf*, line 2687, in Fulk, Bjork, and Niles, 92.

[68] *Beowulf*, line 2829, in Fulk, Bjork, and Niles, 96; though Klaeber’s edition amends the manuscript to ‘heaðoscearpe’ = ‘battle-sharpened,’ cf. page 257.

[69] C. Williamson, ed., *The Old English Riddles of the Exeter Book* (Chapel Hill: University of North Carolina Press, 1977), 109 (lines 21-22).

[70] Williamson, 109 (lines 27–29). On the date, see R. D. Fulk, *A History of Old English Meter* (Philadelphia: University of Pennsylvania Press, 1992), 406-10.

stress, a weapon's success or failure depended entirely on factors outside the control of smith or warrior. The weapon itself made the final decision to break or endure, and these moments (if metallographic analyses or literary accounts are to be any guide) could arrive at disastrous, even seemingly malicious moments. This independent agency, captured in literary accounts of cursed weapons,[71] was not only the "abducted agency" described by Alfred Gell.[72] It was an inherent property of bloomery iron, rooted spears' "thingness," emerging from the moment when their material properties rebelled against the use to which they were put, forcing their users to acknowledge their independence from human subjectivity. Spears gained material agency from the aspects of their metallurgy that human intentions could not fully control. This agency was then experienced in the unpredictable, mind-of-its-own performance of new weapons wielded by warriors who sought to force these tools to their own ends.

As battle-tested, agentive weapons revealed their character through use, their physical shapes changed. Weapons that were used accumulated damage, and these physical marks of age and wear testified visibly to their histories of success. Paul Hill has suggested that nearly one-sixth of the well-preserved early medieval spearheads recovered from the River Thames show evidence of damage from use,[73] and a ninth-century Irish text describes warriors' need to re-sharpen damaged and dulled spear blades after a fight.[74] These are the "battle notches" to which the *Beowulf* poet referred, above.[75] Many of the spearheads I have examined myself appear to

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[71] E.g. H. R. E. Davidson, *The Sword in Anglo-Saxon England: Its Archaeology and Literature* (Woodbridge: Boydell and Brewer, 1998), 214.

[72] A. Gell, *Art and Agency: An Anthropological Theory* (Oxford: Clarendon Press, 1998), 14.

[73] P. Hill, "The nature and function of spearheads in England *c*. 700-1100 A.D.," *The Journal of the Arms and Armour Society* 16 no. 5 (2000): 257-80, 264.

[74] E. A. Gray, *Cath Maige Tuired: The Second Battle of Mag Tuired* (Naas: Irish Texts Society, 1982), 55.

[75] *Beowulf*, line 2829, in Fulk, Bjork, and Niles, 96.

have been re-sharpened so frequently that they, like knives, developed concave, S-curved profiles that are occasionally still visible beneath layers of post-depositional corrosion. This worn shape was familiar to an early Anglo-Saxon audience, who encountered it frequently on heavily used knife blades. It would have developed more slowly on a spearhead as the weapon was maintained and repaired, and its appearance would have signaled the blade's antiquity and biography of success: a physical expression of the weapon's tested character.

Concave edges whose profile resembles this natural wear became an overwhelmingly popular feature of spearheads forged during the late fifth and early sixth centuries. As discussed in the previous chapter, spearheads' shapes varied across England both chronologically and regionally. Despite this regional diversity in styles, a majority of all new spearheads forged in all parts of England before the mid-sixth century shared a common feature: they were given edges whose concave curves evoked the effects of age and wear that naturally formed on many knives (and some spearheads). These "worn" profiles appeared on 71% of spearheads nationally across many different spearhead types (including Swanton's types E, F, H, I1, J, K1, and L). This fashion for age, while not the only factor influencing spearheads' appearance, defined several generations' experience of these weapons. Affectations of age and wear may have suggested an imagined history of prestige and tested reliability for new weapons which had not actually had time to become genuine heirlooms or to prove their metal.

These artificially aged profiles may represent more than simple affectation, however. Here is where we return to the question posed at the beginning of the chapter: what were spears to their early medieval makers? Their shafts were captured trees, and their iron often came from haunted ruins. Smiths' actions in the forge reveal a further dimension to these weapons' importance. In the forge, smiths revealed and refined iron's internal properties by transforming its external shape and color. This experience taught smiths to associate subtle changes in iron's outward appearance with desirable qualities and potentials within the material, and to draw these qualities forth by carefully refining the metal's outer shape with fire, water, and precise blows of the hammer. However, smiths' control of these physical transformations only lasted until the blades left their workshops to be used. This was a fundamental problem of early medieval weapon production: a blade could only be truly finished once it had proven itself and accumulated signs of wear. Iron had to ripen or cure, and be baptized in blood as well as in the smith's quenching water. Ensuring a perfect weapon meant controlling this final period of experiential transformation.

Smiths responded by hammering the appearance of age into new weapons. They gave spears the outward signs that accompanied the successful transformation of inner quality in real older spearheads. This may represent an attempt to extend the workshop's influence into the final phase of the spearhead's life. Appearance and substance were intimately linked, and this process may have attempted to literally accelerate the metal's natural ageing, and thereby to bypass the initial uncertainties of a new spear's use in order to guarantee the growth of the spearhead into a time-tested heirloom. Smiths hammered shapes into new-forged spears that they hoped would impart physical properties to these weapons that would help them survive the battlefield after they left the forge.

The discussion above argues that spears gained social agency from the vibrant properties of their materials, as these were experienced by their makers and users.[76] Spears' shafts were once alive and had to be seasoned and straightened into compliant materials. In contrast, iron's life-like properties emerged as the material was worked in the forge, growing as the weapon took

[76] Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham, NC: Duke University Press, 2010), 52–61.

shape and revealed only after the weapon proved itself or failed according to its own disposition. Seen in this light, forging was negotiation, taming, and teaching: a sequence of actions calculated to capture and redirect the properties of an increasingly vital iron toward a hoped-for outcome.[77] Iron's "thingness" spoke the final, proving word in these negotiations. Later poets would describe the weapons smiths made as living, opinionated creatures with voices, movement, and magic,[78] and weapons that survived battle won fame and honor equal to that of the warriors who wielded them. These beliefs about weapons, elaborated in stories and songs, emerged from material experience of real objects. Weapon blades, as experienced by their early medieval owners, had properties of living things. Add this to the life already bound within the spear's shaft, and a picture of the spear as vibrant social agent, whose liveliness was rooted in its materials, begins to emerge.

Recycling Ruins into Spearheads[79]

This discussion above shows how early medieval experiences of technology could elide distinctions between materials' physical properties and social biographies. Some smiths took this one step farther by seeking out and prominently displaying old, recycled iron within the blades of new-forged weapons. A significant number of smiths in the early sixth century forged spearheads from recycled iron. Metallographic analysis identifies as many as one in four spearheads as having been made from recycled material. Robin Fleming has argued that this use of recycled

[77] Cf. G. Deleuze and F. Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. B. Massumi (London: Continuum, 2004), 454.

[78] E.g. Lund, "At the Water's Edge", 50; Brunning, 191–98.

[79] A version of this section will be published as 'Spearheads of whose settlements? Recycled iron and new identities in post-Roman Britain,' in *Interrogating the 'Germanic': A category and its use in Late Antiquity and the Early Middle Ages*, edited by J. Harland, M. Friedrich, and N. Gunn (forthcoming).

metal was a necessity forced by the near total collapse of late Roman Britain's iron producing industry, while Sue Harrington and Martin Welch describe the early sixth century as period of excess during which easy access to abandoned Roman scrap metal made iron cheap and plentiful.[80] Smiths certainly used recycled iron because of its wide availability (compared to new-smelted metal), and sometimes must have used it for lack of a better choice; but the manner in which smiths recycled iron in the blades of spearheads suggests other factors at play beyond strict economics. Smiths used recycled iron for properties it, and it alone, possessed as heirloom material.

Recycled iron, like living timber and the falsely-aged blades of concave spearheads, brought added facets of social agency to new-forged weapons. Recycled iron, like the timber of a famous tree, had a history. This history offered a crucial technological, social, and interpretive resource. The most abundant source of easily available iron came from abandoned Roman villas. The iron from these villas was pre-processed, offering a material which could be reforged using minimal fuel and effort. Alongside this ease of access, however, the metal came pre-loaded with deep entanglements with the ruins of Roman power, and with the memories and ghosts of Rome's departed warriors. This entanglement enabled recycled metal to transform new spearheads into narrative subjects which told stories about old metal and the monumental edifices of ruined empires. These stories added to the life already bound up in the shaft and spearheads, enriching the vibrancy of spears' material bodies with new layers of material biography.

[80] R. Fleming, "Recycling in Britain after the Fall of Rome's Metal Economy," *Past and Present* 217 (2012): 3–45; S. Harrington and M. Welch, *The Early Anglo-Saxon Kingdoms of Southern Britain AD 450–650: Beneath the Tribal Hidage* (Oxford: Oxbow, 2014).

Though recycled iron was doubtless common in the early Anglo-Saxon period, it is difficult to detect in the majority of surviving iron objects. Unlike copper, gold, or glass, recycled iron cannot be identified from trace elements or chemical composition. Metallographic analysis, however, often reveals structures within the metal that indicate use of recycled scrap. In the clearest cases, visible weld lines separate scraps of heterogeneous metal which were crudely consolidated together into a rough billet of recycled iron. Sword blades contain no identifiable trace of this kind of recycled scrap iron, and the 120 knives analyzed with metallography reveal only eight cases in which scrap iron was certainly used.[81] Several dozen other knives were forged from heterogeneous metal which could have been recycled, but their poor quality iron may simply reflect a crude product of the bloomery smelting process rather than the use of recycled scrap.[82]

Spearheads stand in stark contrast to these other surviving artifact types. One quarter of the spearheads analyzed show strong evidence of recycling (Table 4-2).[83] This recycling is, further, of a particularly crude form: these blades were hammered together from, in some cases, dozens of small iron shards. The weld lines between these fragments are visible in cross-section

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[81] Cannington 107 and 136, Collingbourne Ducis 44 and 263, Empingham II 90/5 and 50/11, Wasperton 1217/8, and West Stow 973.

[82] G. McDonnell, E. Blakelock, and S. Rubinson, 'The Iron Economy of Wharram Percy - Modelling the Anglo-Saxon Iron Working Landscape,' in S. Wrathmell, *Wharram Percy Archive*, Archaeology Data Service (2012), available at http://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-1031-1/dissemination/pdf/wp_vol_xiii_ch_10_iron_economy.pdf (accessed 1 April 2017), 14.

[83] Brian Glmour comments on several of these cases, in Gilmour and Salter, 255; Gilmour, 'Metallurgical analyses on Early Anglo-Saxon grave goods from Saltwood Tunnel.' V. Fell and D. Starley also noted evidence of recycling, in 'A technological study of ferrous blades from the Anglo-Saxon cemeteries at Boss Hall and St Stephen's Lane Buttermarket, Ipswich, Suffolk,' *Ancient Monuments Laboratory Report* 99 no. 18 (1999), available at: http://services.english-heritage.org.uk/ResearchReportsPdfs/018-1999.pdf (accessed 3 April 2017), 11. Starley comments on recycled metal in the Wasperton spearheads as well, in 'The Metallurgical Examination of Ferrous Grave Goods from Wasperton: Anglo-Saxon Cemetery MN80-85,' Royal Armouries Technological Report, 2006, part 1, available at: http://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-810-1/dissemination/pdf/Archive_Starley_ iron_work_07.pdf (accessed 1 April 2017), 30.

to metallography, and would in most cases have been obvious on the surfaces of the spearheads before they corroded. These fragments come from a variety of origins. In one case, a small piece of a broken pattern-welded sword blade can be identified.[84] In most, however, the fragments are of a poor grade of iron: ferrite enriched by varying levels of phosphorus and sub-steel quantities of carbon. These are the alloys of wall clamps, nails, and the other structural materials which secured the walls of Roman Britain's villas.

The manner in which smiths forged this scrap into spearheads' blades was very visible on their finished products. In metallography, the weld lines appear as sharp, clear boundaries that separate the different colored alloys of low-carbon, phosphoric, and dirty-plain iron.[85] These boundaries would have been visible on the polished surface of the weapon's blade before it was buried and corroded. Any who looked at these spears could have identified them as assemblies of collected scrap. Smiths could have concealed these weld lines had they wished, either by piling the metal (folding it and welding it to itself several times, mixing the fragments into a more homogeneous material) or else re-smelting it in a small forge. The latter is a simple processes that requires little fuel or expert knowledge, and it can transform heterogeneous scrap iron into consistent, high-quality material.[86] Smiths chose to leave the weld lines visible, however, and the resulting mottled effect from the heterogeneous fragments was almost completely unique on early medieval metalwork. It would have been as visually striking in its chaotic patchwork as the regular lines and twists on a pattern-welded blade.

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[84] Edix Hill 1000/100; Gilmour and Salter, 252.

[85] For a micrograph that illustrates one such cross-section with particular clarity, see Starley, "The Metallurgical Examination," 5.

[86] Črtomir Lorenčič pers. comm. Lorenčič has conducted archaeological experiments recreating this process as part of his ongoing PhD at University College, Dublin.

Smiths almost certainly scavenged this recycled metal from abandoned Roman sites, whose masonry walls were held together by thousands of iron clamps and brackets. Late Roman sites show evidence of extensive early medieval scavenging of this architectural iron. Fleming has discussed the conspicuous absence of iron nails from Little Oakley, Essex. In Bath, the iron clamps which held together the masonry of temple and bathing complex were gleaned at some point before the structure collapsed in the mid fifth century.[87] Harrington and Welch note possible evidence for ironworking in post-Roman Silchester, likely a byproduct of iron scavenging and reforging at that site in the early Anglo-Saxon period.[88] The Roman ruins which blanketed the early Anglo-Saxon landscape were thus a ready source of ferrous material.[89]

Few inhabitants of early Anglo-Saxon settlements would have had to travel far to find a ruined Roman structure to despoil. The late Roman landscape was blanketed in villas, small towns, and cities, most of which significantly contracted or were entirely abandoned between the fourth and mid-fifth century.[90] By the early sixth century, some of these sites had been abandoned for one hundred and fifty years.[91] This abandonment does not mean that these sites were forgotten, however. John Barrett reminds us that people in the past, like us, confronted and interpreted their own archaeology, and surviving texts from the sixth-century and shortly after

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87 Fleming, "Recycling," 15-17. It is not clear whether this scavenging caused the building to collapse.

88 Harrington and Welch, 120.

89 See also T. Birch, 'Living on the Edge: Making and Moving Iron from the "outside" in Anglo-Saxon England.' *Landscape History* 32 no. 1 (January 2011); G. McDonnell, 'Iron and Its Alloys in the Fifth to Eleventh Centuries AD in England,' *World Archaeology* 20 no. 3 (1989): 381.

90 For a recent survey of Roman British sites, see A. Smith, M. Allen, T. Brindle, and M. Fulford, *New visions of the countryside of Roman Britain, vol. 1: The rural settlement of Roman Britain*, Britannia Monographs 29 (London: Society for the Promotion of Roman Studies, 2016).

91 For recent surveys of the archaeology of late-Roman urban change and abandonment, see G. Speed, *Towns in the Dark? Urban Transformations from Late Roman to Anglo-Saxon England* (Archaeopress, Oxford, 2014); A. Rogers, *Late Roman Towns in Britain: Rethinking Change and Decline* (Cambridge: Cambridge University Press, 2011).

show that ruins could spark imaginative invective and melancholic recollection.[92] Gildas, the sixth-century monk who illustrated his condemnation of contemporary vice through reference to Britain's Roman past, used the ruined landscape to prove the reality of the retribution--both human and divine--which followed on the heels of rebellion against God and Rome. The abandoned stones, Gildas said, were full of the crushed corpses of the unrighteous dead.[93]

The author of a possibly eighth-century poem, *The Ruin*, was also inspired by fallen walls. The poet also imagined the Roman dead, in this case describing a band of Roman warriors feasting in the now ruined hall. This historical fiction follows immediately after the poet's description of the "iron bindings" (*weallwalan*) that had held the walls "wondrously together" (*wundrum togædre*), and suggests that the dissolution of the warband that had once feasted within paralleled the clamps' failure to preserve the building from ruin. These are, of course, the same iron bindings which were in the poet's own day eagerly exploited as a material resource.[94] Ruins, and even mundane iron clamps, had narrative potentiality as well as physical utility: they were *lieux de mémoire* which could conjure histories, memories, and ghosts of the dead.[95]

These ruins, which lay on the margins outside and between early medieval communities and inspired memories of the past, were also potent sources of social power. Many had, a century before, formed the foci of the rural estates which collected taxes and rents from the rural

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[92] J. Barrett, 'The mythical landscapes of the British Iron Age,' in *Archaeologies of Landscape: Contemporary Perspectives*, ed. by W. Ashmore and A.B. Knapp (Oxford: Blackwell, 1999), 253-65.

[93] M. Winterbottom, *Gildas: The Ruin of Britain and Other Documents* (Phillimore, 1978), 27.

[94] *The Ruin*, line 13(21), in *Anglo-Saxon and Norse Poems*, ed. and trans. by N. Kershaw (Cambridge: Cambridge University Press, 1922), 54. Cf. a similar interpretation of this line in C. Grocock, 'Enta Geweorc: The Ruin and its Contexts Reconsidered,' in *The Material Culture of the Built Environment in the Anglo-Saxon World*, ed. by M. Clegg Hyer and G.R. Owen-Crocker, 13-36 (Liverpool: Liverpool University Press, 2016), 17.

[95] Pierre Nora, *Realms of Memory: Rethinking the French Past*, trans. Arthur Goldhammer, 3 vols. (New York: Columbia University Press, 1996-98).

population.[96] That economy was, in most of the lowlands, long broken by the sixth century,[97] yet the still-standing buildings' mosaicked floors, frescoed walls, fine statuary, and monumental atria all acted as reminders of the order to which the population--now the mixed descendants of Roman farmers and newcomer Continental migrants--had once been subject. Villas and civic structures had, during the late empire, been centers of production as well as extraction; many preserve evidence of metalworking, whose rigid control helped prop up the power of the local *dominus*.[98] These powers had, by the sixth century, devolved to the local community. The persons who entered into these ruined structures therefore crossed a threshold which demarcated a different world whose iconography, monumentalism, and order embodied fragments of the temporality and authority of the Roman past.[99]

To these sixth-century interlopers, Roman authority became a resource to exploit, rather than a burden to shoulder or resist. Smiths no longer worked in these structures; or if they did, as at Silchester, they did so as extractors rather than subjects. The basilica was no longer a place to acknowledge the authority of a *dominus*; instead, it was a place to strip away the wealth of that departed lord and to transform it into new objects of social power. Smiths who scavenged in the ruins did not merely extract metals: they appropriated them, reclaiming material signs in the materials themselves out of their old masters' symbolic repertoire and reforging them into new tools of social power. Authority that had been fixed to the old Roman landscape was cut loose,

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[96] Gerrard, *The Ruin of Roman Britain*, 100-03.

[97] E.g. Fleming, *Britain After Rome*, 30-60.

[98] Rogers, 130-38.

[99] For discussion of how spaces bridge temporalities, see Barrett, "Mythical Landscapes."

made mobile: physical signs were torn free from the stones that held them in place and began, in the hands of smiths and warriors, to circulate.

In place of the scavenged iron, early medieval communities left behind their dead. By the end of the sixth century, hundreds of villas had been transformed into graveyards filled with the bodies of new local communities.[100] Places haunted by the ghosts of crumbled empire became doubly haunted by spirits more familiar. These burials rehearsed and renewed the association between ruins and the dead, repeatedly reminding the living that ruins belonged to the dead and were places unfit for the extended ingress of living souls.[101]

Smiths sought iron from these haunted places to forge into "heirloom" spearheads to complete the living shafts they cut from the wilderness. These smiths forged spearheads sometimes from dozens of iron fragments scavenged from perhaps as many ruined sites. These shards may have been gathered from a single site, or from a wide region. One, it has already been noted, contained a scrap of a broken sword blade alongside a dozen other unidentified fragments, which suggests that iron could follow complex itineraries across multiple objects as well as architectural structures. The selection and combination of these diverse materials may reflect careful curation of ruined sites by smiths or the warriors who commissioned these blades. Men who assembled together within a territory may have carried iron from near their homes to local assemblies, where they divided the metal and shared it among themselves to forge new weapons which embodied the wider territory these men represented. These spearheads were

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[100] H. Williams, 'Monuments and the Past in Early Anglo-Saxon England,' *World Archaeology* 30 no. 1 (1998): 90–108.

[101] Christianity brought a further layer of engagement—and spoliation—to the use of ruined sites; cf. Bonnie Effros, "Monuments and Memory: The Repossession of Ancient Remains in Early Medieval Gaul," in *Topographies of Power in the Early Medieval West*, edited by Mayke de Jong and Frans Theuws, *Transformation of the Roman World* 6 (Leiden: E.J. Brill, 2001), 93-118.

collections, and the materials displayed in their mottled blades could perhaps be interpreted by their makers or owners as pieces whose presence evoked claims to ruinous resources, told stories of historic places or objects now transformed, or gathered power from the famous, familiar, or forgotten dead.

The smith who welded these fragments together forged their unique histories, properties, and vibrancy into a new whole. Just as experience, to the early Anglo-Saxon smith, made iron "harder," antiquity and association with famous or powerful figures of the past could confer other social, historical, or magical properties to the material. A miracle attributed to St. Columba, in Adomnán's late seventh-century *Vita*, describes the power that a single shard of storied metal could confer upon a blade. In Adomnán's account, Columba blesses a knife with holy ink, after which it becomes unable to shed the blood of any living creature. The Ionan monks exploit this miracle by fragmenting the knife and welding its shards onto the other iron blades of the monastery. This action transfers and distributes the knife's magic across all these objects, and none is able to shed blood again.[102] The miracle was not the monks' ability to transfer power from one piece of iron to another. This was a mundane process; indeed, the majority of iron objects we have analyzed with metallography were, as discussed in Chapter 2, forged from carefully selected combinations of iron meant to transfer each material's properties to the finished blade.[103] The miracle, rather, lay in the divine properties that the particular piece of iron that saint had blessed assumed from its association with the holy man. Harnessing that miraculous power, once it was known, was simple technology. In like manner, lowland British smiths of a century before systematically stripped and harnessed the old, haunted iron of the

[102] Adómnan, Vita Sancti Columbae, XXX, in *Adomnan's Life of Columba*, ed. by A.O. Anderson and M.O. Anderson, Oxford Medieval Texts (Oxford: Oxford University Press, 1991).

[103] Cf. Tylecote and Gilmour.

ruined Roman landscape, recombining it into new assemblies which translated this power into new forms across new objects.

Smiths may have hoped that this old metal might prove more trustworthy than new, untested iron. If a magical blade blessed by Columba could transfer power across new tools, perhaps fragments of Roman *imperium* could produce stronger spearheads imbued with the *imperium* of ancient warriors, or the magic of the haunting dead? Metallography shows that recycled spearheads were certainly less variable in quality than their new-smelted cousins, though that consistency came at the expense of hardness. Recycled spearheads were uniformly soft, unhardened, but tough.[104] The sharpness of their edges was unlikely to impress anyone, but their blades were reasonably proof against shattering. If recycled material did not revive the full might of departed *imperium*, it nevertheless offered a material of known, predictable quality that was unlikely to snap under duress.

As a broader social practice, recycled metal created new relationships between the sixth-century present and the departed world whose ruins surrounded it. New spears from old ruins created material bridges between past and present, reassembled the relationships of each to the other, and in the process changed the material realities of both. Scavenging smiths knocked down the past to pull out the pins that held it together, and they reforged these materials into tools designed to violently transform future landscapes of power. Forging a spearhead was, therefore, a way in which artisans could reconfigure both their past and future. Recycled spear blades gathered and rewove connections between and across the physical, social, and mnemonic resources of the settled landscape's hinterland. These resources were uprooted from their former, marginal places and relocated into the blades of mobile objects that defined the centers of new

[104] See Table 2-1 for hardness data.

communities: spears carried historic, haunted metal to the hearth and to the community assembly place. Spearheads thereby made history both portable and contemporary, transforming the abstract memory of the dead into a tool which could kill, protect, and identify its user as a member of a new social group. To Gildas, the memory of the Roman past could be deployed as a verbal rebuke; to his contemporary warriors, it could be torn from the ground, held in the hand, and brandished against one's enemies. Smiths captured the power of the past within spearheads' metal, joined it to these weapons' straightened, captured shafts, and put it to work.

Joining Shaft and Spearhead

Once iron was scavenged, the spearhead forged, and the shaft cut, cured, and bent straight, the makers' final task was to join spearhead and shaft together. The juncture between a spearhead's socket and shaft comprises the weakest point on a spear. Wood and iron are not easily joined. Wood expands and contracts as its moisture changes, but iron does not. If wood's expansion is constrained, its physical structure can be damaged by the compression. This will cause the shaft to loosen over time.[105] The split sockets found on most spears from the early Anglo-Saxon period allow a small degree of flexibility between the wood and iron, and this might mitigate the effects of expansion and contraction. The join between materials remained, however, vulnerable to failure; the ninth-century Irish *Cath Maige Tuired* attributes one army's victory largely to the fact that they, unlike their opponents, were able to repair the juncture between shaft and socket on their spears during the nighttime interlude in a two-day battle.[106]

[105] Hoadley, 82.

[106] Gray, 55.

The act of joining wood to iron transformed both materials into something more than their individual selves. Like the straightening of the shaft and forging of the spearhead, this process was probably accomplished using fire. The easiest way to join a socket to a shaft is to burn them together.[107] To do this, the shaft's tip is first sharpened to fit roughly into the socket. Once the shaft and socket fit together roughly, the spearhead's socket is heated in a forge or small hearth fire. When the socket reaches a temperature hot enough to burn wood (a dull grey heat is sufficient), it is removed from the fire and the shaft is thrust into the hot socket. The socket burns the surface of the shaft down to a smooth negative of the socket's interior shape, ensuring a clean fit between iron and wood. Once the shaft is burned to shape, the spearhead is removed, the outer layer of char can be abraded off the shaft's tip, and the spearhead's socket might be hammered tighter for a snug fit. The shaft is then hammered into the socket's mouth to fit tightly in place. At least one spear socket, from Wasperton, was hammered more tightly closed after it was fit onto the shaft; wood bulged outward from the socket's split from the force of the hammer strikes.[108] Burning a spearhead onto a shaft is not a particularly specialized job, but it is most easily done using a forge fire and, especially, a pair of blacksmith's tongs to hold the hot spearhead—that is, it is easiest with the help of a smith.

Once socket and shaft were fit tightly together, the two were often bound together with further reinforcement to ensure they could not escape the union. Many spearheads were riveted in place, with either a pair of nails or a single iron pin driven through both sides of the socket and

[107] In at least one case this method was not used. A spearhead dredged from the River Thames, now in the Reading Museum's collection (accession number 1947.280.1), contained an unusually well-preserved section of shaft that bore cut marks from a knife blade that was used to whittle it to shape before it was wedged into the spearhead's split socket.

[108] Wasperton Grave 142; now at the Market Hall (Warwickshire) Museum, find 3390/1.

the shaft and peened at either end to fix it in place. Some spears were further reinforced with an iron or copper ring that prevented the socket from expanding wider and rattling free of the shaft.

Fixed so in their places, the living iron and domesticated tree created together a microcosm of the relationship between the communities that made them and the wider landscape in which they lay. The iron, full of a capacity for violence but not yet worthy of complete trust, about to enter the hand of a young man or woman who, themself, was equally untested and untrained;[109] the weight of history in old iron taken from the Roman, old trees taken from the wood; the wild timber, stolen from the life it would never have and forced, instead, to take the lives of others. All these materials were bound together inside a thing whose physical form embodied these tensions: straining in its timber, in its iron, and in its joints to escape its rigid bonds.[110]

Conclusion: Spears as Vibrant Materials

Spears have long been studied as products of human social systems, but rarely have they been studied as products of their own materials. Whether spears were the ethnic markers of "Germanic" tribes, symbols of social castes, ranks, or divisions, or tools to construct the identities of the deceased will be interrogated in later chapters. Beneath these ascribed symbolic meanings, however, spears were first material things, and their material reality structured social experiences of craftsmanship, use, and storytelling. In this way, spears' vibrant materials—their iron, their wood, and the technological processes through which these were united—imbued these weapons with an agentive vitality that instigated social experiences between spears and

[109] On gender and spears, see discussions in Chapters 6 & 7.

[110] Cf. Ingold's concept of the 'meshwork,' a skilled weaving together of material flows. Tim Ingold, "When ANT meets SPIDER: Social theory for arthropods," in *Material Agency*, edited by C. Knappett and L. Malafouris (Springer, 2008), 209-215.

their users—a material agency that shaped the subsequent courses of spears and spearmen's lives.

Scholarship has begun to recognize the agentive properties of spears. Several recent works have drawn upon ethnographic analogies or (much later) literary sources to assert that early medieval weapons were believed to social agents or living things. Lotte Hedeager explores legends of magical smiths in the Norse sagas, and suggests that some swords were forged with burnt human bone, imbuing them with the personalities of dead heroes or ancestors.[111] Andrew Reynolds and Sarah Semple, building on the work of Julie Lund, use anthropological theories of social personhood to argue that spears dredged from English rivers were thrown there because they were a kind of person that required special disposal.[112] These arguments offer enticing possibilities, but lack empirical grounding in the surviving evidence of the artifacts they seek to explain.

The vital qualities of spears appear, however, in the materials and in the technological processes and experiences of their making, without need for recourse to ethnographic analogy or literary texts written centuries after the early Anglo-Saxon period. This chapter demonstrates that smiths' experience of iron in the forge and spearmen's experience of their weapons in the field help to explain later literary descriptions of the anxieties surrounding weapons' performance, rather than the other way round. Similarly, the recycling of architectural iron into spearheads' blades clarifies why iron clamps in fallen walls inspired a poet to dream of warriors feasting in the past. These literary works emerged from a world in which new literary production articulated

[111] Hedeager, *Iron Age Myth and Materiality*, 140.

[112] Semple and Reynolds, "Anglo-Saxon Non-Funerary Weapon Depositions"; Lund, "At the Water's Edge."

knowledge rooted in generations of experiences of the material world: of fickle iron, haunted but productive ruins, and "wild" living forests.[113] Those material experiences preceded and may have inspired our surviving texts, and can still be recovered in the artifacts that survive through laboratory analysis of their materials and the technologies through which they were made.

Study of the materials and technologies from which spears were made helps us confront modern-day assumptions about these materials' physical properties, and shows us how medieval technology could produce conclusions about the fundamental nature of elements of the material world that are very different from our own. The logic that guided early medieval stick makers' and bladesmiths' decisions—the underlying knowledge of wood and iron's properties and potentialities that guided productive actions—emerged from fundamentally different technological practices and experiences than those that underpin modern scientific narratives of these materials.[114] Early medieval smiths in particular used different tools, and different iron, from our own. They experienced iron as an emergent substance, capable of change and growth, and filled with an unpredictable character which, while never fully subject to human control, could nevertheless be trained and harnessed by a skilled hand.

This ontology shaped early medieval productive practices, guided artisans' selection of materials and decisions in the workshop, and encouraged smiths in particular to consider iron's

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[113] Anglo-Saxon poetry drew heavily on early literary traditions as well, and we must be cautious lest we mistake literary traditions / intertextual references for elements of lived experience. See Helen Foxhall-Forbes, "Book-worm or entomologist? Aldhelm's Enigma xxxvi," *Peritia* 19 (2005): 20-29. See also Jennifer Neville, "The Exeter Book Riddles' Precarious Insights into Wooden Artifacts," in *Trees and Timber in the Anglo-Saxon World,* ed. by M. Bintley and M. Shapland, 122-143 (Oxford: Oxford University Press, 2013).

[114] Cf. P. Budd and T. Taylor, "The faerie smith meets the bronze industry: Magic versus science in the interpretation of prehistoric metal-making," *World Archaeology* 27 no. 1 (1995): 138-39; Conneller, 9-20; C. Gosden, "Magic, materials and matter: understanding different ontologies," in *Materiality and Social Practice: Transformative Capacities of Intercultural Encounters*, ed. By J. Maran and P. W. Stockhammer, 13–19 (Oxford: Oxbow Books, 2012), 13-15.

social biography alongside its physical properties as a material substance. Copper, wrote the contemporary seventh-century Iberian polymath Isidore of Seville, was melted from rocks, but iron is born and tamed ("Igne lapides in aere solvuntur, igne ferrum gignitur ac domatur").[115] Iron, to the early medieval smith, was perhaps more vegetable than in our modern chemistry—more akin to the timber to which it was joined than we commonly acknowledge. The kinship between iron, trees, and even animals (who share iron's unruly behavior and capacity to be broken and trained) is recognized in statements like that of Isidore, and echoed as well in Aldhelm's seventh-century description of an iron *lorica*: "The dewy earth brought me forth from her cold belly."[116] Most early medieval smiths tamed iron so well that modern observers struggle to recognize the different experiential knowledge that lay beneath our shared material practices; but when early medieval smiths improvised solutions in the face of failure, their choices reveal that difference and blur the lines modern persons draw between magic and technology, between metal and living creatures, so as to defy easy categorization outside the early medieval communities of technological practice where such experiences were mundane and obvious.[117]

To appreciate the tense interdependence between early medieval English communities and their weapons, we must first cross the ontological divide that prevents us from perceiving spears as their makers and owners experienced them. After we recognize the vibrant life that smiths felt under their hammers, and that warriors learned to fear and slowly trust as they

[115] Isidori Hispalensis Episcopi, *Etymologiae* XIX.6, in W. M. Lindsay, ed., *Etymologiarum sive Originum* (Oxford: Oxford University Press, 1911), 741.

[116] "Roscida me genuit gelido de uiscere tellus" (Aldhelm, *Enigmata*, XII, in Nancy Porter Stork, *Through a Gloss Darkly: Aldhelm's Riddles in the British Library MS Royal 12.C.*xxiii [Toronto: Pontifical Institute of Medieval Studies, 1990], 139).

[117] Cf. M. Holbraad, "Ontology, ethnography, archaeology: An afterword on the ontography of things," *Cambridge Archaeological Journal* 19 no. 3 (2009): 433.

gripped wooden spear shafts in their hands, we may begin to understand the power spears held to transform not only the physical landscape of war and politics, but also the intangible worlds of the early medieval imagination. As vibrant social actors, spears captured their makers' minds. In the final words of the talking spear of Exeter Riddle 73: "With the skill of a thief, I slip into the brain."[118]

[118] Williamson, 109, lines 20-21 (my translation).

Table 4-1. Spearheads where smiths appear to have mis-identified one alloy for another.

Site Name	Artefact #	Evidence for alloy misidentification
Barrington A	19.2	Harder phosphoric iron was used for the flat side of the blade, while softer ferrite was used for the edge; the smith did not know, or else did not care, that this resulted in a blade whose edge was softer than its side.
Barrington A	125.1	Soft ferrite was used for the edge between two harder side layers of phosphoric iron; ferrite likely mistaken for steel.
Barrington A	405.1	Ferrite welded to ferrite, imitating a construction method that was effective in other examples from the same site that had used different alloys.
Barrington A	727.1	The smith appears to have attempted to weld carbon steel between phosphoric iron, but used an alloy whose low carbon content (<3%) was insufficient to harden the edge. This construction is, however, slightly off center, and the edge is actually a piece of piled phosphoric iron whose hardness was not recorded in the metallographic report. This is a poorly made spear whose alloys were possibly misidentified.
Boss Hall	19/F, 33/F	Soft ferrite was used for the blade's edge between two harder side pieces of phosphoric iron; the ferrite was most likely mistaken for steel.
Wasperton	2300/1	Made from ferrite, but the maker attempted to work harden and quench the metal, in the false hope that it contained enough phosphorus or carbon to harden.
Wasperton	3228/1	One edge was steel, the other ferrite. Has a soft edge and a hard edge.
West Heslerton	867621 2BA137AB	Phosphoric iron was quenched, with no attempt to work harden the blade's edge. The smith appears to have mistaken the phosphoric iron half of the blade for steel. The metal was heterogeneous, and could have been recycled or a poorly homogenized bloom.
West Heslerton	872468 2BA903AA	The use of phosphoric iron for one half of the blade (instead of steel or ferrite) prevented much diffusion of carbon across the weld line, resulting in an edge that was only moderately hardened; a possible alloy identification mistake.
West Heslerton	852799 8AA168AD	Steel was welded to phosphoric iron, which prevented diffusion of carbon into the edge and lowered the hardness of the blade.

Table 4-2. Spearheads analyzed with metallography that do and do not show evidence of recycling scrap iron. For citations of the published studies on which the table below is based, see Table 2-1 above.

Site	Artefact Number
No evidence of recycling	
Boss Hall	21/F
Boss Hall	19/F, 33/F
Broom Hill Quarry, Sandy, Beds.	n/a
Buckland (1994)	264a
Buckland (1994)	299a
Buckland (1994)	323a
Edix Hill (Barrington A)	11.1
Edix Hill (Barrington A)	19.1
Edix Hill (Barrington A)	125.1
Edix Hill (Barrington A)	146.1
Edix Hill (Barrington A)	147.2
Edix Hill (Barrington A)	151.7
Edix Hill (Barrington A)	188.3
Edix Hill (Barrington A)	322.2
Edix Hill (Barrington A)	405.1
Edix Hill (Barrington A)	453.2
Edix Hill (Barrington A)	632.1
Edix Hill (Barrington A)	1000.11
Edix Hill (Barrington A)	1000.12
Flixton II	1/1; 0119
Flixton II	1/2; 0120
Flixton II	23/1; 1281
Flixton II	37/6; 1380
Flixton II	41/1; 1388
Saltwood	865
Saltwood	916,917
Saltwood	1183
Saltwood	2258
Saltwood	2508
Saltwood	2149
Saltwood	2005
Saltwood	1106
Saltwood	2406
Sancton	A307/1
Sewerby	590167, 11/1
Tranmer House	27.1
Tranmer House	23.1

Table 4-2. Continued

Site	Artefact Number
Tranmer House	24.1i
Tranmer House	28.1
Wasperton	1223/2
Wasperton	1325/2
Wasperton	2300/1
Wasperton	3139/1
Wasperton	3217/1
Wasperton	3228/1
West Heslerton	867652, 2BA443AC
West Heslerton	873655, 2BA820AI
West Heslerton	872468, 2BA903AA
West Heslerton	872477, 2BA938BG
West Heslerton	852791, 8AA112AL
West Heslerton	852799, 8AA168AD
Possible evidence of recycling from scrap iron	
Buckland (1994)	393Aa
Edix Hill (Barrington A)	727.1
Tranmer House	20.1
West Heslerton	900566, 2B84AF
West Heslerton	900587, 2B68AA (900567 in Moir 1990)
West Heslerton	867621, 2BA137AB
West Heslerton	852785, 8AA89AL
Strong evidence of recycling from scrap iron	
Boss Hall	78/F
Edix Hill (Barrington A)	13.1
Edix Hill (Barrington A)	19.2
Edix Hill (Barrington A)	112.1
Edix Hill (Barrington A)	1000/100, 120:100
Edix Hill (Barrington A)	553.3
Edix Hill (Barrington A)	626.152
Saltwood	2459
Wasperton	3214/1
Wasperton	3315/1
West Heslerton	872470, 2BA903AC

CHAPTER 5
THE SPEAR IN SOCIETY: SPEARS AND FARMERS IN THE SIXTH CENTURY

The spears excavated from human graves were made for use within a wider social context, and we should consider how they fit into this context before we turn to the burial evidence itself. As discussed in Chapter 1, our understanding of social life in the fifth and sixth centuries has significantly departed from the old narrative of barbarian invasion and conquest. The literary turn in textual studies has led historians to question literal readings of texts that describe an Anglo-Saxon conquest, while advances in archaeological methods combined with an expanding quantity of data have opened new avenues for exploring social life. The new picture is emerging paints lowland Britain as a complex social space in which peoples moved and mingled between small, local communities; in which new identities were being formed and abandoned; and within which people used material culture to exercise individual and group agency. The chapter that follows places spears against this backdrop to show how their wider social context shaped the trajectories they could take between the workshop and the grave.

The previous two centuries of scholarship on spears' place in society focused primarily on situating these weapons within a broader system of cultural mores or traditions. These cultural mores were often connected to the expression or construction of a "Germanic" ethnic identity.[1] Some scholars saw the appearance of weapons across the countryside as evidence of a violent invasion by warlike Angle and Saxon tribes, while others argued it represented a largely symbolic shift in cultural values away from Roman mores toward North Sea cultural practices. Some studies argued that spears were a traditional symbol among "Germanic" peoples of a

[1] The equation of weapons with a Germanic culture began in the nineteenth century; cf. Sam Lucy, *The Anglo-Saxon Way of Death* (Stroud: Sutton Publishing, 2000), 155-73; Howard Williams, "Anglo-Saxonism and Victorian Archaeology: William Wylie's Fairford Graves," *Early Medieval Europe* 16 no. 1 (2008): 49-51.

person's legal status as a free man.[2] Many of these arguments were based on ahistorical readings of textual sources, some from centuries before the early middle ages. The increasing wealth of archaeological sources now at our disposal makes such reliance on non-contemporary textual sources unnecessary. This new data further allows us to consider spears' place in a broader social landscape that encompasses more than these weapons' association with the wars and cultural identities described in textual accounts. The pages that follow explore how spears were used by individuals and within wider social settings, and how these uses shaped meaningful events, associations, and memories within late fifth- and sixth-century community life that could enrich these weapons with symbolic significance and social agency.

This chapter focuses on the social conditions of the late fifth and early sixth centuries. Most excavated spearheads were buried during the three generations that surrounded the year 500 CE. The settlements, demographics, social structures, and material conditions of these generations differed from earlier and later centuries in important ways, making this period worth detailed study in isolation (Chapter 8 will discuss the changing social circumstances of the seventh century that followed). The present chapter lays the groundwork for what would come next by considering how spears' use in social life shaped the social environment in which so many persons decided to abandon these weapons by burying them with the dead.

Spears in the Physical and Social Landscape

Spears of the Lowland Valleys

The roughly 4,000 spearheads excavated from early Anglo-Saxon period burials and riverbeds come from Britain's southeastern lowland region. Figure 5-1 shows the findspots of

[2] See Chapter 1.

these spearheads, combining the 902 spearheads in this study's catalog (cf. Figure 1-1) with those from Michael Swanton's corpus, his Ph.D. dissertation, unpublished data from Heinrich Härke's doctoral research, and other individual published site reports.[3] Figure 5-2 shows the same 4,000 spearheads as a heatmap, highlighting the regions in which their findspots concentrated. These maps show that few spearheads have been found in western and northern Britain (Wales, Scotland, and northwest England). This limit reflects the geographic boundaries within which weapons were buried with the dead and deposited in watercourses rather than a lack of archaeological investigation of the regions in which spears have not been found. Spears simply do not appear on archaeological sites outside the southeast.

Archaeologists once argued that maps like Figure 5-2 show the geographic limits of the Anglo-Saxon invasions.[4] Other kinds of finds like hand-built pottery, "Germanic" brooches, and furnished inhumation graves have a similar geographic distribution as spearheads.[5] Mid-twentieth-century culture historians saw these finds as comprising a distinct cultural package associated with the mass migrations of Continental newcomers, whose movements could be traced by the things they left behind. This method allowed Swanton, for example, to argue that the spread of spearheads across southeast England corresponded to the advances and retreat of Anglo-Saxon settlers who seized land from the Romano-Britons.[6]

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[3] Michael Swanton, *A Corpus of Pagan Anglo-Saxon Spear-Types*, British Archaeological Reports 7 (Oxford: British Archaeological Reports, 1974); Michael Swanton, "The Spear in Anglo-Saxon Times," Ph.D. dissertation, Durham University, 1966.

[4] E.g. T.E. Leeds, *The Archaeology of the Anglo-Saxon Settlements* (Oxford: Clarendon, 1913), 19.

[5] Cf. J.N.L. Myres, *Anglo-Saxon Pottery and the Settlement of England* (Oxford: Clarendon, 1969); Toby F. Martin, *The Cruciform Brooch and Anglo-Saxon England* (Boydell & Brewer, 2015).

[6] Swanton, *Settlements*, 139-45.

More recent studies, however, have highlighted the geological and environmental factors that separate Britain into natural regions.[7] Spearheads and other "Anglo-Saxon" material culture cluster below the Tees-Exe Line, a geographic boundary that has divided Britain's upland and lowland ecological zones since at least the Bronze Age.[8] Above this imaginary line, thin soils encourage pastoral grazing and disbursed settlement. In the southeast, richer soils facilitate denser settlement, higher populations, and extensive cereal production. Distribution maps of early medieval finds mirror this ancient geographical divide.[9] Rather than representing a historical frontier, therefore, spearheads' distribution across southeast Britain likely reflects the geographic extent of a particular type of agrarian lifestyle from which unique—within Britain—burial practices emerged.

The 4,000 spearhead findspots in southeast Britain cluster particularly in the lowland river valleys on fertile soils. Figure 5-3 shows the heat map of spearhead findspots overlaid by Britain's waterways. Figure 5-4 shows the spearheads relative to elevation. These two maps show the well-established pattern of early medieval settlement, in which people located their communities on topographic edges between river valleys' arable soil and water meadows and the wooded upland ridgetops. Figure 5-5 shows the findspots categorized by soil fertility, using the five-grade scale of the Ministry of Agriculture, Fisheries and Food's Agricultural Land

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[7] E.g. Tom Williamson, *Environment, Society and Landscape in Early Medieval England: Time and Topography* (Boydell, 2013).

[8] A. Cooper and C. Green, "Big Questions for Large, Complex Datasets: approaching time and space using composite object assemblages," *Internet Archaeology* 45 (2017). James Gerrard offers a nuanced discussion of the relationship between changing settlement patterns in the fifth century, upland vs. lowland geography, and human agency / historical contingency. *Ruin of Roman Britain*, 208-244, esp. 243.

[9] Cf. Leeds, *The Archaeology*, 19.

Classification of England and Wales.[10] This shows that the majority of spearheads—83.8%, when findspots in modern cities are excluded—were buried on land ideally suited for cultivating cereal crops.[11] Together, these maps show that the spearheads in this study were closely associated with a particular kind of community life lived on rural, lowland, cereal-producing farmsteads. These spearheads belonged primarily with wheat (and rye and barley) farmers.[12]

The Shape of the Communities

By the sixth century, lowland Britain's landscape was settling into a new social configuration. The late Roman countryside had been dotted with villas that managed the farmland by which they were surrounded.[13] These villas lay abandoned by the mid-fifth century. People continued to till the surrounding farm land, but community centers shifted away from the ruined manors to their edges. Many farmers redrew Roman field boundaries to correspond to the new community centers, and the abandoned villas became places to scavenge metal and cemeteries for the early medieval dead.[14]

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[10] "Agricultural Land Classification of England and Wales: Revised Guidelines and Criteria for Grading the Quality of Agricultural Land," Ministry of Agriculture, Fisheries and Food ALC011 (1988), available at http://publications.naturalengland.org.uk/publication/6257050620264448 (accessed April 1, 2018); "Agricultural Land Classification: Protecting the Best and Most Versatile Agricultural Land," Natural England Technical Information Note TIN049. Cf. Harrington and Welch, 74-94, for a more sophisticated comparison of soil type and settlement patterns.

[11] This data may somewhat over-report sites on agricultural soil, as many sites were initially discovered when finds were disturbed by plowing.

[12] For discussion of the types of crops grown in the early Anglo-Saxon period, see Ann Hagen, *Anglo-Saxon Food and Drink: Production, Processing, Distribution and Consumption* (Anglo-Saxon Books, 2006).

[13] For a recent survey, see A. Smith, M. Allen, T. Brindle, and M. Fulford, *New visions of the countryside of Roman Britain, vol. 1: The rural settlement of Roman Britain*, Britannia Monographs 29 (London: Society for the Promotion of Roman Studies, 2016).

[14] Cf. S. Harrington and M. Welch, *The Early Anglo-Saxon Kingdoms of Southern Britain AD 450–650: Beneath the Tribal Hidage* (Oxford: Oxbow, 2014), 90; Simon Draper, *Landscape, Settlement and Society in Roman and Early Medieval Wiltshire*, British Archaeological Reports, British Series 419 (Oxford: Archaeopress, 2006); R. Fleming, "Recycling in Britain after the Fall of Rome's Metal Economy," *Past and Present* 217 (2012): 3-45.

The vertical, tributary relationships that characterized the late Roman villa economy appear to have been exchanged for a more horizontal social configuration.[15] The new communities that emerged in the fifth and sixth centuries were small and spatially open. Most appear to have held between 30-50 persons, split between fewer than a dozen timber frame houses and various outbuildings (the characteristic *Grubenhäuser*, or "sunken featured buildings").[16] These settlements had open plans with no obvious hierarchical order or organization, or else (in the thus far unique case of West Heslerton, Yorkshire) were divided into equal-sized bounded lots.[17] The farmers who lived in these communities built houses of roughly equal size, and they appear to have managed their fields and pastures as commons.[18] If they paid tax in kind to a local king or big man, little evidence of this relationship survives.

Studies of these settlements, their cemeteries, and their material culture highlight their diverse local character. Intra-regional variation between local communities was just as significant as inter-regional variation across the wider British landscape.[19] Community

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[15] Chris Wickham, *Framing the Early Middle Ages: Europe and the Mediterranean, 400-800* (Oxford: Oxford University Press, 2005), 313-14.

[16] Helena Hamerow, *Rural Settlements and Society in Anglo-Saxon England*, Medieval History and Archaeology (Oxford: Oxford University Press, 2012), 70-72.

[17] Dominic Powlesland, "The Anglo-Saxon Settlement at West Heslerton, North Yorkshire," in *Northumbria's Golden Age*, by Jane Hawkes and Susan Mills, 55–65 (Thrupp: Sutton Publishing, 1999), 58, 64.

[18] Hamerow, *Rural Settlements*, 22-24, 69-70; Susan Oosthuizen, "Archaeology, Common Rights and the Origins of Anglo-Saxon Identity: Common Rights and Anglo-Saxon Identity," *Early Medieval Europe* 19, no. 2 (May 2011): 153–81; Susan Oosthuizen, "Recognizing and Moving on from a Failed Paradigm: The Case of Agricultural Landscapes in Anglo-Saxon England c. AD 400–800," *Journal of Archaeological Research* 24, no. 2 (2015): 179–227.

[19] Many recent regional studies have highlighted these regional differences. See for example (not inclusive), Thomas Green, *Britons and Anglo-Saxons: Lincolnshire AD 400-650*, Studies in the History of Lincolnshire 3 (Lincoln: History of Lincolnshire Committee, 2012); Stuart Brookes and Sue Harrington, *The Kingdom and People of Kent Ad 400-1066: Their History and Archaeology* (Stroud: History Press Limited, 2010); Simon Draper, *Landscape, Settlement and Society in Roman and Early Medieval Wiltshire*, British Archaeological Reports, British Series 419 (Oxford: Archaeopress, 2006).

cemeteries especially demonstrate the diversity of local settlements which often sought to distinguish themselves from their immediate neighbors through unique funerary practices.[20] In contrast to an older view, which sought to identify regional identities that spanned the late fifth- and early sixth-century English countryside (such as "Saxons," "Angles," and "Jutes"), the current consensus finds more evidence for vibrant local identities centered around the communities in which people lived and died.[21]

The persons who lived in these local communities came, however, from varied backgrounds. Analysis of stable isotopes in human teeth can identify whether someone spent their childhood drinking local groundwater, and this method shows that a high proportion of the persons buried in community cemeteries came from outside the local environs.[22] Textual sources emphasize migration from Continental Europe during these centuries, but the majority of newcomers identified through isotopic analysis came from elsewhere in Britain. At West Heslerton, for example, ratios of oxygen isotopes were collected from 24 persons. 4 of these returned values indicating a childhood in Scandinavia, and 7 were local. The remaining 13 spent the first years of their lives on Britain's western coast.[23] Across lowland Britain, this pattern holds. A recent survey of published studies by Janet Kay found that 34% of the 78 persons sampled from fifth and sixth-century southeast Britain spent their childhoods in the west, i.e. modern Wales, while only 11% migrated from the Continent (the remaining 55% were born

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[20] Lucy, *Way of Death*, 174-86; Ellen-Jane Pader, Symbolism, social relations and the interpretation of mortuary remains (Oxford: BAR, 1982).

[21] See especially Lucy, *Way of Death*, 174-86.

[22] For a summary of the methodology, including pitfalls, see Susanne Hakenbeck, "Potentials and Limitations of Isotope Analysis in Early Medieval Archaeology," *Post-Classical Archaeologies* 3 (2013): 109–25.

[23] Paul Budd, Andrew Millard, Carolyn Chenery, Sam Lucy, and Charlotte Roberts, "Investigating Population Movement by Stable Isotope Analysis: A Report from Britain," *Antiquity* 78 no. 299 (2004): 127–41.

locally).[24] Recent genomic studies of modern and ancient DNA reveal similar patterns, identifying significant evidence of mobility within lowland Britain, accompanied by a substantial (but nevertheless minority) movement of persons into England from the Continent.[25] Both isotopic and genomic studies suggest that mobility was ongoing across the whole of the Early Middle Ages, rather than isolated to the fifth-century "Migration Age." This mobility highlights how local communities must have constructed their varied, diverse identities within active networks of connection rather than isolation. The rural communities where we find spears were small and diffuse, but they were integrated into a wider social world.

A World of Farmers, Not Warrior Kings

The sixth-century communities in which spears were buried show little evidence of kings, feasting halls, a warrior aristocracy, or any of the other trappings associated with the great battles and heroic violence commemorated in early medieval poetry and prose. Seventh-century "princely graves" like Sutton Hoo make bold claims to royal authority, but they have no counterpart in the early sixth century. Some sixth-century graves held more "wealth" than others, in the form of swords, shields, drinking vessels, and animal sacrifices. Archaeologists have failed, however, to convincingly link the quality or quantity of grave goods with any specific social classes, castes, or roles.[26] Duncan Sayer proposed an alternative model, arguing that

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[24] Janet E. Kay, "Old, New, Borrowed, and Buried: Burial Practices in Fifth-Century Britain, 350-550CE," PhD, Boston College, 2017, 69.

[25] Stephen Leslie, Bruce Winney, Garrett Hellenthal, Dan Davison, Abdelhamid Boumertit, Tammy Day, Katarzyna Hutnik, et al., "The Fine-Scale Genetic Structure of the British Population," *Nature* 519, no. 7543 (March 18, 2015): 309–14; Stephan Schiffels, Wolfgang Haak, Pirita Paajanen, Bastien Llamas, Elizabeth Popescu, Louise Loe, Rachel Clarke, et al. "Iron Age and Anglo-Saxon Genomes from East England Reveal British Migration History," *Nature Communications* 7, no. 10408 (January 19, 2016): 1–9. However, see the critiques in Jane Kershaw and Ellen C. Røyrvik, "The 'People of the British Isles' Project and Viking Settlement in England," *Antiquity* 90 no. 354 (December 2016): 1670–80.

[26] E.g. C.J. Arnold, 'Wealth and Social Structure: a matter of life and death,' in *Anglo-Saxon Cemeteries 1979*, edited by P. Rahtz, et al, 81-142, British Archaeology Reports (Oxford: 1980); Leslie Alcock, 'Quantity or quality:

swords in some cemeteries appear to have been buried with the body of whichever man was most senior in age at the time of his death. This could suggest that social roles were sometimes distributed across communities in the early sixth century rather than exclusively controlled by a single powerful family.[27] The variation we see among graves may, however, represent nothing more than the individuality of each funeral's circumstances.[28] The grief caused by some deaths might have occasioned more or less material investment independently of the rank of the deceased. Moreover, the wealthiest graves of the sixth-century contain at most a modest sacrifice of goods that lay within the reach of a prosperous farmer's family. If sixth-century lowland Britain had kings, they did not express their authority through unusually lavish burial customs.

The sixth century also lacked the great feasting halls described in later heroic literature, like Hrothgar's "Heorot" in *Beowulf*. Great Hall Complexes appear across England beginning in the seventh century, during which they acted as central places where increasingly powerful elites could concentrate their wealth and authority.[29] Harrington and Welch's recent study of artifact distributions across the southeast found some evidence of nascent central places in the late fifth and early sixth centuries, and some of these sites may have grown to support the elite families

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the Anglian graves of Bernicia,' in *Angles, Saxons, and Jutes,* edited by V.I. Evison (Oxford: 1981), 168-86; S.C. Hawkes, 'Anglo-Saxon Kent c. 425-725,' in *Archaeology in Kent to AD 1500,* edited by P.E. Leach (Council of British Archaeology Research Report, 1982), 64-78; M.G. Welch, *Anglo-Saxon England* (London, 1992); Heinrich Härke, 'Early Anglo-Saxon social structure,' in John Hines, ed., *The Anglo-Saxons from the Migration Period to the Eighth Century: An Ethnographic Perspective* (Woodbridge, Suffolk: Boydell Press, 2003), 125-59. For a critique of these positions, see Chapter 7.

[27] Duncan Sayer, "Death and the Family: Developing Generational Chronologies," *Journal of Social Archaeology* 10, no. 1 (February 1, 2010): 59–91.

[28] Howard Williams, "The emotive force of early medieval mortuary practices," *Archaeological Review from Cambridge* 21 no. 1 (2007), 107-23.

[29] Matthew H. Austin, "Anglo-Saxon 'Great Hall Complexes': Elite Residences and Landscapes of Power in Early England, c. AD 550-700," PhD dissertation, University of Reading, 2017, 1.

that rose to prominence in the centuries that followed.[30] The broadly equitable built environment of early sixth-century settlements, however, did not highlight these nascent social hierarchies.

The bodies of the men buried with spears and other weapons bear the scars of hard farm labor. In hundreds of the burials surveyed for this study, men's bones suffered from degenerative disc diseases, osteoarthritis, and other injuries caused by overwork and heavy lifting that began at a young age and continued until death. Few who lived to adulthood were spared this back-breaking labor.[31] In contrast to the seafaring heroes of poems like *Beowulf*, these men must have spent their hours cutting firewood, wrangling livestock, and breaking ground with the plow.[32] They were not full-time soldiers.

Heinrich Härke argued the same in his seminal study of the weapon burial rite.[33] To Härke, the lack of complete weapon kits (many farmers were buried with only a spear—fewer than 10% had spear, shield, and sword together), combined with the presence of weapons in some graves of the young or infirm, indicated that these weapons presence with the dead was symbolic rather than practical.[34] The key evidence to Härke, however, was that men buried with

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[30] Harrington and Welch, 206-10.

[31] In a rare exception, a man buried with a spear in Worthy Park (Grave 79) had a slight frame with underdeveloped musculature indicative of a life free from the typical hard labor of his neighbors. Sonia Chadwick Hawkes, Guy Grainger, J. Bayley, Anne Dodd, and Edward Biddulph. *The Anglo-Saxon Cemetery at Worthy Park, Kingsworthy, near Winchester, Hampshire*. Oxford University School of Archaeology Monograph 59 (Oxford: Oxford University School of Archaeology, 2003), 77-79, 106, 186.

[32] For a rather speculative attempt to reconstruct specific occupational stresses from several well-preserved skeletons, see C. Wells, "Muscle Development" in *The Anglo-Saxon Cemetery at Worthy Park, Kingsworthy, near Winchester, Hampshire*, edited by S. C. Hawkes with G. Grainger, Oxford University School of Archaeology Monograph 59 (Oxford University Press, 2003), 185-187.

[33] I.e. Härke, "Warrior Graves?", 31; Härke, *Angelsächsische Waffengräber des 5. Bis 7. Jahrhunderts*. Zeitschrift für Archäologies des Mittelalters 6 (Köln: Rheinland-Verlag Gmbh, 1992).

[34] Härke, "Warrior Graves?", 33-37.

weapons were taller than those without.[35] This, Härke argued, was a consequence of two separate populations living side by side, and demonstrated that the key role of weapons in sixth century society was to delineate the social boundary between free, “Germanic” invaders and their unfree (and shorter stature) British subjects.[36] In fact, this height difference does not exist—none of Härke’s comparisons on which he based the claim have statistical significance.[37] Moreover, the vast majority of persons buried with weapons do appear to have been capable to using them. In fact, a recent study of several cemeteries found that the individuals buried with weapons had bone damage in their arms consistent with regular weapons practice—something that the bodies buried without weapons lacked.[38] Consequently, while Härke was right to insist that the persons buried with weapons were not members of a professional fighting force, the weapon burial rite does appear to have been connected to real activities by many of the persons buried in this manner.

The persons buried with spears in the early sixth century spent their lives farming, not fighting. Too much ink has been spent elsewhere to describe purported Indo-European rituals in which young “Germanic” men spent the years before marriage living apart from the rest of society, adopting the aspects of wild beasts, or winning fame or friendships abroad that would allow them to gain great social standing when they ultimately returned to the communities in

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[35] Härke, “Warrior Graves?”, 38-39.

[36] Härke, “Warrior Graves?”, 40.

[37] For this discovery, I must thank my students from “Britain before 1000 CE.” Together, we collected the data Härke summarizes in Table 4 (p. 39) and evaluated his comparisons using a t-test. The results demonstrated that the differences he observed are indistinguishable from random variations.

[38] Sarah E. Groves, “Spears or Ploughshares: Multiple Indicators of Activity Related Stress and Social Status in Four Early Medieval Populations from the North East of England,” Ph.D. dissertation, Durham University (2006).

which they were born.[39] The young men buried with weapons in sixth-century England spent their youths at the plow. There is likewise little evidence of professional, private soldiers like the *bucellarii* ("biscuit eaters") of Late Antiquity.[40] If sixth-century kings and elites had household warriors, these men must have shared in the labor of the farmyard, for their bones are indistinguishable from their agriculturally exhausted contemporaries. For men who considered themselves to be warriors in the sixth century, this occupation must have been part-time and centered around the demanding rhythms of agricultural life. This is the context in which we find the early Anglo-Saxon period spear: accompanying the lives of farmers who occasionally moonlighted as warriors in life and in death.

Spears in Humans' Lives

Coming of Age and Training to Fight

The spears that accompanied human cadavers in death provide clues about the roles weapons played in different stages of people's lives. Anthropologist Jos Bazelmans argued, based on Old English heroic poetry and ethnographic analogies, that the receipt of weapons helped a youth become a different kind of social person in the early Anglo-Saxon period.[41] Archaeologists of the early Anglo-Saxon period have made similar arguments. Mourners buried

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[39] Such arguments have deep roots, i.e. Otto Höfler, *Kultische Geheimbünde der Germanen* (Frankfurt: M. Diesterweg, 1934). Though Höfler's work, written during the rise of the Third Reich and tinged with Nazi ideology, has fallen out of fashion, many of its characterizations of the "Germanic" warrior band have had a long half-life, e.g. Michael P. Speidel, Ancient Germanic Warriors: Warrior Styles from Trajan's Column to Icelandic Sagas (Routledge, 2004).

[40] Gerrard, *Ruin*, 348-49. Cf. J.H.W. Liebeschuetz, "Generals, Federates and Buccelarii in Roman Armies Around AD 400," in *The Defence of the Roman and Byzantine East: Proceedings of a Colloquium Held at the University of Sheffield in April 1986*, Volume 2, edited by Philip Freeman and D.L. Kennedy, 463-74, BAR International Series 297ii (Oxford: Archaeopress, 1986).

[41] Jos Bazelmans, *By Weapons Made Worthy: Lords, Retainers, and Their Relationship in Beowulf*, Amsterdam Archaeological Studies 5 (Amsterdam: Amsterdam University Press, 1999).

spears with persons of all ages, but the frequency and kind of weapon selected varied depending on the age of the person they accompanied. Spears appear in children's graves only occasionally, beginning in infancy. Around the age of 20, however, spear burial becomes frequent. Nick Stoodley suggests that this increase around age 20 reflects events in the lives of the persons buried, that youths around age 20 crossed an "age threshold" into adulthood, one of whose consequences was that people treated their bodies differently at death.[42] When children were buried with spears, these were often miniaturized weapons that contrasted with their adult counterparts to emphasize, Stoodley argues, the shared symbolism but different status of these not-yet-adults.[43] Spears marked other age distinctions as well beyond the boundary of adulthood. As living persons aged, for example, the spearheads buried with their bodies became larger. Härke noticed this (weak, yet real) correlation first, and I have identified the same pattern in the data I collected for this study.[44] The receipt and display of spears thus appears to have marked important life thresholds and, perhaps, social accomplishments during the course of people's lives.

The miniaturized spearheads buried with young children offer a complimentary perspective to the full-sized weapons buried with adults. Most of these child-sized spearheads were 10cm long or shorter. Their position in the grave typically accommodates only about 1m of shaft, roughly half the length of an adult-sized weapon. Many site reports identify these blades as arrowheads, and perhaps some were originally forged for that purpose. In appearance, however,

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[42] Nick Stoodley, "From the cradle to the grave: age organization and the early Anglo-Saxon burial rite," *World Archaeology* 31, no. 3 (February 2000): 461-62.

[43] Ibid., 465.

[44] Härke, "Warrior Graves?", 35.

they are indistinguishable from adult spearheads, except for their miniature size. Several were forged with blunted, child-safe edges.[45] Stoodley interprets these spearheads as crudely or quickly forged symbols made for the funeral.[46] They might just as easily, however, have been toys used to accustomize children to the violence expected of them as adults. Miniature spearheads disappear from children's graves around the age of twelve, though adult-sized spearheads do not become common until the late teens. It is around this age that later law codes say a thief could be legally tried as an adult.[47] Whether strictly symbolic grave goods or playthings chosen to be buried with certain persons who died in childhood, these miniature spears' disappearance from graves around twelve may mark another age threshold after which play was set aside for more earnest training with the full-sized weapons that would soon take their place.

Childhood training must have been important for youths who intended or were expected to use spears in adulthood. Most of the spears recovered from early Anglo-Saxon period burials are versatile weapons that could be thrown as well as skillfully thrust. Although spears are not difficult weapons to use, both throwing and thrusting improve significantly with practice. To fight with skill, youths needed to be able to feel and direct the inertia of their weapons, as well as control the timing of their thrusts and their distance from their opponents. Spears, like all other tools, have a particular balance and rotational inertia that facilitates certain gestures while

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[45] E.g. Mount Pleasant (G1) and Temple Hill (G39). Paul Bennett, Alison Hicks, J. Rady, Ian Riddler, *At the Great Crossroads: Prehistoric, Roman and Medieval Discoveries on the Isle of Thanet 1994-95*, CAT Occasional Paper 4 (Canterbury: Canterbury Archaeological Trust, 2008), 280-82; Leonora O'Brien, "An Early Anglo-Saxon Cemetery at St Edmund's Church and Vicarage, Temple Hill, Dartford," *Anglo-Saxon Studies in Archaeology and History* 19 (2015): 31.

[46] Stoodley, "From the cradle to the grave," 465. Cf. Sally Crawford, *Childhood in Anglo-Saxon England* (Sutton, 1999), 159.

[47] Ine's seventh-century code says that children of thieves can be tried as accessories at the age of ten (7.2). Æthelstan's later laws try thieves as young as twelve (II Æthelstan 1).

thwarting others. When a spearman's thrust corresponds with a spear's inertia, the weapon can feel like an extension of the arm. In inexperienced hands, however, inertia fights back, making the weapon feel sluggish and uncooperative. Timing, range, and footwork similarly require a fighter to skillfully direct the inertia of their body to achieve the motions necessary to strike an enemy without being struck in turn. These skillful motions, like the motions of other kind of martial art, must be committed to muscle memory through extensive practice. Youths who accustomed themselves to the feel of spears in their hands from an early age would have enjoyed an advantage over those whose childhoods were spent exclusively on farmyard tasks.

Training to throw and thrust a spear from an early age shaped the physical development of the bodies of some sixth-century youths. Repeated practice thrusting and, particularly, throwing spears caused children's skeletons to develop asymmetry in response to the physical strain of these repeated motions. Children who throw spears from an early age develop increased humeral retroversion, that is an increased range of motion in their throwing arm.[48] Children or adults who repeatedly strike a target with spear thrusts stress their humerus, causing it to strengthen by developing asymmetry over time.[49] These responses to training have been observed on the archaeological remains of prehistoric hunter gatherers as well as modern athletes.[50] Although no researchers have yet measured early Anglo-Saxon period skeletons for evidence of humeral retroversion, one study has identified humeral asymmetry consistent with

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[48] Jill A. Rhodes and Steven E. Churchill, "Throwing in the Middle and Upper Paleolithic: Inferences from an Analysis of Humeral Retroversion," *Journal of Human Evolution* 56 no. 1 (January 2009): 1–10.

[49] Daniel Schmitt and Steven E. Churchill, "Experimental Evidence Concerning Spear Use in Neandertals and Early Modern Humans," *Journal of Archaeological Science* 30 (2003): 103-114.

[50] Rhodes and Churchill; Schmidt and Churchill. See also Nobuyuki Yamamoto, Eiji Itoi, Hiroshi Minagawa, Masakazu Urayama, Hidetomo Saito, Nobutoshi Seki, Takenobu Iwase, Shinji Kashiwaguchi, and Tetsuya Matsuura, "Why Is the Humeral Retroversion of Throwing Athletes Greater in Dominant Shoulders than in Nondominant Shoulders?" *Journal of Shoulder and Elbow Surgery* 15 no. 5 (September 2006): 571–75.

weapon training.[51] Skeletons from Norton buried with weapons had high humeral asymmetry, suggesting heavy training in spear use. Bones buried with weapons from Castledyke South had less humeral asymmetry than those from Norton, but had other elbow and wrist injuries consistent with extensive weapon use.[52] Both populations appear to have trained with their weapons, probably from a young age, though the differences in skeletal development between sites suggest that youths trained differently in different communities.[53] Sarah Groves, who conducted this study, notes that the men with skeletal changes from weapon training also had unusually high rates of Schmorl's nodes, i.e. back injuries from chronic hard labor.[54] This serves as a further reminder that these trained warriors spent most of their lives engaged in farmwork.

We need not imagine farm labor and martial training as mutually exclusive pursuits. While the agricultural labor in which most youths spent their childhood would have left little time for dedicated martial training, farm labor provided many opportunities for youth to idly familiarize themselves with their weapons. Youths might have carried spears to the fields, and practiced thrusting, throwing, or footwork while watching flocks of sheep or herds of cattle. A spear could serve equally well as a walking stick or shepherd's staff, and Exeter Riddle 70 describes an ox being prodded onward with an *isern*, an iron object—a task just as easily accomplished with a spearhead as a cattle prod.[55] In addition to such idle practice, children may

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[51] Sarah E. Groves, "Spears or Ploughshares: Multiple Indicators of Activity Related Stress and Social Status in Four Early Medieval Populations from the North East of England," Ph.D. dissertation, Durham University (2006), 323.

[52] Groves, 318.

[53] Ibid., 318-30.

[54] Ibid., 333-34.

[55] "Oft mec isern scod sare on sidan," in C. Williamson, ed., *The Old English Riddles of the Exeter Book* (Chapel Hill: University of North Carolina Press, 1977), lines 15-16, p. 108.

have fought one another a form of sport. Bede describes a young Cuthbert engaging in an unspecified game of vigorous gymnastics with other children.[56] Moments of forced idleness in the fields and play at home could have given youths opportunities to drill their muscles in the precise, quick, and controlled gestures of the rapid, athletic fencing at which their weapons excelled. This everyday practice and play would have helped make spears ubiquitous and intimate parts of daily life—companions that youths carried across farm and field, extensions of their arms, and markers of the social roles that these young persons prepared themselves to enter. It may have been unremarkable to witness children going about their daily tasks armed.

Constructing Gender

Spears may have marked boundaries between genders as well. Archaeologists have long noted that the bodies buried with spears are in most cases male-sexed. This association is so strong that many reports question or outright reject osteological analyses that identify female-sexed bodies in weapon graves.[57] For many decades, it was common for bone analyses to compare their conclusions against the grave goods, and sometimes to adjust the skeleton's sex to make it match the objects that accompanied it. For example, one site report (Worthy Park) explained that "there were a few doubtful cases" that forced the osteologists to undertake "much checking and double-checking of both osteological and archaeological evidence before even the most tentative decision could be made."[58] In another report, from the excavations at Updown,

[56] Bede, *Vita Cuthberti*, in B. Colgrave, I, p. 156-57.

[57] Vera Evison, for example, changed the sex of four Beckford burials identified as female in the osteological report to male in the grave catalog (graves A2, B5, B85, B93). Vera I. Evison and Prue Hill, *Two Anglo-Saxon Cemeteries at Beckford, Hereford and Worcester*, CBA Research Report 103 (York: Council for British Archaeology, 1996), 42, 54, 60-1 vs. 75, 80, 88-9.

[58] Sonia Chadwick Hawkes, Guy Grainger, J. Bayley, Anne Dodd, and Edward Biddulph. *The Anglo-Saxon Cemetery at Worthy Park, Kingsworthy, near Winchester, Hampshire*. Oxford University School of Archaeology Monograph 59 (Oxford: Oxford University School of Archaeology, 2003), 153.

Eastry, the osteological report explained that "due to unequivocally gender-specific grave goods" three osteologically female-sexed skeletons had been recorded as male-sexed.[59] At other cemeteries, no such explanations were given—but comparison of the unpublished osteological notes with the final published reports reveals that female-sexed skeletons buried with weapons were correctively reassigned a male-sex.[60] Similar practices among nineteenth-century French archaeologists led Bonnie Effros to caution against over-reliance upon older data relating to osteological sex in French Merovingian-era cemeteries.[61] Sam Lucy, describing twentieth-century British excavations of early Anglo-Saxon period cemeteries, raises a similar caution.[62]

In the 1990s, several studies sought to quantitatively determine whether weapons did in fact correlate with male-sexed skeletal remains. Heinrich Härke collected data on skeletal sex for his study of weapon burial, and found that 11 of the 377 sexed weapon graves in his database were identified as either probably or possibly female sexed.[63] His doctoral student Nick Stoodley investigated this data more closely, and argued that all but five of these cases of female-sexed

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[59] Martin Welch, "Report on Excavations of the Anglo-Saxon Cemetery at Updown, Eastry, Kent," *Anglo-Saxon Studies in Archaeology and History* 15 (2008): 51.

[60] "Morningthorpe, report on the human remains" (unpublished osteological report, Norwich Castle Museum, n.d.).

[61] Bonnie Effros, "Skeletal Sex and Gender in Merovingian Mortuary Archaeology," *Antiquity* 74 (2000): 632–39.

[62] Sam Lucy, "Housewives, Warriors and Slaves? Sex and Gender in Anglo-Saxon Burials," in *Invisible people and processes*, edited by J. Moore and E. Scott, 150-68 (London: Leicester University Press, 1997). I should note that Lucy somewhat overstates her case. She argues that only four early Anglo-Saxon period cemeteries conducted independent osteological analyses of the bones (where the grave goods were not consulted), citing Janet Henderson. Henderson, in fact, states that four site reports published the details of their osteological analyses in sufficient detail to allow a follow-up study of their results, not as Lucy claims that these analyses were the only studies to evaluate skeletal evidence without consulting the artifacts alongside the bones. Janet Henderson, "Pagan Saxon Cemeteries: A Study of the Problems of Sexing by Grave Goods and Bones," in *Burial Archaeology: Current Research, Methods and Developments*, edited by Charlotte A. Roberts, Frances Lee, and John Bintliff, BAR British Series 211, 77–83 (Oxford: Archaeopress, 1989), 81.

[63] Härke, *Waffengräber*, 180.

bodies buried with weapons could be dismissed.[64] Because the remaining five cases came from a single study of one cemetery, Stoodley argued that they could not be trusted.[65] This led him to conclude that there was not a single cases in which a female-sexed body could be said, with confidence, to have been buried with a weapon. Härke revisited this data a decade later and concluded that the near or total absence of female-sexed bodies in weapon graves demonstrated a desire, among those who buried the dead, to demarcate the boundaries between male and female gender identities using weapons.[66]

Others objected, however. Sam Lucy, writing at the same time as Stoodley, identified three female-sexed weapon burials in West Heslerton, Yorkshire, a cemetery that neither Stoodley nor Härke had included in their studies.[67] Lucy found other evidence that gender and osteological sex were poorly correlated in other Yorkshire cemeteries.[68] Near the same time, Christine Flaherty took DNA samples from forty two of the West Heslerton burials and confirmed that three weapon burials were female-sexed.[69] Lucy noted, further, that weapon

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[64] Nick Stoodley, *The spindle and the spear: a critical enquiry into the construction and meaning of gender in the early Anglo-Saxon burial rite*, British Archaeology Reports 288 (Oxford: Archaeopress, 1999), 29-30.

[65] Stoodley explained: "Where this is the case [weapons found in female graves], questioning the sex and burial context of these individuals is not only acceptable, but necessary (contra Lucy 1997, 161). We should naturally be suspicious of such small samples clearly at odds with the vast majority of the evidence" (29).

[66] Heinrich Härke, "Gender Representation in Early Medieval Burials: Ritual Re-Affirmation of a Blurred Boundary?," in *Studies in Early Anglo-Saxon Art and Archaeology: Papers in Honour of Martin G. Welch*, ed. Stuart Brookes, Sue Harrington, and Andrew Reynolds, BAR British Series 527 (Oxford: Archaeopress, 2011), 98–105.

[67] Sam Lucy, *The Early Anglo-Saxon Cemeteries of East Yorkshire: An Analysis and Reinterpretation*, BAR British Series 272 (Oxford: 1998), 42-43.

[68] Ibid.

[69] Christine Flaherty, "Gender in Early Medieval Europe," in *Ancient Europe 8000 B.C. – A.D. 1000*, edited by Peter Bogucki and Pam J. Crabtree, 361-65 (New York: Charles Scribner's Sons, 2004). Her dissertation was not completed and her research remains unpublished. Since the late 1990s, methods for collecting and analyzing ancient DNA have greatly improved, and it may that her results would not be supported by modern methods.

burials were one of at least four separate groups of grave goods, the others being jewelry assemblages (often, but not always, buried with female-sexed bodies), sex neutral objects found with male and female skeletal remains, and persons buried with no grave goods at all. Lucy questions whether the presence or absence of weapons could be associated directly with masculinity: if grave goods reflected or constructed the gender identity of the deceased, we should speak of four rather than two genders in the early Anglo-Saxon period.[70] Alternatively, sex-associations with grave goods might reflect more complicated negotiations of social identity, such as the identity of persons in relation to the other members of their local or neighboring communities.[71]

Recent studies have been more careful to preserve the independence of the osteological analysis, with the consequence that an increasing number of female-sexed weapon burials have been identified over the past three decades. It has become common for human remains to be studied independently from grave goods, and for osteological analyses to be disseminated alongside (as grey literature) or published within site reports. When bodies of the "wrong" sex are identified, reports are increasingly likely to suggest possible social interpretations of these uncommon practices rather than to assume that the discrepancies result from inaccurate identifications by the osteologists.[72] As a consequence, higher quality data about the correlations between skeletal sex and sex-associated artifacts like spearheads is now available. This data

[70] Sam Lucy, "Housewives, Warriors and Slaves? Sex and Gender in Anglo-Saxon Burials," in *Invisible people and processes*, edited by J. Moore and E. Scott, 150-68 (London: Leicester University Press, 1997).

[71] D.M. Hadley and J.M. Moore, "'Death Makes the Man'? Burial Rite and the Construction of Masculinities in the Early Middle Ages," in *Masculinity in Medieval Europe*, edited by D.M. Hadley, 21-38 (Addison Wesley Longman, 1999).

[72] E.g. Nick Stoodley's comments in Vaughan Birbeck, et al., *The Origins of Mid-Saxon Southampton: Excavations at the Friends Provident St. Mary's Stadium, 1998-2000* (Salisbury: Wessex Archaeology, 2005), 74; Leonora O'Brien, "An Early Anglo-Saxon Cemetery at St Edmund's Church and Vicarage, Temple Hill, Dartford," *Anglo-Saxon Studies in Archaeology and History* 19 (2015): 54.

shows a much greater number of female-sexed skeletons in recently excavated cemeteries than in earlier excavations. Of the 890 weapon graves examined for this study, 389 contained human remains preserved well enough for their sex to be determined. Twenty six of these (6.7%) were identified as female, a greater proportion than in Härke (2.9%) or Stoodley's studies, both which relied upon older and less reliably assessed osteological data.

While this new osteological data must be interpreted cautiously, it suggests that the relationship between weapons, burial, and gender was not as straightforward as a direct equation of weapons with male sex. It is important to acknowledge that methods to identify a person's biological sex from their skeletal remains are not perfect, and some errors should be expected. The greatest differences between male and female skeletons are in the pelvis and the skull. If both pelvis and skull survive in good condition, biological sex can be accurately determined about 97% of the time. If only the pelvis survives, identification is still about 95% reliable. Sex identified from only the skull is accurate roughly 90% of the time, and poorly preserved skeletal remains can be more difficult to identify with certainty.[73] Many of the bones excavated from early Anglo-Saxon period cemeteries are too poorly preserved for osteologists to identify their sex, and in many cases osteologists report uncertainty by labeling osteological sex as possibly or probably male / female. This uncertainty has been repeatedly used to justify changing osteological identifications of female-sexed bodies buried with weapons to male, but this is an exercise in confirmation bias. While it is important to acknowledge the uncertainties that

[73] Cf. M. Durić, Z. Rakocević, and D. Donić, "The reliability of sex determination of skeletons from forensic context in the Balkans," Forensic Science International 147 no. 2-3 (2005): 159-64; W.M. Krogman and M.Y. Isca, The Human Skeleton in Forensic Medicine, 2nd edition (Springfield, 1986); R. Meindl, O. Lovejoy, R. Mensforth, and L. Carlos, "Accuracy and direction of error in the sexing of the skeleton: implication for paleodemography," American Journal of Physical Anthropology 68 (1985): 79-85.

accompany data about skeletal sex, these uncertainties do not warrant changing the data to fit preconceptions about the relationship between gendered practice and skeletal sex.

As already noted in Chapter 3, the rate at which female-sexed persons were buried with spears and other weapons changed between the fifth and seventh centuries. Many of these female-sexed burials contained only a single artifact (i.e., a spearhead), and consequently could not be included in that chapter's MCA seriation to be assigned to a chronological phase (recall that MCA requires that there be at least two artifacts present for a grave to be analyzed). Nevertheless, the types of spearheads associated with these burials more commonly belong to the later sixth and seventh centuries. During these same centuries, the rate of male-sexed weapon burial significantly decreased. Consequently, female-sexed weapon burials would have appeared to happen at a much higher rate as a relative proportion of the total number of weapon burials from the latter half of the sixth century onward.

When weapon burial emerged in the late fifth and early sixth centuries, it does appear to have been a strongly gendered practice. It should be noted that weapons had no clear funerary sex associations in mid-fifth-century cremation burials at Spong Hill, where components of swords were found with male and female sexed skeletal remains.[74] As furnished inhumation replaced cremation in the latter half of the fifth century, however, weapons and jewelry became strongly associated with male and female sexed bodies respectively. Chapter 7 discusses how these gendered burial rites might be interpreted. At present, it suffices to say that weapon burial does appear to have been strongly associated, in the funeral, with the commemoration of the masculine body as warrior. This masculine funerary imagery need not directly reflect life—some

[74] Catherine Hills and Sam Lucy, *Spong Hill. Part 9: Chronology and Synthesis*, McDonald Institute Monographs (Cambridge, UK: McDonald Institute for Archaeological Research, University of Cambridge, 2013), 69.

female-sexed persons buried without weapons and wearing female-gendered clothing (including the female-associated jewelry assemblage) had weapon injuries on their bones, and we cannot presently say whether these women were helpless victims of male violence or active participants in warfare. Proportionately few female-sexed persons were buried with weapons, however, before the second half of the sixth century, which seems to support Härke and Stoodley's claims that the ideal of warrior masculinity was strongly associated with the male-sexed body during this time.

Female-sexed "warrior" burials beginning in the middle of the sixth century, however, complicate this picture. These graves typically include a female-sexed body buried with only a spear, but sometimes also with a shield, a seax, or (rarely) a sword. It is difficult to interpret how contemporaries would have understood the gendered meanings of these burials. Many of these persons' bodies were arranged in the grave just like their male-sexed contemporaries, and their male-gendered burials might mean that the persons who buried them considered them to be male-gendered trans men.[75] One such person, an osteologically female body buried with two spears and a shield and, to all appearances, wearing the clothing of a man, was a fighter and had a healed sword cut to the skull.[76] Other female-sexed persons with weapons were buried in ways reminiscent of female-gendered burials, often with a spearhead placed at the waist, sometimes beside other female-gendered objects (for discussion, see Chapter 7). While predominantly associated with the male sex, therefore, weapons could also serve other more complicated roles

[75] Guy Halsall, "Material Culture, Sex, Gender, Sexuality and Transgression in Sixth-Century Gaul," in *Cemeteries and Society in Merovingian Gaul: Selected Studies in Histry and Archaeology, 1992-2009*, by Guy Halsall, 323-356 (Leiden: Brill, 2010), 343.

[76] Stretton-on-Fosse, Grave 96; W.J. Ford, "The Romano-British and Anglo-Saxon Settlement and Cemeteries at Stretton-on-Fosse, Warwickshire," *Birmingham and Warwickshire Archaeological Society Transactions* 106 (2003): 64-65.

in the funeral rite than simply delineating the boundaries between two (or more) genders. Over time, these alternative functions became more common in the grave as the gendered association between male-sexed bodies and weapons broke down in the seventh century as more and more female-sexed persons received these objects in death, if not also in life. In the early sixth century when weapon burial reached its peak, therefore, spears appear to have marked distinctions within households between men and women. These distinctions may have changed by the seventh century, however, and attempts to explain the spear as a gendered object must therefore bear chronology in mind.

The Relationship between Human and Spear

The spears that marked thresholds in age and gender remained in the lives of their owners, perhaps until their deaths. While spears' narrow shafts might break and be replaced,[77] the iron of their points could easily outlast a human lifespan. Many spears from graves show evidence of hard wear from repeated resharpening.[78] Spears, like any other tool, require a little bit of attention after each use to forestall the creeping effects of rust and to ensure a continuously keen edge. Owners of spears must have regularly cleaned and polished their blades, catching and removing rusty spots before these could spread beneath the metal's surface to cause irreversible harm. Once cleaned, spearheads may have been treated with oil or protective coverings to ensure their surfaces remained clear of rust. Several spearheads excavated from graves were wrapped in

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[77] Adomnan records a man making a new shaft for his spear in the *Life of St. Columba*, and the ninth-century Irish *Cath Maige Tuired* describes how an army used the night between a two-day battle to repair their spear shafts. Adómnan, Vita Sancti Columbae, XXXV, in *Adomnan's Life of Columba*, ed. by A.O. Anderson and M.O. Anderson, Oxford Medieval Texts (Oxford: Oxford University Press, 1991); E. A. Gray, *Cath Maige Tuired: The Second Battle of Mag Tuired* (Naas: Irish Texts Society, 1982), 55.

[78] This is difficult to identify, but wear damage is suggested on between 91-199 cases (11-24%, n=830) in the catalog. Compare with Paul Hill's claim that one sixth of the well-preserved spearheads dredged from the Thames showed evidence of damage. "The nature and function of spearheads in England *c*. 700-1100 A.D.," *The Journal of the Arms and Armour Society* 16 no. 5 (2000): 264.

leather, textile, or fleece—perhaps the remains of covers impregnated with lanolin or other grease to preserve the metal while the weapon was stored.[79] Well-maintained spearheads would have developed a patina over time, a unique surface finish that testified to the lifetime of care with which the weapon was maintained.[80] This patina, along with the subtle concavity that developed from years of resharpening, also testified to the trust that grew between a spearman and their proven blade (Chapter 4).[81]

These mundane tasks developed an intimate connection between spearman and spear that blurred the line between human and object. As physical markers of a person's age and gender, spears were already bound to the personhood of the humans they accompanied. Intimate motions of care, coupled with bodily techniques like practice and training, reshaped spearmen into different kinds of social subjects. The spear became a part of their body.[82] This union of human and object did more than transform a person's identity; it also blended their agency with the network of agents and actants from which spears emerged. As discussed in the previous chapter, spears did not enter human fields of action as blank slates. Instead, they brought within themselves material potentialities for action and misbehavior, history, and vitality in the materials of which they were made. As a tool for violence, they also carried potentialities to

[79] For example a spearhead from Dover Buckland (grave 220) was covered in leather and fleece, probably from a lined (and lanolin-impregnated) sheath. Keith Parfitt and Trevor Anderson, *Buckland Anglo-Saxon Cemetery, Dover Excavations 1994*, The Archaeology of Canterbury 6 (Canterbury Archaeological Trust, 2012), 390, 458, 528. Forty other spearheads (4.4% of those in the Catalog) have textile surviving on both surfaces, likely from fabric wrapped around their blades as either a burial 'shroud' or a protective layer against corrosion.

[80] For a social discussion of patina, see Grant McCracken, *Culture and Consumption: New Approaches to the Symbolic Character of Consumer Goods and Activities* (Indiana University Press, 1988), 31-43.

[81] Cf. also A. Welton, "Encounters with Iron: An Archaeometallurgical Reassessment of Early Anglo-Saxon Spearheads and Knives," *Archaeological Journal* 173, no. 2 (July 2, 2016): 233-37.

[82] See Warnier, "Praxeological Approach."

effect harm that changed the hand that held them. Bruno Latour describes the union of a hand and weapon as “translation”: bringing weapon and human together creates “a new goal that corresponds to neither agent’s program of action,” but is instead a “hybrid actor” who is more than the sum of its individual parts (the gunman, Latour argues, is more than merely a gun and a man).[83] Spears enhanced the arm’s reach and replaced the hand’s fingertips with a sharp blade, enabling a man to kill by a skilled gesture. Inside the hand and arm, muscles formed and bones were modified through earnest childhood drills. Inside the spear, metal and wood responded to stress and, if all went according to the weapon maker’s plan, these materials proved themselves. Together, spear and human formed a spearman: a hybrid actor capable of effecting the world in a way that a man and a spear separately could not.

Middle Saxon texts preserve snapshots of some of the perceptions of these relationships that emerged between spears and humans. By the middle of the seventh century, attitudes toward weaponry could draw upon roughly two centuries experience of widespread ownership and practice with arms. Texts from the late seventh century and after describe the spearman as something distinct from the individual physicality of weapons and the human body. In some texts, the physical boundaries between weapons and warriors blur or disappear as the two become together a new kind of social person. Jos Bazelmans interprets this blurring of boundaries as evidence that warriors’ “worth” as social persons emerged from the weapons they were gifted and the accomplishments that they together achieved.[84] Warriors in *Beowulf*, for example, are judged by their armaments when they arrive at Hrothgar’s shore. Elsewhere in the

[83] Bruno Latour, “On Technical Mediation—Philosophy, Sociology, Genealogy,” *Common Knowledge* 3 no. 2 (1994): 29-64, esp. 32-33.

[84] Jos Bazelmans, *By Weapons Made Worthy: Lords, Retainers, and Their Relationship in Beowulf*, Amsterdam Archaeological Studies 5 (Amsterdam: Amsterdam University Press, 1999).

poem, mail becomes skin, hands become hard as iron, and Grendel's fingernails / claws become blades.[85] Later, Beowulf fights with a sword named *nagling*, his own iron fingernail / claw.[86] Elsewhere in the poem faces and helmets elide, both being described as hard (*heard*). The men who fight for Beowulf and Hrothgar lose their identities entirely to become "Spear-Danes" or an *æscwige*.[87] The same equation holds outside *Beowulf*. In Cynewulf's ninth-century *Life of St Elene*, for example, Constantine's bravery is described in terms of the swiftness of his spear at Milvian Bridge: "spear-famed" and "spear-bold."[88] From the weapons' perspective, the boundary between person and blade is equally permeable: the spears and swords in *Beowulf* appear to hold grudges, remembering their first masters and their feuds.[89] These literary descriptions mirror, and presumably drew upon, the real experiences of the farmers *qua* warriors who dedicated time to the use and care of their weapons a century before.

This close relationship was centered, in the poetic texts, on the grip of the hand on the spear's shaft. Exeter Riddle 73 describes this grip as "cræfte on hæfte", a phrase with a double-meaning as both skill (*cræft*) on the spear's haft (*hæft*), but also skill in restraining or binding.[90] The hand on the spear bound human and tool together to become, while joined, the focal point of

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[85] Megan Cavell, "Constructing the Monstrous Body in *Beowulf*," *Anglo-Saxon England* 43 (2014): 155-181.

[86] *Beowulf*, lines 2680-2682, in Robert Fulk, Robert Bjork, and John Niles, *Klaeber's Beowulf and The Fight at Finnsburg*, fourth edition (Toronto: University of Toronto Press, 2008), 91.

[87] References to *heard* appear frequently through the poem, applied to swords (lines 540, 1288, 1490, 1566, etc), arrows (1435), weapons (2037), helmets (2255), hands (963, 1335), minds (394, 799, 3153), faces (342, 404, 2539), and warriors (432, 886, 1539, 1963, 1807, 1963, 2205. Æscwige: *Beowulf*, lines 2039-2066, in Fulk, Bjork, and Niles, 69-70.

[88] Cynewulf, *Elene*, lines 202, 204, in Marie Nelson, trans., *Judith, Juliana, and Elene: Three Fighting Saints*, American University Studies, Series IV English Language and Literature 135 (New York: Peter Land, 1991), 124.

[89] E.g. *Beowulf*, lines 2039-2066, in Fulk, Bjork, and Niles, 69-70.

[90] C. Williamson, ed., *The Old English Riddles of the Exeter Book* (Chapel Hill: University of North Carolina Press, 1977), 109 (lines 21-22).

their hybrid agency from which farmers and spears became warriors who could capture and bind the wealth, bodies, and lives of the people they fought. The hand, too, bound the wild will of the spear—made from ruins, the wilderness, and fickle "vibrant" iron—to the will of the human who grasped it. The spearman was a hybrid actor, but that hybridity was not symmetrical. It depended upon the warrior's skill in controlling the weapon, but also upon the weapon's complicity in yielding to the skilled gestures of the hand that controlled it, withstanding the shock of battle, and growing in "blood hardness" as it was cared for over the months or years of their shared experience (Chapter 4).[91] The synergy of weapon and warrior was built through experiences that transformed the two, weaving their biographies together and transforming their personhood into a hybridized identity. As a spearman, farmers and their tools were able to create new possibilities for social action within the new communities of the post-Roman lowland river valleys.

Spears in the Societies of Post-Roman Britain

Farmyard Tools

Within the rural communities of post-Roman lowland Britain, spears facilitated a variety of crucial social actions that extended beyond—and perhaps, lay behind—their symbolic functions in funerary rites. These actions began in the context of the local farming community. As versatile instruments of violence, spears could meet a variety of important practical on the farmyard. Spears probably indeed saw more use on the farm than on the battlefield. On the farm, a spear can drive off or kill wildlife like deer which threaten grain and coppices, or predators who menace flocks and herds.[92] Similarly, a spear can serve as a good prop to lean against while

[91] Cf. Tim Ingold's concept of "correspondence." Ingold, *Making: Anthropology, Archaeology, Art and Architecture* (London: Routledge, 2013), 27-31.

[92] Both red and roe deer graze on tree shoots, and several could do significant damage to the next year''s tree crop. Cf. Lewis Potter, *Deer Stalking and Management* (Crowood, 2014).

watching livestock and might as suggested above act as a cattle prod to encourage reluctant animals' cooperation. A spear also makes an effective walking stick for a farmer who needs to travel between fields, up to the high pastures and woodlots, or across to a neighbor's homestead. Bede has a young Cuthbert carry a spear on the road, and the author describes this as a normal part of a lay traveler's *habitus* (the staff that Cuthbert carries after his conversion, though a symbol in the story of his holy calling and a source of miracles, filed much the same niche).[93] On the road or in the field, spears made effective tools for self-defense. The sixth-century Continental author Gregory of Tours, for example, describes much violence accomplished by men carrying nothing but a solitary spear.[94] Härke describes the single spears found in many graves as incomplete weapon sets,[95] but while this might be true on a battlefield, a spear on its own was a trusty tool for many everyday circumstances. When we find these weapons buried singly in farmers' graves, we should not jump to the conclusion that they are parts of an incomplete war panoply. Like the knives worn on so many cadavers' belts, these small, lightweight, versatile weapons may have been integral parts of many men's everyday farmyard tool kits—practical objects like the modern farmer's trusty shotgun.

Small Violence: Raids, Duels, and Sport

Even when spears were buried with other weapons (that is, roughly half the weapon burials), the overall impression of the assembled objects rarely resembles gear for war. As

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[93] Bede, *Vita Cuthberti*, VI, in Colgrave, 172.

[94] Gregory of Tours, *Libri Historiarum X,* in Lewis Thorpe, trans., *Gregory of Tours: The History of the Franks* (Penguin, 1977), e.g. 167, 283, 294. However, the fugitive slave Leo clearly thinks a spear and shield are better than a small spear alone (100).

[95] Heinrich Härke, "Early Saxon Weapon Burials: Frequencies, Distributions and Weapon Combinations," in *Weapons and Warfare in Anglo-Saxon England*, edited by Sonia Chadwick Hawkes (Oxford University Committee for Archaeology, 1989), 55-58.

discussed in Chapter 2, the spears of the early sixth century weighed in many cases less than 500g (including the shaft), making them light, nimble weapons well-suited for fencing. The shields buried with them in the late fifth and early sixth century were similarly small and lightweight. Dickinson and Härke's survey of early Anglo-Saxon period shield construction found that fifth century shields had diameters of about 40cm, while those from the sixth century were somewhat larger at c. 60cm.[96] Shields of this size could not be used in a phalanx or massed battle, as they were too small to cover a fighter's full body when locked together with a neighbor's shield. Their design was better suited for open, loose fighting such as between small groups or individual combatants, where the shield could be held far in front of the body and used as a buckler to actively intercept and turn aside attacks.[97] Together with the lightweight spears of the late fifth and early sixth centuries, these weapons formed an effective and portable set of small arms. These weapons would excel as tools for small border skirmishes, for personal defense, or for feats of individual prowess meant to showcase an individual's subtle skill.

It is very likely that members of small farming communities banded together to fight neighboring groups. Guy Halsall, writing about Britain's next-door contemporary neighbor Gaul noted that most annual campaigns appear to have been small affairs meant to gather men together and give them an opportunity to fight each year, rather than to achieve a great military objective.[98] The farmer communities of contemporary lowland Britain would have gained a

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[96] Tania Dickinson and Heinrich Härke, *Early Anglo-Saxon Shields*, Archaeologia 110 (London: The Society for Medieval Archaeology, 1992), 43-47.

[97] Such as, for example, the manner in which combatants hold their comparably small bucklers in the Late Medieval I.33 fencing manual. Jeffrey L. Forgeng, *The Medieval Art of Swordsmanship. A Facsimile and Translation of Europe's Oldest Personal Combat Treatise, Royal Armouries MS I.33* (Highland Village: Chivalry Bookshelf, 2003).

[98] Guy Halsall, *Warfare and Society in the Barbarian West, 450-900*, Warfare and History (London: Routledge, 2003), 27-31.

similar benefit by banding together to raid a neighboring group. Evidence of low-intensity violence like cattle or slave raiding is difficult to identify in archaeological sites, but the few surviving textual sources from fifth and sixth century Britain describe such violence.[99] Violence appears in cemeteries as well. Slightly more than 1% of all bodies, male and female, bear visible weapon wounds on their surviving bones.[100] This number represents a low estimate for personal experiences of violence, as many wounds would not have left visible traces on the bone, and many bones do not survive well enough for injuries to be evident. These wounds, combined with textual accounts like Patrick's *Epistola*, suggest a constant background of interpersonal violence, slave raiding, banditry, or war. Farmers may have fought larger-scale conflicts as well. Such conflicts were rare in the Early Middle Ages (happening roughly once per generation in periods from which documentary sources survive),[101] and Gildas' description of the raids that preceded and the fifty-year peace that followed the battle of Mons Badonicus suggests that this large-scale confrontation may have been an uncommon event in Britain as well.

Small-scale engagements between neighboring farmer youths may often have been non-fatal encounters. Guy Halsall has drawn a comparison between early medieval warrior culture and comparative anthropological evidence to suggest that early medieval conflicts likely followed scripted rituals designed to contain the effects of their violence.[102] The small arms

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[99] I.e. Gildas, *De Excidio Britaniae*: M. Winterbottom, *Gildas: The Ruin of Britain and Other Documents* (Phillimore, 1978); Patrick, *Epistola*: 'St Patrick's Letter against the soldiers of Coroticus', in *St Patrick's World. The Christian Culture of Ireland's Apostolic Age*, trans. by Liam de Paor (Dublin, 1993), 109-16.

[100] This figure comes from Gerrard, *The Ruin of Roman Britain*, 68. In my own catalog, the rates of weapon injuries are 1.06% of the total population.

[101] Guy Halsall, *Warfare and Society in the Barbarian West, 450-900*, Warfare and History (London: Routledge, 2003), 142.

[102] Guy Halsall, "Anthropology and the Study of Pre-Conquest Warfare and Society," in *Weapons and Warfare in Anglo-Saxon England*, edited by Sonia Chadwick Hawkes (Oxford University Committee for Archaeology, 1989), 155-77.

found in so many graves were well suited for these kinds of honor duels or small gang-style brawls in which neighboring youths perhaps met and bloodied each other before returning home to celebrate their bravery.

These fights must sometimes, however, have proven lethal. Despite their small size and light weight, the spears favored within farming communities were capable of causing devastating injuries. Forensic tests have found that skin requires only 0.5-3kg of pressure to puncture, and that once a blade has broken the skin it requires little additional force to continue deep into the underlying fat and muscle tissue.[103] Thin, sharp-tipped blades penetrate skin most easily, and are least likely to be slowed by the tissues beneath the skin's surface.[104] Thin, sharp-tipped blades were ubiquitous on spearheads of the early Anglo-Saxon period. Cemetery evidence shows that these spears killed. One, a man buried at Harwell, for example, had been killed when a spear was skillfully thrust from above his defenses down between his ribs and into his heart. The spear became lodged between his ribs so that it could not be removed, and he was buried with the blade still protruding from his chest.[105] Another unfortunate man was stabbed through the belly into his spine, where the spearhead's broken tip is still lodged.[106] His death may have been much slower and more painful than the man from Harwell. Thrusts to the throat, eyes, upper body, and

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[103] Bernard Knight, "The Dynamics of Stab Wounds," *Forensic Science* 6 (1975), 250; cf. I. Horsfall, P.D. Prosser, C.H. Watson, and S.N. Champion, "An Assessment of Human Performance in Stabbing," *Forensic Science International* 102 no. 2-3 (1999): 79-89.

[104] Knight, 251-53; Knight found that even slight blunting of the tip increased the required pressure to penetrate skin by a factor of six to eight times. The sharpness of the tip itself was most crucial to subsequent penetration: "It must be emphasized that it is the first few millimetres that is most important, and as soon as the tip of the knife has penetrated the dermis, the rest of the weapon follows it with virtually no added force" (253).

[105] P. D. C. Brown, "Notes: The Anglo-Saxon Cemetery at Harwell, Grave 7," *Oxonensia* 32 (1967): 73-74.

[106] Blacknall Field G62. F. K. Annable and Bruce N. Eagles. *The Anglo-Saxon Cemetery at Blacknall Field, Pewsey, Wiltshire*. Wiltshire Archaeological and Natural History Society 4 (Devizes: Wiltshire Archaeological and Natural History Society, 2010), 169, 246-48.

inner thigh could all have proven quick ends to a fight, while stabs below the guard into the groin and viscera may have resulted in slower, agonizing ends. Strikes to other parts of the body could have been less immediately fatal, and many spear duels must have involved a flurry of small cuts and stabs to both opponents whose cumulative effects exhausted each fighter until one was overcome.[107] Little evidence of these smaller blows survives on skeletal remains, but that is unsurprising. Unlike a sword cut, a spear thrust is unlikely to cut bone deeply. Most spear wounds would be archaeologically invisible, damaging muscle, arteries, and organs alone. Despite these limitations, enough evidence of violent injury survives to demonstrate that even if violence were managed and ritualized, combatants could expect to be injured, perhaps severely, and sometimes killed.

When not fighting each other, spearman might also have gathered to hunt wild game. Hunting was a common pastime among elite in the Late Roman Empire, and Frans Theuws has argued that the spears we find in fifth-century graves in Northern Gaul were intended for this purpose (spears, often used in conjunction with shields, were a common hunting weapon in Late Antiquity).[108] Hunting is generally less common among non-aristocratic communities, and indeed evidence for hunting in post-Roman lowland British settlements is sparse. Wild animal bones are rarely recovered from settlement sites before the seventh-century, after which they appear at great hall complexes where they are associated with elite largess and redistribution.[109]

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107 In modern knife attacks, victims typically receive multiple stabs before being overcome. One recent study found that victims of fatal stabbings were struck multiple times in typically 2-4 body parts before succumbing to their injuries. Vipul Namdeorao Ambade and Hemant Vasant Godbole, "Comparison of wound patterns in homicide by sharp and blunt force," *Forensic Science International* 156 (January 1, 2006): 166-170.

108 Frans Theuws, "Grave Goods, Ethnicity, and the Rhetoric of Burial Rites in Late Antique Northern Gaul," in *Ethnic Constructs in Antiquity: The Role of Power and Tradition*, by Ton Derks and Nico Roymans (Amsterdam: Amsterdam University Press, 2009), 306.

109 Naomi Sykes, "Deer, land, Knives and Halls: Social Change in Early Medieval England," *Antiquaries Journal* 90 (2010), 175-93.

Hunting provided an opportunity for men to fight together without risking reprisals from an offended neighbor, however, and early Anglo-Saxon period farmers may have periodically assembled to wage war on their natural environment. The lack of surviving evidence for hunts could indicate their comparative rareness, or else that hunters did not dispose of the remains of their kills in the same way that they disposed of domestic offal. If, for example, hunters consumed their kills in the wild, the evidence of their activities could easily become scattered across the ground's surface whence it would become invisible to archaeologists.

Whether through hunting, brawling, or raiding, therefore, early Anglo-Saxon period spearmen had ample opportunities to engage in small-scale, local violence. The spears buried in their graves likely shared in these engagements. Their light, nimble blades appear well designed for the quick combats of young men whose social standing as male adults depended in part on their ability to skillfully use small arms.

Law and Order

The ability to fight with a spear created the social opportunity to support one's neighbors in quarrels, as mediated through local armed assemblies.[110] Local assemblies of "free" men,

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[110] For discussions of assemblies and assembly places in England, see Sarah Semple, *Perceptions of the Prehistoric in Anglo-Saxon England*, Medieval History and Archaeology (Oxford: Oxford University Press, 2013), 89-94; Semple, "Locations of Assembly in Early Anglo-Saxon England," in *Assembly Places and Practices in Medieval Europe*, edited by A. Pantos and S. Semple, 135-54 (Dublin: Four Courts Press); Howard Williams, "Assembling the Dead," in Pantos and Semple, 109-34; Williams, "Cemeteries as central places: landscape and identity in early Anglo-Saxon England," in *Central Places in the Migration and Merovingian Periods, Papers from the 52nd Sachsensymposium (Lund: Almqvist, 2002)*, 341-362.

The history of armed assemblies in early Anglo-Saxon England is more obscure; due to a lack of documentary sources, there is risk of circular argumentation from the burial evidence. Richard Abels argued that the institutions of military obligation we associate with the Anglo-Saxon *fyrd* did not begin to form until the eighth century. Richard Abels, *Lordship and Military Obligation in Anglo-Saxon England* (Berkeley: University of California Press, 1988). Chapter 8, below, suggests that the beginning of this process can be seen in new types of archaeological sites from the end of the sixth and seventh centuries. Some traditionalists still argue that military service was a "Germanic" institution with deep prehistoric origins (e.g. Stephen Pollington, *The English Warrior: From Earliest Times till 1066* [Norfolk: Anglo-Saxon Books, 2001]).

better documented in the Middle and Late Saxon periods, emerged from the rural communities of the early Anglo-Saxon period. These assemblies likely organized rights of common grazing, and helped resolve legal disputes. ÆÞelberht's law code, promulgated at the end of the sixth century, likely preserves a set of Kentish oral jurisprudence for resolving disputes arising from personal injuries.[111] Similar traditions arose across the post-Roman West, and although some authors have attempted to link these traditions to ill-defined ancient "Germanic" customs (such as those described vaguely by Tacitus), their origins are not clear. Regardless of their origins, the local assembly became a crucial arena within which rights and obligations could be managed as other forms of social authority crumbled in post-Roman Britain.

Spearmen were local assemblies' chief instrument of power, because the assembly derived its authority from its members' ability to coerce offending parties to pay fines through the threat of armed violence. If an offending party refused to make restitution to the person they had wronged, the aggrieved might use violent retribution to make themselves whole. Recent scholarship on early medieval law and violence has stressed that private vengeance, such as through instigation of a feud, was an integral component of early medieval social order.[112] Tom Lambert argues that legal fines and vengeance worked as a carrot and stick, incentivizing

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Legal evidence, particularly the portion of ÆÞelberht's code that details personal injury, may give the best glimpse into these practices. T.B. Lambert, *Law and Order,* argues that community disputes were settled through systems of fines backed up with the threat of interpersonal violence, and such violence must have been—in the absence of a central authority—exacted by armed members of the community. Without venturing too deep into speculation about how this armed mob was ordered, we can nevertheless say that community members had reason to support one another through arms, and must have sought opportunities to remind each other of their mutual interest. For descriptions of parallel processes in contemporary France, see Halsall, *Warfare and Society*, 27-31.

[111] Lambert, *Law and Order*, 27-62. "That judgements given by assemblies were important aspects of legal practice is likewise suggested by the context of oral transmission: people surely memorized these laws in the expectation that they be applied and if not in assemblies of some sort, then where? Æthelberht's laws make the existence of assemblies explicit: they explain that breaching the peace of assembly (*mæthl*) requires twofold compensation" (44).

[112] E.g. Paul Hyams, Rancor and Reconciliation in Medieval England (Ithaca: Cornell University Press, 2003).

offenders to satisfy persons they injured to avoid escalation.[113] In such a system, the threat of violence depended upon the availability of armed allies willing to violently support an aggrieved party's demand for restitution. An assembly's ability to make good on its demands for restitution depended upon its accumulated strength at arms.

Men may have brought their weapons with them to assemblies. In better documented parts of the post-Roman West, textual sources describe occasions when men were encouraged to bring weapons to assemblies. Persons in Gaul who sought to reclaim stolen property, for example, or to pass their property to another, were instructed to bring a *festuca*—a spear shaft—while men who wished to marry were to bring a shield.[114] Many have interpreted the association between weapons and legal rights, too, as an ancient Germanic custom; Tacitus describes something similar in his first-century Germania, for example.[115] In fact, however, the practice of bringing a *festuca* to court derived from Roman jurisprudence, in which a spear represented a man's right to own property.[116] Bringing weapons to assemblies also served a practical purpose. If a litigant wished to confront an offender, the men who brought spears to the assembly would be the ones who formed the posse that would enforce the demand for satisfaction.[117] Bringing a spear to court demonstrated one's willingness to support the decisions of the local community, as well as one's personal worth as a valued member of the community's brute squad. Spears were

[113] Lambert, *Law and Order*, 27-31.

[114] E.g. *Pactus Legis Salicae* 44, 46.1-5, 50.3.

[115] E.g. Tacitus, *Germania*, XIII.

[116] Second-century legal commentator Gaius the Jurist wrote, "Festuca autem utebantur quasi hastae loco, signo quodam iusti dominii, quando iusto dominio ea maxime sua esse credebant, quae ex hostibus cepissent; unde in centumuiralibus iudiciis hasta proponitur." Gaius, *Institutionum Commentarii Quattuor*, IV.16, in *Gai Institutionum Commentarii Quattuor: Separatim ex Iurisprudentiae Anteiustinianae Reliquiarum a Ph. Eduardo Huschke Compositarum*, by E. Seckel and B. Kuebler, 6th edition (Leipzig: B.G. Teubner, 1903), 196

[117] Lambert, *Law and Order*, esp. 44.

not merely traditional, abstract symbols of individuals' access to property rights or rights of common; they were the tools through which these rights were maintained.

The act of assembling, with weapons, to manage community rights and disputes drew small farming communities together into a larger political entities centered around the possession and use of small arms. Local assemblies must have drawn from wide social catchments. Because sixth-century settlements were small and geographically dispersed, any group of armed men larger than a dozen farmers would have had to be assembled from many small farmsteads. Assemblies brought these scattered neighbors together for collective action, and reinforced consciousness of the wider social community that they shared. These gatherings would have given these persons chances to build friendships, trust, and perhaps to showcase individual skill at arms to prove their worth as neighbors who could pull their weight should a dispute turn violent.[118] These relationships grew from the need for mutual defense, and weapons lay at their center. The ubiquitous presence of weapons in the contemporary funerary landscape may be a byproduct of these living assemblies. Like legal gatherings, funerals drew persons from the wider social landscape together to negotiate a communal loss.[119] Funerals therefore presented an ideal moment for a farming community to recommit itself to mutual support through the public bearing and display of arms.

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[118] Cf. Guy Halsall, *Warfare and Society in the Barbarian West, 450-900,* Warfare and History (London: New York: Routledge, 2003), 27-31 and 53, although Halsall's argument speaks of assemblies of free warriors organized by elites.

[119] Howard Williams, "Assembling the Dead," in *Assembly Places and Practices in Medieval Europe*, edited by A. Pantos and S. Semple, 109-34; Williams, "Cemeteries as central places: landscape and identity in early Anglo-Saxon England," in *Central Places in the Migration and Merovingian Periods, Papers from the 52nd Sachsensymposium (Lund: Almqvist, 2002),* 341-362.

The Spear's Biography

As spears moved through the life events of the humans who used them, they developed biographies of their own.[120] These biographies could have been closely linked to the life of a single person, and some spears were doubtless buried with the same individual who had carried them home from the forge. Properly cared for, however, a spear could outlive individuals, pass through many sets of hands, and bind each person who touched it together across a genealogy of shared ownership. These circulations are very difficult to identify from archaeological evidence alone, though in one case a typologically fifth or sixth-century spearhead survived to be deposited in an iron hoard with eleventh-century artifacts, suggesting a circulation that spanned half a millennium.[121]

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[120] E.g. Igor Kopytoff, 'The Cultural Biography of Things: Commoditization as Process,' in *The Social Life of Things: Commodities in Cultural Perspective*, edited by Arjun Appadurai Cambridge University Press, 1986), 64-94; Chris Gosden and Yvonne Marshall, 'The Cultural Biography of Objects,' *World Archaeology* 31 no. 2 (October 1999): 169-78; Jody Joy, "Reinvigorating Object Biography: Reproducing the Drama of Object Lives," *World Archaeology* 41 no. 4 (December 2009): 540-56.

[121] This spearhead was a clear example of a stepped cross-section spearhead from the fifth or sixth century. Carole A. Morris, "A Late Saxon Hoard of Iron and Copper-Alloy Artefacts from Nazeing, Essex," *Medieval Archaeology* 27 (1983): 27–39. Spearheads' blade shapes are usually, however, not distinct enough to demonstrate whether or how a weapon moved from the forge where it was made, and heirloom spears have thus been difficult to identify, largely due to the chronological and typological issues outlined in Chapter 3. Glimpses of wide itineraries occasionally survive, however, such as the spear shafts at Lechlade made from a timber that did not grow locally and must have come from some distance. These shafts, made from pine, were a poor material choice, suggesting they might have been brought to the Thames Valley cemetery for their social or biographical, rather than functional, value. Boyle, Angela, David Jennings, David Miles, and Simon Palmer. *The Anglo-Saxon Cemetery at Butler's Field, Lechlade, Gloucestershire. Volume 1: Prehistoric and Roman Activity and Anglo-Saxon Grave Catalogue*. Vol. 1. Thames Valley Landscapes Monograph 10 (Eynsham: Oxford Archaeological Unit, 1998), 82-83, 165, 216-17.

In contrast to spears, swords' circulations can often be identified. Frans Theuws and Monica Alkemade discuss examples of swords and scabbards that have been assembled from parts whose styles date to different centuries, indicating the circulation of sword components outside the funerary sphere for many generations; 'A Kind of Mirror for men: Sword Depositions in Late Antique Northern Gaul,' in *Rituals of Power: From Late Antiquity to the Early Middle Ages*, edited by Frans Theuws and Janet L. Nelson (Leiden: Brill, 2000), 401-476. Textual sources speak of circulation in the Middle and Late Saxon periods; Heinrich Härke, "The circulation of weapons in Anglo-Saxon society," in *Rituals of Power from Late Antiquity to the Early Middle Ages*, edited by F. Theuws and J. L. Nelson, 377–99 (Leiden: Brill, 2000).

Contemporary texts help us outline some of the ways that objects circulated in the early Anglo-Saxon period. Across the English Channel, Gregory of Tours' sixth-century *Ten Books* describe people gifting (and un-gifting) weapons to mark important changes in their relationships with the weapons' recipients. For example, Guntram gives a spear and shield to his nephew Childebert when the two make peace, declaring "Let one single shield protect us both … and a single spear defend us. Even if I still have sons, I will nevertheless … look upon you as one of them."[122] Guntram repeats this gesture later in the text, when he transfers his kingdom to Childebert, "King Guntram placed his spear in King Childebert's hand and then he said: 'This is a sign that I have handed the whole of my realm over to you. Go now, and by this token take under your own rule all my cities, just as if they were yours.'"[123] In another scene, Mummolus—who is about to betray Gundovald—demands that Gundovald return a gifted sword, which Gundovald immediately recognizes to mean their friendship has come to an end.[124] Other sixth-century texts record similar exchanges surrounding the gifting of weaponry. Procopius, for example, cites a similar practices of gifting weapons to transfer power between rulers (a practice the Romans wrongly ascribe to the Persian "barbarians," to the mortification of the latter).[125] These practices, found across the sixth-century Mediterranean world, appear in later English texts as well. In Bede's *Ecclesiastical History*, the "pagan" priest Coifi joins the royal retinue of Eadwine by taking up weapons, including a spear. Cuthbert, in Bede's *Prose Life*, does the opposite, giving his spear to his attendant before entering the monastery and setting aside his

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[122] Gregory of Tours, *The History of the Franks* (Penguin, 1974), 275.

[123] Ibid., 416.

[124] Ibid., 294.

[125] Procopius, *History of the Wars*, I.xi.

"habitum saecularem."[126] In each of these texts, the weapon acted as a conduit through which friendship and other social relationships were granted or withdrawn.

Weapons that circulated widely could extend and change social relationships across distance and time. The sections above described how weapons became material parts of the personhood of youths, marking their transition into adulthood, their masculine gender, and their worth as good neighbors who could support communal acts of violence. Spears not only marked these aspects of a person's life; they participated in and constituted youths' emergence as social persons, and thereby objectified aspects of these persons' subjectivity. Marilyn Strathern argues that such objects, if they change hands, preserve connections to past owners which she called "enchainment."[127] Objects that change hands "enchain" their owners across time and space, drawing each into a shared history embodied within the object.[128] A single spear which passed, unbroken, through several persons' hands created enchainments that stretched across the early medieval social landscape. A weapon might bind together a father and son, a warrior and his adopted heir, or a farmer and the man who killed him and robbed his corpse. Each set of connections could have social consequences, transferring obligations embodied within the weapon's metal from one person to another, and imbuing the weapon with new layers of memory and meaning. Such obligations are described in near-contemporary texts like *Beowulf*, in which stolen or borrowed weapons never fully lose their ties to the persons who carried them before.[129]

[126] Bede, *Ecclesiastical History*, II.13; Bede, *Prose Cuthbert*, VI, in Colgrave, 172. For a general discussion of gift-giving and social relations in the early Middle Ages, cf. Florin Curta, "Merovingian and Carolingian Gift Giving," *Speculum* 81, no. 3 (July 2006), 671-699.

[127] Marilyn Strathern, *The Gender of the Gift: Problems with Women and Problems with Society in Melanesia*, Studies in Melanesian Anthropology 6 (University of California Press, 1988), 161-65.

[128] See also Chapman, *Fragmentation*.

[129] This will be discussed further in Chapter 6.

If early medieval persons believed, as argued in Chapter 4, that iron was changed by the blood it shed, an old spear's metal might hold fragments of wild beasts, brave warriors, and captured slaves. The humans who owned and cared for weapons might preserve these connections through stories, songs, and memories that were rehearsed when weapons were displayed or exchanged.

Some spears must have grown famous biographies from their experiences. The poems which survive from the later centuries tell elite stories, and they describe the exploits of famous swords and the great heroes who used them. The everyday farmers who moonlighted as warriors probably had stories of their own about their favorite spears and the creatures they had killed. These stories would have changed the weapons in the eyes of the men who described them; or perhaps more accurately, reminded the storytellers of the ways in which they believed their weapons to have already been changed by the experiences they had been endured. Stories of spears would have been tales of blood-hardened iron that reminded their hearers of the weapons' worth.

Spears must also sometimes become polluted through participation in shameful acts of murder, or socially exhausting events like a protracted feud. If spears were believed to be changed by the blood they shed, weapons might come to embody animosity, treachery, or bloodlust as easily as friendship. Later medieval texts describe cursed swords that shed blood every time they were drawn, and the later Old English *Solomon and Saturn* dialogue warns its readers to pray a paternoster each time they draw a weapon to keep the devil at bay.[130] In *Beowulf*, Unferth's sword Hrunting was battle-hardened by killing Unferth's kinsmen, and

[130] Cursed swords: H.R.E. Davidson, *The Sword in Anglo-Saxon England: Its Archaeology and Literature* (Woodbridge: Boydell and Brewer, 1998), 214; Daniel Anlezark, *The Old English Dialogues of Solomon and Saturn* (D.S. Brewer, 2009), lines 161-69.

predictably betrayed Beowulf when he borrowed it.[131] In the sixth century, when smiths and farmers believed that spears were changed by the blood they shed, weapons that won infamy could easily have become similarly cursed in the eyes of their communities.

The stories and memories each spear accumulated gave them social meaning, but they also made spears agents in their own right—or rather, added to the agency that spears carried with them from their materials. Spears mediated human relationships, but they also became active components of these relationships in their own right.[132] As the physical, vibrant embodiment of social ties between farmers, a spear could make absent persons present, and through so doing, make demands on behalf of these absent persons—sometimes, in direct contravention of any human's intent or desire. Such is the disaster that *Beowulf* describes at the wedding feast.[133] Conversely, spears could be broken, abandoned, or unmade in rejection of those demands—a common part of the funeral rite (Chapter 6).

Through such gift giving, storytelling, and agentive action, spears built social networks between persons across early Anglo-Saxon communities. Spears bonded to the farmer-warriors who cared for their blades, they bathed in the blood of the men and beasts they killed, and they stretched relationships between members of emerging communities across time and space as they changed hands, fought enemies, and attended assemblies with their human keepers.

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[131] On Unferth as a kin-slayer, *Beowulf*, lines 587-97, in Fulk, Bjork, and Niles, 22; the giving of Hrunting, lines 1457-60 (pages 50); Beowulf excuses Hrunting's betrayal, in order—the narrators claims—to spare Unferth's pride (lines 1810-13; pages 61).

[132] Julie Lund makes a parallel argument concerning weapons of the Viking Age: "At the water's edge," in *Signals of Belief in Early England: Anglo-Saxon Paganism Revisited*, edited by M. Carver, S. Semple, and A. Sanmark, 49–66 (Oxford: Oxbow Books, 2010).

[133] *Beowulf*, lines 2039-2066, in Fulk, Bjork, and Niles, 69-70.

Conclusion: The Spear's Many Meanings

The events, experiences, and contexts above allowed spears to take on a rich array of social, symbolic, and agentive meanings. To the farmers who used these weapons, spears were intimate objects connected with childhood memories, daily life, and personal identity and self-worth. To these men, spears were tools through which a man could demonstrate his personal honor as a brave, reliable member of his local and wider community. Spears also represented opportunity: to not only protect one's own self, but to reach out and take the wealth or freedom of another. For some men, whose back-breaking hours at plough and scythe left little time for martial diversion, the spear may have been a source of anxiety: would it break, or would they? For others, it may have offered an escapist fantasy from their unheroic lives. For many, the spear was a tool that supported their daily lives.

Spears shaped the practices of early sixth-century community life. They forced farmers to seek out and form friendships with their neighbors, and they gave these same farmers the means to ensure that these friendships remained civil. Spears' presence in the funerary landscape likely reflects a wider practice of armed assembly through which farmyard life paused and men (and perhaps some women) became warriors for a day. Assembled under arms, reassured themselves of the safety of their small worlds. In a real sense, spears were community: their presence at the center of social life made abstract, unstable bonds of friendship real enough to hold in the hand. To the extent that spears came to symbolize such abstract social categories as freedom, masculinity, or adulthood, they did so because of these kinds of material entanglements.

At the graveside, all—or none—of these meanings could be called to mind within the rituals of the funeral. Weapon burial commemorated the deceased by dressing him up and laying him out for the community to see and mourn. Often, those assembled would see a warrior instead of a farmer: a man ready to pull his weight as their neighbor one last time. The objects buried with the deceased could be carefully assembled to activate aspects of the dead man's biography, or to draw on the biographies of the objects themselves to enhance or subvert the overall effect of the funeral. Sometimes, spears were changed during the funeral rites. As discussed in the next chapter, many were broken before they were buried, perhaps to "kill" their social agency or to contain the polluting experiences that their iron had accrued during its social life.[134] In the funeral, spears show us a glimpse into the world that produced them, depended upon them, and ultimately discarded them by the thousands at the graveside.

[134] Cf. L. V. Grinsell, "The Breaking of Objects as a Funerary Rite." *Folklore* 72, no. 3 (September 1961): 475–91; Grinsell, "The Breaking of Objects as a Funerary Rite: Supplementary Notes," *Folklore* 84, no. 2 (June 1973): 111–14.

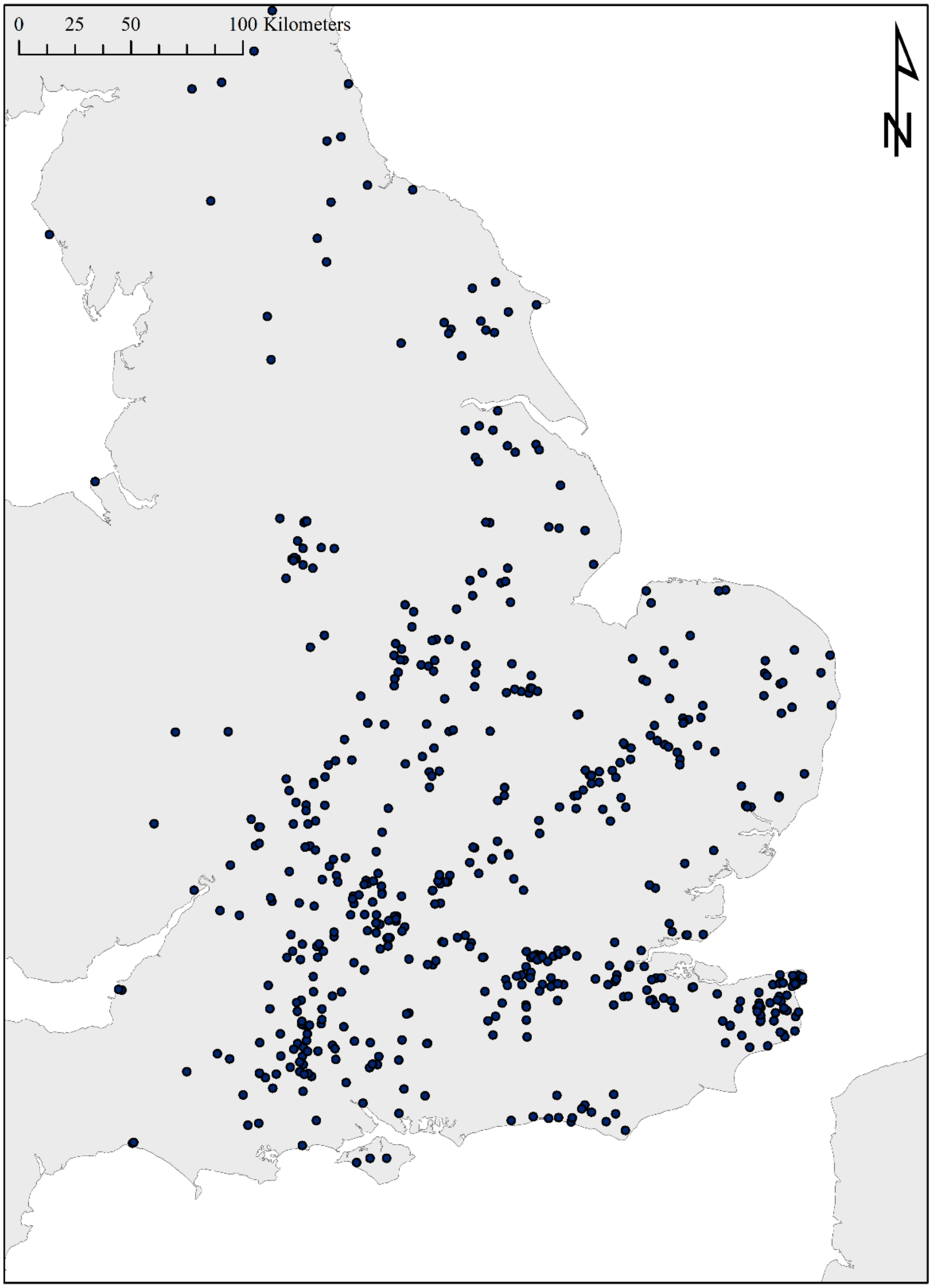

Figure 5-1. The findspots of 4,000 spearheads. These find spots represent close to the full corpus of spearheads excavated from early medieval burials in Britain. The data is combined from this project's catalog, Swanton's 1966 and 1974 datasets, Härke's unpublished database, ASKED, and several published sites included in none of these databases. I did not attempt to identify stray finds from the PAS, nor did I review county HERs. Swanton, "The Spear in Anglo-Saxon Times"; Swanton, *Corpus*; Sue Harrington and Stuart Brookes, "ASKED – the Anglo-Saxon Kent Electronic Database," *Journal of Open Archaeology Data* 1 p.e2 (2012).

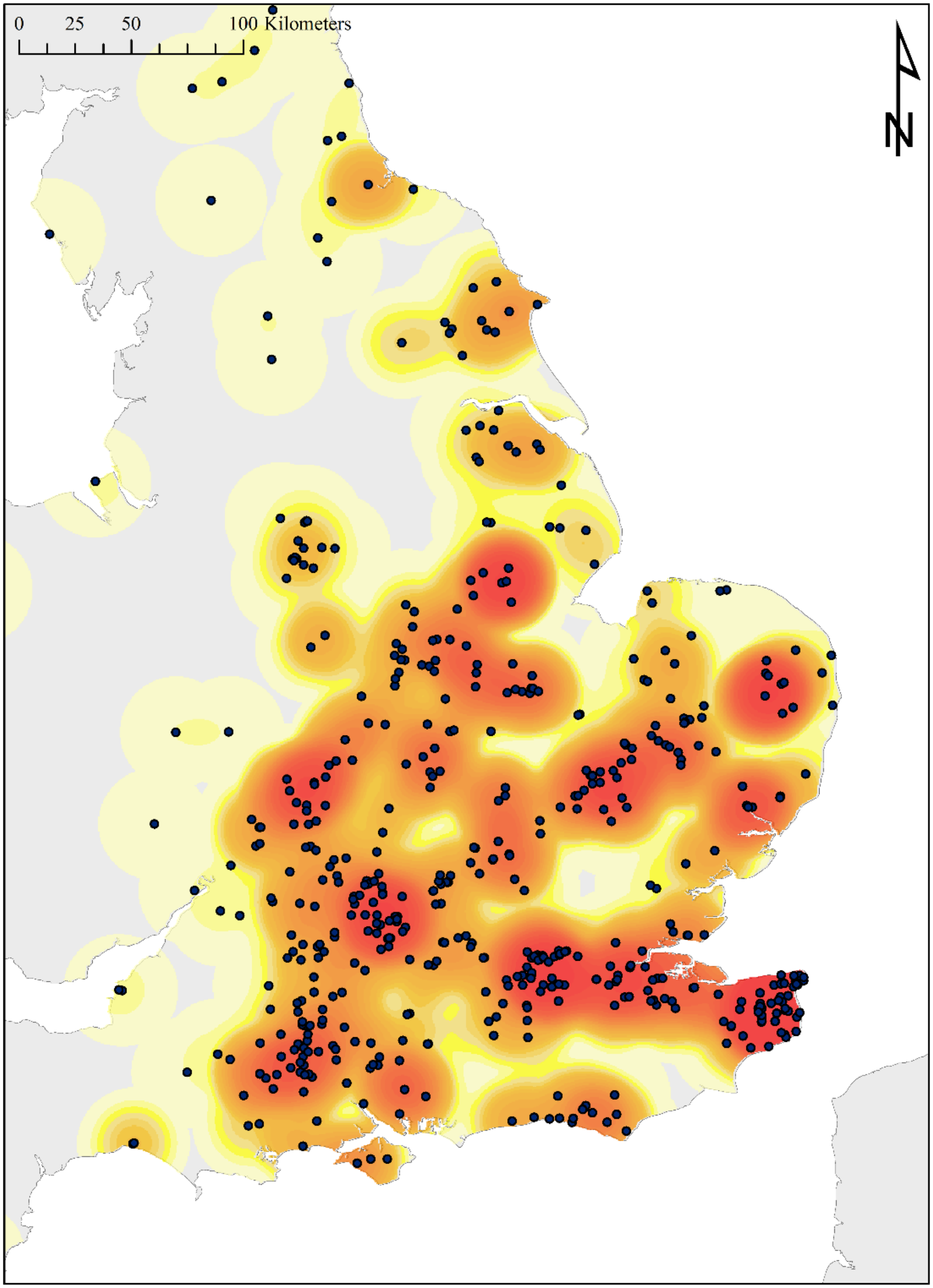

Figure 5-2. A heatmap showing the concentration of spearhead finds in Britain. This heat map uses the same 4,000 spearheads as Figure 5-1.

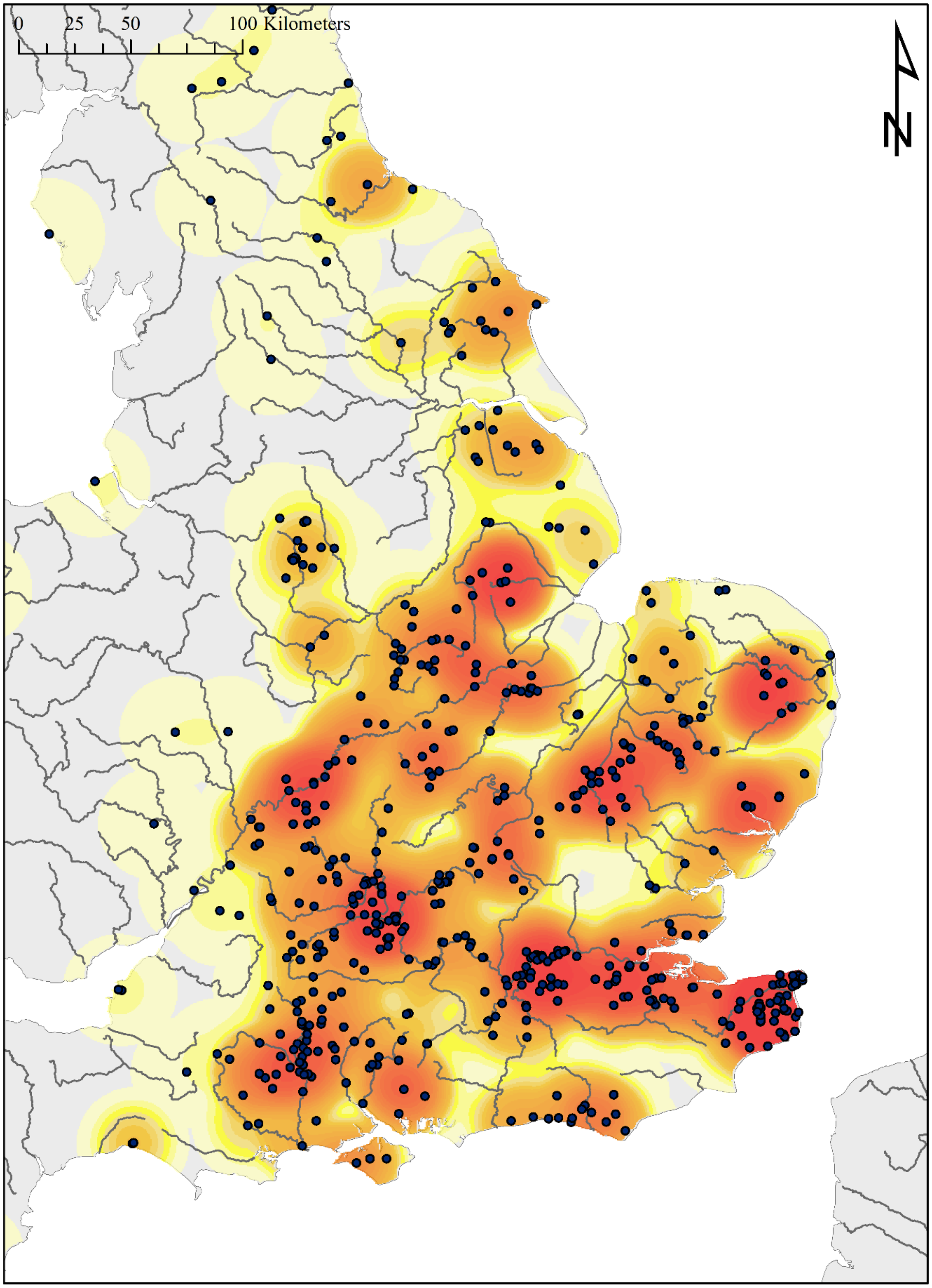

Figure 5-3. Spearheads and waterways. This figure overlays major waterways onto the map of spearheads findspots. Most spearheads were found within 2km of water.

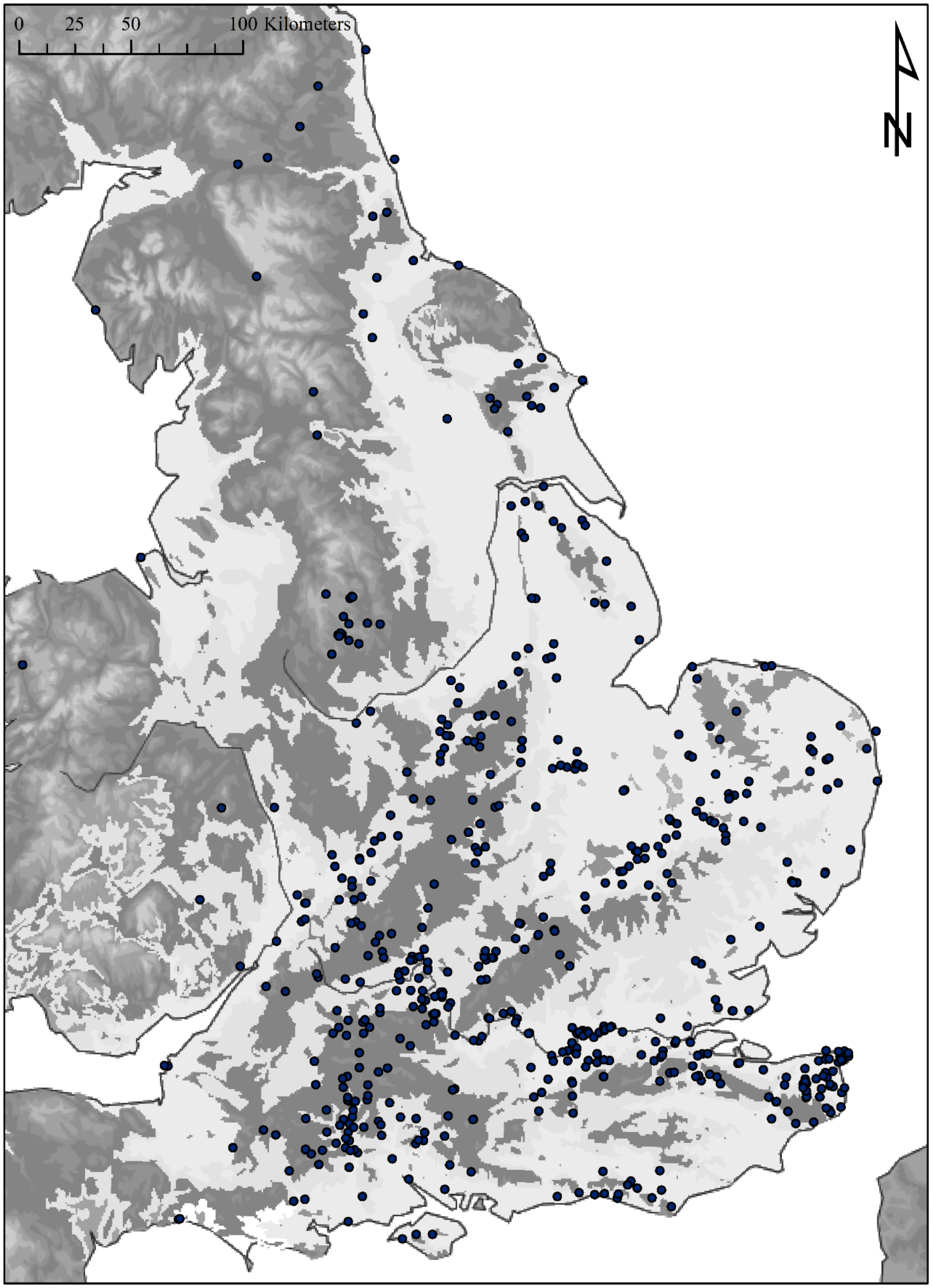

Figure 5-4. Spearheads and elevation. This figure overlays spearhead findspots with elevation. Most spearheads were found on the edges between river valleys and higher elevations.

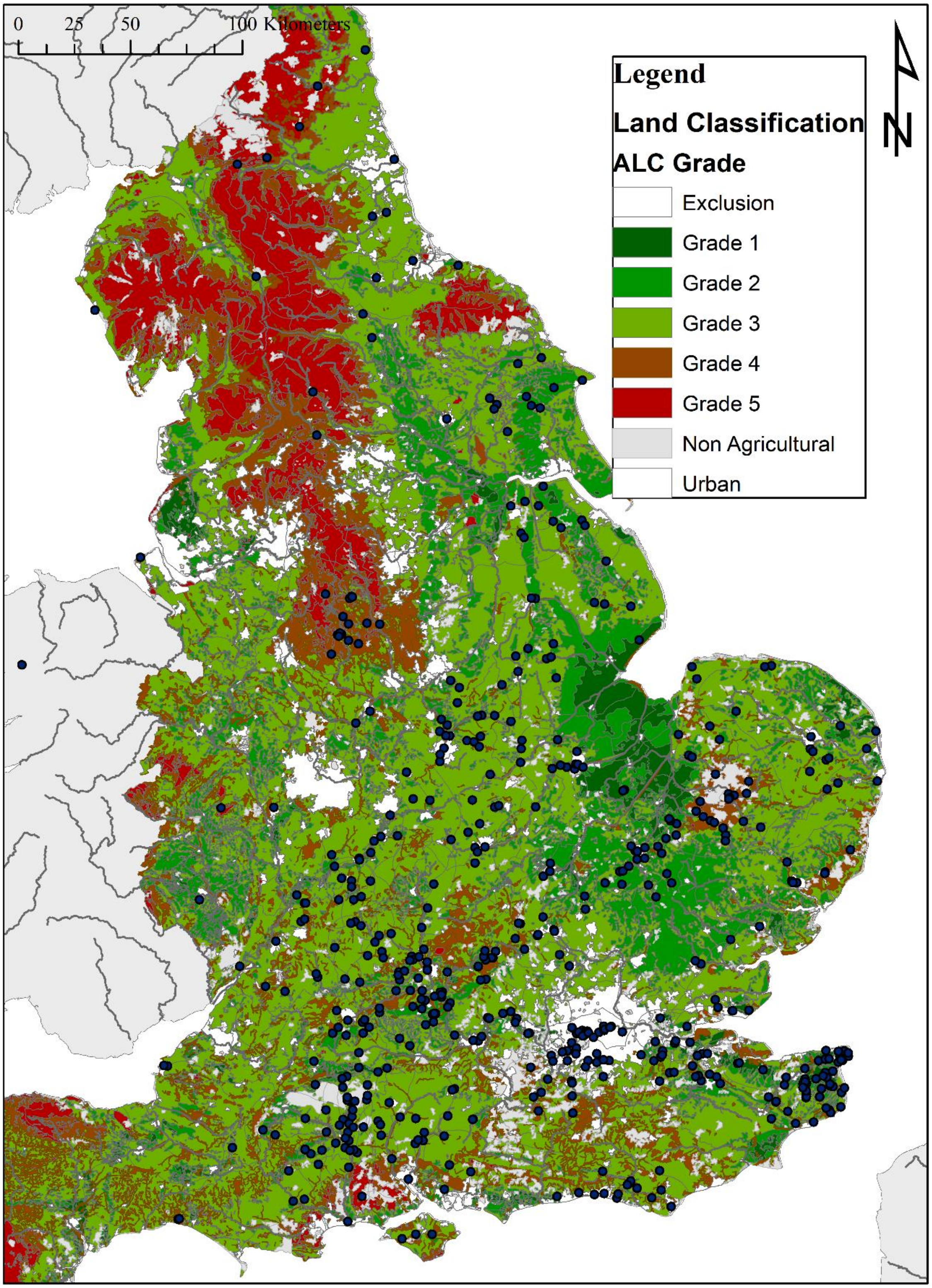

Figure 5-5. Spearheads and soil fertility. This figure overlays spearhead findspots with soil fertility, classified using data from the Ministry of Agriculture, Fisheries and Food's Agricultural Land Classification of England and Wales.

CHAPTER 6
WHOSE DEATH? THE FUNERARY DESTRUCTION OF SPEARS

Members of a sixth-century Lincolnshire community near modern-day Quarrington gathered in their village cemetery around a freshly dug grave, and looked down at the body they had just arranged. He was 35 years old, and lived a rough life. His leg was crippled; he had had an accident in his youth. It healed badly, but the limp did not stop him from fighting—and losing. His skull was split open. That, too, healed and a second blow to the head did not stop him from living to a respectable age, in a community where many died of disease in their 20s. Tania Dickinson, who published the details of his grave, thought he must have been a warrior to be injured so many times. Perhaps he was a just quarrelsome drunk, or singularly unlucky.[1]

Either way, his community buried him well. His grave was carefully dug, his body laid carefully on its back, and his hands placed at his side with his ankles crossed. Someone lay a spear (his spear?) on top of his corpse. Before they put the spear on his body, though, they broke it twice. The three pieces were arranged on his chest in the shape resembling the letter Z. This shape (ϟ), called a z-rod by early medieval art historians, is depicted in stone carvings across the North of the British Isles. Dickinson wondered whether this imagery, which art historians have associated with broken power and with death, might have reflected the community's feeling of loss at a brave warrior's passing.[2] Perhaps it was meant to banish the oft-injured man's ill luck. Or perhaps it was not about the man at all, but spoke instead to something more immediate within the materials of the image itself: the deliberate, intentional destruction of a retired weapon.

[1] Quarrington grave 1, in T.M. Dickinson, "An Early Anglo-Saxon Cemetery at Quarrington, near Sleaford, Lincolnshire: Report on Excavations, 2000-2001." *Lincolnshire History and Archaeology* 39 (2004): 24–45.

[2] Dickinson, "Quarrington," 26, 38.

The imagery depicted in this grave is unique, but the destruction of spears at the graveside was common across lowland britain in the early Anglo-Saxon period. This chapter will argue, on the basis of metallurgical and contextual evidence, that fully half the spears buried in the early Anglo-Saxon period were destroyed, decommissioned, or "killed" before being placed into the grave. This evidence has gone largely unremarked, due to its ephemeral nature. Elsewhere in Iron Age and Early Medieval Northern Europe, weapons' destruction is easy to identify. Spearheads buried in the offering field outside Uppåkra (Sweden), for example, were bent and twisted before they were deposited, while many of the blades deposited in the bog at Illerup Ådal were cut along their edges before being thrown into the bog.[3] Such obvious damage is fleetingly rare across the corpus of early Anglo-Saxon spearheads, however, and this led Heinrich Härke to conclude in 1992 that in England, weapons were almost always buried whole.[4] The evidence that spears were destroyed—killed—before burial is much more subtle than that from the contemporary Continent, but it is also pervasive across the entire period, across all regions where weapon burial was practiced, across every type of spearhead. This destruction stands in contrast to the funerary treatment of swords, and marks an especial concern across communities of early medieval England to confront and control the material bodies of spears, and whatever agency they contained within them.

The weapons buried with the dead in English cemeteries are frequently interpreted as statements about the deceased. Weapons, it is argued, reveal identity, ethnicity, gender, social

[3] B. Helgesson, "Tributes to Be Spoken of: Sacrifice and Warriors at Uppåkra," in *Continuity for Centuries: A Ceremonial Building and Its Context at Uppåkra, Southern Sweden*, by Lars Larsson, 223–39, Uppåkrastudier 10 (Stockholm: Almqvist & Wiskell International, 2004); Jørgen Ilkjær, *Illerup Ådal: 1 Die Lanzen Und Speere Textband*, vol. 1, Jutland Archaeological Society Publications 25 (Arhus: Aarhus University Press, 1990).

[4] Heinrich Härke, *Angelsächsische Waffengräber des 5. Bis 7. Jahrhunderts*, Zeitschrift für Archäologies des Mittelalters 6 (Köln: Rheinland-Verlag Gmbh, 1992), 226.

status, or claims to social authority by the living.[5] In these interpretations, the spears which accompany the dead are props intended to support a scripted, theatrical message that the living wove around the remains of the dead, designed to create a specific memory of the deceased, to advance the reputation or prestige of the surviving family, or to intimidate others present at the graveside who might see this person's death as an opportunity to challenge local hierarchies of power.[6] The next Chapter will examine those questions in detail. This chapter, however, argues that our focus on the human cadaver has caused us to overlook another set of negotiations at the funeral that took place between human mourners and the wood and iron of the spears. The human funeral was also a funeral for things, agentive materials whose social lives were ended, with violence, during the funeral.

Two kinds of destruction frequently recur across the English funerary landscape: broken spear shafts, and heated and softened iron blades. There are several explanations for each of these practices, ranging from the practical considerations of the grave digger (the need to fit long

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[5] Ellen-Jane Pader, *Symbolism, social relations and the interpretation of mortuary remains* (Oxford: BAR, 1982); Julian Richards, *The Significance of Form and Decoration of Anglo-Saxon Cremation* (Oxford: BAR, 1987); Heinrich Härke, 'Warrior Graves? The Background of the Anglo-Saxon Weapon Burial Rite,' *Past and Present* 126 (1990): 22-43; Härke, *Angelsächsische Waffengräber*; Guy Halsall, 'The origins of the Reihengräberzivilisation: forty years on,' in J.F. Drinkwater and H. Elton, ed., *Fifth-Century Gaul: A Crisis of Identity?* (Cambridge, 1992), 196-207; Halsall, 'Archaeology and the late Roman frontier in Northern Gaul: The so-called Föderatengräber reconsidered,' in W. Pohl and H. Reimitz, ed., *Grenze und Differenz im früheren Mittelalter* (Österreichische Akademie der Wissenschaften: Vienna, 2000), 167-80; Nick Stoodley, *The Spindle and the Spear: A Critical Enquiry into the Construction and Meaning of Gender in the Early Anglo-Saxon Burial Rite*, BAR British Series 288 (Oxford: Archaeopress, 1999); Howard Williams, "Keeping the Dead at Arm's Length: Memory, Weaponry and Early Medieval Mortuary Technologies," *Journal of Social Archaeology* 5, no. 2 (June 1, 2005): 253–75; Frans Theuws, "Grave Goods, Ethnicity, and the Rhetoric of Burial Rites in Late Antique Northern Gaul," in *Ethnic Constructs in Antiquity: The Role of Power and Tradition*, by Ton Derks and Nico Roymans (Amsterdam: Amsterdam University Press, 2009), 283–320.

[6] Guy Halsall, 'Burial writes: graves, "Texts" and time in early Merovingian Northern Gaul,' in J. Jarnut and M. Wemhoff, ed., Erinnerungskultur im Bestattungsritual. Archäologisch-Historisches Forum (Munich, 2003), 61-74; Howard Williams, *Death and Memory in Early Medieval Britain*. Cambridge Studies in Archaeology (Cambridge: Cambridge University Press, 2006); Heinrich Härke, 'Material culture as myth: weapons in Anglo-Saxon graves', in C.K. Jensen and K.Høilund Nielsen (eds), *Burial and Society: the Chronological and Social Analysis of Archaeological Burial Data* (Aarhus, 1997), pp. 119-128.

spear shafts into small graves) to the ongoing involvement of the smith in managing the behavior of changeable iron. Together, the evidence reveals a widespread, structured set of practices by the communities that buried weapons with the dead that destroyed spears before placing them into the ground. This chapter explores the evidence for graveside destruction of spear shafts and blades, the practical and social functions these practices might have served, and the possibility that beneath these functional concerns lurked deeper fears of agentive things that had shed blood.

Broken Spear Shafts

Spears with Ferrules

Many spear shafts were snapped before they were placed into the grave, though few were buried in such a showy manner as the spear that accompanied the unlucky man from Quarrington, above. This damage is not, however, always easy to see. Because no complete spear shafts survive in English burials, the shaft's condition must usually be identified indirectly, from contextual clues within the grave. In a handful of cases, a dark stain or a few fragments of friable timber survive in the soil from the shaft's decomposed wood, and these sometimes reveal whether the shaft was buried whole or broken. Most often, however, broken or whole shafts can only be identified from the position of the spearhead relative to the cut of the grave and (when it is present) the ferrule. Nevertheless, ample evidence survives that spear shafts were frequently broken before being placed into the ground.

Spears buried with ferrules offer the clearest indication of the condition of the shaft at the time of burial. In undisturbed graves, whose contents have not been relocated by plows, burrowing animals, or other post-depositional events, the relative position of the spearhead and ferrule reveal whether the two might still have been connected by an unbroken length of shaft.[7] A finely decorated spear buried with an old man at Blacknall Field, for example, must have been broken before it was buried, for the spearhead was found in situ parallel to his body and next to his head, while the ferrule was placed horizontally across the base of the grave, at a 90° angle to the spearhead and the corpse.[8] Given the absence of evidence for any post-depositional disturbance of this burial, the spearhead must have been snapped into two parts to be placed in these positions. The same circumstances are repeated elsewhere, as for example in a burial at Beckford where a spearhead and ferrule were found buried at a 90° angle to one another, and only 8cm apart.[9] In like fashion, a spearhead and ferrule at Kilverstone were found directly beside and parallel to one other.[10] In contrast to these graves, a spearhead and ferrule that accompanied a roughly thirty-year-old man at Worthy Park were neatly aligned with one another along a single axis, 168cm apart—a plausible length for an unbroken shaft.[11] The shaft that connected spearhead and ferrule to each other is now completely decomposed and invisible, but its unbroken line can clearly be imagined between the undisturbed positions of the surviving metal components. Similarly, another man buried at Blacknall Field (Grave 9) was buried with a

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[7] Individual cases of broken spears, discovered from such contextual clues, have been noted in many site reports, but no survey has hitherto been attempted.

[8] Blacknall Field, grave 22; Annable and Eagles, 163, 199-204.

[9] Beckford A, grave 22; Vera I. Evison and Prue Hill, *Two Anglo-Saxon Cemeteries at Beckford, Hereford and Worcester*, CBA Research Report 103 (York: Council for British Archaeology, 1996), 78, 103, 130.

[10] Kilverstone, grave 113; Sam Lucy, "The Early Anglo-Saxon Settlement and Cemetery," in *Excavations at Kilverstone, Norfolk: An Episodic Landscape History*, by D. Garrow, S. Lucy, and D. Gibson, 170–201, East Anglian Archaeology 113 (Cambridge: Cambridge Archaeological Unit, 2006), 190-91.

[11] Worthy Park, grave 22; Sonia Chadwick Hawkes, Guy Grainger, J. Bayley, Anne Dodd, and Edward Biddulph. *The Anglo-Saxon Cemetery at Worthy Park, Kingsworthy, near Winchester, Hampshire*. Oxford University School of Archaeology Monograph 59 (Oxford: Oxford University School of Archaeology, 2003), 30, 32, 95.

spearhead and ferrule lying, 190cm apart, beside his corpse.[12] Not only were the spearhead and ferrule aligned along the axis of the wooden shaft; the bones of his hand rest supported by the soil into which this shaft had decayed.

Few graves are as pristine as Blacknall Field 9, and it is common for the spearhead and ferrule to have shifted somewhat in the 1500 years between burial and excavation. A variety of taphonomic processes can influence the position in which spearheads and ferrules are found. Coffins and other supporting structures inside the grave decay and collapse over time, causing the position of artifacts placed upon them to shift. The grave fill compacts, pushing artifacts downward as the soil settles. The corpse itself changes shape, bloating, collapsing, and even moving in response to the worms and other creatures which inhabit and consume its flesh. Animals burrow into graves, roots push objects aside, and plows churn the contents of burials placed too near the surface. All these processes can cause a spearhead's position to shift after a grave is closed, and must be considered before the position in which a spearhead is found today can be attributed to deliberate human actions in the past.

The effects of taphonomic processes are evident in many graves from the study sample. In a grave from Mucking, for example, the spearhead and ferrule faced each other when viewed from above, but each had tipped inward toward the bottom of the collapsing, compressed coffin.[13] A dark stain from the spear shaft survives between the two iron fittings, but compacting pressure had forced this stain deeper into the grave, approximately 10cm below the two metal fittings. This process is easy to identify at Mucking thanks to the stain left by the spear's shaft.

[12] Blacknall Field, grave 9; Annable and Eagles, 161, 183-84.

[13] Mucking I, grave 248; Hirst and Clark, *Excavations at Mucking: Volume 3, The Anglo-Saxon Cemeteries. Part I Introduction, Catalogues and Specialist Reports*, vol. 3.i., Mucking Monograph Series (London: Museum of London Archaeology, 2009), 387-90.

At other cemeteries, where no shaft stain survives, spearheads are found in similar positions where they have fallen into coffins. For example, a similar process had rotated the spearhead out of position in a grave at Wasperton, but the ferrule remained in place at the grave's foot because it had been stabbed into the firm soil at the edge of the grave cut.[14] Collapsing corpses, like coffins, could also cause spearheads to shift. At Blacknall Field, a man was buried with a spear resting on his corpse.[15] The spearhead and ferrule were 23° out of alignment with one another when they were recorded by the excavators, but the spear was probably buried whole. The collapsed position of the human bones indicate that the body was buried in a container (a coffin); as the corpse decomposed, its chest caved in, its ribs splayed apart, and its femurs rotated out of their sockets. The wooden spear shaft, which had been buried inside the coffin directly on top of the cadaver, decayed alongside the corpse, and the spearhead—like the bones on which it rested—rolled away as the body fell to pieces.

While these kinds of taphonomic processes are at work in many graves, the position of a significant proportion of spearheads in the burial can only be explained by deliberate human intervention. Of the 95 spearheads that were buried with a ferrule, the position of 37 can only be explained if the spear's shaft were broken before it was placed into the grave. Forty-nine spears with ferrules do not appear to have been broken before burial. The condition of the shaft in the remaining 9 contexts cannot be clearly interpreted. Omitting these 9 cases, 43% of spears with ferrules were broken before being placed into the ground.

[14] Wasperton, grave 148; Carver et al., 289.

[15] Blacknall Field, grave 8; Annable and Eagles, 161, 180-82.

Spears without Ferrules

The majority of spears did not have ferrules when they were buried, however, and it is more challenging to identify the condition of the shaft in these graves. Several common contextual clues, however, frequently survive. The most useful is the position of the spearhead in relation to the sides of the grave cut. Many spears were found, undisturbed, in positions whose proximity to the edge of the grave was such that the shaft must have been broken to fit them there. In several cases, portions of the broken shaft adhere to the surviving blade. In other burials, the position of metal fittings from the shaft suggest whether or not it were buried whole.

Many spearheads were buried with their sockets near or against the edge of the grave cut, leaving little to no room for an unbroken shaft.[16] At Edix Hill (Barrington A), Cambs., for example, a spearhead was found to the right of the corpse's head with its socket facing the side of the grave cut, leaving only 25cm of space for a shaft.[17] At Beckford, a young man was buried with two spears, one parallel to the body, but the second at a 90° angle to the corpse which left only 14cm for its shaft.[18] At West Heslerton, a long, deliberately bent spearhead was placed on the chest of an older man, its socket mouth 46cm from the edge of the grave.[19] And again, at Stretton-on-Fosse, a woman was buried with a spear angled across her body, leaving room for

[16] H. Härke has also estimated the lengths of broken and unbroken shafts in several cemeteries using this method. E.g. in Annable & Eagles, 12.

[17] Edix Hill (Barrington A), grave 48; Malim, Hines, and Duhig, 63, 118, 143.

[18] Beckford A, grave 4; Evison and Hill, 75, 95, 128.

[19] West Heslerton, grave 176; Christine Haughton and Dominic Powlesland, *West Heslerton: The Anglian Cemetery*. Vol. 2. (Yedingham: Landscape Research Centre, 1999), 308-309.

only 66cm of shaft.[20] None of these spearheads could have been placed into these positions had their shafts not first been broken before burial.

These cases are repeated across the study sample. Among the 733 spear burials in my database, 109 spearheads were found in undisturbed contexts placed so close to the edge of the grave that there was room for less than 100cm of protruding shaft. These spears' shafts must have been broken, removed, or significantly shortened to fit them into the positions in which they were found. A similar number of spearheads were buried with their sockets between 100 and 125cm from the edge of the grave cut. These, too, had likely been broken before burial. It is possible that some spears may have had shafts as short as 1.25m. The average length of the wooden shaft on unbroken spears buried with ferrules, however, is 150cm, and 90.6% of these unbroken weapons had more than 125cm of shaft protruding from their sockets.[21] Altogether, 184 (25%) of the spears surveyed in this study were found by excavators to lie with their socket mouths within 125cm of the grave's edge. Some of these spears, however, may have shifted position after burial, due to taphonomic processes such as the collapse of coffins or decomposition of the corpse.[22] Some also were buried with children, and may have been intentionally reduced to a size appropriate for a child's frame. With these cases removed, however, there remain at least 113 spears whose undisturbed position beside adult remains is only possible if their shafts were broken or removed before burial.

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[20] Stretton-on-Fosse, grave 96; W.J. Ford, "The Romano-British and Anglo-Saxon Settlement and Cemeteries at Stretton-on-Fosse, Warwickshire," *Birmingham and Warwickshire Archaeological Society Transactions* 106 (2003): 64-65.

[21] For discussion of these calculations, see Chapter 2.

[22] In 23% of burials without a ferrule, the condition of the shaft was marked 'unknown'. The most common form of post-depositional movement is the collapse of coffins, which often causes the spearhead (resting on top of the container) to fall inward at an angle. As a result, many spears are found resting near the base of the grave with their points facing skyward. The original condition of the shafts (broken or whole) cannot be determined. See, for example, Wasperton grave 126, Mucking II 535 & 556, and Finglesham 181.

Other, more subtle clues sometimes reveal pre-depositional damage to the spear's shaft. In several cases, traces of the shaft survive on the outside of a spear's socket. A Flixton spearhead was found buried with traces of ash inside its socket, and a long piece of the same material adhered to the outside of the blade. The shaft had been snapped into two parts, and these halves were bundled together parallel to each other in the grave, so that the broken half of the shaft adhered onto the side of the corroding metal spearhead. Similar cases are found in other graves, though care must be taken to distinguish between wood from a broken shaft and timber from other wooden objects in the grave such as coffins. Wood adhered to the outside surface of 25 of the spearheads in my sample; 13 of these almost certainly wood from the coffin (usually oak) or a shield on which the spearhead rested.[23] In 12 cases, however, the wood can be identified as part of the spear's own shaft.[24] Many of these spears were buried in a position in the grave that could have accommodated an unbroken shaft, and their broken condition would not have been recognized apart from this chance survival.

Many other clues of broken or absent spear shafts survive. Two spearheads, one in Yorkshire and one in Kent, were buried in a pouch at the waist, and must therefore have been removed from their shafts before burial. The Yorkshire pouch also held a ferrule, perhaps from the same spear.[25] Other spearheads were buried with no traces of wood surviving in their sockets,

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[23] Spearheads with wood adhered to their blades not belonging to a broken shaft: Buttermarket 1306 (coffin); Saltwood W1705 (coffin); Saltwood C1159; Saltwood C1325 (coffin); Saltwood C6653 (coffin); Mucking II 950 (shield); Mucking II 338; Mucking I 244 (coffin); Mill Hill 36 (?coffin); Mill Hill 93 (?coffin); Sutton Hoo 17 (shield); Tranmer House 20 (coffin); Covent Garden 363 (coffin).

[24] Spearheads with wood adhered to their blades which has been identified as remnants of a broken shaft: Boss Hall 51; Butler's Field 65; St Mary's Stadium 5352; St Mary's Stadium 5352; Saltwood C1048; Saltwood C6643; Saltwood C3713; Saltwood C4650; Snape 47; Finglesham 74; Boss Hall 74.

[25] West Heslerton, grave 151; Updown (Eastry III), grave 31; Haughton and Powlesland, 261-63; Martin Welch, "Report on Excavations of the Anglo-Saxon Cemetery at Updown, Eastry, Kent," *Anglo-Saxon Studies in Archaeology and History* 15 (2008): 22-23, 87, 111.

and empty rivet holes, which together could indicate that the shaft was removed from the spearhead before the latter was placed in the grave.[26] In at least 13 graves, a ferrule alone was buried with no spearhead.[27] In some of these, the spearhead may have been removed from the grave by later plowing, but it might be that some graves held only half of a broken spear, the spearhead being removed for some other purpose. This is supported by an unusual burial from Dover Buckland, in which a spearhead with willow or poplar in its socket was buried with a ferrule mounted on hazel.[28] If the wood has been correctly identified, these two objects must have come from two separate spears, both which were broken with only part of each placed into the burial. What was done with the other halves—whether reused, recycled, or kept as heirlooms—cannot now be known, but may have been known to and important for the people who were there.

Taken together, a significant proportion of the spear shafts buried in inhumation graves were broken before they were buried. More than 132 (21%) of the spears buried with no ferrule were broken, from contextual clues in the grave. These spears represent a minimum count; many more shafts might have been broken, but no evidence survives in most cases to indicate the condition of the shaft in either way. These numbers compare favorably with the 43% of ferruled spears whose broken shafts are clearly indicated by the sundered positions of their two halves. The higher number recorded from spears with ferrules may represent a more accurate count of the true proportion of shafts that were broken before being placed into the grave.

[26] For example, Alton 4; Gunthorpe F54; Springfield Lyons 4996; Springfield Lyons 6545; Stretton-on-Fosse F85; Temple Hill 20; Temple Hill 28; Temple Hill 37; Temple Hill 47; Water Lane, Melbourn 73.

[27] Wasperton 9; Wasperton 57; Wasperton 73; Wasperton 90; Flixton II 9; Buttermarket 3659; Springhead 300257 2105; Butler's Field 58/1; Butler's Field 151; Butler's Field 151; Great Chesterford 8; Great Chesterford 134.

[28] Buckland, grave 8. Vera I. Evison, *Dover Buckland Anglo-Saxon Cemetery* (New York: English Heritage Publishing, 1987), 217.

Interpreting Broken Spear Shafts

There need not be a single explanation for why so many spear shafts were broken before they were placed into the grave. Spears existed within fields of action that perpetuated certain social practices across generations, yet the choice to break a spear remained the purview of the agents who assembled for the funeral preparations and celebrations. Some spear shafts could have broken during use, their pieces being retained for burial with a cadaver. Broken spears might be collected, as mementos or trophies. A man killed in battle might be buried with the broken fragments of his own weapons.[29] The spearheads buried in pouches at West Heslerton and Updown, Eastry, have the appearance of mementos or heirlooms, removed from their shafts and kept for sentimental, familial, or biographic value. One, the spearhead buried at Eastry, accompanied the body of a women. Other spears appear to have been broken into multiple fragments, only some of which were placed in the grave. When ferrules alone were buried with the body, the weapons' spearheads could have been reused, recycled, given away, or kept as by the living. Some such exchange could help to explain the burial in which a spearhead and ferrule from two separate, broken spears were placed together. Such acts of fragmentation could have been used to forged new links between members of the living community, or with the dead.[30] Spearheads buried without attached shafts could, likewise, indicate the post-depositional circulation of these weapons' wooden components.

Some spears may have been broken for the prosaic reason that they were too long to fit into short grave cuts. The grave diggers might not have always anticipated the length of the

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[29] Only four persons buried with broken spears in the study sample had weapon injuries, and it is unclear whether any of these wounds were fatal. Castledyke South 17B; Beckford A 2; Quarrington 1; Stretton-on-Fosse 96.

[30] I.e. Chapman, John. *Fragmentation in Archaeology: People, Places, and Broken Objects in the Prehistory of South Eastern Europe*. London New York: Routledge, 2000.

spears that would, during the funeral, be pushed into the grave. In certain soils or times of year, the effort of digging a larger pit to accommodate a long spear may have been an unpleasant prospect, prompting the decision to shorten the shaft. This cannot always have been the case, however, as broken spears have been recovered from large chamber graves whose expansive pits could have accommodated long, unbroken shafts. A 3.26 x 1.55m chamber grave at Saltwood Tunnel, for example, held the remains of 2 spears, at least 1 of which had clearly been snapped before burial.[31] Graves with unbroken spears, moreover, show that functional considerations often took a backseat to the mourner's desire to bury the spear intact. Several graves, for example, contain small alcoves cut into the soil above the corpse's shoulder, extending the grave cut just enough to fit a too-long, unbroken shaft into a grave that had initially been dug too short.[32] These graves show that burying spears whole was sometimes worth the extra effort. In other graves, spears that could not fit into the grave flat were laid into the ground at an angle, the spearhead projecting high above the corpse. Many other spears were placed diagonally across the grave from corner to corner for extra space, and some were thrust into the soil at the top or bottom edge of the grave cut to fit their length into the ground.[33] These burials show that mourners who wished to bury a spear in a particular condition—broken or whole—found ways to do so.

Practical considerations may explain why some spear shafts were broken, but do not account for the ubiquity of the practice across the study period and region. The great frequency with which weapons' shafts were broken at the grave suggests that the physical act of destruction

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[31] Saltwood, grave C6653.

[32] E.g. Alton 16; Empingham 75 & 98A; Snape 20.

[33] E.g. Wasperton, grave 148.

was an end in itself. “Killing”” ceremonies and sacrifices are common parts of human funerary practices, especially when communities seek to permanently dispose of powerful or dangerous objects.[34] Spear shafts may have been broken to end their social lives and trap their agency in the grave.

Softened Spearheads

The metallurgy of surviving spearheads preserves evidence of a second way that spears were destroyed before burial. Chapter 4 discussed the lengths to which smiths went to strengthen and harden the iron of spears’ blades. Yet across the corpus of surviving spearheads analyzed with metallography, many blades are surprisingly soft, and in many cases show clear evidence of annealing (deliberate softening) at some point before their burial. David Starley, who discovered seven such cases among eight spears analyzed from Wasperton, wondered whether these blades’ softening might have been a deliberate action to ruin their metallurgy before burial.[35]

Across the corpus of spearheads, a significant number show evidence of annealing—slow softening—in the forge as the final event in their history of heating and cooling. Fire can both harden or soften iron, depending on the processes used. If iron contains sufficient levels of carbon, it can be hardened by heating it to the critical temperature (800°C) and rapidly cooling it by dunking it in water or oil. Heat can also soften iron through a process called annealing. There are several ways to anneal iron, and each method leaves a distinct trace in the material’s

[34] Grinsell, L. V. “The Breaking of Objects as a Funerary Rite.” *Folklore* 72, no. 3 (September 1961): 475–91; Grinsell, L. V. “The Breaking of Objects as a Funerary Rite: Supplementary Notes.” *Folklore* 84, no. 2 (June 1973): 111–14.

[35] David Starley. ‘The Metallurgical Examination of Ferrous Grave Goods from Wasperton: Anglo-Saxon Cemetery MN80-85,’ Royal Armouries Technological Report, 2006, part 1, available at: http://archaeology dataservice.ac.uk/archiveDS/archiveDownload?t=arch-810-1/dissemination/pdf/Archive_Starley_ iron_work_07.pdf (accessed 31 March 2015), 28.

metallurgy which can be identified during metallographic analysis. A simple way to soften iron is to heat the material past the critical temperature (again, 800°C for high-carbon steel, but hotter if less carbon is present). Once the metal is heated, it can be annealed if, in instead of rapidly cooling it by quenching it in liquid, the smith allows it to slowly cool on the edge of the forge.[36] This heating and slow cooling allows large, soft grains to grow within the metal, normalizing the material and leaving it soft for re-working. Steel can be more thoroughly softened, however, using a different process called spheroidization. To spheroidize steel, a smith heats it to a lower, subcritical temperature (650-700°C) and holds it steady at this temperature for several hours. Spheroidization causes carbon within the metal to aggregate into spherical clusters. The resulting microstructure, called 'spheroidized pearlite,' is exceptionally ductile (soft). The process is used today to render tool steels soft enough to mill.[37] Spheroidization is a slow process; many of the spearheads that contain spheroidized pearlite were held at subcritical temperatures for several hours. Holding the spear at these temperature, in a small forge powered by hand bellows, could easily have taken the better part of a day or night to completely spheroidize the material. Evidence for both kinds of annealing survives in a significant number of early Anglo-Saxon spearheads, though these processes are most easily recognized in alloys which contain carbon (and spheroidized pearlite can only form—and hence only be found—when carbon is present).

Evidence of annealing is widespread across the corpus of spearheads analyzed with metallography. 70 spearheads from the early Anglo-Saxon period have been investigated using metallography. 54 of these were analyzed in sufficient detail for their heat-treatment histories to

[36] Cf. George Krauss, *Steels: Processing, Structure, and Performance* (Materials Park, Ohio: ASM International, 2005), 252.

[37] Krauss, 256-59.

be reconstructed. Of these 54, at least 17 (31%) were annealed after their forging was completed and before they were buried.

Evidence of Annealing

At West Heslerton, Yorkshire, 12 spearheads were analyzed, and 5 of these had been annealed before burial.[38] Interestingly, many had been hardened first before later being softened. The first of the five, a long leaf-bladed spearhead from a grave dated to the early sixth century, was forged from good high-carbon steel welded to low-carbon iron, and it had been quench hardened. [39] At some later point, however, the blade was re-heated to 650°C and held at this temperature for several hours, long enough for the carbon to spheroidize and soften.[40] A second spearhead, this time a step-profiled blade from the late fifth or early sixth century, was forged from a single piece of good high-carbon steel.[41] It had also been initially quench hardened, but was later, like the first, heated to subcritical temperatures for hours to spheroidize its carbon and soften its blade. Similar evidence survives from three other spearheads, each of which was heated to subcritical temperatures that stripped away their hardness.[42]

In the neighboring cemetery of Sewerby, Yorks., a single spearhead was analyzed and it, too, had been annealed through spheroidization. This narrow, angular spearhead from the late

[38] Moir, "The metallographic and scanning electron microscope analysis of some iron spearheads."

[39] West Heslerton, grave 183 (object 852791 / 852791).

[40] Its edge hardness was reduced to 134HV, almost as soft as unalloyed ferrite. The center of the blade retained greater hardness, perhaps remaining from its original heat treatment.

[41] West Heslerton, grave 85 (object 867652 / 2BA443AC).

[42] West Heslerton, graves 151 (872468 / 2BA903AA), 158 (872477 / 2BA938BG) & 73 (900587 / 2B68AA; but recorded as 900567 in Moir 1990). The spearhead in grave 158 had a hard core, like the spearhead from grave 85, but its exterior had been softened through reheating. The spearhead from grave 73 was likely made from recycled scrap, and had been annealed at a subcritical temperature.

sixth century was forged from piled low-carbon iron and steel. It was heated to subcritical temperatures for several hours until its blade was transformed to softened spheroidized pearlite.[43]

Similar cases are found across England. In East Anglia, a large, concave-profiled spearhead from Boss Hall, Ipswich, was softened, though not through spheroidization.[44] This spearhead was heated to high temperatures and allowed to cool slowly. This normalized the material, creating large grains in the blade, precipitating the metal's carbon into the grain boundaries, and leaving the metal soft. Several other East Anglian spearheads from Flixton and Tranmer House might represent less successful attempts to soften blades. These spearheads contained carbide needles which were probably produced by reheating the blades to somewhat lower temperatures (approximately 300°C) for several minutes.[45] Blakelock and McDonnell have suggested that carbide needles like these may result from funerary destruction, but in the case of these three spearheads it is more likely that the carbide needles formed as a byproduct of slack quenching or, else, from a deliberate attempt to color their blades (at 300°C, iron's surface forms a thin iridescent blue oxide coating).[46]

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[43] Sewerby, grave 11 (590167 / 11/1). Its edge hardness was reduced to 159 HV, little harder than unalloyed ferrite.

[44] Boss Hall, grave 51; Vanessa Fell and David Starley. 'A technological study of ferrous blades from the Anglo-Saxon cemeteries at Boss Hall and St Stephen's Lane Buttermarket, Ipswich, Suffolk,' *Ancient Monument Lab. Rep.* 99/18 (London: Historic England, 1999), 7.

[45] Flixton II, grave 1 (1/1); Tranmer House, graves 20 (20.1) & 27 (27.1); Janet Lang, "Flixton Spearheads: A Technical Examination," Unpublished metallographic analysis, 1-2; J. Lang and Q. Wang, "Metallurgical analysis of the spearheads," in C.J.R. Fern, *Before Sutton Hoo: The Prehistoric Remains and Early Anglo-Saxon Cemetery at Tranmer House, Bromeswell, Suffolk*, 121-23, East Anglia Archaeology Report 155 (Bury St Edmunds, Suffolk County Council, 2015), 121-123.

[46] Cf. Janet Lang, "The metallurgy of the spearheads," in S. Boulter and P. Walton Rogers, *Circles and Cemeteries: Excavations at Flixton*, 131–32, East Anglian Archaeol. Rep. 147 (Bury St Edmunds: Suffolk County Council Archaeological Service), 132; Brian Gilmour and Alessandra Giumlia-Mair, ''What did iron really look like? Patination and Coloring Treatments on Iron and Steel,'' *Materials and Manufacturing Processes* 24 no. 9 (2009), 99-1006; and discussion in Chapter 2.

Most of the twenty spearheads from Edix Hill (Barrington A) were, unfortunately, not published with sufficient detail to determine their heating cycles.[47] In two cases, the published analysis made it clear that the spearheads were hardened.[48] The remainder were described only in terms of their weld structures and chemical composition, and the published micrographs were printed at too low magnification to visually identify any microstructures.

Unambiguous cases of annealing survive from Kent. Three of the ten spearheads and angons analyzed from the Saltwood Tunnel cemetery have, again, the spheroidized pearlite indicative of annealing at subcritical temperatures. The first, a large angular seventh-century spearhead, was made from a fine-grained, high-quality iron and high-carbon steel which would have been easily quench hardened.[49] The spearhead was skillfully made, but like the spearheads above it was annealed for several hours (spheroidized) at some point between its completion and burial. A large, angular sixth-century spearhead from the same site was made from a fine-grained iron onto which hard steel edges had been welded.[50] It, too, was spheroidized. The third, a long leaf-bladed spearhead of the late sixth or early seventh century, underwent the same treatment.[51]

Four other Kentish spearheads were studied from the 1994 excavations of Dover, Buckland. One of these spearheads contained some spheroidized pearlite, but this was restricted to the interior of the blade, while the grains near the blade's edge were coarser and not

[47] Gilmour, B. and Salter, C. "Ironwork: technological examination of the knives, spearheads, and sword/weaving batten," in T. Malim, J. Hines and C. Duhig, *The Anglo-Saxon Cemetery at Edix Hill (Barrington A), Cambridgeshire*, CBA Research Report 112, 250–56 (York: Council for British Archaeology, 1998).

[48] Edix Hill, graves 46 (146.1) & 47 (147.2).

[49] Saltwood Tunnel, grave C1159 (1183).

[50] Saltwood Tunnel, grave C3885 (2258).

[51] Saltwood Tunnel, grave C6231 (2406); this spearhead was made from two halves, one steel and one iron, and Gilmour questioned whether it might have warped if the smith had attempted to quench it.

spheroidized.[52] Unlike the cases above which were softened after their manufacturing was complete, this spearhead appears to have been reheated and allowed to air-cool after it was annealed, re-hardening (though somewhat ineffectively) a blade made soft at an earlier time, probably as a byproduct of its manufacture. This spear was not annealed. None of the three other spearheads from Buckland showed evidence of annealing or reheating, either.

In the west, eight spearheads at Wasperton were analyzed, and seven had been annealed.[53] In most of these, reheating (above the critical temperature) and slow cooling had caused carbon (in the form of pearlite) to begin to aggregate in the grain boundaries. Most were not held at subcritical temperatures long enough to spheroidize this pearlite, but the annealing nevertheless destroyed their heat treatment and ruined their hardness. There is evidence that these blades, like those from other sites, had originally been hardened. A sixth-century concave-bladed spearhead, for example, had been forged with high-carbon steel edges whose metallurgy preserves traces of martensite from its original heat treatment (quenching). It was, however, subsequently reheated, breaking down these hardened structures.[54] All seven annealed spearheads from Wasperton date to the middle of the sixth century.

Altogether, it was possible to reconstruct the heat treatment histories of 54 of the 70 spearheads analyzed with metallography. 17 (31%) of these (or 20, if the three East Anglian spearheads with carbide needles are counted) were annealed at some time between the completion of their blades and their burial. These spearheads are found across England, and their chronological distribution corresponds to the frequency with which weapons were buried across

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[52] Dover Buckland, grave 323 (323a).

[53] Starley, "The Metallurgical Examination of Ferrous Grave Goods from Wasperton."

[54] Wasperton, grave 91 (3139/1). Its hardness was reduced to 201 HV, a half to a third of the hardness expected from tempered martensite.

the study period, i.e. the majority date to the first half of the sixth century, but they are not concentrated in any particular time or place. The post-production, pre-depositional reheating and softening of spearheads' blades was a frequent, widespread, and long-lasting practice across the early Anglo-Saxon social landscape.

Interpreting Annealed Spearheads

Annealing, like breaking the shaft, need not tie back to one single explanation. It is clear that in every case, annealing was a deliberate choice rather than an accidental byproduct of some other process. To achieve the metallurgical structures observed, a person had to carefully heat the blade to very high temperatures, in many cases holding the metal for several hours in a carefully controlled fire.[55] Several explanations for this choice have been proposed in reference to the individual cemeteries where these cases were identified. Doug Moir, for example, argued that the annealed spearheads at West Heslerton were softened to improve their toughness, that is to make them shatter resistant.[56] This would certainly have worked: spheroidized pearlite is very soft, and will deform before it will break. We might ask, however, why these spearheads' makers carefully welded edges of steel onto some of these spearheads' edges and quench hardened them into tough, sharp cutting edges, before reversing course at the last moment and rendering the blades almost perfectly soft.[57] Further, these blades were not merely normalized to improve their toughness; they were held, in some cases, for the better part of a day at very carefully controlled temperatures, a process that must have required the smith to sit by the bellows of their forge with

[55] Krauss, 259.

[56] Moir, D. "The metallographic and scanning electron microscope analysis of some iron spearheads from the Anglian cemetery at West Heslerton, North Yorkshire," in P. Benoit and P. Fluzin (eds), *Paléométallurgie du fer and cultures*, 453–63 (Belfort: Vulcain, 1995), 454.

[57] E.g. West Heslerton, grave 85 (867652 / 2BA443AC).

one eye near the fire. If a smith had merely wanted to toughen the blades against shattering, a quick heat and slow, unattended cool would have sufficed.

Brian Gilmour suggested that the spheroidized blades from Saltwood Tunnel became this way when their makers' tried to change the color of the blades' surfaces.[58] Annealing turns steel a dull, matte grey which one might suppose could have been desired as a particular aesthetic. This process would, however, have again reversed the carful labor that went into forging each of these blades, ruining their metal's hard-won properties for aesthetic effect. Perhaps some spear owners were so shortsighted.

It might be that some spearheads were softened to remove the fragments of a broken shaft. Many re-enactors will burn out the remnants of shafts that have been riveted in place. When spearheads were riveted into place, the rivet heads were typically hammered flush with the surface of the spear socket.[59] Consequently, the rivet is very difficult to remove without chiseling out the remnants of the broken shaft that encases it. Putting the socket in a fire to burn out the wood is as easy fix that exposes the metal pin to view so that it can easy removed. Burning the shaft from a socket could easily ruin the blade's heat treatment, though one would have to leave a spearhead in a hot forge fire for a very long time to spheroidize its blade. However, it is unlikely that many of the annealed spearheads were heated to remove a broken shaft; this is because only 2 of the 17 annealed spearheads had rivets through their sockets. The other 15 sockets could easily have been removed from a broken shaft by hand.

David Starley suggested the final possibility after completing his examination of the spearheads from Wasperton. After finding that all but the very softest spearhead had been

[58] B. Gilmour, 'Metallurgical analyses on Early Anglo-Saxon grave goods from Saltwood Tunnel,' CTRL specialist report series [unpublished] (2006), 18-19.

[59] This is true for roughly 2/3 of the spearheads studies for this project.

annealed before burial, Starley wondered whether this softening served no technological nor aesthetic purpose, but instead was a deliberate act of destruction to 'kill' these objects before their burial.[60]

Deliberate Destruction of Weapons at the Graveside

By the time they reached the graveside, many spears had formed complex networks of relationships within their human communities. Weapons and their agrarian owners lived their lives together, and sometimes must have won fame through shared exploits. Chapter 4 argued that blades with notches and wear on their edges signaled storied histories for others to read, and embodied harrowing experiences within the material properties of their metal and wood. Spears were, as was argued in the previous chapters, changed by battle blood in the material experience of early medieval metallurgists. Just as the holy ink with which St. Columba blessed an iron blade imbued that object with a monastic aversion to physical violence (discussed in Chapter 4), the human and animal blood with which warriors coated weapons' blades may have been believed by some to change these objects' physical properties.[61] Their wooden shafts, once fed by rain, were likewise now nourished by gore.[62] Metal was trained, wood was warped to kill, and the spear became an object filled with animate potentiality—an animus (that is, a mind of its own, though not to be confused with a human intellect. The animus of weapons could be both strength and curse; heirloom blades were hardened by blood, but so were cursed weapons.[63]

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[60] Starley, 28.

[61] Adómnan, Vita Sancti Columbae, XXX, in *Adomnan's Life of Columba*, ed. by A.O. Anderson and M.O. Anderson, Oxford Medieval Texts (Oxford: Oxford University Press, 1991).

[62] Exeter Riddle 73, in Williamson, 108-09.

[63] Noteably, Unferth's kin-slaying sword Hrunting in *Beowulf*, lines 587-97, in Fulk, Bjork, and Niles, 22.

If weapons' entanglements within fields of actions changed the agency they exerted, these changes cannot indeed have always been positive. The eighth-century poem *Beowulf* warns, repeatedly, of the danger of weapons that escaped their masters.[64] Beowulf, for example, warned that a stolen sword would one day bring Hrothgar to ruin. The sword is carried to a wedding at the side of the man who stole it from one of Hrothgar's dead warriors. The sight of this sword, coupled with the urging of an old "spear warrior" (*æscwige*), provokes hot-headed violence, and the hall is once again plunged into chaos—a classic example of Gell's secondary agency in action.[65] The monster Grendel, too, may serve as a poetic metaphor for weapons' ability to act like living things. The poet describes Grendel's fingernails, with which he seizes the men he devours, as steel, spear-like appendages.[66] These spear-like claws were exiled to the watery margins—the place where the *Beowulf* poet's audience members may have gone to dispose of unwanted weapons.[67] Grendel's banished violence returns, however, forcing Beowulf to act. Beowulf's choice to fight the spear-clawed monster with a bare hand continues the metaphor; what could be more appropriate than a warrior restraining a blood-hardened bundle of spearheads by firmly gripping the shaft-arm to which they were attached? As he broke Grendel's spear-arm from its socket, Beowulf rendered the monstrous threat inert.[68]

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[64] For the probable eighth-century authorship of *Beowulf*, see L. Neidorf (ed.), *The Dating of Beowulf: A Reassessment* (Woodbridge: D.S. Brewer, 2014); but cf. C. Abram, "Review of Leonard Neidorf, (ed.) The dating of Beowulf: A reassessment," *Saga-Book* 39 (2015): 133-37.

[65] *Beowulf*, lines 2039-2066, in Fulk, Bjork, and Niles, 69-70. Gell, *Art and Agency*.

[66] Cavell, Megan. "Constructing the Monstrous Body in Beowulf." *Anglo-Saxon England* 43 (2014): 165-67; *Beowulf*, lines 983–987.

[67] Semple, Sarah, and Reynolds, Andrew. "Anglo-Saxon Non-Funerary Weapon Depositions." In *Studies in Early Anglo-Saxon Art and Archaeology: Papers in Honour of Martin G. Welch*, by Stuart Brookes, Sue Harrington, and Andrew Reynolds, 40–48. BAR British Series 527. Oxford: Archaeopress, 2011; Sally Crawford. "Votive Deposition, Religion and the Anglo-Saxon Furnished Burial Ritual." *World Archaeology* 36, no. 1 (2004): 87–102.

[68] Cf. Cavell, 167.

We do not find monsters in the graves of sixth-century farmer warriors. We do, however, find destructive practices that target the two sources of spears' inherent vitality: their iron and their wood. If spears came to life in the hand because of the artful balance of their carefully shaped hafts, and if spearheads acted like agents because of the properties imbued in their metal, the destructive practices that accompanied so many of their burials killed this vitality dead. By softening spears' battle-hardened blades and bending their carefully straightened shafts, mourners did more than kill the weapons—they skillfully reversed or unmade the practices that made these materials into things.

Spear shafts are not easy to snap. Ash, the most common shaft material, is a strong and elastic wood. To snap the shaft, a person must brace one end on the ground and lean, with full body weight, against the shaft's center. Under this pressure, the shaft bends, a reverse echo of the way the stick maker had originally straightened its timber (Chapter 4). As the pressure increases, the shaft reaches the limit of its elasticity and, crackling, splinters apart. "Very rarely will a killing spear bend aside," Beowulf warned when speaking of vengeance, but spears that were bent with enough hard force could be stopped. They burst, like Grendel's metaphorical fingers in Beowulf's hand, and were rendered harmless.[69] Several spearheads still show the stress of this destruction, which bent their blades as well as the shafts to which they were attached.[70]

Once broken, spear shafts were not easily replaced. Many spearheads were riveted onto their shafts, and removing the wood required patient work with a chisel, or else burning the socket until the wood was clear so that the rivet could be removed and a new shaft fit into place.

[69] Grendel's 'fingers burst' (*fingras burston*) in Beowulf's hard grip. *Beowulf*, line 760, in FUlk, Bjork, and Niles, 28.

[70] E.g. Flixton II, grave 55.

The fitting of the shaft itself was sometimes a specialist task, and required the new shaft to be carefully cut, dried, and fine-tuned to balance properly in the hand.[71] A spear whose shaft was broken could be repaired, but this repair required skill, materials, and time. Once fitted with a new shaft, the spear would still feel different in the hand. That is, it would never be fully the same weapon again. Breaking a shaft, though reversible, was still in many ways permanent, a true killing of a weapon's personality.

When the head was burned, the blood-hardness it had learned was similarly repeated in reverse. At 650°C, the temperature at which spheroidization begins,[72] iron becomes just hot enough to begin to glow. This temperature is not hot enough for the metal to glow orange. Instead, the metal takes a translucent appearance, as though it is made of glass. As the blade approaches 700°C, its polished surface starts to reflect the light of the fire that surrounds it, giving the glassy surface a watery-quality, as though it is a glass vial filled with liquid fire. Held at this temperature, the metal begins to glow softly, gently, so that the glassy vial looks like it is full of dark, shining blood. If held at this blood-red temperature for several hours, the hardness burns away, and the cooled spearhead emerges from the fire a dull, dead grey—the pallor of a corpse. Did the smiths and onlookers who burned away these weapons' hardness believe themselves to be literally watching blood burn out of the metal, or did they merely appreciate the poetry of the visual analogy?

[71] Refitting shafts is described as a specialist skill in in the ninth-century Irish Cath Maige Tuired. The late seventh-century Irish abbot Adomnán, however, describes a man cutting his own spear shaft. Specialists may have been preferred, but anyone skilled with a knife can fit a spearhead to shaft, with time, care, and a properly seasoned piece of timber. See E.A. Gray, *Cath Maige Tuired: The Second Battle of Mag Tuired* (Naas: Irish Texts Society 1982), 55; Adomnán, *Vita Sancti Columbae*, I.xxxv, in *Adomnan's Life of Columba*, ed. by A.O. Anderson and M.O. Anderson, Oxford Medieval Texts (Oxford: Oxford University Press, 1991), 331. For discussion of the processes of fitting shaft to socket, see Chapter 4.

[72] Krauss, 259.

Most of the spearheads which were burned were found at cemeteries that had an earlier cremation phase. The inhumations at Wasperton followed directly after a period of cremation burial.[73] At West Heslerton and Boss Hall, the excavated cremations could not be dated, but likely preceded the inhumations as was common at other sites.[74] At both Sewerby and Wasperton, inhumation burials continued to reference the cremation of the dead by burying unburned corpses in graves lined with charcoal.[75] In the fifth century, spears were sometimes burned on cremation pyres; several burned spearheads, whose metal was ruined by the high temperatures of the pyre, have been found discarded in cremation urnfields, or rarely buried with the human remains.[76] Few were buried in the cremation urns, and most were probably recycled, their metal having been annealed and killed on the pyre.[77] At these cemeteries, even after the practice of burning the human cadaver was ended, spearheads continued to be burned. Their iron bodies, perhaps, could only be purified—or else, rendered well and truly dead—with fire, even if the human bodies were spared this transformation.

Once annealed, these spearheads were—like broken shafts—functionally ruined until a specialist smith could re-harden their blades in a forge fire. Though they retained the appearance of a weapon, their blades were functionally inert. They were, like the bodies they accompanied,

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[73] Carver, M. O. H., Catherine Hills, and Jonathan Scheschkewitz. *Wasperton: A Roman, British and Anglo-Saxon Community in Central England*. Anglo-Saxon Studies 11 (Woodbridge: Boydell Press, 2009), 122-23.

[74] Haughton, Christine, and Dominic Powlesland. *West Heslerton: The Anglian Cemetery*. Vol. 2 (Yedingham: Landscape Research Centre, 1999), 334; Scull, Christopher, and Marion Archibald. *Early Medieval (Late 5th-Early 8th Centuries AD) Cemeteries at Boss Hall and Buttermarket, Ipswich, Suffolk*. Society for Medieval Archaeology Monograph 27 (Leeds: Society for Medieval Archaeology, 2009), 114.

[75] E.g. Wasperton, grave 71; Sewerby, grave 51. Hirst, S. M. *An Anglo-Saxon Inhumation Cemetery at Sewerby, East Yorkshire*. York University Archaeological Publications 4 (York: Dept. of Archaeology, University of York, 1985).

[76] E.g. Finglesham, grave 86; Rayleigh, surface find 237; Mucking II, cremations 338 & 834.

[77] Cf Howard Williams, "Keeping the Dead at Arm's Length: Memory, Weaponry and Early Medieval Mortuary Technologies." *Journal of Social Archaeology* 5, no. 2 (June 1, 2005): 253–75.

cadavers. With shafts broken or iron dulled, the spear's social life and, perhaps more importantly, its capacity for violence was ended. If the weapon were re-made, it would be with new wood, and newly hardened iron. Its materials would not remember the uses to which the weapon had once inclined—it would be effectively new.

The Spear at the Funeral

The discussion above suggests new dimensions to the weapon burial rite that have hitherto gone largely unremarked. Most recent scholarship has focused on the burial assembly as a whole, usually as a single meaningful unit or visual tableau that constructed or displayed the social identity of the deceased.[78] These displays were memorable community events around which stories were told and social continuity assured.[79] The display was accompanied by feasting, drinking, and probably also storytelling and song as the gathered mourners sought to heal the rupture caused by the death of a loved one.[80] The funeral was also an opportunity for negotiation as mourners tried to impress their neighbors, secure their position amidst the reshuffling that accompanied a death, and perhaps also settle questions of inheritance and social

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[78] E.g. Guy Halsall, 'Burial writes: graves, "Texts" and time in early Merovingian Northern Gaul,' in J. Jarnut and M. Wemhoff, ed., Erinnerungskultur im Bestattungsritual. Archäologisch-Historisches Forum (Munich, 2003), 61-74; M. O. H. Carver, *Sutton Hoo: Burial Ground of Kings?* (Philadelphia, Penn: University of Pennsylvania Press, 1998), 127-29; Heinrich Härke, 'Material culture as myth: weapons in Anglo-Saxon graves', in C.K. Jensen and K.Høilund Nielsen (eds), *Burial and Society: the Chronological and Social Analysis of Archaeological Burial Data* (Aarhus, 1997), pp. 119-128; Frans Theuws, "Grave Goods, Ethnicity, and the Rhetoric of Burial Rites in Late Antique Northern Gaul," in *Ethnic Constructs in Antiquity: The Role of Power and Tradition*, by Ton Derks and Nico Roymans (Amsterdam: Amsterdam University Press, 2009), 283–320; Kathrin Felder, "Networks of Meaning and the Social Dynamics of Identity. An Example from Early Anglo-Saxon England," *Papers from the Institute of Archaeology* 25, no. 1 (February 10, 2015).

[79] Howard Williams, *Death and Memory in Early Medieval Britain*, Cambridge Studies in Archaeology (Cambridge: Cambridge University Press, 2006).

[80] Christina Lee, *Feasting the Dead: Food and Drink in Anglo-Saxon Burial Rituals*, Anglo-Saxon Studies 9 (Woodbridge: Boydell Press, 2007). Cf. Bonnie Effros, *Creating Community with Food and Drink in Merovingian Gaul*, New Middle Ages (New York: Palgrave Macmillan, 2002).

responsibilities. In these burials, spears are typically described as props: tools that communicated information about the living and the dead for assembled mourners to read.[81]

The broken shafts and annealed spearheads discussed above were not, however merely laid into the grave to decorate the corpse as part of a burial tableau or assemblage. Their destruction was an event in and of itself, and might have drawn witnesses, especially given the length of time required to successfully soften the material. The shafts might well have been broken at the graveside, in front of the mourners who gathered round. Spearheads' blades may have also been softened at the cemetery. The smith might have easily transported a pair of bellows to the graveside to burn the spearhead beside the corpse during funeral. A suitable hearth survives in a grave at Castledyke South, near the head of the cadaver.[82] At Rayleigh and at Cleatham, spearheads were excavated from small, shallow pits filled, in the case of Rayleigh, with charcoal—a perfect impromptu forge in which to soften its blade.[83] At Beckford, a spearhead was burned directly in the grave above the corpse. In this burial, the weapon was buried at an angle, so that when the grave was half filled with soil, the spearhead still protruded. The half-filled grave was then piled with kindling and set on fire, cremating the spearhead but sparing the cadaver.[84] These graveside pyres would be best lit after dark, when the color of the annealed blade could be seen clearly to control its temperature. The smith might have worked

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[81] E.g. Guy Halsall, 'Burial writes.'

[82] Castledyke South, grave 6.

[83] Rayleigh, find number 203; Trevor Ennis, *An Early Saxon Cemetery at Rayleigh, Essex: Excavations at the Former Park School*. East Anglian Archaeology 127 (Chelmsford: Historic Environment, Essex County Council, 2008), 23-24. Cleatham, find number 102, in Kevin Leahy, *Interrupting the Pots: The Excavation of Cleatham Anglo-Saxon Cemetery, North Lincolnshire*, CBA Research Report 155 (Bootham, York: Council for British Archaeology, 2007), 62, 213-15.

[84] Beckford A, grave 14.

beside the grave long into the night, transforming weapons into corpses while the community feasted and drank around them.

The public destruction of valued, vibrant objects could have communicated strong messages to the assembled community.[85] It may have removed tainted objects, or else destroyed a material link in an active feud. Perhaps a dead man's children could seek to make peace by destroying the dead man's weapons in public view. Burning the spear may also have helped to cleanse the living community of the violence which had punctuated the life of the weapon's user. The blood that had hardened each spearhead's blade had a history, and perhaps even a known name—it was the blood of someone, a person whose identity may have been preserved in the stories and boasts that the weapon's owner had told when the local assembly gathered. Unmaking the weapon, letting the blood burn out, might set these memories free to leave the community alongside the departing dead.

Death also offered community members a chance to renegotiate their relationships with their friends. A spear carried in service alongside one group of warriors might be publicly discarded, in hope of, or perhaps even to demand, a better arrangement for those who inherited the responsibilities of the deceased. The stolen weapon which returned to Hrothgar's hall in Beowulf's prophecy demanded action from its old master's offspring. Burning a dead man's spear, perhaps under the gaze of the gathered community, might have articulated a clear desire to re-negotiate such commitments.

Above all, breaking the shaft or draining the hardness from a blood-stained weapon ruptured that object's place within the fields of action that gave it a particular agency. Graves

[85] L.V. Grinsell, "The Breaking of Objects as a Funerary Rite." *Folklore* 72, no. 3 (September 1961): 477.

could be robbed, and in Kent they often were.[86] Things put into the ground might come back. This was the fundamental anxiety represented by Grendel, an animate collection of war gear that returned to the hall from which it had been banished to exact revenge for its exile. Spears that had killed might become dangerous things, and dangerous things require correct disposal. We frequently find discarded household knives in settlements, but spearheads are exceedingly rare. Likewise, far fewer spears were thrown into water as was a customary means of disposal among contemporaries on the Continent.[87] Spears required a firm hand to control, and hence were often buried grasped by the cold, immovable fingers of a cadaver whence they could not escape.[88] Perhaps more was wanted, a greater guarantee that weapons placed in the ground would remain among the dead? Across the British lowlands, thousands of spears must have been burned and broken in the century. When spears came to a funeral, they came as a sacrifice.

This action may have originated in the cremation rites practiced in many early Anglo-Saxon communities, but it endured long after these rites ended. The practice may even have endured beyond the end of furnished inhumation rites. A spearhead dredged from the Thames, dating topologically to the Middle or Late Saxon period, was analyzed with metallography, and

[86] A. M. Klevnäs, *Whodunnit?: Grave Robbery in Anglo-Saxon England and the Merovingian Kingdoms*, BAR International Series 2582 (Oxford: Archaeopress, 2013).

[87] A single spearhead was recovered from a midden in an early Anglo-Saxon layer at Lyminge (Gabor Thomas, pers. comm.), and several spearheads were deposited as closing offerings at Bloodmoor Hill, Carlton Colville (Sam Lucy, Jess Tipper, and Alison Dickens, *The Anglo-Saxon Settlement and Cemetery at Bloodmoor Hill, Carlton Colville, Suffolk*. East Anglian Archaeology Report 131 [Cambridge: Cambridge Archaeological Unit, 2009], 276-77). Finds of spearheads in settlements are, however, fleetingly rare. For discussion of water offerings, see Chapter --; Reynolds and Semple, “Anglo-Saxon non-funerary weapon depositions”; Crawford, “Votive deposition, religion and the Anglo-Saxon furnished burial ritual.”

[88] See Chapter 7 for further discussion of spears buried in the hands of corpses.

its blade contained spheroidized pearlite.[89] It, too, was killed with fire to keep it from returning to haunt the living.

Conclusions

Hitherto, studies of weapon burial have treated the spears buried in graves as a homogeneous group. Some spears were larger or smaller, and differences in shape might have social as well as chronological significance; yet spears were spears, and once their presence or absence has been identified, most studies have little more to say about them. Not all spears buried in the "weapon burial rite" were the same, however; some were buried whole, but many were themselves cadavers. We glimpse only fleeting traces of these common graveside practices, but to the contemporaries who made and witnessed these burial rites, spears' destruction was an obvious part of many funerals. Spears' funerary destruction was sometimes public, always intentional, and probably often very memorable. It transformed these weapons' ability to act in social fields of agency; it challenged their biographies, unmade their material agency, and brought them into different kinds of relationships with the living and the dead. Burial was a rite of passage for weapons as well as for the humans they accompanied: both were transformed from active members of the living community into something new.[90]

Most analyses of the weapon burial rite have focused on the human cadaver, with grave goods considered only as they relate to the identity, status, or commemoration of the human they accompany. Grave goods are used as proxies for the "real" sources of social life, i.e. the humans who left so little else behind. Technological and contextual study of these artifacts, however,

[89] Tylecote, R. F., and Brian J. J. Gilmour. *The Metallography of Early Ferrous Edge Tools and Edged Weapons*. BAR British Series 155 (Oxford: B.A.R, 1986), 113-15.

[90] Cf. V.W. Turner, 'Betwixt and Between: The Liminal Period in *Rites de Passage*', *Proceedings of the American Ethnological Society* (1964), pp. 4-20; Cf. S.D. Gillespie, 'Journey's End(?) The Travels of La Venta Offering 4,' in Joyce and Gillespie, 39–60.

reveals the one-sidedness of this approach. This chapter asks that we broaden our interpretations of grave goods to consider the events and human experiences that brought these things into the grave. Spears burial was an event in and of itself, marked by rituals focused upon the body, biography, and identity of the weapon in alienation from the deceased. What events attended the burials of the other grave goods?

Burial was a multivalent, polysemous rite whose efficacy hinged not only on the identity of the deceased, nor even on the combined biographies of weapon and warrior as a burial assemblage. Rather, burial's significance flowed from the interplay and transformation of human and things as both were brought to the end of their travels among the living and forced into new kinds of existence through insertion into the world of the dead. Spearheads were not just buried to dress up human bodies—they were buried because sometimes they needed to die.

CHAPTER 7
MAKING MEANING BY BURYING SPEARS: MOVING MOMENTS AT THE GRAVESIDE

Archaeological studies of the spears buried in human graves come round in the end to the question of meaning. What did spears mean to people, and what did it mean when a spear was buried in a grave? Twentieth-century studies of the weapon burial rite have proposed a dozen answers, but these mostly end up as variations on the same story: spears were buried with a Germanic (or occasionally, Roman) upper social strata to express their cultural values, assert their social standing, or tell a story (or create a memory) about the deceased (usually framed in terms of migration, "Germanic" identity, etc.). These answers have two themes in common. The first is that their ultimate concern is not with the meaning of spears themselves, but rather with what spears can tell us about the identity of the cadaver whom they accompany. The second is that they answer the identity question by returning, repeatedly, to a very old story about "Germanic" migrants, whose identity these weapons are repeatedly asserted to signal.

The Germanic interpretation has proven remarkably immune to critique, though not for lack of shortcomings. The history of the Germanic interpretation is well known, and its effects upon the narratives produced within the discipline are now well demonstrated.[1] The most compelling critiques highlight the epistemological impossibility of identifying emic group identities from archaeological remains: there is simply no way to demonstrate whether a person buried with a spear self-identified as Germanic, they argue, nor even a way to demonstrate

[1] James Harland, "Deconstructing Anglo-Saxon Archaeology: A Critical Enquiry into the Study of Ethnicity in Lowland Britain in Late Antiquity (c. 376-568)," Ph.D. thesis, University of York, 2017; Halsall, *Barbarian Migrations*, 22-25; Catherine Hills, *Origins of the English* (Duckworth, 2003); Lucy, *Way of Death*, 155-173; cf. Bonnie Effros, *Merovingian Mortuary Archaeology and the Making of the Early Middle Ages*, The Transformation of the Classical Heritage 35 (Berkeley: University of California Press, 2003).

whether the idea of a "Germanic" identity was meaningful in sixth-century England.[2] Nevertheless, new studies continue to identify spears, and the bodies they accompany, as artifacts of Germanic migrants, cultures, or identities.[3] Why do discussions of spears invariably return to the question of Germanic identity, framed within a nationalist framework of 'Anglo-Saxon' migration and the origins of the English people?

This chapter argues that 'Germanic' interpretations persist despite ongoing critique because most interpretations of weapon burial share an underlying object of study: the burial assemblage. Critiques of the Germanic interpretation have focused on whether and how we can identify meaning from the burial assemblage—a question of theory that ultimately boils down to debates in epistemology. A more basic question, however, is: what exactly is the burial assemblage whose meaning we seek to identify? Who assembled the objects found together in a grave: early medieval persons, or the archaeologists who exhume and catalog a grave's contents? These are questions of ontology—the nature of things. They are also questions of thing making, that is of who creates our objects of study.[4] The following sections will discuss the persistence of the 'Germanic' interpretation as a product of archaeologists' focus on the burial assemblage; the ways that this focus has obscured early medieval experiences of mortuary practice behind

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[2] Harland, "Deconstructing"; cf. Sebastian Brather, *Ethnische Interpretationen in Der Frühgeschichtlichen Archäologie: Geschichte, Grundlagen Und Alternativen*, Ergänzungsbände Zum Reallexikon Der Germanischen Altertumskunde 42 (Berlin: W. De Gruyter, 2004).

[3] Harrington and Welch, for example, wrote in 2014 that "A Saxon presence is also highly visible in the Middle Thames area adjacent to this major river routeway at Shepperton, where the site appears to represent a community controlling traffic on the river. The preponderance of weapon evidence from the few excavated burials here—a sword and two early spear types—taken together with a buckelurn, indicate an early appropriation of this location, with only relatively poor soils in the vicinity. The remainder of the block to the west is once again a zone devoid of a Saxon presence, on present evidence" (101-02).

[4] Cf. in particular Gavin Lucas, *Understanding the Archaeological Record* (Cambridge: Cambridge University Press, 2012), 215-257.

modern archaeological methods of recording and publishing; and how shifting focus from burial assemblage to assembling events can open a broader window onto the semiotic potentiality of the numerous funerary practices grouped together as the "weapon burial rite."

Identifying Assemblages

Archaeologists have studied graves as meaningful assemblages for more than two centuries, and spears in particular have served as one of the most important criteria for interpreting that burial's origin and meaning. In 1793, antiquarian James Douglas identified a "custom" of burying weapons, and he associated this with "Saxon owners."[5] By the nineteenth century, weapons served as a crucial index of a burial's cultural and (by the end of the century) "racial" identity.[6] These interpretations were not critical in their methodology; the relationship between weapons and "Saxons" directly and simply applied labels from textual sources (including Gildas, Bede, and the Anglo-Saxon Chronicle) to archaeological material. Because these texts described the 'Saxons' as warlike conquerors, burials with weapons were assumed to belong to this invading group. Weapons served as the proxy that connected textual narrative to burial assemblage.[7]

When American processual archaeology arrived in England, weapon burials did not escape the "Germanic" label. Processual archaeologists who turned to early medieval archaeology interpreted burials as evidence of rank or social status. These were measured through tabulation of the objects buried together in the grave, i.e. the "burial assemblage."

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[5] James Douglas, *Nenia Britannica* (London, 1793), 128.

[6] Sam Lucy, The Anglo-Saxon Way of Death (Stroud: Sutton Publishing, 2000), 155-73; Howard Williams, 'Anglo-Saxonism and Victorian Archaeology: William Wylie's Fairford Graves,' *Early Medieval Europe* 16 no. 1 (2008): 49-88 (esp. 49-51).

[7] Lucy, 162.

Arnold suggested that each social rank among the living might correspond with a unique assemblage or group of objects.[8] Alcock labeled these ranks with terms borrowed from the texts, such as slaves (buried with only a knife) *ceorls* (free men, with spears) and *thegns* (lower elite, with swords).[9] These interpretations asked new questions using new theory, with the goal of arriving at interpretations independent from the previous scholarship's interest in mapping the migrations of ethnic groups.[10] The underlying methodology, however, remained similar, and the object of study was unchanged: labels were affixed to the burial assemblage, in response to the presence or absence of specific kinds of artifacts such as spears and swords. This methodological similarity of labeling graves with an identity based on the content of their assemblages made it easy for the new scholarship to coexist alongside the old; a burial of a man with a spear might represent a free *ceorl*, but he could be a Saxon at the same time.[11] Indeed, the use of textual sources that described later Anglo-Saxon social ranks to label apparent socio-economic ranks (*ceorl*, *thegn*, etc.) reinforced the perception that these burial assemblages were evidence of a Germanic as well as socio-economic identity.

The 1980s and '90s saw the introduction of social constructivist interpretations which insisted that archaeological material actively articulated, rather than reflected, social relations.

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[8] 'One would expect to discover a near identity between the number of social positions within a social organisation and the number of symbols designating such units.' C C.J. Arnold, 'Wealth and Social Structure: a matter of life and death,' in *Anglo-Saxon Cemeteries 1979*, edited by P. Rahtz, et al, 81-142, British Archaeology Reports (Oxford: 1980), 82.

[9] Leslie Alcock, 'Quantity or quality: the Anglian graves of Bernicia,' in *Angles, Saxons, and Jutes*, edited by V.I. Evison (Oxford, 1981), 168-86.

[10] Halsall, *Worlds of Arthur*, 26-36.

[11] E.g. S.C. Hawkes, 'Anglo-Saxon Kent c. 425-725,' in Archaeology in Kent to AD 1500, edited by P.E. Leach (Council of British Archaeology Res. Report, 1982), 64-78; Vera I Evison, *Dover Buckland Anglo-Saxon Cemetery* (New York: English Heritage Publishing, 1987), 146-50; M.G. Welch, *Anglo-Saxon England* (London, 1992); Heinrich Härke, 'Early Anglo-Saxon social structure,' in John Hines, ed., *The Anglo-Saxons from the Migration Period to the Eighth Century: An Ethnographic Perspective* (Woodbridge, Suffolk: Boydell Press, 2003), 125-59.

llen-Jane Pader used post-structural theories to argue that specific types of artifacts, combined in a grave assemblage, articulated identities the same way that words, combined, made meaning in language.[12] More than a decade later, Halsall made a similar argument about furnished burials in sixth-century France: the way objects were combined into an assemblage created a meaningful display—a text—in a language drawn from Roman social practice.[13] Halsall's particular argument concluded that weapon burials in Northern France constructed Roman identities rather than Germanic.[14] This novel conclusion challenged long historiographic traditions, and Halsall's use of post-structural theory to interpret burial practices differed fundamentally from earlier attempts to label burial assemblages with an ethnic identity using historical texts. The underlying object of study, however, remained the burial assemblage, and Halsall's use of post-structural theory's consequence was to substitute one labeled identity for another: Roman for Germanic.

Constructivist approaches in the 1990s and 2000s employed an increasing range of post-processual interpretative methods to the weapon burial assemblage, but shared common focus. Härke combined a data analysis of weapon burial assemblages with a physical anthropological analysis of the accompanying human skeletal remains, from which he argued that the 'weapon

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[12] Ellen-Jane Pader, Symbolism, social relations and the interpretation of mortuary remains (Oxford: BAR, 1982).

[13] Guy Halsall, *Settlement and Social Organization: The Merovingian Region of Metz* (Cambridge: Cambridge University Press, 1995), 79-83; Guy Halsall, 'Burial writes: graves, "Texts" and time in early Merovingian Northern Gaul,' in J. Jarnut and M. Wemhoff, ed., Erinnerungskultur im Bestattungsritual. Archäologisch-Historisches Forum (Munich, 2003), 61-74. Also, Guy Halsall, 'Burial, Ritual and Merovingian Society,' in J. Hill and M. Swan, ed, The Community, the Family, and the Saint: Patterns of Power in Early Medieval Europe (Turnhout, 1998), 325-38. Cf. John Moreland, *Archaeology and Text* (Duckworth, 2000). But also, Guy Halsall, *Cemeteries and Society in Merovingian Gaul: Selected Studies in History and Archaeology, 1992-2009*, Brill's Series on the Early Middle Ages 18 (Leiden: Brill, 2010, 232-60.

[14] Guy Halsall, 'The origins of the Reihengräberzivilisation: forty years on,' in J.F. Drinkwater and H. Elton, ed., *Fifth-Century Gaul: A Crisis of Identity?* (Cambridge, 1992), 196-207; Halsall, 'Archaeology and the late Roman frontier in Northern Gaul: The so-called Föderatengräber reconsidered,' in W. Pohl and H. Reimitz, ed., *Grenze und Differenz im früheren Mittelalter* (Österreichische Akademie der Wissenschaften: Vienna, 2000), 167-80.

burial rite' symbolized—rather than reflected—a "Germanic" warrior identity.[15] Carver read burials as poems, a material composition which spun stories from carefully arranged grave goods: the horse burial in Sutton Hoo Mound 17 recalled heroic imagery from Germanic epic lore.[16] Härke argued, again, that weapon burials created a visual display meant to intimidate British natives conquered by Germanic invaders.[17] Williams suggested that weapon burials created new local identities—rooted in a constructed social memory—following the Germanic migrations.[18] Halsall continued to argue that weapon assemblages expressed identities intelligible in Roman, rather than Germanic, systems of meaning—this time in England as well as France.[19] Theuws agreed, proposing that spears were hunting weapons, and that the bodies they accompanied would consequently have been identified as late Roman aristocracy.[20] Stoodley stepped outside the ethnic framework, and interpreted the weapon assemblage as an expression of masculine identity.[21] Gerrard, writing most recently, argued that weapon burials

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[15] 'Weapon burial was not the reflection of a real warrior function, but the ritual expression of an ethnically, socially and perhaps ideologically based "warrior status."' Heinrich Härke, 'Warrior Graves? The Background of the Anglo-Saxon Weapon Burial Rite,' *Past and Present* 126 (1990): 22-43, quotation from p. 43. Härke extended this argument in *Angelsächsische Waffengräber*.

[16] Martin Carver, "Burial as poetry: the context of treasure in Anglo-Saxon graves," in *Treasure in the Medieval West*, edited by E.M. Tyler, 25-48 (Woodbridge: Boydell, 2000); cf. Julian Richards, 'Anglo-Saxon Symbolism,' in Martin O. Carver, ed., *The Age of Sutton Hoo: The Seventh Century in North-Western Europe* (Rochester: Boydell Press, 1999), 131-47, esp. p. 147.

[17] Heinrich Härke, 'Material culture as myth: weapons in Anglo-Saxon graves', in C.K. Jensen and K.Høilund Nielsen (eds), *Burial and Society: the Chronological and Social Analysis of Archaeological Burial Data* (Aarhus, 1997), pp. 119-128.

[18] Howard Williams, "Monuments and the Past in Early Anglo-Saxon England," *World Archaeology* 30, no. 1 (1998): 90–108.

[19] Guy Halsall, *Worlds of Arthur* (Oxford: Oxford University Press, 2013), 259-65.

[20] Frans Theuws, "Grave Goods, Ethnicity, and the Rhetoric of Burial Rites in Late Antique Northern Gaul," in *Ethnic Constructs in Antiquity: The Role of Power and Tradition*, by Ton Derks and Nico Roymans (Amsterdam: Amsterdam University Press, 2009), 283–320.

[21] Nick Stoodley, *The spindle and the spear: a critical enquiry into the construction and meaning of gender in the early Anglo-Saxon burial rite*, British Archaeology Reports 288 (Oxford: Archaeopress, 1999).

emerged from late Roman cultural antecedents, but expressed and performed a cultural reorientation of these elite toward the Germanic North Sea—the weapon assemblage participated in the transition from one identity to the other.[22] The common question of all these studies is the same: what can the presence of weapons in the burial assemblage tell us about the identity of the deceased?

In each of these accounts (which employ a variety of theoretical approaches), the methodological focus is always on the burial assemblage. Härke cataloged 702 weapon graves, and compared the objects they contained with the physical bodies of the dead.[23] Carver and Halsall stressed the audience's reaction to seeing the grave contents, assembled together into an impressive display. Halsall, further, stressed the relationships between objects: the common groups or assemblages of similar objects which, he argued, were brought together into a socially meaningful whole.[24] Stoodley, likewise, looked at common assemblages: his argument for the masculinity of the weapon burial rite was based not only on the association between weapons and men, but on the pattern of certain objects being buried as sets.[25] A rare exception is Williams, who has several times urged greater focus be given to the emotive and memorable placement of objects individually into the grave; an emphasis on the action of assembling rather

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[22] James Gerrard, *The Ruin of Roman Britain: An Archaeological Perspective* (Cambridge: Cambridge University Press, 2013), 248-73.

[23] Härke, *Angelsächsische Waffengräber*, 63.

[24] Halsall, *Settlement and Social Organization*, 79-86.

[25] Stoodley's analysis was based on a correspondence analysis of burial assembalges, whose results Stoodley interpreted as revealing expressions of gender. Nick Stoodley, *The Spindle and the Spear: A Critical Enquiry into the Construction and Meaning of Gender in the Early Anglo-Saxon Burial Rite*, BAR British Series 288 (Oxford: Archaeopress, 1999).

than upon what is assembled.[26] Excepting Williams, however, the argument has been that what is in the burial assemblage—the objects in the grave together—express the identity of the deceased, if we but know how to interpret them successfully.[27]

The assumption that the assemblage expresses identity has made it difficult to escape the habit of seeking labels for weapon burials. For generations, studies have tried to understand furnished graves by studying lists of their contents, as though the presence (or absence) of objects—individually or in groups—in a finished burial encapsulates the social function of these objects in the funeral celebration. This focus continues in most new scholarship. The recent popularity of on the one hand large datasets analyzed through statistical methods, and on the other on the individual acts of display in the burial 'tableau,' has reinforced interest in catalogs of assemblages. The assemblage becomes thereby a static object to be measured, labeled, and explained, rather than a gathering of other things whose individual depositions could each represent a meaningful moment in the unfolding of a funerary drama. The expressive agency of burial, and of the meaningful deposition of objects and cadaver, collapses into the flattened totality of the grave. The assembled contents of the finds tray, rather than the funeral celebration that brought these objects into the soil, assume interpretive primacy.

When interpretations of the burial assemblage fail to break free of the Germanic interpretation, these failings have been wrongly framed as an epistemological challenge: how can

[26] In particular, Howard Williams, "Keeping the Dead at Arm's Length: Memory, Weaponry and Early Medieval Mortuary Technologies," *Journal of Social Archaeology* 5, no. 2 (2005): 253–75; and also *Death and Memory*, 123-34. The arguments that follow in this chapter owe much to Williams' discussion of burial as sequences of meaningful events that can be teased apart through close contextual study.

[27] A recent and well theorized continuation of this interpretive habit is Kathrin Felder, "Networks of Meaning and the Social Dynamics of Identity. An Example from Early Anglo-Saxon England," *Papers from the Institute of Archaeology* 25, no. 1 (February 10, 2015), 1-20.

we arrive at a better understanding of the assembled context of the grave? This critique, long latent in early medieval archaeology, grew more vocal following the publication of Lucy's argument that the search for national origins had caused British archaeologists to see (and seek) ethnicity where it could not be found.[28] The “Anglo-Saxon burial rite,” Lucy argued, could not convincingly be associated with any single ethnic, gender, or socio-economic identity, and must instead be read as an expression of the local identities of the communities which buried the deceased.[29] This claim for regional identities was rooted in her own earlier work, which studied weapon burials in Yorkshire that differed in some particularities from national surveys of the practice, and from regions further to the south.[30] Mirroring Lucy, a number of others (working primarily with furnished inhumations on the Continent) have criticized the conflation of weapon burial and ethnic, gender, or social identities, arguing that the specific meanings conveyed by these burials cannot be recovered, and that archaeologists ought to study these graves as expressions of social boundaries and divisions without attempting to attach specific labels to the values being expressed.[31] These studies did not challenge the analytical categories of previous scholarship; Lucy tacitly and sometimes explicitly affirmed the existence of an “Anglo-Saxon

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[28] Lucy, *The Anglo-Saxon Way of Death*, 174-86.

[29] Lucy, *The Anglo-Saxon Way of Death*, 184-86.

[30] Sam Lucy, *The Early Anglo-Saxon Cemeteries of East Yorkshire: An Analysis and Reinterpretation*, BAR British Series 272 (Oxford: 1998).

[31] E.g. Bonnie Effros, *Caring for Body and Soul: Burial and the Afterlife in the Merovingian World* (University Park, Pa: Pennsylvania State University Press, 2002); Bonnie Effros, *Merovingian Mortuary Archaeology and the Making of the Early Middle Ages*, The Transformation of the Classical Heritage 35 (Berkeley: University of California Press, 2003); Sebastian Brather, *Ethnische Interpretationen in Der Frühgeschichtlichen Archäologie: Geschichte, Grundlagen Und Alternativen*, Ergänzungsbände Zum Reallexikon Der Germanischen Altertumskunde 42 (Berlin ; New York: W. De Gruyter, 2004); Andrew Gillett, ed., *On Barbarian Identity: Critical Approaches to Ethnicity in the Early Middle Ages*, Studies in the Early Middle Ages 4 (Turnhout, Belgium: Brepols, 2002); Philipp von Rummel, “The Fading Power of Images: Romans, Barbarians, and the Uses of a Dichotomy in Early Medieval Archaeology,” in *Post-Roman Transitions*, ed. Walter Pohl and Gerda Heydemann (Turnhout: Brepols Publishers, 2013), 365-406.

burial rite."[32] They stripped this rite of its content, however: weapon burials communicated something, but what it was could not be recovered—an epistemological limit of archaeological praxis.[33] Very few have asked a more basic ontological question: what is it exactly that we are studying?[34]

Too often, the answer is that we have been studying the grave assemblage as it is recorded in the grave catalog, instead of the meaningful events of burial from which the finished grave was produced. The catalog is, of course, a modern artifact: it records the events of a grave's discovery, excavation, destruction, and (re)assembly—by conservators and artists—into a unified burial assemblage recorded in the text. The assemblage, which juxtaposes the grave's contents on the page, suggests a relationship between these artifacts: all are presented together, in a single list, and illustrated beside each other on the page (sometimes artistically arranged, as they might be if placed into a museum display case).[35] No attempt is made to illustrate the objects' relationship to each other inside the grave, when they are presented in this manner. That relationship must be reconstructed from the illustrated plan of the grave, which shows from where the objects were recovered; and from records of the excavations contexts to which finds were assigned during the excavation. The grave plan, however, is usually reduced to two

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[32] Lucy argues that this rite was subject to regional variations, yet treats it as a coherent social process. E.g. Lucy, *Anglo-Saxon Way of Death*, 180.

[33] I.e. Brather, *Ethnische Interpretationen.*

[34] Williams must again be credited for his thoughtful discussion of burial as sequential action and emotive expression, e.g. "Keeping the Dead at Arm's Length," and also "The emotive force of early medieval mortuary practices," *Archaeological Review from Cambridge* 21 no. 1 (2007), 107-23.

[35] For example, the manner in which Sonia Chadwich Hawkes arranged the grave goods on the page of the Bifrons report. There, you will find strings of beads artfully arranged to frame paired brooches and other grave goods. This pleasing presentation reinforces the thingness of the assembly as a whole, challenging the reader to dare to break apart of the carefully presented whole. Sonia Chadwick Hawkes, "The Anglo-Saxon Cemetery of Bifrons, in the Parish of Patrixbourne, East Kent," *Anglo-Saxon Studies in Archaeology and History* 11 (2000): 1–94.

dimensions, and artifacts are typically recorded as belonging to a single archaeological context (typically, the fill). The burial assemblage is consequently usually treated as a unified whole, ready to be fed into correspondence analyses as a single object, or depicted by artists who imagine the appearance of the deceased wearing or holding the grave's contents, or arranged in a tableau surrounded by the complete assemblage.

The frozen moment captured by the burial assemblage is often a fiction created by present-day cataloging practices, rather than a reality of early medieval social experience. Few of the graves included in my database were built in a way that anticipated the interpretive weight which would 1500 years later be placed upon the assemblage of their contents. Many graves were not made in singular events or moments. They were products of sequences of events and actions, and their creation took time; sometimes, a significant amount of time. To understand how the individual events through which objects entered the grave unfolded, interacted with each other, and were assembled round the corpse, we have to study each object independently of the assemblage as an individual deposit that entered the grave through its own unique assembling event: the actions that built the grave. Each of these building actions had the potential to transform the meanings of deposited objects, the memory of earlier events in the funeral, and the relationships between the people who mourned; the sequence and timing of burial events might be as significant as the presence or absence of an object in the confines of the grave.

To tease apart the sequence of burial events, we must use a finer grained contextual approach than most studies of the burial assemblage. The burial evidence itself, however, often resists finer-grained approaches. Burials are typically recorded as three (or fewer) contexts: the grave cut, the fill, and the human skeleton.[36] The spatial relationships between artifacts in the grave (from which chronological, sequential relationships can be inferred) are often poorly recorded, and sometimes in older excavations not recorded at all. Consequently, much of the fine-grained information necessary to tease apart sequences of deposition has not been recorded. Enough survives, however, to outline a variety of divergent patterns within the burial evidence which together challenge the habit of uncritically analyzing the contents of closed burial contexts as unified assemblages. The following two sections will consider how we may reconstruct the sequences of events through which many weapons were placed into the grave, and the specific kinds of physical contacts that occurred between these objects, the corpse, and the persons who created the graves. The first of these sections begins with a discussion of methods, using a case study of two graves whose simple grave plans belie complex formation processes.

Interpreting Context: Meaning from Motion

The way that many burial contexts are recorded makes it difficult to talk about sequential actions or multiple events during the assembly of the grave. Most modern excavations record three contexts when a grave is excavated: the grave cut, the skeletal remains, and the grave fill. Artifacts are recorded with the same context number as the fill. Only excavations, recorded in the 1950s and ‘60s, were more commonly recorded as only one context, the numbered grave (including the body, finds, and any layers of discrete deposits as a single unit). When published, graves are likewise described as a single unit. The assumption is that (barring post-depositional disturbance) everything within the burial belongs to a single, closed context created by a single

[36] This recording practice was followed, for example, in the Saltwood Tunnel excavation. [36] Saltwood Grave C2816, Ian Riddler, Jacqueline McKinley, and Simon Skittrell, “ The prehistoric, Roman and Anglo-Saxon funerary landscape at Saltwood Tunnel, Kent: The grave catalogue,” CTLR Integrated Site Report Series (Archaeology Data Service, 2006, http://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-335-1/dissemination/pdf/PT1_Int_Site_Reps/30_Saltwood_Tunnel/SLT_ISR_GraveCatalogue/SLT_ISR_cat_text.pdf), 37, fig. 184.

event. Alongside the contextual records (or lack thereof), grave contents are sketched *in situ*, usually from a birds-eye view. This two-dimensional plan of the grave often preserves complex horizontal (and occasionally also vertical) relationships between grave goods that may or may not have been recorded on the context sheets.

Contextual recording practices can shape our perception of a grave's formation. This can be illustrated by a burial from Saltwood, Kent. In this grave, a young child (aged 3-8 years) was buried accompanied by a small pot, a knife, and a spear.[37] This grave was recorded as three contexts: the cut [2816], the fill (2815), and the human remains (2817).[38] The excavators noted the stratigraphic relationship between these three contexts, from which the grave's creation can be reconstructed:

1. On the surface, archaeologists discovered the final step of the burial: the fill that was shoveled into the grave (2815). As this fill was removed by the excavators, grave goods were discovered. These grave goods were deposited at the same time as the rest of the fill, and they were recorded as part of the same context.
2. The fill was placed into a hole, [2816], which must have been dug at an earlier time.
3. A body (2817) was placed into the pit [2816] before the grave was filled (2815).

These three contexts describe the sequence of events by which the burial was created, and provide a structure into which the small finds (the spear, pot, and knife) can be placed, ensuring an accurate record of their association with the grave fill (2815) above the human cadaver (2817). The finds' positions were also recorded in an overhead (bird's eye view) plan, and their

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[37] Saltwood Grave C2816, Ian Riddler, Jacqueline McKinley, and Simon Skittrell, The prehistoric, Roman and Anglo-Saxon funerary landscape at Saltwood Tunnel, Kent: The grave catalogue, CTLR Integrated Site Report Series (Archaeology Data Service, 2006, http://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-335-1/dissemination/pdf/PT1_Int_Site_Reps/30_Saltwood_Tunnel/SLT_ISR_GraveCatalogue/SLT_ISR_cat_text.pdf), 37, fig. 184.

[38] Summaries of the contexts and their relationships to one another have been published in the online site archive: Stuart Foreman, "Channel Tunnel Rail Link Section 1," *Archaeology Data Service* (2004/2009): http://archaeologydataservice.ac.uk/archives/view/ctrl/sltisr/ (accessed 7 Sept 2016)

depth from the base of the grave was measured and entered into the written record that accompanied each object.[39]

This recording process created the burial assemblage. Small finds, skeleton, and fill were recorded as a single group in the catalog, called Grave C2816 (named for the grave cut into which the other contexts were assembled). This grave (and others from the site) was then interpreted as a single thing; the discussion section of the site report, for example, considered the social meaning of "weapon combinations" (the sets of weapons that are found grouped together in individual grave assemblies).[40] This is problematic when applied to C2816, however, as the information recorded with each small find makes it clear that these three objects were not combined together in the grave, neither with each other nor with the child's body.

This disjuncture can be illustrated by breaking apart the grave's fill into multiple, smaller contexts. Just as the stratigraphic relationship between the grave pit [2816] and its overlaying fill (2815) shows the sequence of the burial, so too can the relationships between individual objects in the grave with each other, the body, and the grave context show a more detailed account of the sequential actions through which the grave was created. This information for each of the small finds is as follows:

- <1698> (the spearhead) was excavated first, indicating that it was placed last into the grave. It was found 59cm above the base of the grave. The spearhead was not damaged, such as by a plow, and there was no evidence that the grave had been disturbed. This suggests that the spearhead was found in its original location in the grave. In further confirmation of this, the spear was covered on one side with traces of grass or straw (ie, it had been placed onto a layer of cut sod, or a strewn bed of cut vegetation). Its position high above the body of the child indicates layers of intervening fill which separated the weapon from the rest of the grave.

39 Riddler et al., 37.

40 Riddler et al.,58.

- <1699> (the knife) was found 6cm above the floor of the grave, which means it was placed on top of something else. It is positioned in the center of the grave cut directly above the place where the child's waist would be (if the child's bones had not been corroded by the acidic soil). The knife was, therefore, placed on top of the child, either while the child was being dressed for burial, or as a gift after the child's body had been placed in the ground.
- <4061> (the pot) was recorded 13cm above the base of the grave. It is not clear whether this refers to the top of the pot (in which case, its base was directly on the grave floor), or whether the pot was sitting on top of something that was 13cm tall. Its position in the grave makes it unlikely that it was placed on top of the child. It may be that the grave's floor was uneven, and the pot's vertical position is misleading. At any rate, the pot was buried inside cut [2816] alongside the child and knife.

This information allows us to reconstruct a much more detailed narrative of the funeral events that created the burial. First, the grave was dug. Into this grave, the body (2817) was placed. The body had been dressed, and this included placement of a knife <1699> on the body's waist either before it was lowered into the grave, or shortly after. The pot <4061> may have been placed into the ground before or after the child's body. Subsequently, the body was buried beneath a layer of soil on top of which either straw was strewn or cut turfs were stacked. This fill was layered to a depth that exceeded 59cm (allowing for compaction of the soil over time). Then, at a later time, the spear <1698> was placed into the half-filled grave (perhaps minutes later, perhaps after a period of days or weeks).

The child in Saltwood grave C2816 was not buried in the same closed context as the spear that accompanied them. The burial assemblage (knife, pot, spear, and cadaver) were not assembled into a single context until 1500 years after the funeral, when they were removed from their separate positions in the ground and brought together in the site records within fill (2815). This case was not unusual; the section below will describe many "weapon graves" formed through extended sequences of multiple non-continuous deposits which separated the spear from the other contents of the grave.[41] This sometimes challenges how these burials have been interpreted, particularly as regards attempts to apply an identity label to a burial "rite" or to interpret the "textual" content of a burial assemblage.

A second example reinforces how focus on the complete burial assemblage—in contrast to the sequence of assembly—can skew our perception of the social identity of a cadaver and the visual impact of a burial "tableau." In Mucking II 979, an adult, presumably male, was buried with a Dunning type IIIB belt buckle (a style associated with Roman military officers), a cloak fastened by a penannular brooch (also part of the military habitus), a toiletry kit, and a spear.[42] All the objects in his grave are associated with the early fifth-century Roman military elite. Combined, they present the image of a Roman army officer who lived during the twilight of Britain's Roman provincial collapse. The man is illustrated in the site report as he may have lived: he leans on his spear, and his cloak hangs open to display his buckle so all will recognize his military office.[43] James Gerrard recently highlighted this grave as an example of the military identity adopted by the late Romano-British elite in Britain: the mode of this man's burial communicated his high rank within emerging post-Roman systems of power and violence which blurred lines between civilian office and military display.[44] In these interpretations, the arrangement of the body draws upon a Late Roman visual rhetoric of power: the Roman officer, standing with his weapons, projecting authority (see Figure 7-1).

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[41] Cf. Williams, *Death and Memory*, 123-135.

[42] Mucking II, Grave 979. Sue Hirst and Dido Clark, *Excavations at Mucking: Volume 3, The Anglo-Saxon Cemeteries. Part I Introduction, Catalogues and Specialist Reports*, Mucking Monograph Series 3.1 (London: Museum of London Archaeology, 2009), 209-11.

[43] Hirst and Clark, 583.

[44] Gerrard, *Ruin of Roman Britain*, 199-200.

Contextual data from the burial, however, challenges this visual rhetorical interpretation. Mucking was published in 2009, but it was excavated in the 1960s. Consequently, its contextual recording was more sparse than modern sites: each grave was simply given a number, and its contents were recorded through detailed sketches and notes. In bringing this material to publication, Hirst and Clark did much to standardize and clarify these notes, producing a series of detailed horizontal and vertical plans of the graves to communicate as much contextual information as was available.[45] We might, in a repetition of the exercise above, convert this contextual information to a sequence of funerary events. The result looks different from the tableau described in the previous paragraph.

The body was indeed dressed to look like a Roman official when arranged in the grave, but the weapon was absent from this assemblage. Mourners first dug the grave, and then lowered the coffin and its contents into the ground. Inside they coffin, they had placed the body which they had dressed in a belt a the brooch which, presumably, fastened a cloak. Traces of the cloak fabric survive on the spear ferrule, but not on the belt buckle;[46] this suggests that the cloak was pulled back, so that the distinctive military buckle was visible to the mourners. The knife was probably, like that of the child at Saltwood, slipped into or suspended from the belt while the body was being arranged. The toiletry kit may likewise have been hung from the belt, or possibly been carried in a pouch. All these items probably entered the grave together when the body was lowered into the ground, and can properly be considered not only a closed assemblage, but also an assemblage designed to be seen by the gathered mourners. Guests at the funeral saw a man dressed in official belt and cloak, the *habitus barbarus* of a Roman civilian or perhaps a civil

[45] Hirst and Clark, 3-4.

[46] Hirst and Clark, 209.

official. They did not see the armed body of a Roman soldier or Germanic warrior, however, because the spear was not buried with the dressed cadaver.

The spear was found above the body, and consequently must have been placed there after the body was hidden from view by the closure of the coffin lid. The coffin's lid survived as a stain in the soil that covered the top two thirds of the coffin (and may have originally covered the coffin's full top, though the stain did not extend to the body's feet when the grave was excavated).[47] The spear was buried above the closed coffin lid. It was, further, broken into two parts. The half with the spearhead was placed along the length of the grave on top of the cover. A long section of shaft protruded from its socket and is preserved as a dark stain which has settled somewhat in the compacting fill of the grave (the spearhead's angle results from this compaction process). The other half, to which was attached the ferrule, was found lying above the body's feet, probably having fallen and rolled there when the decaying spear shaft and coffin lid collapsed beneath the pressure of the pressing soil above. After the spear was placed onto the closed coffin, the remainder of the grave was filled.

The burial sequence above suggests at least three distinct moments in the creation of the grave. In the first, the body was dressed as a Roman civilian official and arranged to be seen by guests—an impressive tableau for the mourners. Once this tableau played out, the body secondly was covered from view with planks, presumably after the mourners had finished making their final farewells. Only then was the spear, third, added to the grave. There is no evidence that the body and the spear were displayed together, nor it is clear how much time elapsed between the closure of the coffin, burial of the spear, and filling of the grave. The spear might have been buried in the site of gathered guests, or quietly placed into the grave by the grave digger. In

[47] Hirst and Clark, 209.

either case, the spear did not accompany the body in the manner imagined by the illustrator who sketched the living man holding this weapon in his hand.

The spatial and temporal separation of the spear from the body calls into question the military iconography of the burial. Without the weapon, there is little reason to read a specifically martial identity from this grave. On the Roman frontiers, many civilians wore the official belts, cloaks, and the *habitus barbarus* of the army, and these objects appear with increasing frequency in "civilian" burials by the fifth century.[48] This civilian impression is what guests saw when they approached the open coffin. When the spear was finally placed into the ground, the man's dressed body lay concealed, ready for the grave's closure. Entering the grave at the end, the weapon did not contribute to the impression of a Roman (or Germanic) military identity; but as a final deposit, it may have been a meaningful gift from one of the mourners,[49] or a closing offering whose placement into the already partially filled grave marked the completion of the funeral and inaugurated the corpse's journey into its new subterranean existence.

These two burials represent a much larger corpus of graves whose internal stratigraphy complicates the notion of a singular "weapon burial rite." These graves will be discussed in the following section, but several preliminary observations can be made now. The first is that noting the presence or absence of a spear in a grave rarely suffices to describe the role that the weapon played in the burial "rite." The spear's location within the grave results from—and reveals—

[48] Cf. Philipp von Rummel, *Habitus barbarus. Kleidung und Repräsentation spätantiker Eliten im 4. und 5. Jahrhundert.* Ergänzungsbände zum Reallexikon der Germanischen Altertumskunde, 55 (Berlin: De Gruyter, 2007); Guy Halsall, 'The origins of the Reihengräberzivilisation: forty years on,' in J.F. Drinkwater and H. Elton, ed., *Fifth-Century Gaul: A Crisis of Identity?* (Cambridge, 1992), 196-207; Halsall, 'Archaeology and the late Roman frontier in Northern Gaul: The so-called Föderatengräber reconsidered,' in W. Pohl and H. Reimitz, ed., *Grenze und Differenz im früheren Mittelalter* (Österreichische Akademie der Wissenschaften: Vienna, 2000), 167-80.

[49] John M. King, "Grave-Goods as Gifts in Early Saxon Burials (ca. AD 450-600)," *Journal of Social Archaeology* 4, no. 2 (June 1, 2004): 214–38.

when in the funeral the spear was buried. Different sequences of events could result from different funeral rituals outside the grave. Placement of a spear beside a corpse so that the body appeared dressed as a warrior would result in a different experience of the grave than burying a spear in a grave half filled with turf or covered by a coffin lid. If we are to understand weapon burial as a social act, these differences in context must be given greater weight in both our recording and our analysis. This is often difficult; it remains frustratingly common for excavations not to publish, for example, the depth at which artifacts were recovered, which obscures the sequence of events through which objects were placed into the grave as well as their relationships to each other, to the corpse, and to the wider events of the funeral.[50] Moving forward, however, it is crucial that we consider not only what is in a grave, but how it got there, and how those events shaped meaningful—and meaning-making—experiences among the mourners; especially if we wish to do more than fix a label to the identity of the deceased.

Turning to those meaningful funerary experiences shifts the object of our study from the grave as material artifact to the grave as materialized product of burial actions. It is easy to mistake the byproducts of intentional action for intention itself—Ingold calls this the "finished artifact fallacy."[51] No one sets out to make a pencil stub; the shape results from use (resharpening); we misunderstand how pencils actually work if we look for a template on which stub-makers modeled their eventual products. Likewise, a burial assemblage need not represent

[50] For example, the 2016 publication of the 2007 excavations at Collinbourne Ducis presented neither side-views of the grave plans nor depth of recovery for the grave goods. [cite] The 2015 publication of the 2000 excavations at Tramner House did give a side view of the grave cuts, but the artefacts were omitted (though the depth at which three spearheads were recovered was recorded, i.e. Graves 14, 17, 23; C.J.R. Fern, *Before Sutton Hoo: The Prehistoric Remains and Early Anglo-Saxon Cemetery at Tranmer House, Bromeswell, Suffolk*, East Anglian Archaeology 155 [Bury St Edmunds: Suffolk County Council, 2015], 50-1, 54, 67-8, 72-3, 81-2). Without such information, determining the spatial relationships of artefacts in three dimensions becomes very difficult, a problem discussed further in the following chapter.

[51] Tim Ingold, *Making: Anthropology, Archaeology, Art and Architecture* (Routledge, 2013), 33-46, esp. 37-39.

an intentional collection of artifacts, meaningful through their curation together in the grave. Graves are not time capsules, whose contents were carefully chosen to reveal the life and identity of the deceased to a future audience. Graves are the material consequence of a funeral whose rites, speeches, food and drink, stories, tears, and final farewells may speak of the identity of the dead, but whose material remains were never meant to speak to us. We know this; but the uncritical use of complete burial assemblages to infer the experiences of mourners in the past time-capsulizes the grave and objectifies processes which can only be understood in a framework of subjectivity. A friend shares a rack of barbecued ribs with the corpse;[52] a family member drops a lucky penny into the grave fill.[53] A neighbor, who fought the dead man in a bitter feud for many winters, breaks his spear and drops the weapon into the grave to mark the end of their animosity.[54] These subjective acts of mourning produce material effects and sometimes patterns, but these are byproducts of the funeral; burial events, not the grave, is the context of meaning. In Ingold's words,

> The process of making is not so much an assembly as a procession, not a building up from discrete parts into a hierarchically organised totality but a carrying on – a passage along a path in which every step grows from the one before and into the one following, on an itinerary that always overshoots its destinations. Once again to

[52] Gunthorpe, Grave 64. Philippa Patrick, Charles French, and Christine Osborne, 'Rescue Excavation of an Early Anglo-Saxon Cemetery at Gunthorpe, Peterborough,' *Anglo-Saxon Studies in Archaeology and History* 14 (2007): 211, 217.

[53] A Roman brooch was found in the fill above Buckland, Grave 264 (Keith Parfitt and Trevor Anderson, *Buckland Anglo-Saxon Cemetery, Dover Excavations 1994*, The Archaeology of Canterbury 6 [Canterbury Archaeological Trust, 2012], 405, 264, 535), and an Iron Age brooch was buried above Blacknall Field, Grave 64 (F. K. Annable and B. N. Eagles, *The Anglo-Saxon Cemetery at Blacknall Field, Pewsey, Wiltshire*, Wiltshire Archaeological and natural History Society Monograph 4 [Wiltshire Archaeology and natural History Society, 2010], 169, 249-50). Both brooches could have been residual within the fill, but we should not dismiss the likelihood that they were curated objects deliberately deposited as the grave was being filled. Coins: e.g. Evison, *Great Chesterford*, 27.

[54] In *Beowulf*, the monster's feud with Hrothgar is ended not only by the slaying of his mother and decapitation of his corpse, but also by the destruction of the weapon with which these violent actions were accomplished (Robert Fulk, Robert Bjork, and John Niles, *Klaeber's Beowulf and The Fight at Finnsburg*, fourth edition [Toronto: University of Toronto Press, 2008], 55 [lines 1605-11]). For the importance of destroying weapons to end feuds, see Chaper 7.

> adopt a helpful distinction from Deleuze and Guattari (2004: 410), this is not an iteration of steps but an itineration: making is a journey; the maker a journeyman. And the essential characteristic of his activity is not that it is concatenated but that it flows.[55]

The meanings expressed at the funeral emerged from these flows of action: the sequences of subjective experiences of the people (and things) that were actively engaged in experiencing the burial.

As we reconstruct funeral events from their material traces, we can begin to recover the funeral context within which flows of meaning were channeled and transformed. The objects we excavate and record accrued rich meanings and biographies during their social lives,[56] but the motions and rhythms of the funeral activated, expressed, and transformed those meanings by weaving these objects into events which responded to the departure of the dead.[57] To capture these meaningful events, we must enter into the subjectivity of the funeral and observe the sequences of actions—the processions or carryings on from which meaning emerged, rather than the finished burial assemblage—that sparked expressive contacts, exchanges, and graveside negotiations. Though our evidence is fragmentary and much of the funeral's sequence is irrecoverably lost, the immediate contexts surrounding many spears preserve traces of where, when, and how these objects were placed into the grave. The next section examines a series of

[55] Ingold, 46. Cf. Aryun Appadurai, "Introduction: Commodities and the Politics of Value," in *The Social Life of Things: Commodities in Cultural Perspective*, edited by Aryun Appadurai, 3-63 (Cambridge University Press, 1986), 5.

[56] Igor Kopytoff, 'The Cultural Biography of Things: Commoditization as Process,' in Aryun Appadurai, ed., *The Social Life of Things: Commodities in Cultural Perspective* (Cambridge University Press, 1986), 64-94. Chris Gosden and Yvonne Marshall, "The Cultural Biography of Objects," *World Archaeology* 31, no. 2 (1999): 169–78.

[57] Cf. Rosemary A. Joyce and Susan D. Gillespie, eds., *Things in Motion: Object Itineraries in Anthropological Practice*, School for Advanced Research Advanced Seminar Series (Santa Fe: School for Advanced Research Press, 2015).

case studies which show the variety of timings, sequences, and physical gestures through which spears were brought into the grave, and from which meanings were put into motion.

Weapon Burial Rites: Variety in Depositional Context

At a glance, weapon burials appear uniform; closer scrutiny of individual artifacts' immediately contexts, however, reveals this uniformity to be deceptive. Most spearheads are found near the head of the corpse, their shafts parallel to the grave cut. Brookes and Harrington developed a grid to record the location of grave goods relative to the corpse, with areas labeled "head," "shoulders," "waist"; "Right top" / "Left top"; etc.[58] I used this method to record the location in which each of the spearheads in my database were buried relative to the corpse. Most were found in either the Right Top, Head, or Left Top positions. I also recorded the angle of the spear shaft relative to the grave cut, and the majority fell within 10° of the central axis of the grave. This uniformity has led some to speculate that cultural traditions governed burial practices. Geake in particular speculated that burial specialists oversaw or regulated early Anglo-Saxon inhumation.[59] We might ask, however, how else a 2m long unbroken spear could be buried in a 75cm wide grave other than parallel to the grave cut.

When we additionally consider the depth at which spears were buried, the impression of a uniform rite evaporates. Graves at Wasperton, for example, appear uniform when viewed from above: all but two of 24 spearheads were found in the horizontal quadrant beside the corpse's head. At Mucking, likewise, excavators found the overwhelming majority of 73 spearheads at the head of the grave. The spears at both sites were recovered at a variety of depths, however (Figure

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[58] Sue Harrington and Stuart Brookes, 'ASKED – the Anglo-Saxon Kent Electronic Database,' *Journal of Open Archaeology Data* 1 p.e2 (2012).

[59] Helen Geake, "The Control of Burial Practice in Middle Anglo-Saxon England," in *The Cross Goes North: Processes of Conversion in Northern Europe, AD 300 – 1300,* edited by Martin Carver, 259-69 (Woodbridge, Suffolk, UK : York Medieval Press, 2002).

7-2). The range of burial depths indicates a variety of practice in how the spears were placed with the corpse. Spears found low in the grave were, in most cases, buried directly beside the cadaver, being placed among the other grave goods arranged around the body. Others, found above the grave floor, had been placed onto the coffin. In some cases, spears found high in the grave were buried after the grave had been partially filled. Each placement denotes a different moment in the funeral's proceedings during which a spear was buried, and each moment brought the weapon into different meaningful relationships with the body, the other grave goods, the funeral, and the burial itself.

Several cases illustrate this variety. Some spears are found in the fill 15-30cm above the base of the grave; most of these were originally placed upon a coffin which has since decayed. Traces of coffins occasionally survive as dark stains in the soil. More frequently, changes in the position of the human skeletal remains will indicate that the body decomposed (and settled) inside a container. In many graves, however, no trace of a coffin survives except for the spear that hovers above the grave floor. These hovering spearheads often tilt downward toward the center of the grave, a result of the coffin's ultimate collapse inward under pressure from the soil above (this movement can sometimes rotate the spearhead away from the grave's central axis as it falls). At least a tenth of the spears in the catalog were buried on top of a coffin (twice as many as were buried inside a coffin with a corpse). The real number buried on top of coffins is probably higher than 10%, but spears atop coffins can only be identified when excavators take the time to record the depth at which the spears were recovered. Viewed from above after the coffin has decayed, coffin-top spear burials look the same as burials where the spear was placed directly beside the corpse. Within the funeral, however, these burials would look different the mourners, and they would happen at different times in the rhythm of the funeral. A body buried with a spear at its side was equipped to look like a warrior to the assembled mourners. In coffin-top burials, the spear was only brought into the grave after the dressed body was hidden and covered with wood and/or soil. The spear was buried last, as a final act before the grave was closed that was separated by time and space from the events that attended the cadaver.

Other graves show greater separation in space, and indicate the passage of longer intervals between the burial of the corpse and the burial of the accompanying spear. At Updown (Eastry, Kent), at least four spears lay far above the corpse and coffin. All four spears appeared to be undisturbed by ploughs or grave robbery. All lay between 50-80cm above the grave's base.[60] Their position was higher than the usual height of a coffin, and in one case the stain of a coffin is visible lower in the grave, beneath the spearhead.[61] In one grave (41), the spear may have leaned against the side of the burial, its tip extending upward. Two (51, 40), however, lay suspended in the center of the grave, supported by over a half meter of backfill. These must have been placed into half-filled graves. The Updown burials resemble the child's grave at Saltwood discussed in the previous section, where a spear was buried in a half-filled grave lined with turf, straw, or growing grasses. A similar turfed burial was found at Spong Hill.[62] There, a spear was leaned into the grave so that its blade protruded upward from the turfs after the grave was half filled. Later, the remainder of the grave was filled in. This practice appears again at Beckford,

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[60] Updown Eastry, graves 40, 41, 51, and 52. Martin Welch, "Report on Excavations of the Anglo-Saxon Cemetery at Updown, Eastry, Kent," *Anglo-Saxon Studies in Archaeology and History* 15 (2008): 27-28, 127-31. For the depth at which these spears were buried, see Bryan Philp and Peter Keller, "The Anglo-Saxon Cemetery on the Eastry Bypass," Unpublished fieldwork report (Invicta House, County Hall, Maidstone ME14 1XX: Kent County Council, 2002), Sackler Library.

[61] In graves where spears are placed on top of coffins, the spears are always recovered 15-30cm above the corpse

[62] Spong Hill, grave 40. Catherine Hills, Kenneth Penn, and Robert Ricket, *The Anglo-Saxon Cemetery at Spong Hill, North Elmham. Part III: Catalogue of Inhumations*, East Anglian Archaeology 21 (Dereham, Norfolk: Norfolk Archaeological Unit, 1984), 91-94.

where two spears were buried up to the socket, leaving their blades exposed to be burned in makeshift pyre above the inhumed cadaver.[63] Other spears have been found significantly above the floor of the graves where they were buried, usually laid horizontally into the half-filled cut.[64] Although these burials can sometimes be explained as products of post-depositional disturbance (the spear above Saltwood C4688 was snapped in two by the plough blade that pulled it from grave below),[65] most appear to be recovered *in situ*, as in Flixton (East Anglia), Cleatham (Lincs.), Great Chesterford (Essex), Alton (Hants.), and Gallows Hill, Swaffham Prior (Cambs.).

Spears placed high above the corpse suggest a variety of burial events, all which occurred some time after the human cadaver was interred. These spears may have been afterthoughts, gifts,[66] or products of a separate depositional rite for the spear alone—perhaps a funeral for a famous or dangerous weapon whose shaft was first broken or blade annealed following the internment of its human owner. In a Southampton grave, a spear was buried above a young woman who had been interred in a coffin; did the mourners intend to bury her as a "warrior woman," or did the person who placed the spear into the grave as it was being filled intend

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[63] Beckford A, grave 14. Vera I. Evison, Prue Hill, and Valerie Cooper, *Two Anglo-Saxon Cemeteries at Beckford, Hereford and Worcester*, CBA Research Report 103 (York: Council for British Archaeology, 1996), 77, 100, 129.

[64] Flixton II, grave 1; Cleatham, grave 5; Great Chesterford, grave 22; Alton, grave 1; Gallows Hill, graves 7 & 8. Stuart Boulter, *Circles and Cemeteries: Excavations at Flixton*, East Anglian Archaeology, report No. 147, 2012 (Bury St Edmunds: Archaeological Service, Suffolk County Council, 2012), 200-201. Kevin Leahy, *Interrupting the Pots: The Excavation of Cleatham Anglo-Saxon Cemetery, North Lincolnshire*, CBA Research Report 155 (Bootham, York: Council for British Archaeology, 2007)., 34, 175, 231. Vera I. Evison and F. K. Annable, *An Anglo-Saxon Cemetery at Great Chesterford, Essex*, CBA Research Report 91 (York: Council for British Archaeology, 1994), 95, 145, 192. Vera I. Evison, *An Anglo-Saxon Cemetery at Alton, Hampshire*, Monograph / Hampshire Field Club and Archaeological Society 4 (Gloucester: Hampshire Field Club, 1988), 71, 89, 110. Tim Malim, "A Romano-British Temple Complex and Anglo-Saxon Burials at Gallows Hill, Swaffham Prior," *Proceedings of the Cambridge Antiquarian Society* 95 (2006): 100, 106.

[65] Saltwood, grave C4688. Riddler, McKinley, and Skittrell, 72, fig 117.

[66] John M. King, "Grave-Goods as Gifts in Early Saxon Burials (Ca. AD 450-600)," *Journal of Social Archaeology* 4, no. 2 (June 1, 2004): 214–38.

something else by the gesture?[67] The spear may have had little to do with her female body at all; weapons had many meanings, and the graveside sacrifice of a good blade could have nothing to do with the personal identity of the woman whose funeral provided the occasion for the action. The timing of the event in the funeral—the burial of the spear last, after the coffin was closed and immediately before (or sometimes, while) the fill was shoveled into the grave—may have been the most significant aspect of many of these spear burials. The burial of a spear closed the grave and ended the funeral, marking a boundary between the cadaver and the living community[68]—or else, creating a connection that could bridge the boundary of death and unite living and dead through a final act of gift-giving.

Other findspots reveal more intimate connections between mourners, corpse, and spear. Many corpses gripped a spear in their hand; 201 of the 722 undisturbed spears in the catalog were found in such a position. While older scholarship interpreted this practice as a statement of identity or the rights of the deceased (some even argued that the corpse's right- or left-handedness could be determined from which hand gripped the spear),[69] we might instead

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[67] St. Mary's Stadium, grave 5129. Birbeck, 38, 41.

[68] Cf. Melanie Giles' discussion of spear burials in Iron Age Yorkshire: *A Forged Glamour: Landscape, Identity and Material Culture in the Iron Age* (Oxford: Windgather Press, 2012), 238.

[69] Identity: e.g. Michael Swanton, *Spearheads of the Anglo-Saxon Settlements* (London: Royal Archaeological Institute, 1973), 3-4, but cf. Bonnie Effros, *Merovingian Mortuary Archaeology and the Making of the Early Middle Ages*, The Transformation of the Classical Heritage 35 (Berkeley: University of California Press, 2003), 76-79.

Handedness: Phillip Williams, *Market Lavington, Wiltshire, an Anglo-Saxon Cemetery and Settlement: Excavations at Grove Farm, 1986-90*, Wessex Archaeology Report, no. 19 (Salisbury: Wessex Archaeology, 2006). ''Of the ten examples, six were on the left hand side of the body which may suggests [sic] a ratio of 1.5:1 in favour of left-handed spearmen. A ratio of 2:1 for left-handed spearmen was noted at the cemetery at Portway, Andover, but otherwise the preference at Wessex sites if for right-handed spearmen (Härke 1985, 91)' (78). A similar statement was made in the recently released report from Collingbourne Ducis: ''There were equal numbers on the left and right hand sides, which differs to the general situation in Wessex where most spears had been placed on the right of the skeleton, probably indicating a majority of right-handed spearmen.' Kirsten Egging Dinwiddy and nick Stoodley, *An Anglo-Saxon Cemetery at Collingbourne Ducis, Wiltshire*, Wessex Archaeology Report 37 (Salisbury: Wesex Archaeology, 2016), 106.

consider how the spear got to this position. Because the dead do not bury themselves, someone had to place the weapon there—and this was not easily accomplished. In coffined burials, or graves where bodies were buried on biers, stretchers, or blankets, the corpse might be arranged beside the grave and lowered into place. These accompaniments are rare, however; most bodies must have been handed down into the grave and arranged in place by someone who stood with them in the grave. In one such burial at Great Chesterford (Essex), for example, an attendant placed a broken spear shaft into the hand of an adult man.[70] The attendant must have entered the grave to do this; the grave survived to a depth of 107cm (and would have been deeper before the plough soil was removed). This was too deep to reach from the surface. The person who arranged the body therefore had climbed into the grave, holding the broken spear and, because the grave was only 75cm wide, straddling the corpse with one foot on either side of the body. They leaned forward until their face was close to the dead man's chest to reach his hand. This brought their head below the surface, shutting out the sights and sounds of the funeral celebration and concentrating the scents of earth, death, and any fragrant herbs or flowers that had been thrown into the grave into a pungent bouquet of heady scent. In this dark, smelly, quiet, and

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This argument was simplified from one made by Härke, who suggested that both the side of the body on which weapons were placed, the direction in which belts were buckled, and osteological evidence combined to reveal distinctions between right- and left-handed individuals (*Angelsächsische Waffengräber*, 130-32). Härke''s argument, while not entirely unproblematic, is certainly more sophisticated than that made by the Market Lavington report (which claimed, however, to be employing Härke's methodology). For a more nuanced discussion, see F. K. Annable and Bruce N. Eagles, *The Anglo-Saxon Cemetery at Blacknall Field, Pewsey, Wiltshire*, Wiltshire Archaeological and Natural History Society Monograph 4 (Devizes: Wiltshire Archaeological and Natural History Society, 2010), 84-85.

However, the burial evidence confounds this argument. In this project's catalog 290 spears were found on the left side of the body and 307 on the right. Of the spears gripped in a hand, 73 were held by the left hand and 78 by the right. We would not argue that half the men in England were left handed! Instead, we must recognize that spears were buried by and according to the desires of the living, not the dead.

[70] Great Chesterford, grave 115. Evison and Annable, 107, 164, 200.

narrow space, they grasped the hand of the cadaver and wrapped its fingers around the spear shaft, giving a gift from living hand to dead. Then, like Aeneas or the hero Beowulf, the attendant emerged from the ground, short a spear but touched by the hand of the dead man to whom the gift had been given.[71] That heroic journey—to cross a threshold, meet the dead, and make an exchange between two worlds—may have mattered more than the final tableau of cadaver gripping spear shaft. The action itself, independent of its materialized outcome (what we see today), made meaning.

Mourners placed spears against cadavers in other meaningful ways as well. Several rested broken-shafted spears on the waists and thighs of bodies whose bones have been identified as osteologically female.[72] In 10 of 27 female-sexed spear burials (37%), a mourner placed the

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[71] Robert Fulk, Robert Bjork, and John Niles, *Klaeber's Beowulf and The Fight at Finnsburg*, fourth edition (Toronto: University of Toronto Press, 2008), 87 (line 2559).

[72] Despite recent (and sometimes heated) claims to the contrary, a number of weapon burials have been identified as female in their accompanying osteological reports (contra Heinrich Härke, "Gender Representation in Early Medieval Burials: Ritual Re-Affirmation of a Blurred Boundary?," in *Studies in Early Anglo-Saxon Art and Archaeology: Papers in Honour of Martin G. Welch*, ed. Stuart Brookes, Sue Harrington, and Andrew Reynolds, BAR British Series 527 (Oxford: Archaeopress, 2011), 98–105. Stoodley, 29). These identifications have often provoked consternation from the authors of the site reports, who have in many cases chosen to alter these identifications from female to male in the grave catalog (e.g. Sonia Chadwick Hawkes appears to have identified Finglesham grave 170 as male in spite of the bones' 'female appearance,' in order to reconcile it with the grave finds; Sonia Chadwick Hawkes and Guy Grainger, *The Anglo-Saxon Cemetery at Finglesham, Kent,* Oxford University School of Archaeology Monograph 64 [Oxford: Oxford University School of Archaeology, 2006], 345. Vera Evison changed the sex of four Beckford burials identified as female in the osteological report to male in the grave catalog—graves A2, B5, B85, B93; Vera I. Evison and Prue Hill, *Two Anglo-Saxon Cemeteries at Beckford, Hereford and Worcester*, CBA Research Report 103 [York: Council for British Archaeology, 1996], 42, 54, 60-1 vs. 75, 80, 88-9).

In his study of gendered burial practices, Nick Stoodley only identified 5 cases of probable women buried with weapons, all from the 1987 publication of Dover Buckland, and two possible cases (p. 29). It is not fully clear why their studies make no mention of the weapon graves identified as female from Westgarth Gardens, Waklerley, Empingham II, and Broadstairs, which were among the sites surveyed by Stoodley and were included in the count of female weapon graves by Härke, whose database Stoodley used as a foundation for his study (Härke, *Angelsächsische Waffengräber*, 180). Westgarth Gardens was disturbed, and may have been excluded for that reason, while the three graves at Empingham were of juveniles identified by their teeth, a method not as well tested as sex identification by the pelvis or skull. No mention is made of these graves, however, and Stoodley writes that 'weapon bearing females are only found at Dover Buckland' (49).

In my catalog, 34 of 892 weapon burials (27 with spears) were identified as female. This contrasts to Härke's 11 of 702 (a statistically significant difference; p = .0092, using a two-tailed Fisher's test), and may indicate spear at the waist of the corpse (Figure 7-3); this contrasts with male burials, where only 14% contained a spear placed at the waist. Mourners usually buried more traditionally female-gendered grave goods at women's waists: keys, girdle hangers, or bags. In female spear burials, the broken-shafted spear joined, or more often replaced, these objects. No osteologically sexed female bodies have been found with these traditional female objects and a spear together at the waist, but an unsexed individual at Broughton Lodge was buried with a spindle whorl, six keys, and a spear socket at the waist.[73] In 2007, a metal detectorist found a set of keys rusted onto a spearhead which had been buried stacked together in an unsexed grave, presumably at the waist of a woman (Figure 7-4).[74] More commonly, however, the spear replaced these goods, substituting a typically male-gendered artifact for the female objects. In at least one case from Lechlade 95, the broken spear was placed on the waist—or more properly, the womb—of a pregnant woman.[75] Howard Williams describes another, similar burial as an emotive act: the

archaeologists' increased commitment to evaluate osteological evidence independently from accompanying grave goods (cf. Bonnie Effros, "Skeletal Sex and Gender in Merovingian Mortuary Archaeology," *Antiquity* 74 [2000]: 632–39).

[73] Grave 54. The spear socket is recorded as missing in the site report, but is present in the collection at the Nottingham City Museum where I examined it and confirmed that it was part of a spearhead. M. J Dean, A. G Kinsley, and T Blagg, *Broughton Lodge: Excavations on the Romano-British Settlement and Anglo-Saxon Cemetery at Broughton Lodge, Willoughby-on-the-Wolds, Nottinghamshire, 1964-8* (Nottingham: University of Nottingham, 1993), 41.

[74] A. Daubney, 'LIN-E7FAA6: A Early Medieval Spear,' Portable Antiquities Scheme, available at: https://finds.org.uk/database/artefacts/record/id/163912 (accessed Sep 4, 2016). This spearhead was identified as a weaving sword in the PAS record, but it is clear that it was never modified into such an object. Compare its pristine, sharp edge with the modified blade of the weaving sword from Boxley, Kent, for example (illustrated in Sue Harrington, *Aspects of Gender Identity and Craft Production in the European Migration Period: Iron Weaving Beaters and Associated Textile Making Tools from England, Norway and Alamannia*, BAR International Series 1797 (Oxford: John and Erica Hedges Ltd, 2008), 119.

[75] Butler's Field, Lechlade, grave 95 (Boyle et al., 97, 171, 227); Duncan Sayer and Sam D. Dickinson, "Reconsidering Obstetric Death and Female Fertility in Anglo-Saxon England," *World Archaeology* 45, no. 2 (June 2013): 285–97.

spear, broken, placed gently onto the woman's thigh to mourn and bid farewell.[76] The placement of these objects—in substitution for female goods, near the womb, sometimes with women who died while carrying children—suggest a range of interpretations encompassing transgression of usual gender roles (women appropriating male authority) or frustrated hopes for children unborn. The relationship between the iron blade on a broken shaft, failed pregnancy, and maternal death in Lechlade 95 may suggest a gynecological rite at the graveside. Iron is often associated with female fertility, and the seventh-century polymath Isidore of Seville repeated Pliny's caution that menstrual blood was especially harmful to iron.[77] Could a spear buried with a woman contain, balance, or cleanse the ill luck of maternal death? We may contain this speculation by saying more generally that the placement of a broken spear at a female-sexed body's waist engaged meaningfully with habits of gender representation, the female body, and an arrangement of grave goods to suggests a different set of funeral rites—or at least, a different set of graveside actions.

In contrast to the gentle gestures used to bury the spears above, some mourners buried spears with violence. Several spears were thrown into graves along Britain's eastern coast; their heads were found protruding from the side of the grave cut, their sockets bent beneath the weight of fill piled upon their protruding shafts (Figure 7-5).[78] The motivation behind these actions is unclear; Neil Price interprets spears thrown into graves in ninth-century Birka as dedications to Oðinn, but this depends on literature written centuries later, and may have no bearing on

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[76] Howard Williams has described the emotive expressions and experiences that attended the arrangement of a corpse in the grave. Williams, "The Emotive Force of Early Medieval Mortuary Practices."

[77] Isidore of Seville, *Etymologies*, XI.i.140, in Stephen A. Barney, *The Etymologies of Isidore of Seville* (Cambridge ; New York: Cambridge University Press, 2006), 240.

[78] Boss Hall, grave 51. Christopher Scull, *Early Medieval (Late 5th-Early 8th Centuries AD) Cemeteries at Boss Hall and Buttermarket, Ipswich, Suffolk*, Society for Medieval Archaeology Monograph 27 (Leeds: Society for Medieval Archaeology, 2009), 12-13, 27, 36; Flixton II, grave 28 (Stuart and Walton Rogers, 228-231), Mucking I, grave 128 (Hirst and Clark, 377-78), and Mucking I, grave 272/101 (Ibid., 397-99).

practices in sixth-century England.[79] Blair sees these practices as a way to keep the dead in the ground.[80] Bede tantalizingly describes the pagan priest Coifi hurling a spear into the temple at Goodmanham before burning it down in the early seventh-century.[81] Was this a kind of pre-Christian closing rite, dedication, or declaration; or was Bede indulging in fantasy or even Christological allegory?[82] In several other graves—Harwell, Empingham, and Beckford—spears were thrust toward or into corpses.[83] Blair has again suggested that these actions were meant to ensure the dead remained dead.[84] The spears at Harwell and Empingham may, however, have been stabbed into the bodies when they were still alive, becoming stuck and consequently being buried with the corpse.[85] At Beckford A and B, spears were more clearly thrust down into the fill of two graves; their shafts would have protruded above the graves for years before they

[79] Neil S. Price, *The Viking Way: Religion and War in Late Iron Age Scandinavia* (Uppsala: Dept. of Archaeology and Ancient History, Univ. Uppsala, 2002), 139, 355. In *Voluspá* 24, Oðinn himself casts a spear over an army at the beginning of a war between the gods, andi n *Styrbjarnar pdttr Sviakappa,* a magical spear throw is so powerful that it kills the enemy army without a fight (Ibid.).

[80] John Blair, "The Dangerous Dead in Early Medieval England," in *Early Medieval Studies in Memory of Patrick Wormald*, ed. Stephen Baxter et al. (Farnham, Surrey: Ashgate, 2009), 542-43.

[81] Bede, *Historia Ecclesiastica*, c. 2.13, in D. Whitelock (ed.), *English Historical Documents c. 500-1042* (London, 1979), p. 672.

[82] Julia Barrow suggests this passage is a Christological allegory, which reminds us how frustratingly polysemic imagery involving spears could be in the early middle ages. Julia Barrow, "How Coifi Pierced Christ's Side: A Re-Examination of Bede's Ecclesiastical History, II, Chapter 13," *The Journal of Ecclesiastical History* 62 no. 4 (October 2011): 693–706.

[83] Harwell, grave 7. P. D. C. Brown, "Notes: The Anglo-Saxon Cemetery at Harwell, Grave 7," *Oxonensia* 32 (1967): 73–74; Empingham II, grave 21. Jane R. Timby, *Anglo-Saxon Cemetery at Empingham II Rutland*, Oxbow Monographs in Archaeology 70 (Oxford: Oxbow Books, 1996), 102, 135, 176; Empingham II, grave 21. Timby, 102, 135, 176. The Empinghamd spearheads were recovered near the corpse's spine, tangled among the lower ribs. The excavation notes are, unfortunately, scant on detail, and it is difficult to tell whether these spears were thrust through the man's belly, perhaps even as his body lay in the ground, or whether they were merely placed on top of his stomach to later fall through the decaying corpse to their current position.

[84] Blair, 542-43. Blair's evocative argument rests, unfortunately, on a frustratingly thin evidentiary foundation.

[85] This is the excavators' interpretation of the Harwell burial. Brown, "Notes: The Anglo-Saxon Cemetery at Harwell, Grave 7," *Oxonensia* 32 (1967): 73–74.

eventually decayed. Precisely what these “violent” graves mean is difficult to interpret; violent burial rites harnessed and deployed the spears’ violent potentiality against the human cadaver to some desired end. If the gift of a spear opened a connection of friendship between living and dead, these graves may have done the opposite.

Other diverse actions and motions appear in graves across England. Spears were often broken at the graveside (Chapter 6). The mourners used these fragments in a variety of ways, however. In a West Heslerton grave, two spears had their shafts removed; one was dumped into the grave, while the other was carefully hidden in a pouch alongside an iron ferrule, where it may never have been seen by the other mourners.[86] A spearhead was hidden and buried in a pouch in a similar manner with a woman at Updown (Eastry, Kent).[87] Were these antiques or heirlooms, and why were they concealed from view? In several graves, spearheads were buried with ferrules from other spears (the wood in the spearhead’s socket and ferrule did not match);[88] these were parts of fragmented weapons, reassembled into something else at the graveside—or else not reassembled, but deposited instead in two separate graveside acts. Sometimes, only a ferrule was buried, the spearheads being removed to elsewhere;[89] and when no shaft was buried with the spearhead, where was it taken instead?

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[86] West Heslerton, grave 151. Christine Haughton and Dominic Powlesland, *West Heslerton: The Anglian Cemetery*, vol. 2 (Yedingham: Landscape Research Centre, 1999), 261-63.

[87] Updown (Eastry III), grave 31. Welch, 22-23, 87, 111.

[88] E.g. Haughton and Powlesland, 314-16; Buckland, grave 8. Vera I. Evison, *Dover Buckland Anglo-Saxon Cemetery*. (New York: English Heritage Publishing, 1987), 217; Buckland graves 249C & 265B. Keith Parfitt and Trevor Anderson, *Buckland Anglo-Saxon Cemetery, Dover Excavations 1994*, The Archaeology of Canterbury 6 (Canterbury Archaeological Trust, 2012), 398, 405-406, 465-66, 475, 532, 536.

[89] Seventeen such cases appeared in my catalog. These are: Wasperton graves 9, 57, 73, & 90 (M. O. H. Carver, Catherine Hills, and Jonathan Scheschkewitz, *Wasperton: A Roman, British and Anglo-Saxon Community in Central England*, Anglo-Saxon Studies 11 [Woodbridge, UK ; Rochester, NY: Boydell Press, 2009]); Flixton, grave 9 (Boulter and Walton Rogers, 207-208); Buttermarket, grave 3659 (Scull, 149, 168, 206); Springhead, grave 2105 (Phil Andrews et al., *Settling the Ebbsfleet Valley: High Speed 1 Excavations at Springhead and Northfleet, Kent:*

The cases above introduce and illustrate the range and variety of intersections, contacts, and exchanges that mourners, corpses, and weapons engaged in at the graveside. We might elaborate this story further, if we wished, to consider how these engagements changed between the humble burials of sixth-century farming communities (the primary focus of the examples above) and the lavish princely graves of the seventh century. In the ship burials at Sutton Hoo and Snape, bundles of spears were laid on the boat deck among the many other grave goods, while the Prittlewell chamber grave hung spears on the wall, giving pride of place to the furnishing, feasting vessels, and lyre that surrounded the "prince's" corpse.[90] In a chamber grave at Saltwood, a spear was placed on top of the closed chamber almost as an afterthought, while the large chamber grave at Boss Hall was strewn with fragments of broken spears as if it were a charnel house for these objects.[91] This is not to say that spears lost their significance as mortuary objects within this later century: a large spearhead was loving placed on the lap of the richly dressed pregnant woman from Lechlade who died in the first half of the seventh century.[92] It should be clear, however, that spears were buried in new ways in the graves of the seventh-

The Late Iron Age, Roman, Saxon and Medieval Landscape. Volume 4: Saxon and Later Finds and Einvironmental Reports, Monographs 4 [Salisbury: Oxford Wessex Archaeology, 2011], 23); Butler's Field, Lechlade, graves 58 & 151 (x2) (Angela Boyle et al., *The Anglo-Saxon Cemetery at Butler's Field, Lechlade, Gloucestershire. Volume 1: Prehistoric and Roman Activity and Anglo-Saxon Grave Catalogue*, vol. 1, Thames Valley Landscapes Monograph 10 [Eynsham: Oxford Archaeological Unit, 1998]); Great Chesterford, grave 134 (Evison and Annable, 110, 171, 203); Minerva, Altwalton, grave 1377 (Catriona Gibson, "Minerva: An Early Anglo-Saxon Mixed-Rite Cemetery in Alwalton, Cambridgeshire," *Anglo-Saxon Studies in Archaeology and History* 14 [2007], 313); Berinsfield, grave 30 (A. Boyle, *Two Oxfordshire Anglo-Saxon Cemeteries: Berinsfield and Didcot*, Thames Valley Landscapes Series 8 [Oxford: Oxford Committee for Archaeology, 1996]); Broughton Lodge, grave 82 (Dean et al.); Mucking I, grave 152 & Mucking II, grave 816 (Hirst and Clark), and Temple Hill, grave 10 (Leonora O'Brien, "An Early Anglo-Saxon Cemetery at St Edmund' S Church and Vicarage, Temple HIll, Dartford," *Anglo-Saxon Studies in Archaeology and History* 19 [2015]: 15, 24-25).

[90] Sutton Hoo: R.L.S. Bruce-Mitford, *The Sutton Hoo Ship-Burial*, vol. 1 (London, 1975). Snape, Grave 47 (Filmer-Sankey and Pestell, 102-111, 150). Prittlewell: Ian Blair, 'The Prittlewell Prince: An Anglo-Saxon Royal Burial,' in Brian M. Fagan, *Discovery! Unearthing the new treasures of archaeology* (London: Thames & Hudson, 2007), 106-09, esp. 108.

[91] Saltwood, grave C1081 (Riddler et al., 18-19, fig 140-42); Boss Hall, grave 74 (Scull, 13-14, 28, 38).

[92] Butler's Field, Lechlade, grave 95 (Boyle et al., 97, 171, 227).

century elite, and that these new motions corresponded with new funerary events that mobilized new sets of meaning at the graveside (see Chapter 8).

How do we make sense of this individuality, both across space and time? Rather than fixate on the search for a single interpretation for the "weapon burial rite" or a monolithic identity for its practitioners, we should instead focus on the community actions of mourning and leave-taking that surrounded the creation of these graves. The people who whose actions left spears in the ground are frustratingly invisible; all that remains is the materialized afterimage of their grief in the form of the "finished" burial. Coarse-grained surveys of the complete contents of graves—focused on assemblages, or large-scale correspondence between demographics and grave goods—cannot capture the ephemeral traces of the events through which identities and memories were expressed, and relationships negotiated and transformed at the graveside. It is the small actions of each grave's making—the events by which a grave was dug and slowly filled—that fragmented, reassembled, and transformed the relationships, identities, and communal bonds of the burying community. We must, therefore, pay closer attention to artifacts' immediate context, both during excavation, in publication, and in our interpretive analyses of this materials' supposed visual or assembled value. Attending to these immediate contexts restores sequence and time-depth to our analyses, enabling reconstruction of the contacts, connections, and exchanges made between grave goods, the corpse, other objects, and the bodies and sensory perceptions of the mourners and buriers.

We ought to be cautious in how we look for expressions of identity within this material. We must remember that identities are situational, emergent, and require activation—they must be set into motion—by the events within which they are entangled.[93] Medieval people of course had identities, and these must have been discussed, mourned, and celebrated at the funeral. Spears, too, had fame that was surely recalled at the grave. These identities are not things to be recovered, however. They were things performed, made real in rehearsal and remembrance. If we want to glimpse these rehearsals, we have to look at the events through which the funeral unfolded, the weaving interplay between people, objects, and the dead. These motions must have been intensely individual (as evidenced in the subtle—and not so subtle—variations of funeral practice across the catalog), and we should not expect to find their content preserved within an overarching rite. The great variety of gestures and motions through which spears were buried suggests instead diverse motivations for their burial, and a search for patterns within this diversity must proceed from closer contextual study than that which has been previously undertaken. Some patterns do begin to emerge, however. In particular, spears opened new contacts between living and dead, closed or banished connections from the past, and crossed thresholds in the hands of the living to trace out itineraries that joined these to the bodies of the dead.

Conclusions: Meaningful Objects because of Meaningful Motions

We have now come to a point of synthesis. Chapters 4 and 5 discussed how spears gained meaning through their materials, manufacture, and use. By the time they came to the grave, weapons were social agents in their own right, capable of building and destroying relationships between the living. This agency sparked response—often violent—at the graveside as mourners chose to break, burn, and destroy hundreds of spears before burial (Chapter 6). These events

[93] P.J. Burke et al., eds., *Advances in Identity Theory and Research* (New York: Kluwer Academic/Plenum Publishers, 2003), esp. 195-214.

bring us to the present chapter, in which mourners placed these already meaningful, agentive objects into graves using meaningful motions of their arms and bodies which drew upon, expressed, and transformed spear and funeral in a final itineration or meaning-making journey. This chapter has maintained that the presence or absence of spears in a grave is not enough to determine the social meanings that the burial—or more properly, the funeral—expressed. Spears' deep layers of polysemous potentiality was activated through motion—made specific through action—by the mourners at the grave.[94] Whether by placing a spear into a near-filled grave at the conclusion of a rite, or hurling a spear over the head of a corpse, mourners chose which aspects of these weapons' biographies to recall for what they must have thought was the final stage in their social itinerary.

The mourners need not always have succeeded in this choice, however. As polysemous, complex, agentive objects tied to daily life as well as life on the battlefield, spears continuously proved themselves resistant to control, just as they remain today difficult to lock down into a single interpretive message. Spears need not have become docile at the graveside. Even as spears were used to articulate, construct, or challenge the social projects of the living, they offered a chance to insert a competing narrative into the grave: to recall aspects of the spear's history that the immediate burial context ignored or sought to suppress. We err if we assume that a burial tableau had but one interpretation to the assembled mourners, or that an action which called forth meaning in one way produced that meaning without challenge or ambiguity. Spears were instruments of violence, and their deaths, just as their lives, were marked by conflict.

Bearing these considerations in mind, several conclusions present themselves. The first is that we ought to lean but lightly on a grave's assembled contents to explain the social importance

[94] Cf. the essays collected in Joyce and Gillespie, *Things in Motion.*

of the rites and practices that created it. Indeed, the long focus on the full burial assemblage as the unit of analysis has prevented analyses of the weapon burial rite from moving beyond old culture historical concerns with Germanictraditions and identity.[95] Abandoning the assemblage as our unit of analysis and focusing instead upon the actions of assembling makes it possible to see how burial practices might express meanings utterly unrelated to questions of ethnicity or identity. This does not mean that burials could never express the identity of the deceased; but these identities were but one of the meaningful, tangled, and even contradictory expressions that could emerge from the experiences of the community gathered at the funeral.

We must attend to the details of spears' deposition—how motions and choices at the graveside engaged with the biographies and histories of individual spearheads—to reconcile spears' potentiality to mean many things with the actualization(s) of their specific meaningful contributions to a burial. This chapter began by arguing that we cannot tackle the epistemological challenges of a search for meaning before first tackling the ontological question: what was weapon burial? The answer to that question is that weapon burial was many things, sometimes at the same time—but the common element across the catalog is of people who used weapons to bridge, in death as in life, their relationships with each other. Sixth-century communities wove themselves together through performances of violence. When their members died, the living used these same tools to confront the rupturing chasm of death by building, through discard of the arms that had been companions in danger and hardship, what they hoped would be bridges to healing, social renewal, and the proper expression of grief. The resulting

[95] Howard Williams' study of death and memory is a rare exception, precisely because he considered burials as sequences of meaningful action rather than assemblies to be interpreted. In particular, "Keeping the Dead at Arm's Length," and *Death and Memory*, 123-34.

sacrifices, negotiations, and transformations at the graveside are the heart of the meaning of the burials we excavate—not a weapon burial rite, but a thousand small farewells. The language of this parting, like so many other things in the landscape defined by farmers who practiced at arms, was spoken through the intermediacy of spears.

Figure 7-1. The Stilicho Diptych, which depicts a woman, child, and Roman military officer (probably the *magister militum* Stilicho). Image public domain, Wikimedia Commons.

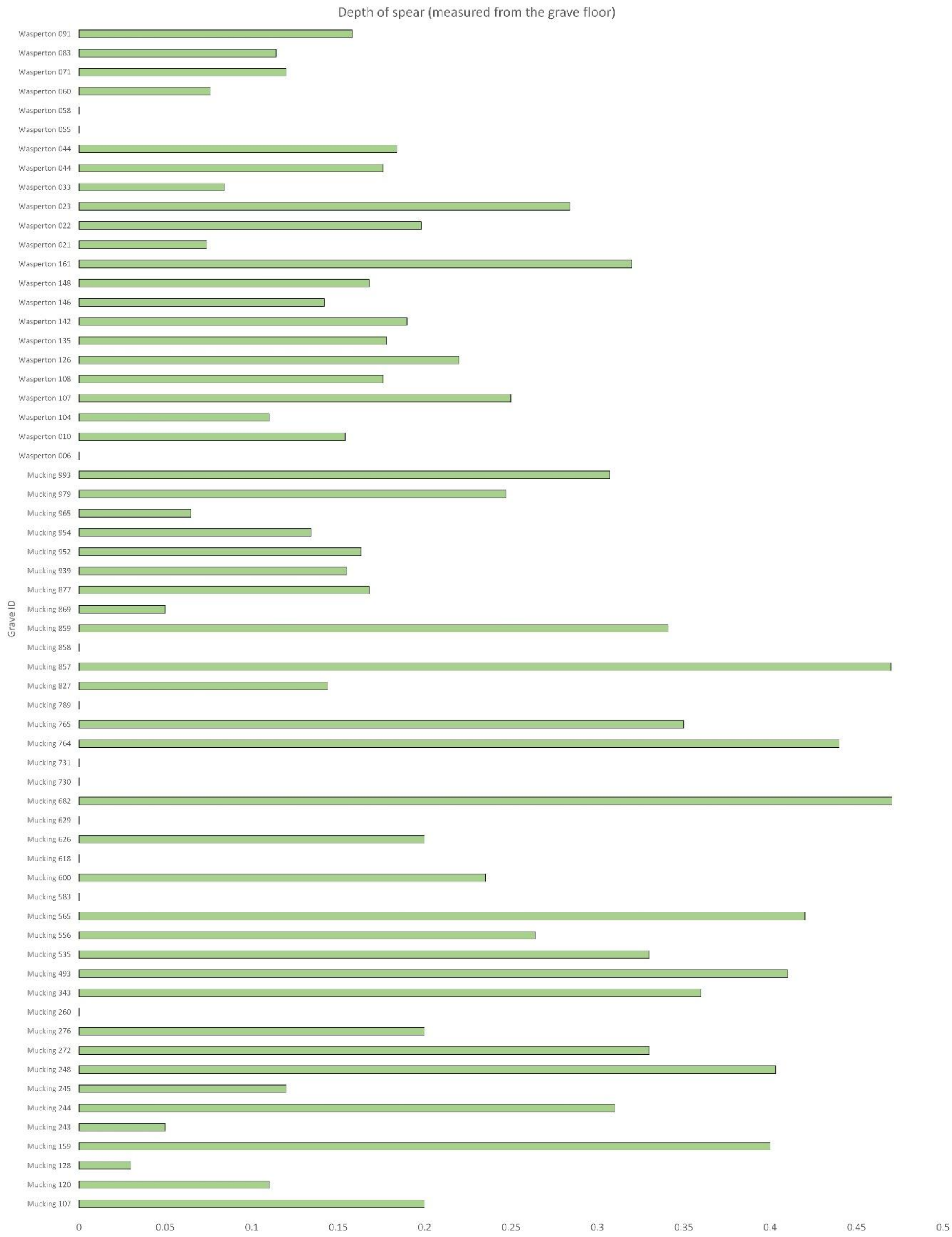


Figure 7-2. The depth at which spearheads were recovered at Mucking and Wasperton. The depth is recorded as distance above the floor of the grave. Graves where no depth was recorded have been omitted.

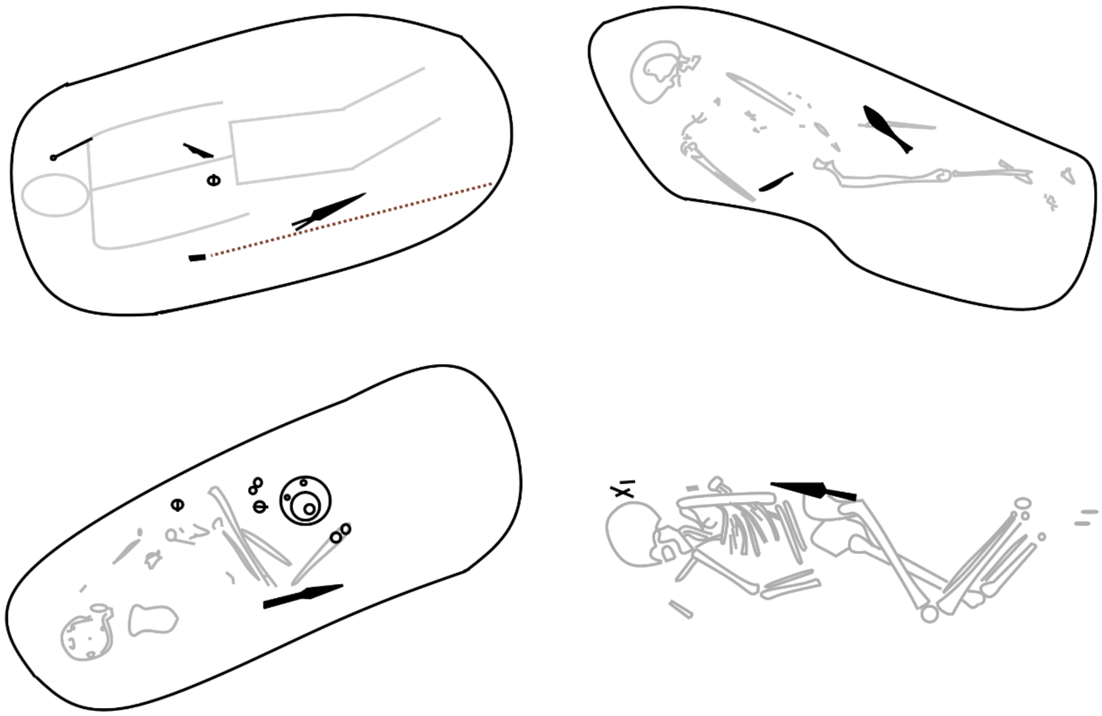
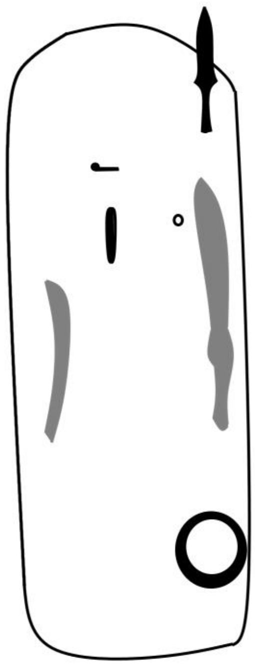


Figure 7-3. Spearheads buried at the waist. Images redrawn from originals. A) ?Female, Tittleshall, Grave 1. B) Female, West Heslerton Grave 144. C) ?Female, West Heslerton, Grave 184. D) ?Male, Empingham II, Grave 84.

Figure 7-4. A spearhead found buried with latch lifters, by a metal detectorist in Lincolnshire. Portable Antiquities scheme, published with a CC license, https://finds.org.uk/database/artefacts/record/id/163912.

A)



B)

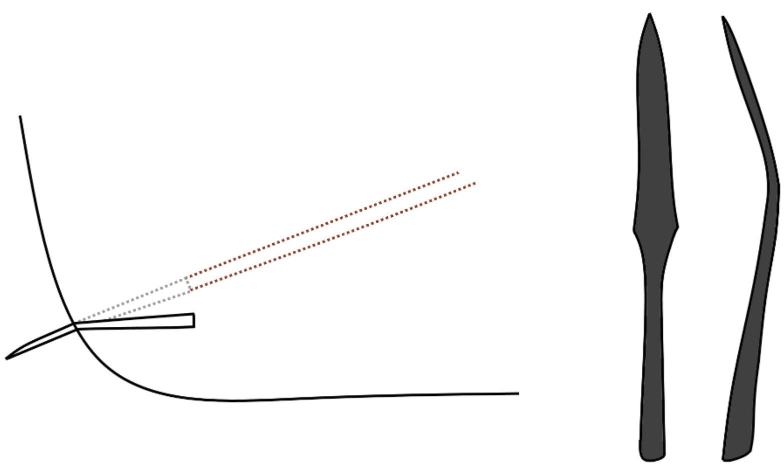


Figure 7-5. A grave where the spear appears to have been thrown over the corpse. Boss Hall, Grave 51, redrawn from originals. A) The grave plan, showing the spearhead lodged into the side of the grave cut beside the head of the corpse. B) A cutaway view of the side of the grave where the spearhead was lodged, and a sketch of the spear which was bent under the weight of the soil above. See Christopher Scull and Marion Archibald, Early Medieval (Late 5th-Early 8th Centuries AD) Cemeteries at Boss Hall and Buttermarket, Ipswich, Suffolk, Society for Medieval Archaeology Monograph 27 (Leeds: Society for Medieval Archaeology, 2009.), 12-13.

CHAPTER 8
NEW FIELDS OF ACTION: THE SPEAR IN THE SEVENTH CENTURY AND BEYOND

The local, agrarian society of lowland Britain described in Chapter 5 had begun to change by the end of the sixth century. Kingdoms were becoming a defining feature of the lowland British landscape by the year 600.[1] Concurrently, burial practices were changing. Furnished inhumation—burial with weapons or jewelry—was all but abandoned by the seventh century.[2] By the eighth century, many old cemeteries were closed entirely, and the rural dead were buried in new plots where their bodies were unaccompanied by any of their earthly possessions.[3] Alongside the rise of kingdoms and the appearance of new mortuary rites, Christianity arrived—or reasserted itself—in the lowlands from both east and west. When Augustine the missionary landed with a ship of Italian monks in Kent, however, he found a kingdom already caught in the throws of rapid social transformation.[4]

Of these three changes, the arrival of Christianity may be the least important for understanding the transformation of the significance of the spear in the seventh century and beyond.[5] The seventh and eighth centuries saw the spear be swept up from farmyards and fields and brought into the new halls of the rising elite, into the hands of an emerging warrior class, and finally onto the velum of Christian monastic poets. By the end of this process, the spear had been

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[1] Barbara Yorke, *Kings and Kingdoms of Early Anglo-Saxon England* (London: Routledge, 1992), 9-14; however, cf. discussion in Harrington and Welch on the possibility of identifying territorial units in the earlier period which might kingdoms, esp. 206-10.

[2] For the chronology of male burials, see Chapter 3. Helen Geake, *The Use of Grave-Goods in Conversion-Period England, c. 600 - c. 850*, BAR British Series 261 (Oxford: Archaeopress, 1997), 126-27; Hines and Bayliss, 529-43.

[3] Helen Geake, *Grave-Goods in Conversion-Period England*.

[4] Hines and Bayliss, 551.

[5] Ibid.; also Halsall, *Cemeteries and society*, 16 et passim.; B.K. Young, "Merovingian funeral rites and the evolution of Christianity: A study in the historical interpretation of archaeological material," PhD thesis, University of Pennsylvania (1975).

decontextualized from the practices and fields of action that had made it meaningful in the funerals of ordinary men of the early sixth century, and became a tool for the new elite. This chapter traces the spear's journey into new spheres of power, new burial traditions, and—ultimately—out of the archaeological record and into the worlds of medieval and modern text.

From Farmyard to Great Hall Complex

By 600 CE, social order in lowland Britain was changed. Chapter 5 characterized lowland Britain c. 500 as an agrarian society in which local communities and armed assemblies of peasant farmers formed the center of social life. In these rural settings, spears were as much farmyard tools as implements of war.

By the seventh century, differences of wealth and influence had begun to manifest as new social hierarchies.[6] Households that grew their wealth and power over the course of the sixth century had, by the seventh, established dynastic lines and consolidated small but meaningful authority over local communities. These rising families expressed their power through a new kind of architecture, the Great Hall Complex, so called because of the large timber structures that formed their centers. These halls acted as assembly points for the surrounding rural countryside, and diverted the flow of enough material resources that their footprint can still be be measured in the distribution of archaeological finds.[7]

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[6] Fleming, 61-88; Chris Scull, "Local and regional identities and processes of state formation in fifth- to seventh-century England: some archaeological problems," in B. Arrhenius (ed.), *Kingdoms and Regionality: transactions from the 49 Sachsensymposium 1998 in Uppsala*, 121-125 (Stockholm: Stockholm University Archaeological Research Laboratory, 2001). Harrington and Welch, esp. pp. 206-10, explore whether archaeology shows evidence of these kingdoms socio-economic influence in the earlier period; their study found evidence of structuring in the landscape which might indicate centrality and power structures.

[7] Matthew H. Austin, "Anglo-Saxon 'Great Hall Complexes': Elite Residences and Landscapes of Power in Early England, c. AD 550-700," PhD dissertation, University of Reading, 2017.

The new seventh-century elite did not, like the farmers among whom they lived, draw their influence from bringing their personal spear to the local armed assemblies and making a show of their ability to shoulder a share of community labor as one among equals. Instead, the new elite attempted to harness other men's violence by mediating violent conflicts in their halls. Ambitious men like Æþelberht of Kent appropriated local community leaders' right to set the price of legal fines for bodily injury by issuing royal law codes for their kingdoms.[8] Æþelberht himself also gathered armed men to his household, and offered them a protected legal status alongside his other household servants.[9] These privileged household warriors gave men like Æþelberht the ability to do what a simple farmer could not: Æþelberht had a ready-made posse of professional fighters at his disposal, ready to solve legal disputes without the need to achieve consensus in his local assembly.

As elite power and capacity for violence increased, weapon burials began to change. In the peasant societies of the early sixth century, a funeral had been merely one of many contexts in which rural farmers could perform their readiness to stand beside their neighbors under arms should their community need to exact justice or fight a war. Spears were placed into the graves of men whose neighbors sought to affirm their community-mindedness; by mourners who wanted to end the violence that had attended the life of the deceased; or by children who sought to start new lives free from the social commitments that their fathers had made with their

[8] Æþelberht's code focuses overwhelmingly on outlining fines for violent offenses. 39 of his 81 laws concern injuries, and more than half of these are specifically injuries caused by weapons. 9 laws specifically concern stabbing, and 13 with cutting. Lisi Oliver, *The Beginnings of English Law* (Toronto: University of Toronto Press, 2002).

[9] Æþelberht's law 26 describes crimes against his 'loaf eaters' (*hlafætan*), an Old English parallel to the Latin *bucellarii*, 'biscuit eaters,' i.e. the personal bodyguards or household warriors of a Late Antique aristocrat. Oliver, *Beginnings of English Law*, 69.

weapons. These graves were byproducts of a social life held together by communal participation in acts of collective violence. That social life was not a static system, however, and funeral rites changed as new elites extended their power.

By the seventh century (and beginning in the second half of the sixth) weapon burial had fallen out of favor in most rural communities.[10] In the models proposed in Chapter 3, weapon burial peaked c. 540, after which its frequency rapidly decreased. In the early sixth century, roughly half the men who died were buried with weapons in their graves. Some early rural cemeteries (for example, the recently excavated cemetery at RAF Lakenheath) could have more than a hundred weapon graves.[11] By the seventh century, in contrast, only one or two persons might be buried with weapons in a cemetery of fifty or a hundred.[12] This general pattern did not hold for all sites, however. At the late sixth-century cemetery at Tranmer House (the immediate predecessor of Sutton Hoo), for example , all but two bodies were buried with either weapons or jewelry (one of the two buried without weapons or jewelry had been disturbed, and both contained other grave goods).[13] Similarly, at a seventh-century cemetery at Hamwic, 9 of 25

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[10] Helen Geake placed the end of furnished inhumation in the early eighth century (Geake, *Grave-Goods in Conversion-Period England*, 125). Hines and Bayliss argue, however, that the practiced concluded c. 670/80 (pp. 459-491; however cf. 515). Their conclusion has been criticized for dismissing coin dating from several graves that post-date their cut-off by 20 or 30 years, and for dismissing the effects of marine diet on their date calibration, i.e. Catherine Hills, "Anglo-Saxon Graves and Grave Goods of the 6th and 7th Centuries AD: A Chronological Framework. By Bayliss Alex, Hines John, Høilund Nielsen Karen, McCormac Gerry And Scull Christopher. 310mm. Pp Xix + 595, 500 Ills (Some Col), Figs, Maps. Society for Medieval Archaeology Monograph 33,Maney Publishing for the Society for Medieval Archaeology,Leeds.Isbn9781909662063. £45 (Hbk)," *The Antiquaries Journal* 94 (September 2014): 370–72.

[11] John Hines, pers. comm.

[12] For example, at the late seventh-century cemetery of Harford Farm, Caistor St. Edmund, at least 46 persons were laid to rest, but only of these was equipped with weapons (as a seax). The only other weapon in the cemetery was an unassociated spearhead probably disturbed from the burial context. Kenneth Penn, *Excavations on the Norwich Southern Bypass, 1989-91. Part II: The Anglo-Saxon Cemetery at Harford Farm, Caistor St Edmund, Norfolk*, East Anglian Archaeology Report 92 (Dereham: Archaeology and Environment Division, 2000).

[13] C.J.R. Fern, *Before Sutton Hoo: The Prehistoric Remains and Early Anglo-Saxon Cemetery at Tranmer House, Bromeswell, Suffolk*, East Anglia Archaeology Report 155 (Bury St Edmunds, Suffolk County Council, 2015).

burials contained weapons; these included two young women, one buried with a spear and one with a seax.[14] In the small seventh-century plot at Springhead 300257, 4 of 10 burials contained weapons (again, one of these was female, the only body whose osteological sex could be determined).[15]

The intensification of weapon burial at these small sites was paralleled by the reappearance, in these cemeteries, of other "traditional" practices. At both Tranmer House and Hamwic, some of the dead were cremated (a rite abandoned elsewhere in Britain a century before).[16] At Sutton Hoo, 500m south of Tranmer House, cremations continued into the seventh century, and the cremated dead were buried in new-built barrows that resembled the ancient monuments of prehistoric Britain.[17] Fleming, Carver, and Williams have each described these revivals (or inventions) of traditional practices as acts of historical fiction through which elite

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There's no evidence that unfurnished inhumations were missed by the excavators. After the top soil was mechanically stripped, the features were "indistinct" but evident (Fern, 7). The cuts of at least some of the graves without grave goods should have been identified, had they been present.

[14] St. Mary's Stadium, graves 5129 and 5488. Vaughan Birbeck, et al., *The Origins of Mid-Saxon Southampton: Excavations at the Friends Provident St. Mary's Stadium, 1998-2000* (Salisbury: Wessex Archaeology, 2005), 38-45.

Tranmer House may also have contained a woman buried with a spear (grave 28), but the skeletal condition was extremely poor and sex could be assessed only from surviving teeth and the stature of the body's soil stain. The soil stain left by the possibly female burial (recorded in this project's Catalog as ??F – some female traits, and consequently not included in statistics of female weapon burials discussed in this and previous chapters) was unusually short for a male body, but the person's height would have been consistent with that of females from the cemetery if the identification of the tooth as female were correct. For discussion of the body's possibly female sex, see Fern, 148, 195.

[15] Springhead 300257 grave 3993. Springhead Phil Andrews, Edward Biddulph, Alan Hardy, and Richard Brown, *Settling the Ebbsfleet Valley: High Speed 1 Excavations at Springhead and Northfleet, Kent: The Late Iron Age, Roman, Saxon and Medieval Landscape. Volume 1: The Sites* (Salisbury: Oxford Wessex Archaeology, 2011), 259-265.

[16] Matthew Austin, "Early Anglo-Saxon Cremation in 2013: Knowledge, Understanding and the EASCREM 13 Database Project," MA thesis, Cardiff University, 2013, 17-19.

[17] Martin Carver and Angela Care Evans, *Sutton Hoo: A Seventh-Century Princely Burial Ground and Its Context*. Reports of the Research Committee of the Society of Antiquaries of London 69 (London: British Museum Press, 2005).

families claimed ancient origins by playacting at being the Continental heroes from whom they claimed to have descended in their royal genealogies.[18] Spear burial—a practice in decline in lowland Britain's farms and hamlets—was swept up into this invented tradition and became part of the rites through which Britain's nouveau riche affected aristocratic authenticity.[19]

The newly revitalized traditions of spear burial did not simply mirror the old practices of sixth-century farm communities. For one, spears of the seventh-century were buried in the left hand more often than the right. In the late fifth century, two thirds of spears were placed in the right hand, the hand by which they must have usually been grasped by the living person. By the seventh century, however, this proportion had reversed (based on numbers from this project's catalog). This reversal reveals a change in how mourners, corpse, and spear were assembled together in the burial between the earlier and later periods. In the graves of the late fifth century, the attendant who arranged the body had to have climbed into the grave, grasped the right hand of the cadaver, and made an exchange hand to hand, just as one might pass a spear to a living member of the community. As discussed in Chapter 7, the transactional nature of this exchange—rather than the presence of the spear in the ground—may have been the practice that mattered to the mourners who gathered around the graveside. Such an exchange might serve to reincorporate the dead man into the social world from which death had taken him. This exchange may have been awkward for a right-handed attendant in a narrow grave, as the shaft had to be maneuvered between the grave's sides and the crouched attendant to be placed on the attendant's left side (the corpse's right). It was clearly important, however, to place the spear in the

[18] Fleming, *Britain after Rome*, 89-119; Martin Carver, "Burial as poetry: the context of treasure in Anglo-Saxon graves," in *Treasure in the Medieval West*, edited by E.M. Tyler, 25-48 (Woodbridge: Boydell, 2000); Howard Williams, 'Monuments and the Past in Early Anglo-Saxon England,' *World Archaeology* 30 no. 1 (1998): 90–108.

[19] Cf. Eric Hobsbawm and Terence O. Ranger, eds. *The Invention of Tradition* (Cambridge: Cambridge University Press, 1992).

cadaver's dominant hand so that he held it in death as he had in life. In contrast, seventh-century mourners placed the spear on their own right-hand side, the left of the corpse. These persons had only to lean forward and let go, dropping the spear into the grave beside the cadaver. In these later burials, the presence of the spear within the grave may have mattered more than the transactional exchange that characterized the earlier period.

Perhaps more significantly, a high proportion of spears in the seventh century were, as mentioned in Chapters 5 and 7, buried with women. In the early sixth century such graves were proportionately rare. After the second half of the sixth century, however, the proportion sharply increased so that many seventh century cemeteries contained at least one female-sexed body buried with a weapon (this includes the burials at Hamwic and Springhead, and perhaps also Tramner House).

These female-sexed burials took several forms. Some, like the burial of a possibly female skeleton with two spears at Stretton-on-Fosse (grave 96), appear indistinguishable from their osteologically male counterparts.[20] The occupant of that grave had wounds on ?her skull which had healed, evidence that ?she had participated in combat. Graves like this are, to all appearances, ordinary male-gendered burials. While they might have been misidentified as osteologically female, it may also be that these persons were transgendered males buried like the other men in the community. The sword wound on the head of Stretton-on-Fosse 96's skull suggests that this osteologically female person participated fully in the violence of their contemporary warrior culture, and nothing about the grave suggests that 96's thought this to be remarkable.

[20] Stretton-on-Fosse grave 96, in W.J. Ford, "The Romano-British and Anglo-Saxon Settlement and Cemeteries at Stretton-on-Fosse, Warwickshire." *Birmingham and Warwickshire Archaeological Society Transactions* 106 (2003): 64-65.

In contrast to these masculine-style burials, several of the female-sexed bodies buried with weapons were accompanied by the corpses of, or objects associated with, young children and pregnancy. In a hilltop burial at Wigber Low, a 17-year-old woman was buried spooning the body of a two-year-old child.[21] The woman's hands grasped the shaft of a small spear. This woman was young to be a mother, but the child could have been her own, or a child under her care, or else one placed in her care at the time of their concurrent deaths. The spear in her hand might have been held on behalf of the child, and could indicate her relationship to it as mother, surrogate, or protector. In Updown Eastry, Kent, a woman aged between 30 and 40 years was buried with a miniature spearhead in a pouch at her waist, like the miniature spearheads found in some children's burials.[22] Placed in the woman's pouch, this spearhead might have been a memento of the childhood of her son, or some other young boy with whom her community associated her. A 35-40 year old woman was buried at Lechlade with a long, sharp spearhead on her belly. This woman was seven months pregnant when she died.[23] The spear's shaft had been snapped at the graveside, and someone had then placed it onto the woman's pregnant belly, perhaps a broken gift for a lost future. In total, 36% of the spearheads recorded in this study's

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[21] Wigber Low, grave 5. John Collis, *Wigber Low, Derbyshire: A Bronze Age and Anglian Burial Site in the White Peak* (Sheffield: University of Sheffield Department of Prehistory and Archaeology, 1983), 29-30.

[22] Updown, Eastry III, grave 31. Martin Welch, "Report on Excavations of the Anglo-Saxon Cemetery at Updown, Eastry, Kent," *Anglo-Saxon Studies in Archaeology and History* 15 (2008): 22-23, 87, 111.

[23] Lechlade, grave 95/1. Angela Boyle, David Jennings, David Miles, and Simon Palmer, *The Anglo-Saxon Cemetery at Butler's Field, Lechlade, Gloucestershire. Volume 1: Prehistoric and Roman Activity and Anglo-Saxon Grave Catalogue*, Vol. 1, Thames Valley Landscapes Monograph 10 (Eynsham: Oxford Archaeological Unit, 1998), 97, 171, 227. There is some disagreement about whether or not this woman was pregnant when she was buried. Bones from a seven-month-old fetus were found in the grave, but the location in the grave from which these bones were recovered was not recorded. Duncan Sayer and Sam Dickinson argue that this woman died from pregnancy complications, with which I concur. Duncan Sayer and Sam D. Dickinson, "Reconsidering Obstetric Death and Female Fertility in Anglo-Saxon England," *World Archaeology* 45, no. 2 (June 2013): 285–97. Note also that the spear buried with this woman is identified in the report as a weaving sword, but was in fact a very large but otherwise entirely typical (and well preserved) leaf-bladed speared. I have examined the spearhead personally, at the Corinium Museum, Cirencester.

catalog that were buried with female-sexed persons were placed near the body's waist or womb where they either accompanied or else replaced more traditionally female goods. Spears were rarely placed near the waist in male burials (only 15% of the time). Burials at West Heslerton, Bishop's Cleeve, and Tyttleshall all mirror the grave of the pregnant woman at Lechlade.[24] The grave at Tyttleshall is especially remarkable, as it is the only weapon burial in the cemetery. In this grave, the spear was snapped in two and placed at the waist of a very elderly woman.

The contextual details of these graves emphasize the rising fortunes of elite households. In many graves, the placement of the weapon near the woman's womb draws attention to the dynastic expectations through which elite women who escaped early deaths could exercise their social agency, while in others osteological women appear dressed to perform the roles of men. Within the new elite families that sought to consolidate power through control of the means of violence, women as well as men took these violent instruments to their graves. The new female-sexed weapon burials, moreover, appear at the same time as other elite women were buried in ostentatiously well-furnished "traditionally" (reinvented) female graves, decked with jewelry and sometimes reclining on a wooden bed. These female-gendered "high-status" burials increased in frequency in the second quarter of the seventh century, and preceded and underscored the role that powerful elite women would play in founding—and ruling—religious houses in the century's latter half.[25] They testify, as well, to the importance that new elite families placed on

[24] West Heslerton 144, 164, 184; Bishop's Cleeve 14; Tyttleshall 2. Bishop's Cleeve 14 is identified as sex unknown in the published report because the bones were, at that time, too degraded to identify. The body was identified as possibly female during the initial examination thirty years prior, however, on the basis of the mandible. The initial bone report is available in the site archive at the Cheltenham Art Gallery & Museum.

[25] Helena Hamerow, "Furnished Female Burial in Seventh-Century England: Gender and Sacral Authority in the Conversion Period: Furnished Female Burial in Seventh-Century England," *Early Medieval Europe* 24, no. 4 (November 2016): 423–47.

women as part of their dynastic strategies.[26] In similar fashion, the graves of other powerful women appropriated burial objects traditionally associated with men, displaying spears as well as—and in one case, alongside—feminine jewelry to claim their own and their families' authority in an increasingly hierarchical social landscape.[27]

As social practices changed, the weapons changed as well. Spearheads buried in the seventh century were significantly larger than those from the late fifth and sixth. In the late fifth century, spearheads were small and nimble at an average length of only 25cm, and they remained so through the middle of the sixth century. At the start of the seventh century, however, the average length had increased to over 30cm, and the later burials included some truly massive spearheads like the 75cm and 53cm long spearheads buried together in a seventh-century burial at Berinsfield.[28] These large weapons were not so heavy as to be impractical killing tools (spearheads from later periods were sometimes longer and heavier), but they were not the nimble weapons of a century before. What they lacked in nimble grace, however, they made up for in ostentation: spearheads from burials c. 600 were visually imposing.[29] In later cemeteries like that at Tranmer House near Sutton Hoo, these large weapons marked a group of men (and perhaps one woman) whose community appears to have labored to ensure that their burial as armed "warriors" did not go unnoticed.

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[26] Cf. Lindy Brady, "Bede's First Wives Club," paper presented at International Congress on Medieval Studies, Western Michigan University (Kalamazoo, MI), May 11-14, 2017.

[27] Alongside female jewelry: Lechlade, grave 95/1.

[28] Berinsfield, grave 28. A. Boyle, A. Dodd, D. Miles, and A. Mudd, *Two Oxfordshire Anglo-Saxon Cemeteries: Berinsfield and Didcot*, Thames Valley Landscapes Monograph 8 (Oxford: Oxford University Committee for Archaeology, 1995), 35, 154, 172.

[29] Cf. Härke's argument regarding the visual impact of weapons as intimidation: Heinrich Härke, 'Material culture as myth: weapons in Anglo-Saxon graves', in C.K. Jensen and K.Høilund Nielsen (eds), *Burial and Society: the Chronological and Social Analysis of Archaeological Burial Data* (Aarhus, 1997), pp. 119-128.

These new burial practices signal a shift in the spear's place within the social practices and fields of action of the early Anglo-Saxon period. In the seventh century, the spear was still an important tool—the most essential and common weapon of the new warrior elite (although already we find, in the earliest texts, the beginning of medieval Europe's fascination with the sword as the elite weapon *par excellence*). The spear was also, however, becoming detached from the practices that had embedded it in the lives of rural communities. In the early sixth century, the spears buried with the dead were co-participants in social life alongside the humans they accompanied. Even if the spear found in a grave had not belonged personally to the specific cadaver with whom it was buried, they were still part of the same social world. Spears' place within this field of action gave them agency, and their treatment at the graveside shows how contemporaries harnessed this agency to reproduce or renegotiate their relationships to each other and to their things. After the sixth century, spears did not suddenly cease to be meaningful, often agentive things. This agency rarely brought them to the grave, however, save in the burials of elites and those who were buried near elites.

As new elites appropriated the weapon burial rite, what happened to all the other spears, the weapons of the rural farmers who stopped burying spears by the end of the sixth century? The rise of new elite burial displays did not obviate the need to manage the violent potentiality of agentive things, nor did elite cooption of law and armed violence replace the armed local assembly as a crucial center of community life.[30] As weapon burial became increasingly associated with elite burials, therefore, rural communities must have sought new ways to dispose of weapons and to materially constitute their community. Beginning in the seventh century,

[30] Cf. Aliki Pantos and Sarah Semple, eds. *Assembly Places and Practices in Medieval Europe*. Dublin, Ireland: Four Courts Press, 2004.

many more spears were thrown into water courses (in particular, the River Thames).[31] Spears had been thrown into water for millennia before: in prehistoric Britain, in the Continental Roman empire, and in Iron Age Germany, Scandinavia, and the Baltic. Weapons were thrown into the water in late fifth and early sixth century England too—but their number was relatively scarce.[32] This practice sharply increased in the seventh century, however, and continued for half a millennium or more.[33] These water deposits reproduced many of the practices of earlier weapon burial traditions, and may have severed as a similar field of action. For example one of the few of these river finds studied with metallography had, like the spears buried in graves, been annealed—killed—before being cast into the Thames.[34] Water, instead of soil, became this weapon's resting place.

Elites may also have sought to regulate weapons' circulation, coercing the persons under their influence to stop privately disposing of their weapons. Svante Fischer describes seventh-century kingships as kleptocracies, political institutions in which elites based their power on the monopolistic control of the instruments of violence.[35] Æþelberht of Kent codified laws that sought to control weapons' circulation by holding a weapon's owner responsible for the harm

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[31] Sally Crawford discusses the movement of weapon deposits from the grave into votive contexts. Sally Crawford, "Votive Deposition, Religion and the Anglo-Saxon Furnished Burial Ritual," *World Archaeology* 36, no. 1 (2004): 87–102.

[32] Reynolds and Semple, "Anglo-Saxon non-funerary weapon depositions."

[33] The Museum of London holds a collection of spearheads dredged from the River Thames, the majority of which appear to date to the Middle and Late Saxon periods. Cf. David Stocker and Paul Everson, "The Straight and Narrow Way: Fenland Causeways and the Conversion of the Landscape in the Witham Valley, Lincolnshire," in The Cross Goes North: Processes of Conversion in Northern Europe, AD 300-1300, edited by Martin Carver, 271-288 (Boydell & Brewer, 2003).

[34] Tylecote, R. F., and Brian J. J. Gilmour. *The Metallography of Early Ferrous Edge Tools and Edged Weapons*. BAR British Series 155 (Oxford: B.A.R, 1986), 113-15.

[35] Svante Fischer, Jean Soulat, and Teodora Linton Fischer, "Sword parts and their depositional contexts – Symbols in Migration and Merovingian Period martial society," *Fornvännen* 108 (2013): 111.

that his weapon committed, even if it had been given to another.[36] Early kings in England do not appear to have gone as far as requiring their followers to surrender arms upon death (as required in the heriot laws of the eleventh century).[37] Such laws existed in seventh-century Spain, however, where ordinary clients were required—at least on parchment—to return weapons to their lord if they left his service.[38] These laws allowed only officials of the kingdom to keep their weapons in perpetuity.[39] The eighth-century poem *Beowulf* describes clients surrendering weapons to their lords for safekeeping, and judges kings by their ability to constrain violence and its tools.[40] Though laws like those of Spain were not to our knowledge passed in England, the expectation may nevertheless have been that the new elite's authority depended upon their ability to successfully regulate (if not actually monopolize) violence within their domains.

The seventh-century elite hall became the new center within which these values—of community and the control of violence—were expressed. By c. 600 CE, elite families had begun to construct hall complexes, timber buildings unlike anything found in the lowlands during the previous century.[41] These halls were longer and larger than the wood frame houses of the early sixth century.[42] They were often accompanied by productive infrastructure including blacksmith

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[36] Law 23, in Oliver, *The Beginnings of English Law*, 67.

[37] Dawn Hadley, *Death in Medieval England: An Archaeology* (Tempus, 2001), 108.

[38] Karolus Zeumer, *Leges Visigothorum*, Monumenta Germaniae Historica, Legum Nationum Germanicarum 1 (Hannover and Leipzig, 1902), V.3.1, p. 216.

[39] Ibid., V.3.2, p. 217.

[40] Cf. Jos Bazelmans, *By Weapons Made Worthy: Lords, Retainers, and Their Relationship in Beowulf*, Amsterdam Archaeological Studies 5 (Amsterdam: Amsterdam University Press, 1999).

[41] Austin, "Great Hall Complexes."

[42] Hamerow, *Rural Settlements*, 24.

workshops.[43] Their middens contain the remains of feasts: wild animals, hunted and divided among the community, broken glass vessels from extravagant drinking parties, and the carcasses of hundreds of cattle butchered and barbecued.[44] At Yeavering, one of the most famous of the Great Hall Complexes, hundreds of cattle skulls were stacked for guests to view as they approached: proof of the generosity of the lord (and probably also, of his right to collect rents in kind from his subordinates).[45] These halls formed the setting of the dramatic events in later texts: of *Beowulf*, of the exiled *Wanderer*, and of the conversion to Christianity of Edwin of Northumbria in Bede's *Ecclesiastical History*.

Halls were also places where, at the king's invitation, local men would assemble with their arms. Textual descriptions of the feasts and parties held in great hall complexes include the gift and receipt of weapons by the master of the hall.[46] Hrothgar gave weapons to Beowulf in Heorot, a hall he constructed with the express purpose of distributing treasure and, thereby, ensuring his status as a good king. The association of the hall and the smith, discussed by Duncan Wright, drives home this point: elite rule depended on the production and circulation as well as the use of arms. Wright has discussed the relationship between settled smiths and hall complexes, and reminds us that royal authority was tied not only to the giving of weapons, but

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[43] Duncan Wright, "Tasting Misery Among Snakes: The Situation of Smiths in Anglo-Saxon Settlements," *Papers from the Institute of Archaeology* 20 (2010): 131–36.

[44] Such can be found, for example, at Lyminge, Kent. Gabor Thomas and Alexandra Knox, Lymine Excavations 2013: Interim report on the University of Reading excavations at Lyminge, Kent (2013), 2, available online at http://www.reading.ac.uk/web/files/archaeology/Lyminge_2013_interim.pdf (accessed December 14, 2017). For a discussion of waste at Anglo-Saxon settlement sites, see Alexandra Knox, "The Sacred in the Secular: Investigating Anglo-Saxon Ritual Action and Belief Systems through a Holistic Study of Settlements and Cemeteries in the 7th–9th Centuries AD." PhD dissertation, University of Reading, 2012.

[45] Brian Hope-Taylor, *Yeavering; An Anglo-British Centre of Early Northumbria* (Swindon: English Heritage, 1977), 98-100, 325-32.

[46] Härke Heinrich Härke, "The circulation of weapons in Anglo-Saxon society," in *Rituals of Power from Late Antiquity to the Early Middle Ages*, edited by F. Theuws and J. L. Nelson, 377–99 (Leiden: Brill, 2000).

also to the sharpening of blades.[47] The scepter at Sutton Hoo was, beneath its embellishment, a whetstone—a probably decorative rather practical object that nevertheless reminded its viewers of the king's role as curator of arms.[48] By the end of the seventh century, guests were no longer permitted to bring weapons into a feast in one law code (a prudent measure for a space where alcohol is consumed in excess).[49] This measure suggests, however, that guests would otherwise plan to bring their weapons to the hall. Such an assembly, where men gathered and affirmed their place in the community through shared practices of food and drink, would also have provided a new context in which to practice community building with weapons. The hall would thus have joined—and eventually supplanted—the funeral as a field of action within which spears enacted the structures of community life. The hall may, as well, have replaced the funeral as the practical location for the disposal of unwanted arms. Who better than the lord's smith to unmake and recycle a dangerous blade?[50]

By the end of the seventh century, spear burial had ceased. As the rite ended, however, weapons began to appear in texts. In Old English verse, swords are singled out as the weapons of heroes.[51] This must be due in part to the elite focus of these accounts: in *Beowulf*, for example,

[47] Wright, 132.

[48] Michael J. Enright, *The Sutton Hoo Sceptre and the Roots of Celtic Kingship Theory* (Four Courts Press, 2006).

[49] Hlothere and Eadric's laws, 9, in Oliver, *Beginnings of English Law*, 133.

[50] In fact four of the five spearheads found at hall complexes were associated with blacksmithing and, probably, recycling; three from Bloodmoor Hill were found buried with smithing tools, and one from Lyminge was deposited above a smithing hearth. Sam Lucy, Jess Tipper, and Alison Dickens, *The Anglo-Saxon Settlement and Cemetery at Bloodmoor Hill, Carlton Colville, Suffolk*, East Anglia Archaeology Report 131 (Cambridge: Cambridge Archaeological Unit, 2009), 276-77; the Lyminge spearhead was described by Gabor Thomas, pers. comm.

[51] A recent study of the sword in textual traditions is Sue Brunning, "The Living Sword in Early Medieval Northern Europe: An Interdisciplinary Study," Ph.D. thesis, University College London, 2013; see also H. R. E. Davidson, *The Sword in Anglo-Saxon England: Its Archaeology and Literature* (Woodbridge: Boydell and Brewer, 1998).

the heroes use swords, but their followers are often described as spearmen.[52] In a world of the fabulously rich, spears receded from view. They did not vanish, however. Constantine, in the *Life of Elene*, is praised for his swift spear.[53] A King Offa, described in *Beowulf*, is likewise *garcene*, "spear-keen."[54] The scarcity of spears in our texts may, as well, be due to our own prejudices: words like *ecg* and *iren* are typically translated as "sword" in modern editions, but literally mean merely "edge" and "iron." So, for example, Seamus Heaney's popular translation renders line 1772 (*æscum ond edgum*) as "with spear and sword," interpreting "ash" and "edge" as references to the shaft of a spear and blade of a sword. It might just as easily, however, be rendered "shaft and blade."[55]

The practices associated with and concerns expressed about weapons in texts resemble those found in archaeological contexts. Monastic authors worried about weapons' association with bloodshed, their ability to be stolen and used for ill purpose, and their agentive ability to influence human action in contravention of human intentionality.[56] These concerns were translated out of the material context of the funeral and inscribed onto the page in fictions and fantasies about a violent past whose halls and hoards resembled nothing more than the monks' own present.[57] Perhaps ordinary people as well, like these eighth-century scholars, began to

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[52] E.g. lines 328 and 2042, and of course the 'Gar-Dene,' i.e. Spear Danes. Fulk, Bjork, and Niles, 13, 69.

[53] Cynewulf, *Elene*, lines 202, 204, in Marie Nelson, trans., *Judith, Juliana, and Elene: Three Fighting Saints*, American University Studies, Series IV English Language and Literature 135 (New York: Peter Land, 1991), 124.

[54] Fulk, Bjork, and Niles, 1958.

[55] Fulk, Bjork, and Niles, 60; Seamus Heaney, *Beowulf: A New Verse Translation* (London: W. W. Norton & Company, 2000), 121.

[56] Exemplified in the stolen sword in Beowulf, lines 2047, or the sword that fears such a theft in Exeter Riddle 20, lines 20-23. Fulk, Bjork, and Niles, 69; Williamson, 79.

[57] The parallels between the treasure and halls in Beowulf, composed in the late seventh or early eighth-century, and the late seventh or early eighth-century Staffordshire hoard and great hall complexes, are readily apparent. Cf. Michael Bintley, "Material Culture: Archaeology and Text," in *Beowulf and Other Stories: A New Introduction to*

negotiate the fate of their weapons in story and song—increasingly, it seems likely, under a lord's watchful eye beneath the gables of his hall.

Capturing Meaning from Vibrant Matter

The collection of 900 spearheads studied for this study span a period of nearly 250 years during which Britain experienced significant social changes. The use to which spears were put, and in particular how they were disposed of in and outside the grave, changed alongside wider social transformations. The spear was not merely a product of these changes; as a practical tool, weapons afforded new opportunities for individual and collective action both on the farmyard and within wider social spaces. As material agents bound up in broader fields of action, spears mediated practices of friendship and violence across time and space. In this way, spears restructured social relations across the early Anglo-Saxon period, even as they were structured by these same relations. The graves in which these weapons survive chronicle these changing practices.

Although we struggle, today, to untangle these meaningful social practices, a continuous thread of materiality weaves through all the surviving evidence. Our approach to the fields of action from which spears came is hindered by our recent past, whose haunting interposes nineteenth-century nationalist narrative constructions between ourselves and early medieval experience.[58] Our evidence itself, further, survives in pieces so fragmentary as to often obscure the chronology of individual burials and broader social transformations. Nevertheless, enough survives for us to recover the physicality of the spear as a material thing. From this physical

Old English, Old Icelandic and Anglo-Norman Literatures, edited by Joe Allard and Richard North, 246-73 (Routledge, 2014).

[58] Lucy, *Way of Death*, 155-173; cf. Bonnie Effros, *Merovingian Mortuary Archaeology and the Making of the Early Middle Ages*, The Transformation of the Classical Heritage 35 (Berkeley: University of California Press, 2003).

beginning, we can enter into the practices and experiences of the persons in whose lives these weapons were embedded.

Early medieval experiences of the spear were varied and in flux; there was no one weapon burial rite, and there was no one experience of the spear. Spears were objects with complex, layered, and multiple meanings whose shape was fluid rather than fixed. The spear was a skillfully assembled meshwork—an interweaving—of matter and events that strove, ever, to escape the constraints placed upon it.[59] Spears were vibrant matter held, momentarily, still in the hands of humans who hoped to use them to change their worlds—or else, to preserve their worlds unchanged for one more generation.[60] These humans' experiences made spears meaningful; and these encounters are what we must study. They survive in spears' metallurgy. They survive in the weight, balance, and physical properties of reconstructed spears. We can infer them from contextual knowledge of the lives of farmers and the uses to which they put their tools. They are preserved in thousands of graves, no two quite the same. Each context stacked together layers of unique, sequential experiences—many of them open to archaeological discovery. How should these meaningful experiences shape the way we interpret the spears we find buried in human graves?

First, we should note that while spears were tangled up in the construction of gender identities,[61] and particularly of early medieval masculinities, this relationship was multivalent

[59] For the concept of 'meshwork,' see Tim Ingold, "When ANT meets SPIDER."

[60] Cf. Bennett, *Vibrant Matter*, 52-61.

[61] E.g. Nick Stoodley, *The spindle and the spear: a critical enquiry into the construction and meaning of gender in the early Anglo-Saxon burial rite*, British Archaeology Reports 288 (Oxford: Archaeopress, 1999); Heinrich Härke, "Gender Representation in Early Medieval Burials: Ritual Re-Affirmation of a Blurred Boundary?," in *Studies in Early Anglo-Saxon Art and Archaeology: Papers in Honour of Martin G. Welch*, ed. Stuart Brookes, Sue Harrington, and Andrew Reynolds, BAR British Series 527 (Oxford: Archaeopress, 2011), 98–105.

and context-dependent.[62] In the earliest furnished inhumations, those from the fifth century, weapons were found almost exclusively in the grave of male-sexed skeletons. The chapters above have argued that these burials responded to the lived experiences of the individuals and weapons buried together—spears were buried with men because of the lives of spears and men were tangled together. Whether as farm tools or weapons brought to the local assemblies, weapons shaped how men spent their time and experienced the world around them. Their display, in life and death, represents a profound shift in the way that masculinity was imagined and performed in the Late and post-Roman West.[63]

In the grave, this association between spears and masculinity continued, but not across all periods of this study. Burial with weapons at the end of the fifth and beginning of the sixth century suggest a stark division between martial masculinity and other forms of personal dress (both that of unarmed men, and of women buried with and without jewelry). These graves may have reflected the gendered social practices of farmer-warriors, or else may have idealized those gendered roles through performative commemoration after death. The inclusion of spears in so many male graves of this period—and so few graves of female-sexed bones—speaks to the close relationship between the keeping and bearing of arms and the Late Antique ideal of masculine self representation; an idea that persisted for centuries in the short-hand use of "spear half" (*sperehealfe*) to refer to the male side of an extended family.[64]

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[62] D.M. Hadley and J.M. Moore, "'Death Makes the Man'? Burial Rite and the Constrution of Masculinities in the Early Middle Ages," in Masculinity in Medieval Europe, 21-38 (Addison Wesley Longman, 1999).

[63] Cf. Guy Halsall, *Cemeteries and Society in Merovingian Gaul: Selected Studies in History and Archaeology, 1992-2009*, Brill's Series on the Early Middle Ages 18 (Leiden: Brill, 2010), 357-382; Von Rummel, *Habitus Barbarus*; Gerrard, *The Ruin*, 206-07.

[64] From the will of Alfred, in Florence Elizabeth Harmer, *Select English historical documents of the ninth and tenth centuries* (Cambridge: Cambridge University Press, 1914), 19.

Associations between spears, gender, and burial grew more complicated by the seventh century, however, reflecting—and also reinforcing—wider shifts away from horizontal social relationships between and within households (including sharp divisions between gendered commemoration in the grave) toward increasingly vertical relations in which family status mattered more than a cadaver's gendered role in a community. Spears, as symbols coopted by the reinvented traditions of the new elite, became common in women's graves as well as the graves of men, marking new avenues for the exercise of social power. In these burials, context matters: some female-sexed skeletons were buried as men, and may have been gendered male. Others were buried with spears on their stomachs, hips, or thighs, evoking iconic semiotic links to childbearing and, perhaps, broken dynastic ambitions. Consequently, although spears frequently intersected with expressions of gender identity, these intersections were context-dependent rather than singular or monolithic. We cannot read a spear within a grave as a simple expression of masculine identity without first considering its local, chronological, and social contexts.[65]

Likewise, a relationship between spears and "free status" oft described in the secondary literature appears only dimly in the archaeological evidence.[66] Spears do appear to have been connected with local legal assemblies, and presumably the right to join these assemblies was restricted to those who had a claim to community membership and to right over commonly managed property. Whether such rights were restricted to a caste of "free" persons, or whether

[65] Cf. Hadley and Moore.

[66] The association between spears and free status, rooted in textual sources applied to archaeology, begins early, e.g. Roach Smith's introduction to Bryan Faussett, Inventorium Sepulchrale: An Account of Some Antiquities Dug Up at Gilton Kingston, Sibertsworld, Barfriston, Beakesbourne, Chartham, and Crundale, in the County of Kent, from A.D. 1757 to A.D. 1773, edited by Charles Roach Smith (London: T. Richards, 1856), xxxvii; Swanton, *Spearheads of the Settlements*, 2-3; C.J. Arnold, 'Wealth and Social Structure: a matter of life and death,' in Anglo-Saxon Cemeteries 1979, edited by P. Rahtz, et al (BAR, 1980), 81-142; Härke, "Warrior Graves?"

community membership were constructed across more complicated and locally contingent lines is in no way clear in the evidence that survives. Moreover, spears were also valued as practical agricultural tools and weapons for defense and warfare in addition to their social-symbolic functions. We have no evidentiary reason to believe that, on a sixth-century farm, such implements would be forbidden to trusted household slaves.[67] Just as when seeking to equate spears with the expression of masculine identity, we should exercise care in using weapons to read free status from the burials of the deceased. Given the individual character of each funeral, and the variety of reasons discussed in previous chapters for consigning a weapon to the grave, we can imagine a range of cases where it might have been appropriate to bury a free man with no weapons in his grave, or an unfree slave with a spear clasped in her hand.

Similarly, there is little evidence that the burial of spears signaled the ethnic identity of the deceased, as so many previous studies have sought to prove.[68] The previous chapters have discussed the role that spears could play in the lives of individual persons, and within local communities and assemblies. There is little to connect these assemblies to larger groups or ethnic "tribes," however.[69] Older scholarship argued that spear burial was a distinctly un-Roman cultural practice, and hence that the practitioners of this rite must have come from outside the

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[67] Claims that English slaves could not bear arms are based on a Carolingian capitulary written centuries after the period under consideration, on the wrong side of the English Channel. Cf. Joseph de Baye, *The Industrial Arts of the Anglo-Saxons*, trans. by T.B. Harbottle (London: Swan Sonnenschein & Co, 1983), 25. It is not inconceivable that slaves might fight; slave soldiers have been common in different times and places, e.g. Christopher Leslie Brown and Philip D. Morgan eds., *Arming Slaves from Classical Times to the Modern Age* (New Haven: Yale University Press, 2006).

[68] See Chapter 7; Lucy, *Way of Death*.

[69] Such efforts to connect ethnic labels, territorial boundaries, and assembly places have repeatedly failed. For a recent discussion, see for ex. Susan Oosthuizen, *The Anglo-Saxon Fenland* (Windgather Press, 2017).

empire.[70] This project, however, has argued that these practices emerged from local experience in small post-Roman communities whose inhabitants were mobile and diverse in origin. There is nothing in the evidence to suggest that these practices traveled, with migrant peoples, across the North Sea. Anthropological arguments that the skeletons buried with spears belonged to separate descent groups from those without—taller Germanic immigrants and short, Romano-British locals—are likewise without evidence, as discussed in Chapter 5.[71] The lack of association between weapons and ethnicity in the archaeological evidence is repeated in our textual sources, as for example in the prose and poetic accounts of St. Guthlac's battle with "British" demons in the fenlands at Crowdon. In Felix's account of the saint's life, Guthlac's "British" attackers hoist the saint into the air on tips of spears, and their appearance at the barrow—a common site for a local assembly—with weapons in hand recalls the social practices found across all of lowland Britain, described in Chapter 5. This begs the question of whether these "Britons" might not be identified as "Anglo-Saxons" were we to come across their graves.[72] We should hesitate to ascribe "Anglo-Saxon" (or "Germanic") ethnic labels to spears and the communities from which they came, given that our sources accord these culture practices no such signifying role.[73]

The recent suggestion by some authors that weapons were a kind of social "person," in contrast, may merit closer attention.[74] This project argues that spears' wood and iron were both vital substances—in the way that they behaved and changed, as well as within the early medieval

[70] E.g. Swanton, *Spearheads of the Settlements*.

[71] I.e. Härke, "Warrior Graves?", 39.

[72] Felix, *Vita Sancti Guthlaci* XXXIV, in Bertram Colgrave, *Felix's Life of Saint Guthlac* (Cambridge: Cambridge University Press, 1956), 110-11.

[73] Cf. Harland, "Deconstructing Anglo-Saxon Archaeology."

[74] Esp. Semple and Reynolds, "Anglo-Saxon Non-Funerary Weapon Depositions"; Lund, "At the Water's Edge." Brunning, "The 'Living' Sword."

imagination. This evidence may not warrant calling these living materials "persons" in an anthropomorphic sense. There is nothing in archaeological practice nor subsequent literary descriptions of weapons to suggest that people accorded weapons any kind of personhood directly comparable to that of humans. The previous chapters have argued, however, that spears were alive not as humans, but as spears—that weapons were, like plants and animals, a kind of agentive creature whose ability to act, interact, and engage in their own agendas as material agents was recognized by early medieval persons. The previous chapters argued that this material agency was rooted in spears' vibrant materials, amplified by their social lives, and active at the graveside. Recognizing the spear as an agentive, living thing helps us to understand why so many were buried in diverse ways, and challenges us to reconceptualize assumptions about how people related to their material world in the Early Middle Ages. Too many studies have interpreted the spear as a passive byproduct of social systems, and have failed to consider how weapons shaped human action in the past—and how weapons continue, today, to structure the kinds of questions we bring to our own studies of this period.

Future studies of spears, spearheads, and the other fragments of weapons found in human graves should take greater account of these objects' physical properties as material things whose weight and substance structured past persons' material as well as mental worlds. Metallurgical analysis of spearheads has opened these rusted artifacts to close contextual analysis, revealing sequences of meaningful interactions between humans and iron that show a new side of these weapons' place in the communities that made them. Material experience—the ways that people's hands and bodies encountered spears, and how these encounters shaped their perceptions and choices—is critical for understanding how artifacts could act as both products and producers of the social worlds of the past.

We likewise must pay closer attention to the immediate contexts from which these artifacts are recovered. Recent excavations have begun to record artifact locations in increasing three-dimensional detail, and this detail reveals a diversity in burial practice that was not apparent from grave plans recorded and discussed in only two dimensions. Three-dimensional recording, and closer contextual study of the sequences of actions that brought objects into the grave, shows how many different funeral rites there were through which spears might be placed into the ground. Future studies must continue to attend to these details and consider how the sequence of burial and the funeral rite from which that sequence resulted might influence the purpose behind a weapon's burial or the meanings ascribed to an artifact as it was placed into the ground.

More broadly, this project urges caution in the turn toward big data analysis. My experience measuring, categorizing, and analyzing the corpus of spearheads for this study revealed shocking degrees of subjectivity in the application of established spearhead typologies, as well as significant discrepancies within and between various published data sets that catalog spearheads' types. These problems were heightened by the corroded nature of the artifacts, but their appearance in the present analysis should serve as a reminder of the importance of evaluating the quality of individual data sets before subjecting them to meta-analysis. Several recent studies of early Anglo-Saxon artifacts have demonstrated such caution, for example Toby Martin's recent re-analysis of the cruciform brooch, which developed and tested new classificatory schemes before attempting to analyze the corpus.[75] Other studies, however, have relied upon existing datasets, in many cases drawing upon collections so large that testing the

[75] Toby F. Martin, *The Cruciform Brooch and Anglo-Saxon England* (Boydell & Brewer, 2015).

data's quality was hardly feasible.[76] Given my experience with the published records of spearheads types, which corresponded poorly to the actual artifacts in all cases, I worry that such credulous syntheses risk amplifying imprecisions and errors in existing datasets, much as Hines and Bayliss' statistical modeling amplified the imprecisions in their spearhead typologies, as discussed in Chapter 3. As research increasingly exploits the potentialities of digitization and data mining, we must not allow the availability of published datasets to cause us to lose sight of the artifacts themselves.

Attention to the artifacts themselves, as individual products and co-producers of the social worlds of the past, opens layers of stored-up experiences to our view, and thereby gives new voice to the people of the sixth and seventh centuries. This project began with those persons' silence: living and dying without written texts, they face us as a subaltern of our own colonial present. The lives, experiences, and identities of the early medieval inhabitants lowland Britain have been captured by modern narratives about the European and American past. Sixth century England was mined to refine a narrative for nineteenth-century British nationalism; was pillaged to enrich the American W.A.S.P. with a semiotic trove of symbols for ideological appropriation—even as that period's material wealth was captured by nineteenth-century treasure hunters and antiquarians.[77] The people of early 'Anglo-Saxon' England have become the fictive progenitors of an array of nationalist and colonial narratives, many of which have been weaponized against peoples who could not claim ownership over that same history. These modern projects silence the real lives, experiences, and identities of early medieval lowland

[76] A. Cooper and C. Green, "Big Questions for Large, Complex Datasets: approaching time and space using composite object assemblages," *Internet Archaeology* 45 (2017).

[77] Cf. Reginald Horsman, *Race and Manifest Destiny* (Cambridge, MA: Harvard University Press, 1981).

Britain's people—but not irreversibly.[78] The present project makes a small contribution toward restoring that voice by drawing our focus away from narratives of 'Germanic' warrior-invaders and re-centering our focus on the social experiences of the instruments of violence that helped give meaning to early medieval community life.

This focus on the material itself also fulfills an ethical obligation incurred by archaeological intervention. Archaeologists are the anthropologists who kill our informants—a site can only be dug once.[79] We strive to preserve the artifacts and contextual information we recover, but spearheads' corroded condition makes them particularly vulnerable to permanent destruction when they are removed from the soil. At more than one archive, I unwrapped spearheads to watch them crumble to dust from lack of conservation or subsequent care. These objects, like the people who made them, have stories to tell—but the moment that their metal emerges from the soil starts a countdown to the day when those stories will be irrevocably lost. Recall the crumbling spearhead from Wasperton, whose socket preserved the last faint traces of an interlace motif carved into its metal by a lost human hand. That intimate experience will, by the time this chapter is read (indeed, perhaps already as I write), be swept away into flow of matter into which the spearhead's rusting metal races to return.[80] Spearheads' stories hide in these small traces on the artifacts' surface, and in the subtle layers of time and meaning peeled back by the excavator's trowel. Attending to these objects and their contexts and refusing to roll them into easy narratives of identity with ready-made solutions to the question 'what does this mean?' fulfills our ethical duty to the material we necessarily destroy.

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[78] Cf. Lucy, *Way of Death*.

[79] Kent V. Flannery, "The Golden Marshalltown: A Parable for the Archeology of the 1980s," *American Anthropologist* 84, no. 2 (June 1982): 275.

[80] Cf. Bennett; *Vibrant Matter*.

Going forward, we must embrace the perilous condition of the iron objects we take from the ground. These objects do not survive discovery unless effort and care is invested not only in their immediate conservation, but also in their maintenance during subsequent decades of storage. Certain kinds of material analysis, including destructive metallography, can only be completed when metallic iron remains in the spearhead; once corrosion gains ground after excavation, this surviving metal, and the stories it contains, can never be recovered.[81] Excavators, conservators, and especially museum curators face an ethical decision when faced with these artifacts: to attempt to preserve them forever, denying an entropy that the corroded iron wants down to its very atoms and will continue to pursue relentlessly until it is destroyed; or to willingly, carefully destroy artifacts that are yet pristine to gain as much of their stories as is possible before their inevitable decay.[82] Both options are fundamentally at odds with the nature of the material itself: spearheads are not and never were made for our collection or edification. All were buried, 1500 years in the past, to remain in the ground. The Wasperton spearheads that crumbled before my eyes (Chapter 1) were never meant to be seen again: their metal had been killed in the smith's forge fire to ensure the end of their existence. Conservators can bring these dead things back for a short span of decades; but in the end, they return to the ferrous dust from which they were made.[83]

[81] Such was the case with the spearheads from Mucking, which were too corroded by the time they were finally send for analysis that no information could be obtained via metallography. David Starley, "A technological study of knives and spearheads from the excavations at Mucking, Essex," *Ancient Monuments Laboratory* 37/96 (1996).

[82] On iron's will to rust, cf. Bennett, 52–61. On the temporal contradictions inherent in preservation, Lucas, 128.

[83] Cf. S. Keene, 'Real-time survival rates for treatments of archaeological iron, in D. Scott, J. Podany, and B.B. Considine, *Ancient and Historic Metals: Conservation and Scientific Research*, 249-264 (Getty: 1994).

As I write these words, however, my mind returns to Bryan Faussett with whom our fascination with spearheads began. Faussett excavated the sand-pit at Ash in 1759, and the spearheads he discovered still survive.[84] The secret to their preservation is the thick, amber-colored lacquer that Faussett, or some subsequent inheritor of his collection, slathered over their blades. This opaque substance obscured their surface, and the Maidstone museum recently engaged to have a similar substance removed from the nineteenth-century spearheads in their own collection in accordance with modern conservation standards, enabling modern researchers to see their metal surfaces again.[85] The unsightly lacquer, however, had done what modern conservation struggles to: it kept the corroding atmosphere at bay for a time and allowed the metal to survive frozen in stasis for a century and a half. The paradox of archaeological iron is that we cannot know it unless we end this stasis, usher it into our present, allow it to re-enter the endless flow of changeable matter, and watch it transform into something new.

[84] Now held in the Liverpool World Museum.

[85] Conservation was carried out by the CSI Sittingbourne lab in 2013.

APPENDIX A
SKETCHES OF SPEARHEAD BLADE PROFILES

The sketches of the spearheads used to establish the new chronological model in Chapter 3. The vertical line corresponds to the length or the surviving spearhead from which the sketch was made (as published in the site report), which may be compared against the sketch to calculate each image's scale.

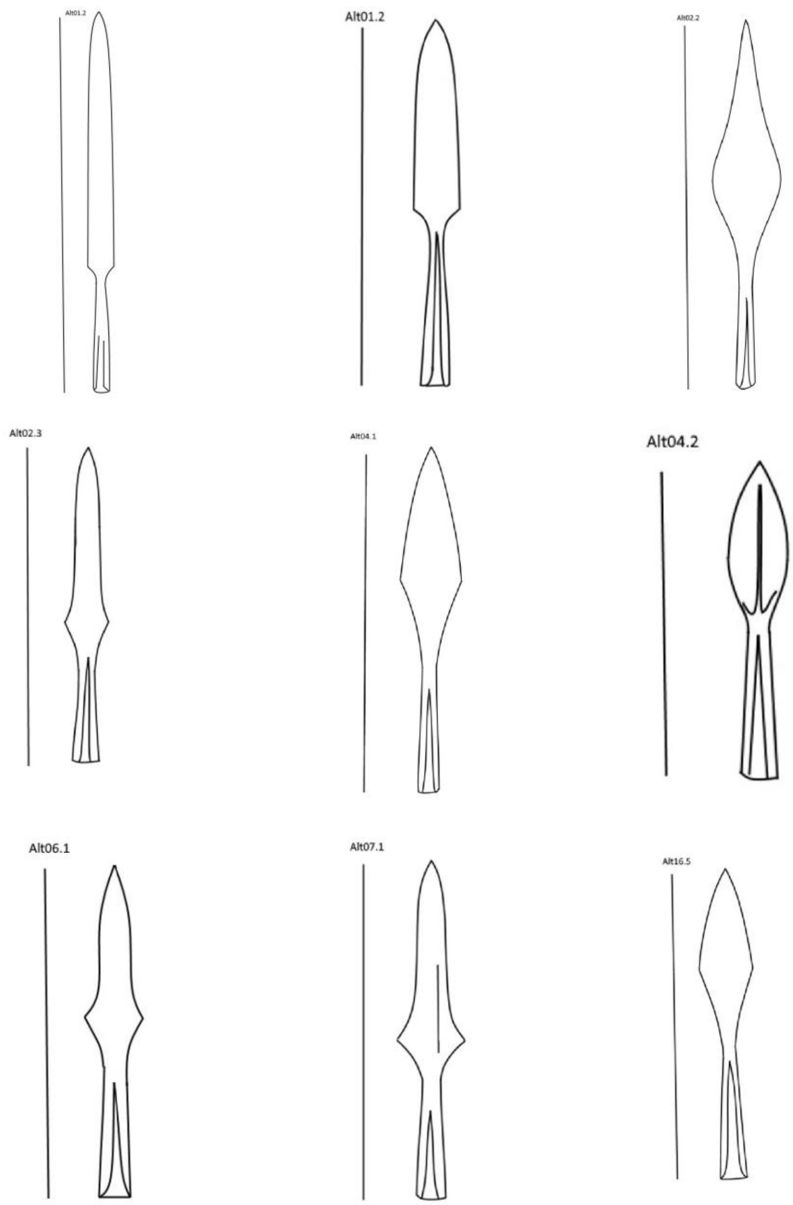

Figure A-1. Redrawn spearheads from Alton. Top, from left: Alt01, Alt01, Alt02. Middle, from left: Alt02, Alt04, Alt04. Bottom, from left: Alt06, Alt07, Alt16.

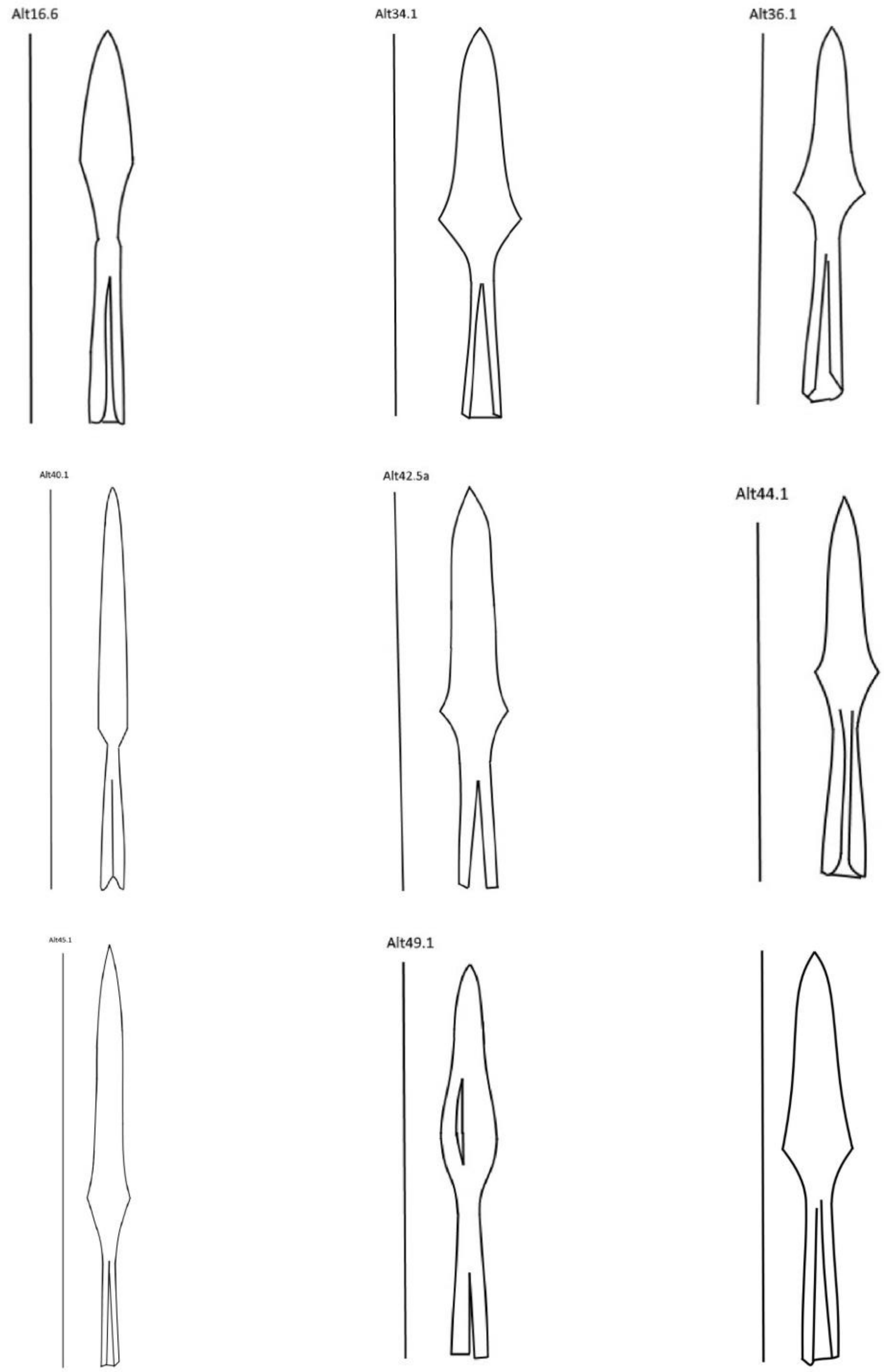

Figure A-2. Redrawn spearheads from Alton and Barrow Clump. Top, from left: Alt16, Alt34, Alt36. Middle, from left: Alt40, Alt42, Alt44. Bottom, from left: Alt45, Alt49, BarCsk6002.

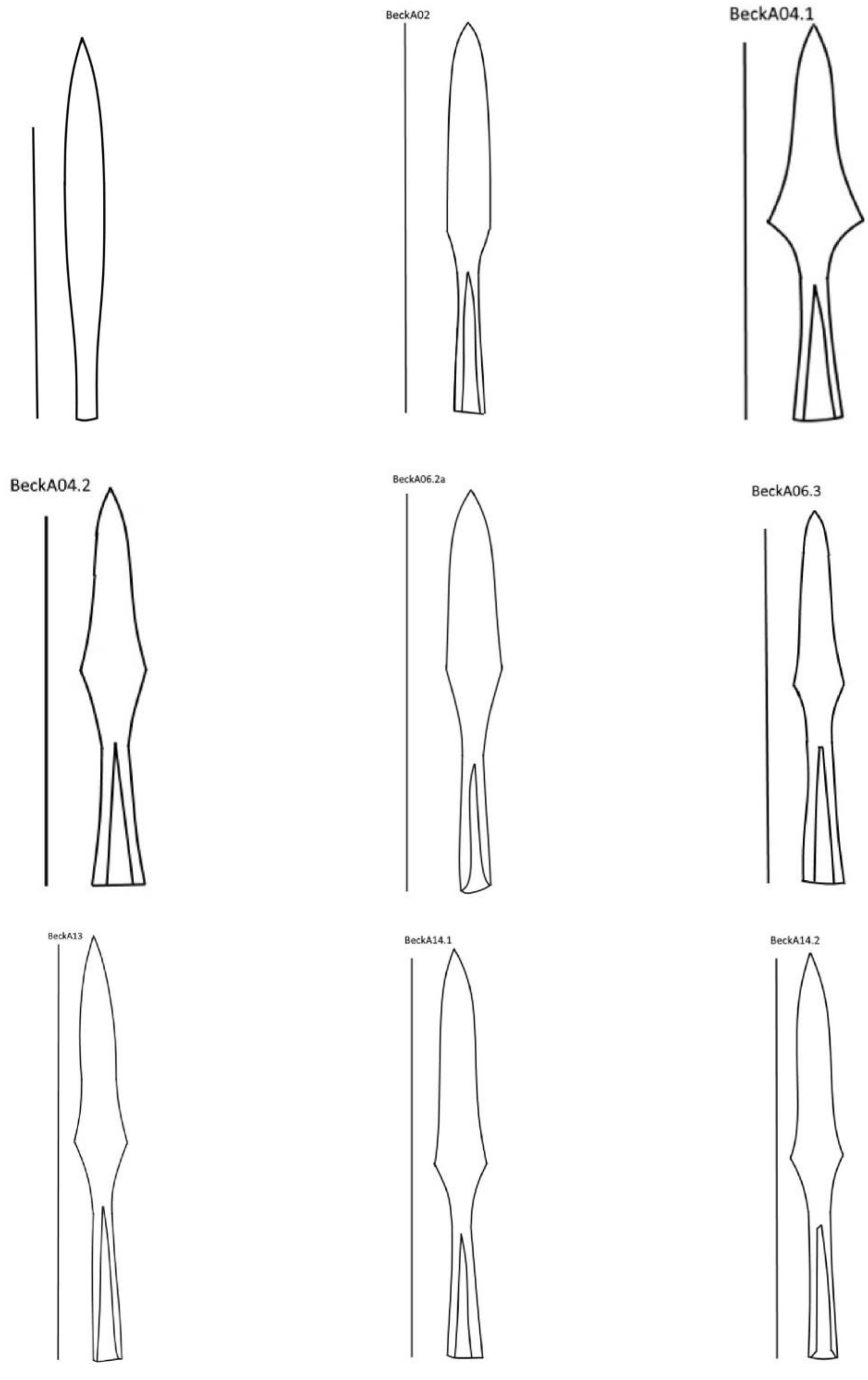

Figure A-3. Redrawn spearheads from Bayfield and Beckford A. Top, from left: Bay0, BeckA02, BeckA04. Middle, from left: BeckA04, BeckA06, BeckA06. Bottom, from left: BeckA13, BeckA14, BeckA14.

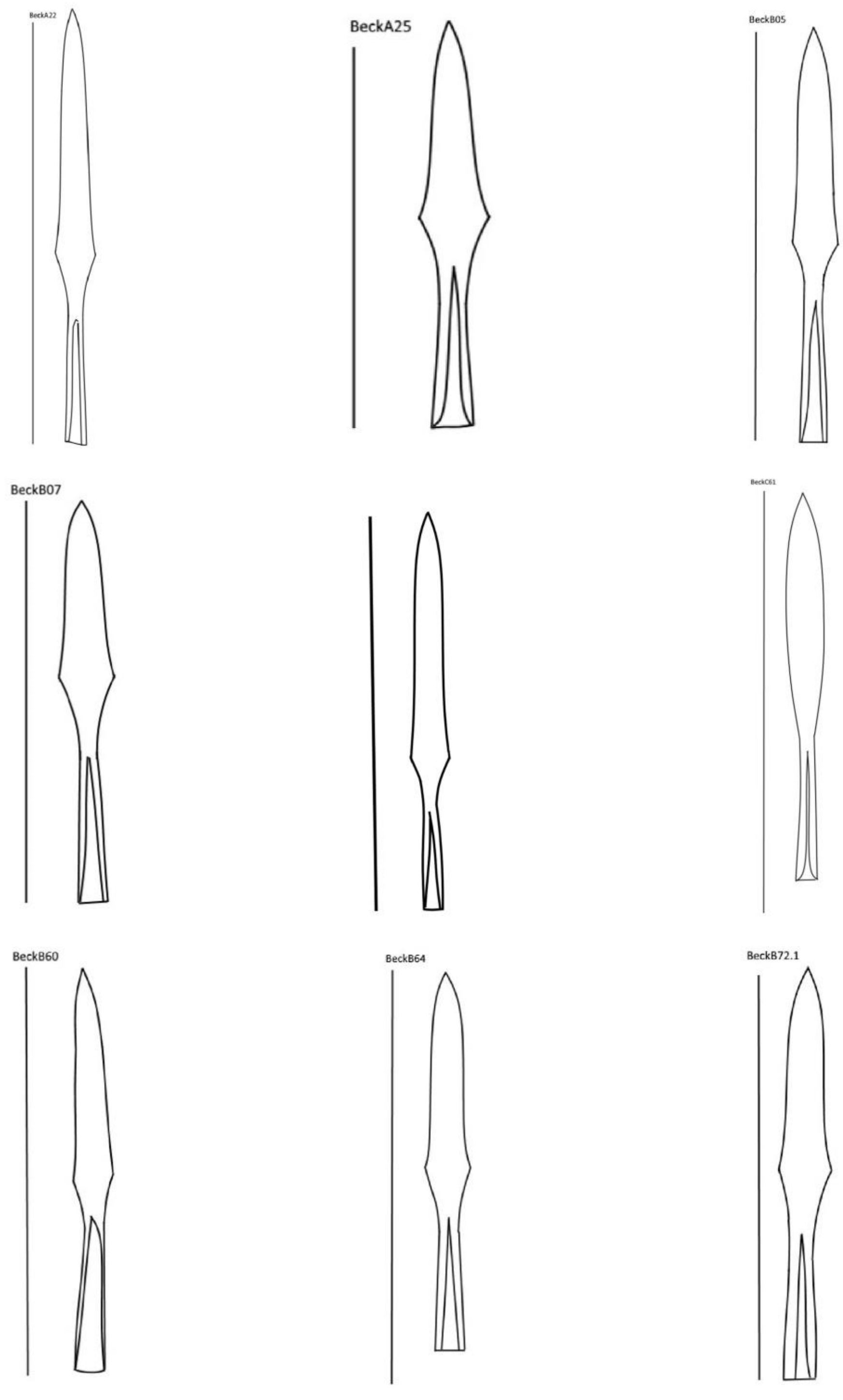

Figure A-4. Redrawn spearheads from Beckford A and B. Top, from left: BeckA22, BeckA25, BeckB05. Middle, from left: BeckB07, BeckB47, BeckB51. Bottom, from left: BeckB60, BeckB64, BeckB72.

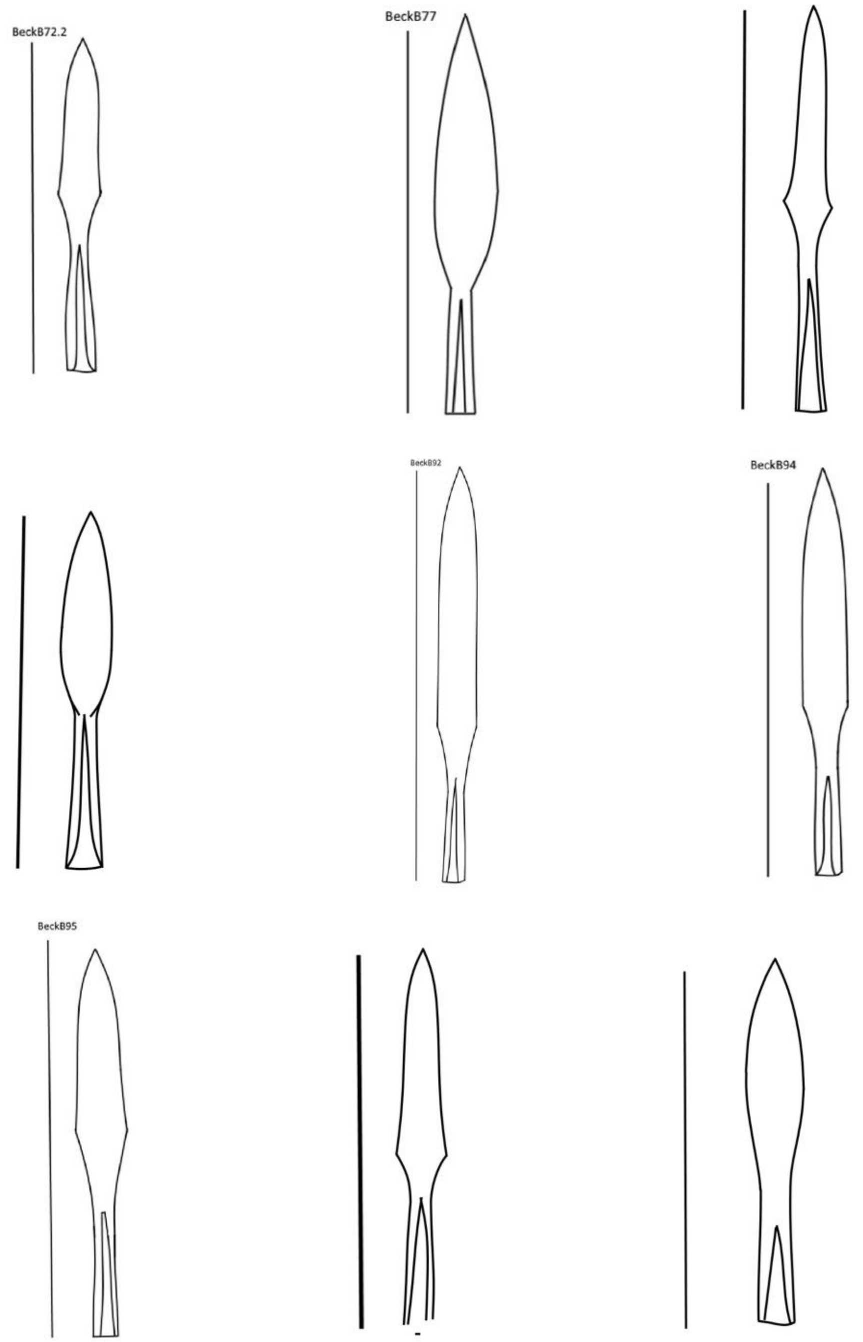

Figure A-5. Redrawn spearheads from Beckford A, Beckford B, Bedford, and Berinsfield. Top, from left: BeckB72, BeckB77, BeckB81. Middle, from left: BeckB81, BeckB92, BeckB94. Bottom, from left: BeckB95, Bed02, Ber024.

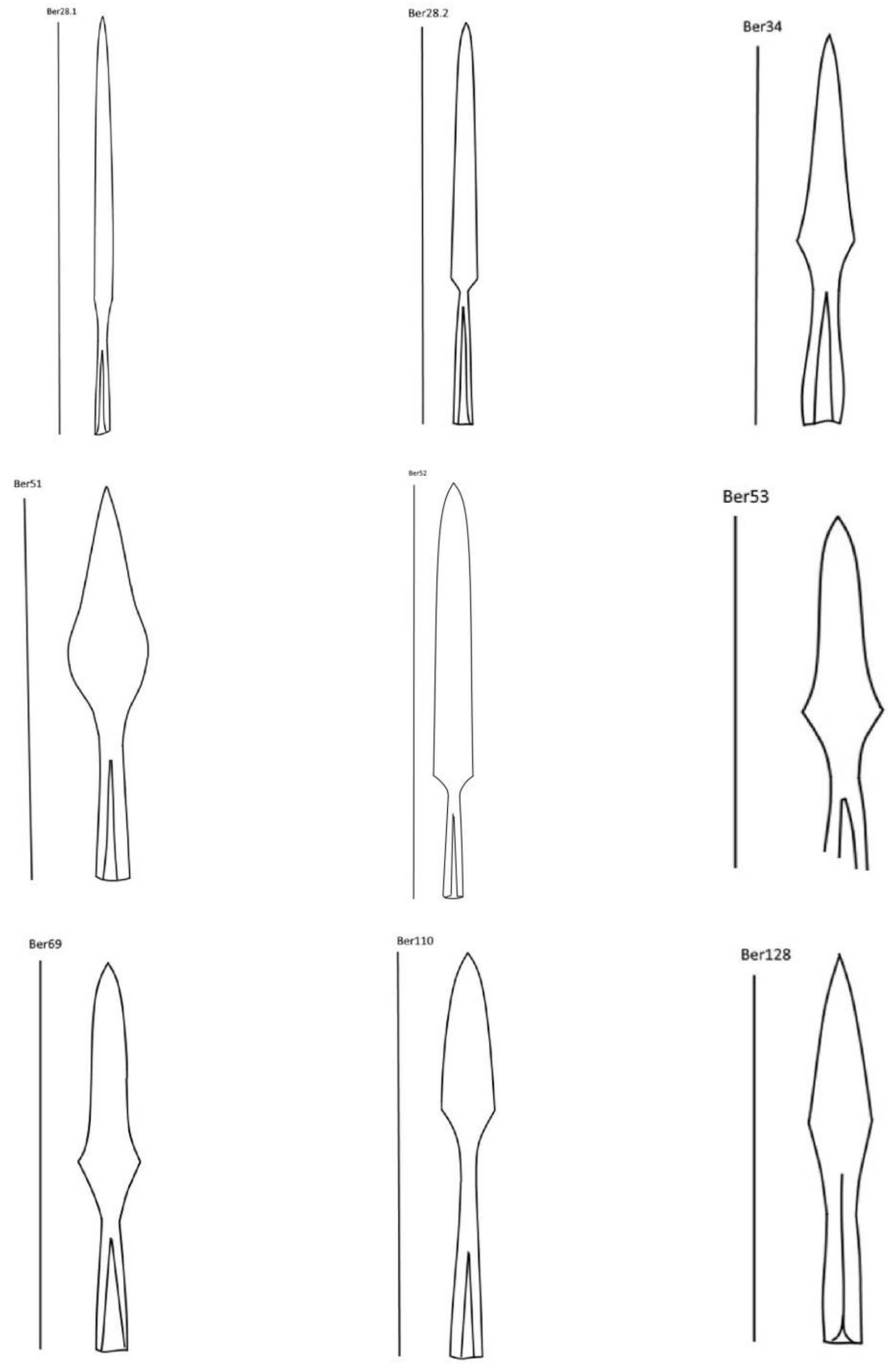

Figure A-6. Redrawn spearheads from Berinsfield. Top, from left: Ber028, Ber028, Ber034. Middle, from left: Ber051, Ber052, Ber053. Bottom, from left: Ber069, Ber110, Ber128.

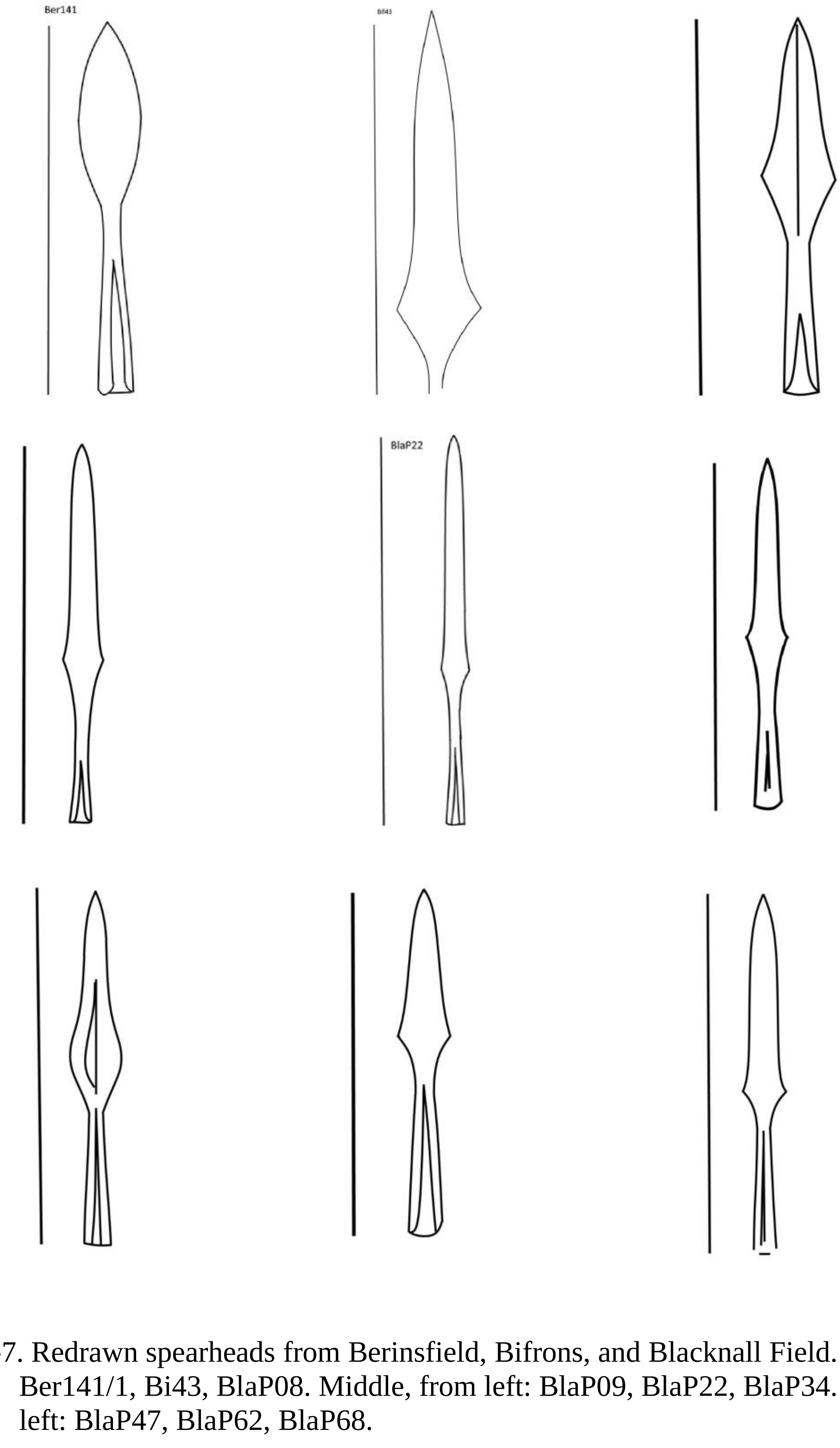

Figure A-7. Redrawn spearheads from Berinsfield, Bifrons, and Blacknall Field. Top, from left: Ber141/1, Bi43, BlaP08. Middle, from left: BlaP09, BlaP22, BlaP34. Bottom, from left: BlaP47, BlaP62, BlaP68.

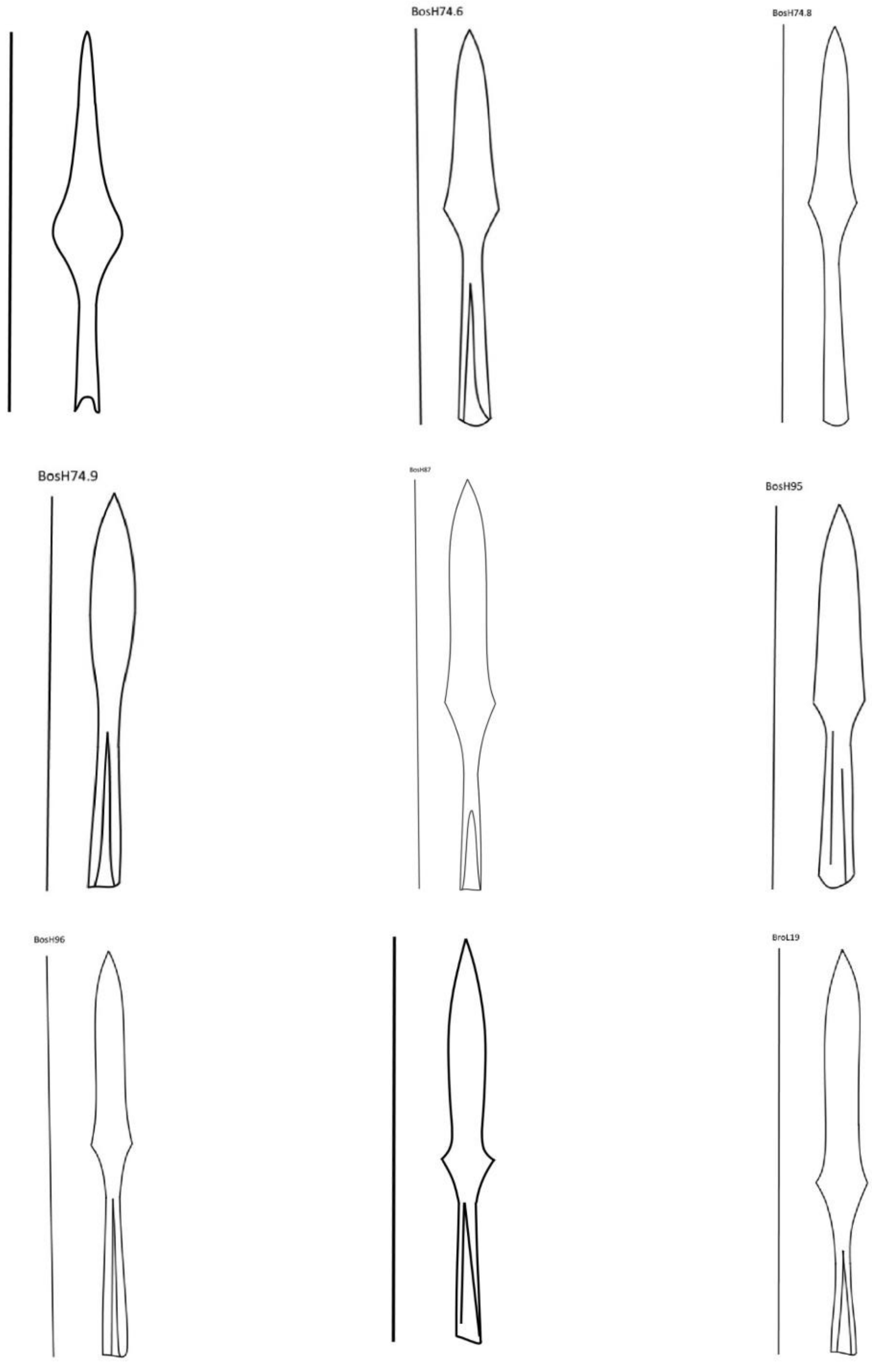

Figure A-8. Redrawn spearheads from Blacknall Field, Boss Hall, Breamor, and Broughton Lodge. Top, from left: BlaP94, Bos74, Bos74. Middle, from left: Bos74, Bos87, Bos95. Bottom, from left: Bos96, Bre704, BroL019.

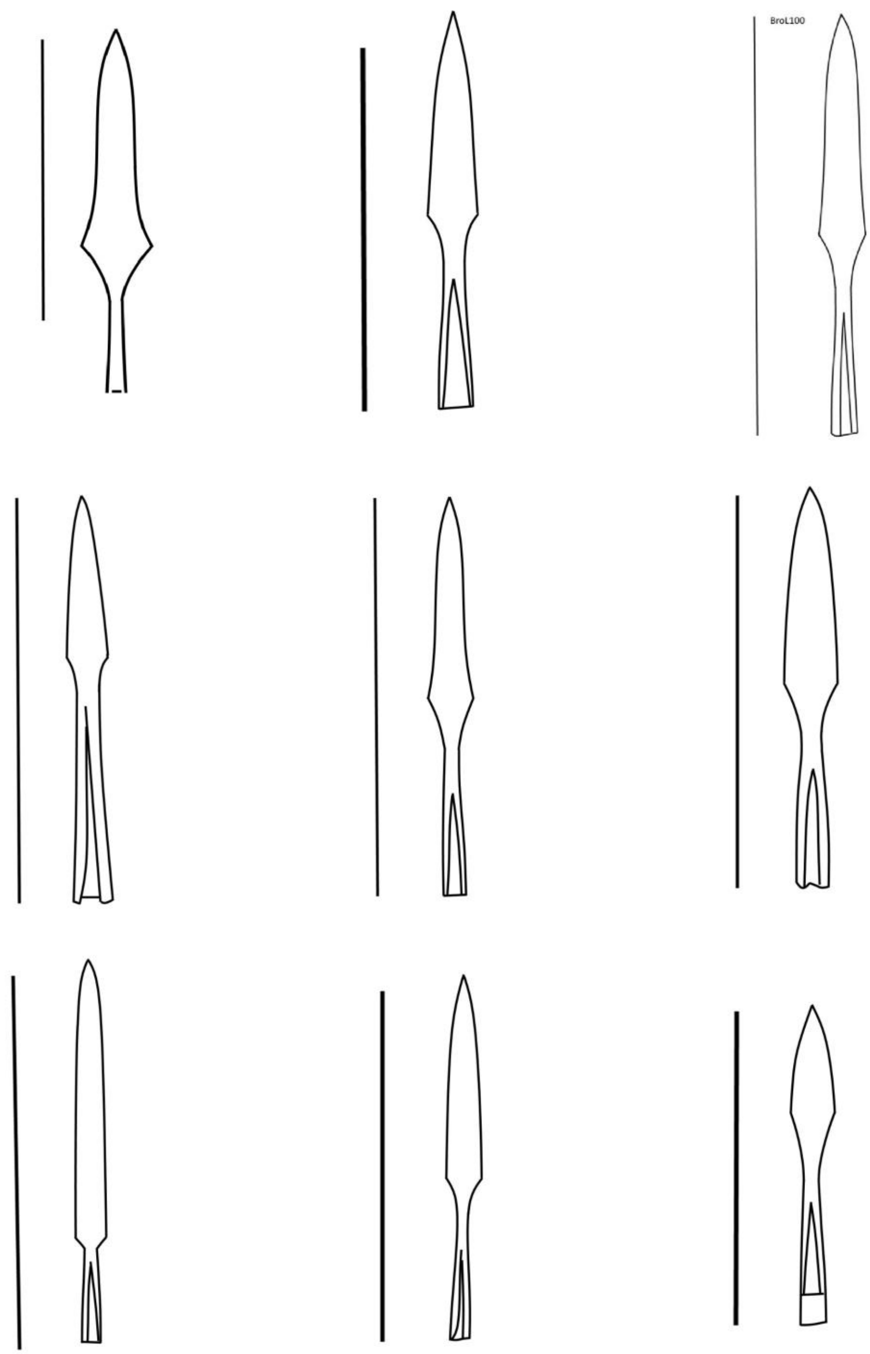

Figure A-9. Redrawn spearheads from Broughton Lodge, Bunnell Way, and Dover, Buckland. Top, from left: BroL036, BroL036, BroL100. Middle, from left: BruW12, BuD000C, BuD027. Bottom, from left: BuD033, BuD039, BuD050.

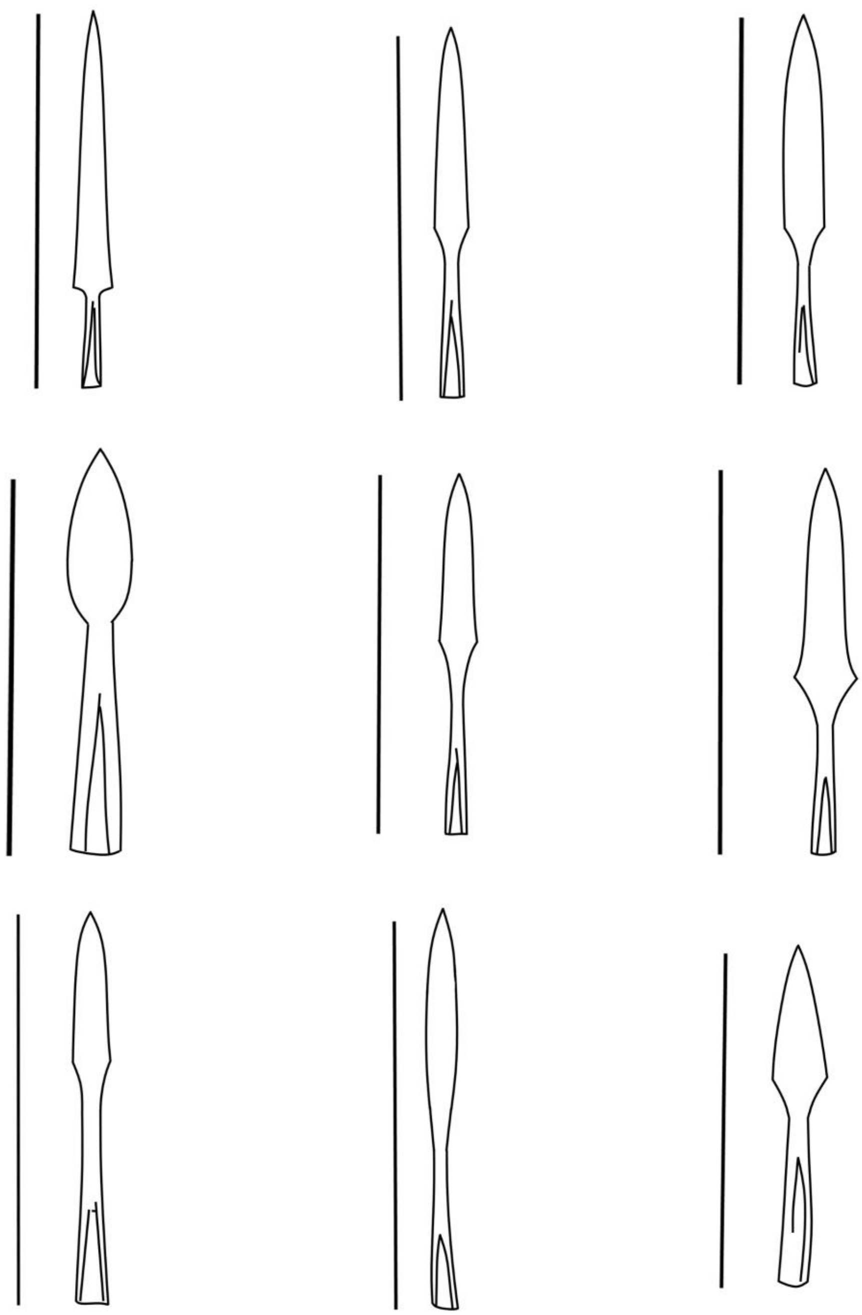

Figure A-10. Redrawn spearheads from Dover, Buckland. Top, from left: BuD056, BuD065, BuD071. Middle, from left: BuD090, BuD091, BuD093. Bottom, from left: BuD096a, BuD096b, BuD128.

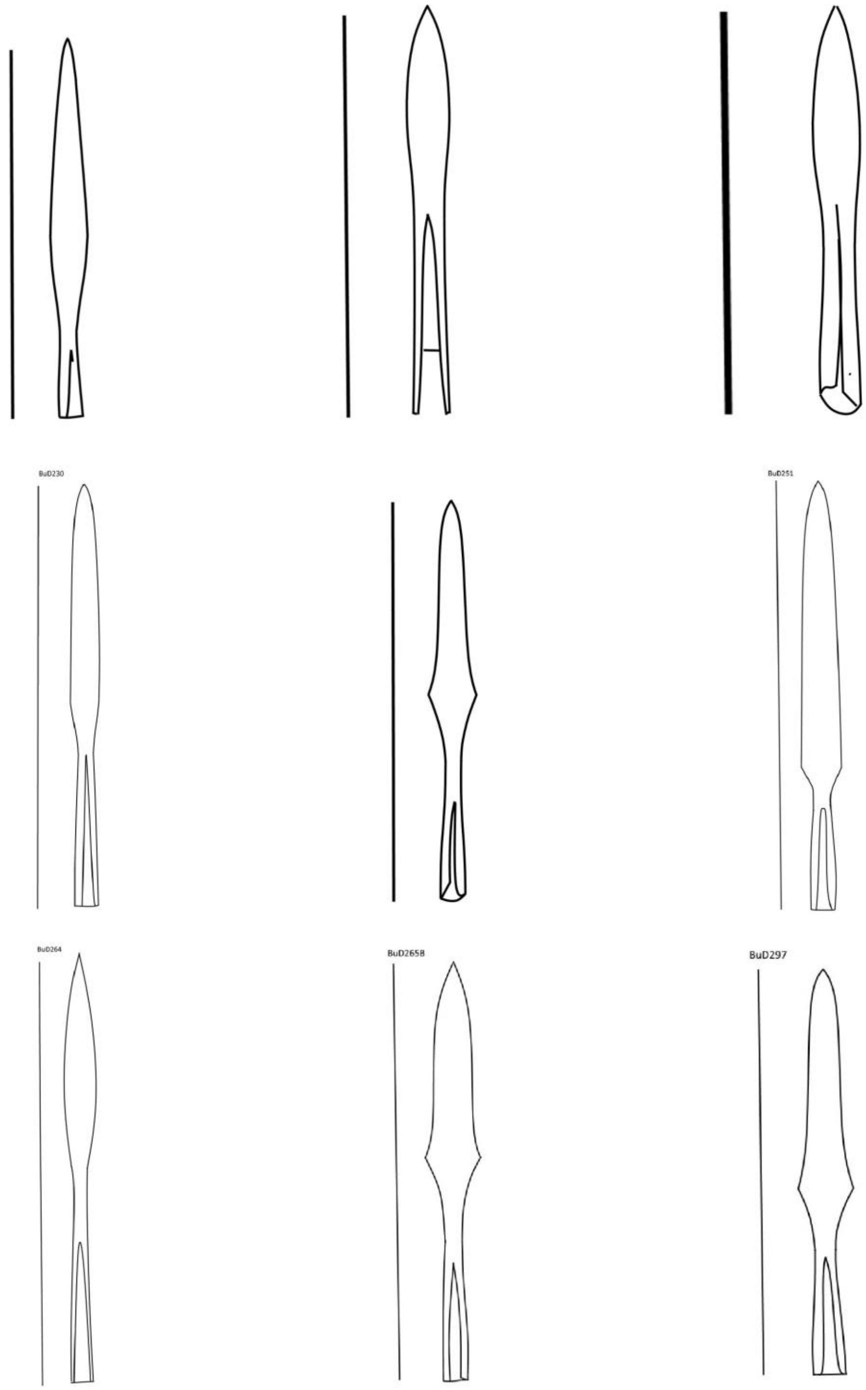

Figure A-11. Redrawn spearheads from Dover, Buckland. Top, from left: BuD131, BuD135, BuD137. Middle, from left: BuD230, BuD249C, BuD251. Bottom, from left: BuD264, BuD265B, BuD297.

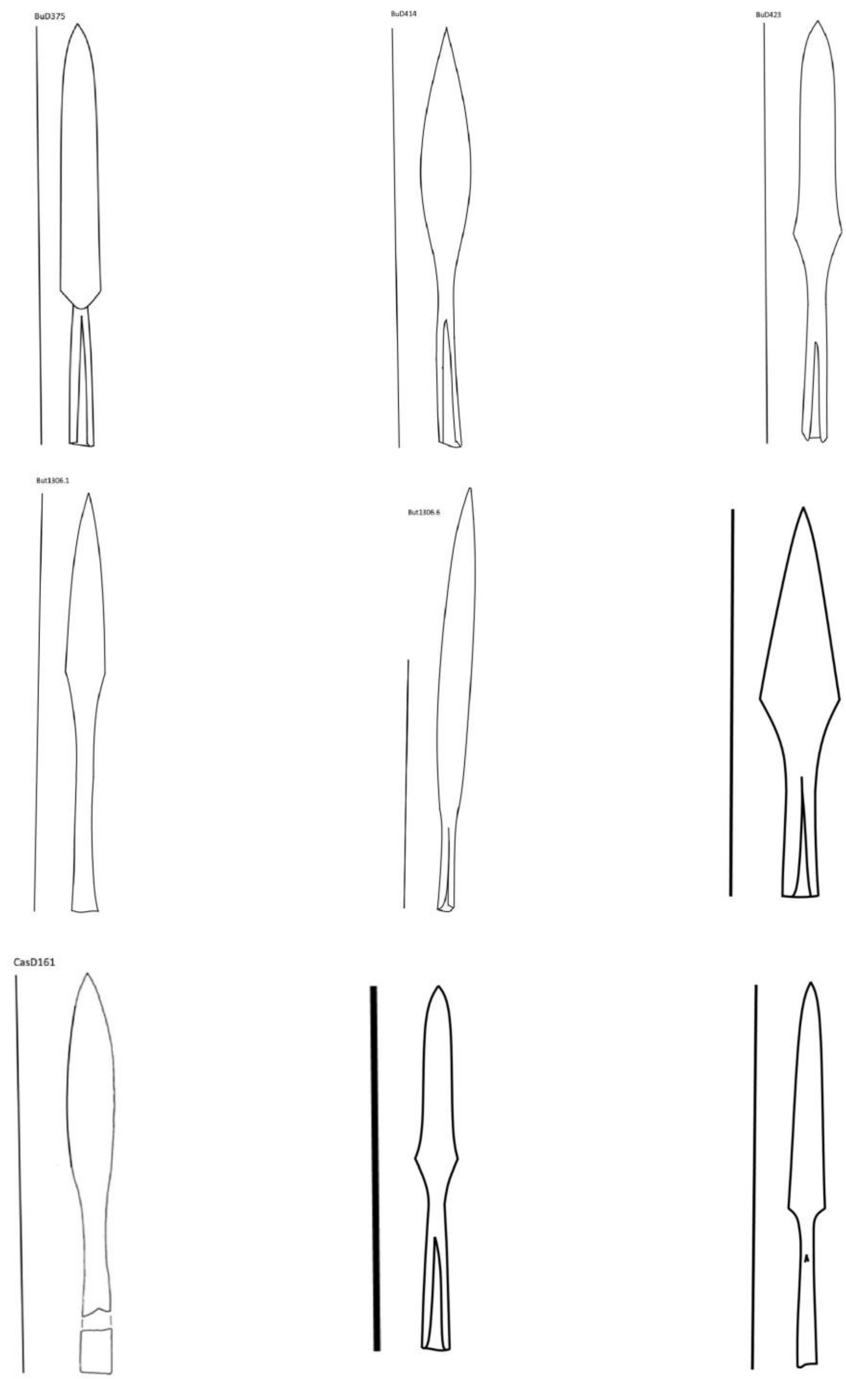

Figure A-12. Redrawn spearheads from Dover, Buckland, Buttermarket, Castledyke South, Cleatham, and Cliff's End. Top, from left: BuD375, BuD414, BuD423. Middle, from left: But1306, But1306, CasD06. Bottom, from left: CasD161, Cle25, CliE2557.

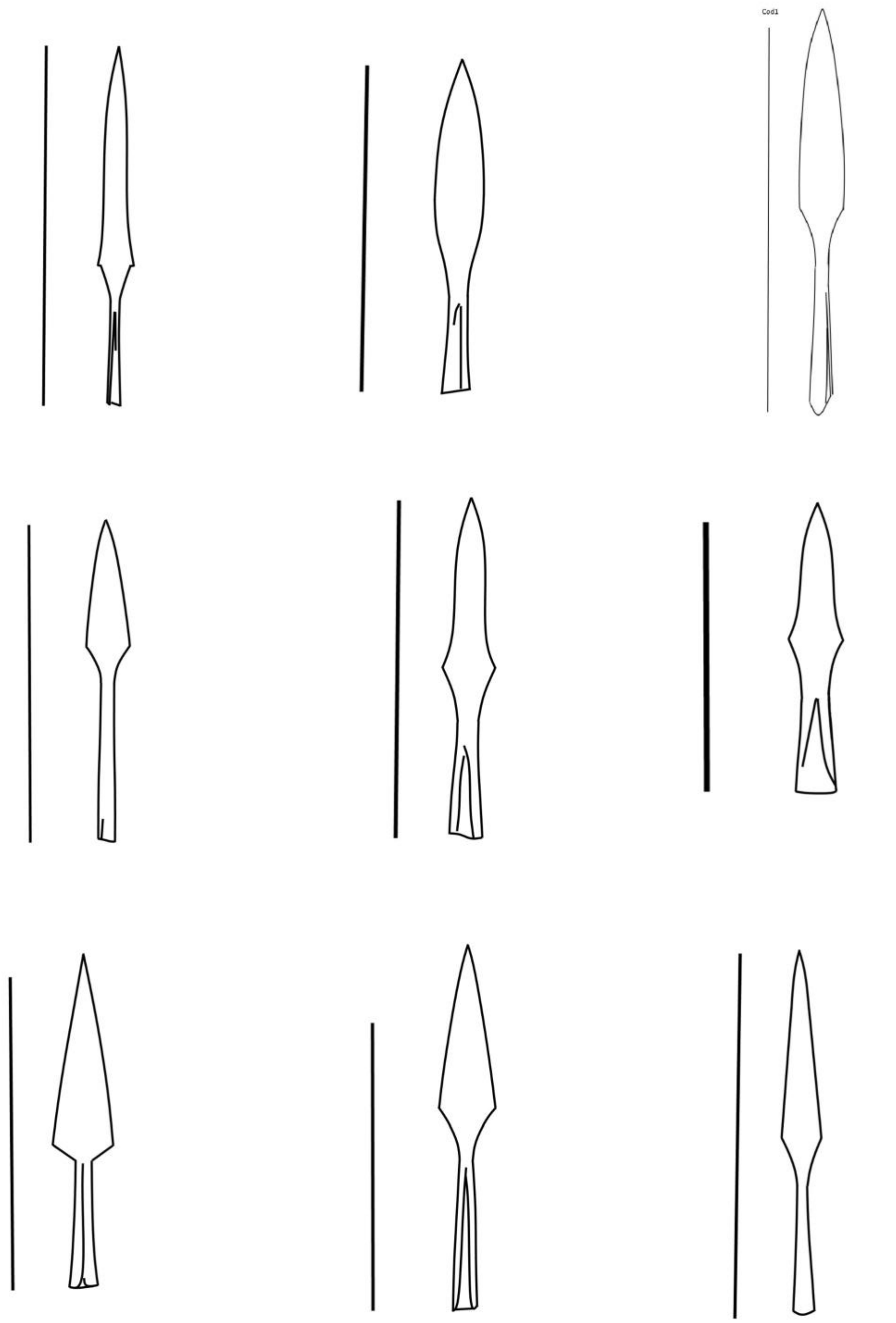

Figure A-13. Redrawn spearheads from Cliff's End, Shrub Hall Quarry, Collingbourne Ducis, and Cuxton. Top, from left: CliE2559, CliE3066, Cod01. Middle, from left: Cod02, ColD77, ColD82. Bottom, from left: Cux165, Cux316, Cux373.

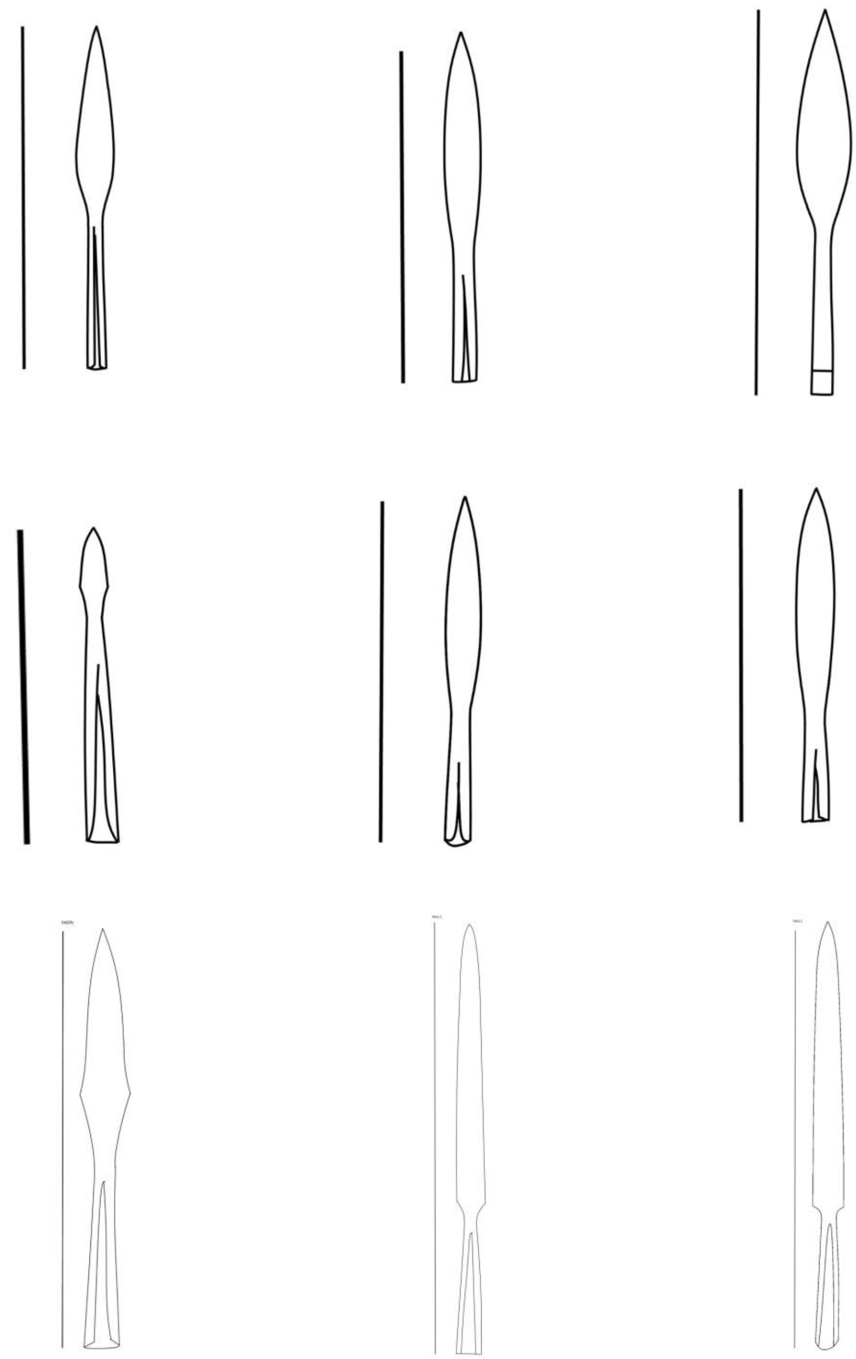

Figure A-14. Redrawn spearheads from Updown, Eastry and Edix Hill. Top, from left: Eas76:11, Eas76:13, Eas76:14. Middle, from left: Eas76:17, Eas76:19, Eas76:35. Bottom, from left: EH07, EH12, EH12.

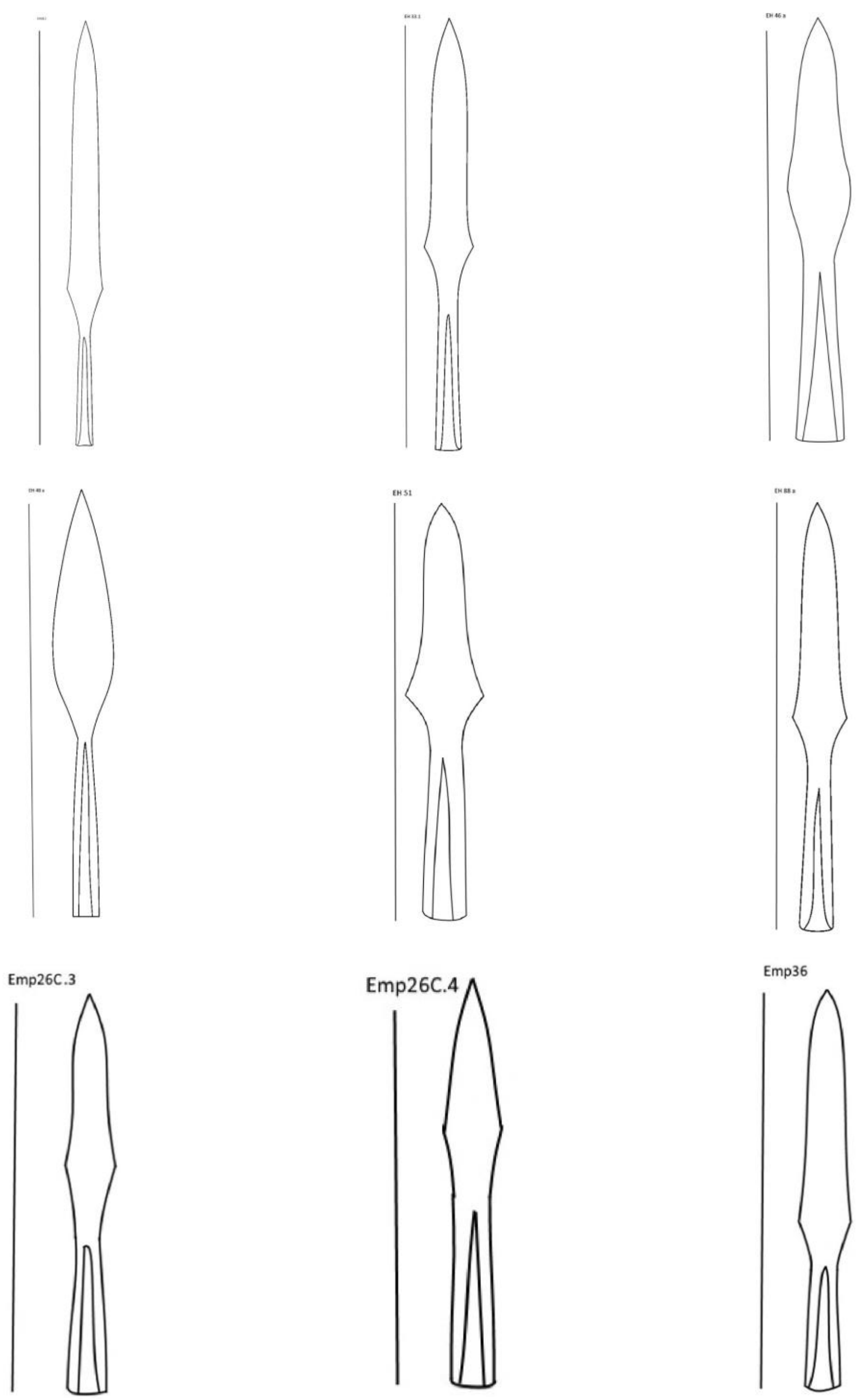

Figure A-15. Redrawn spearheads from Edix Hill and Empingham II. Top, from left: EH28, EH33, EH46. Middle, from left: EH48, EH51, EH88. Bottom, from left: EmpII026C, EmpII026C, EmpII036.

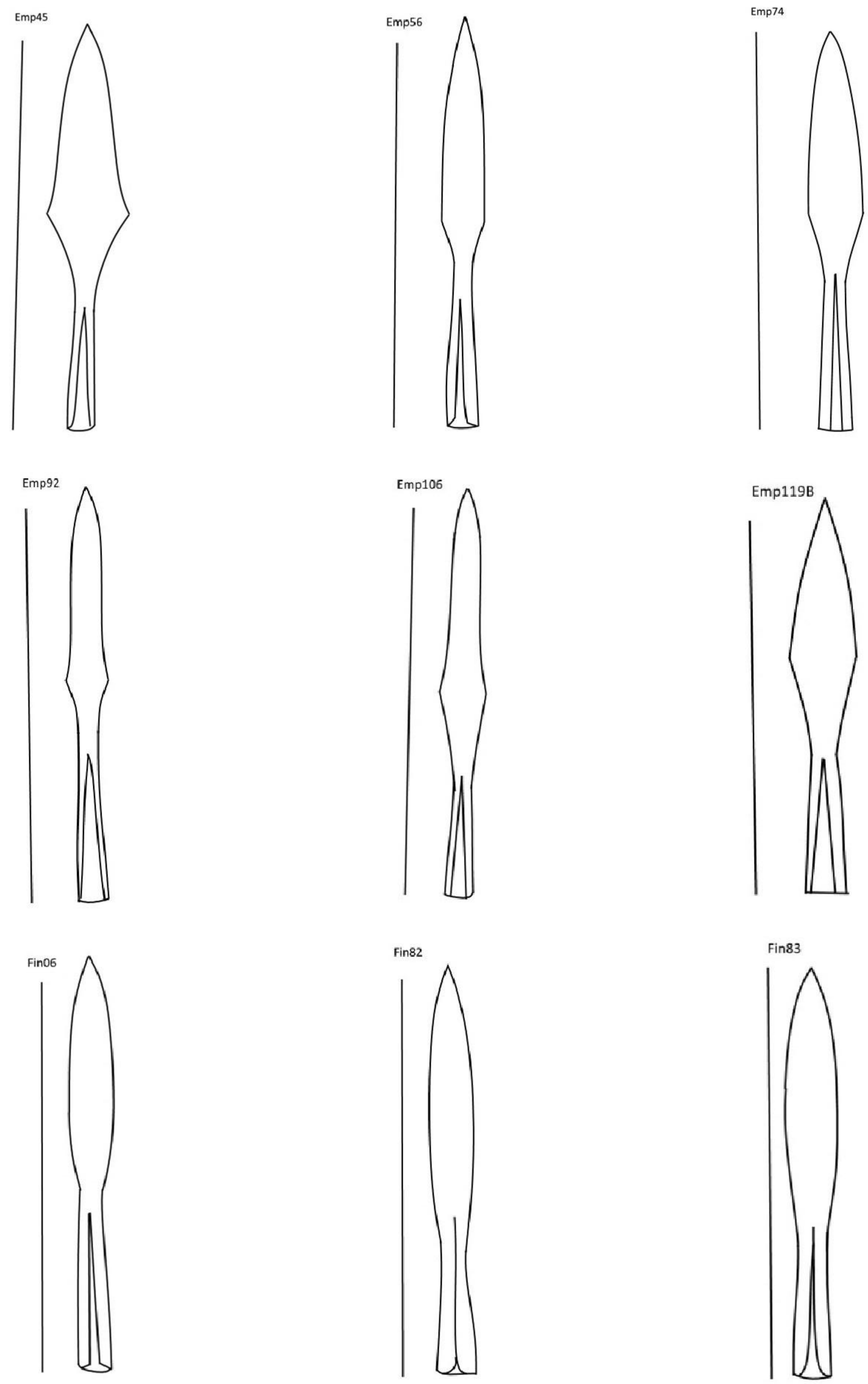

Figure A-16. Redrawn spearheads from Empingham II and Finglesham. Top, from left: EmpII045, EmpII056, EmpII074. Middle, from left: EmpII092, EmpII106, EmpII119B. Bottom, from left: Fin006, Fin082, Fin083.

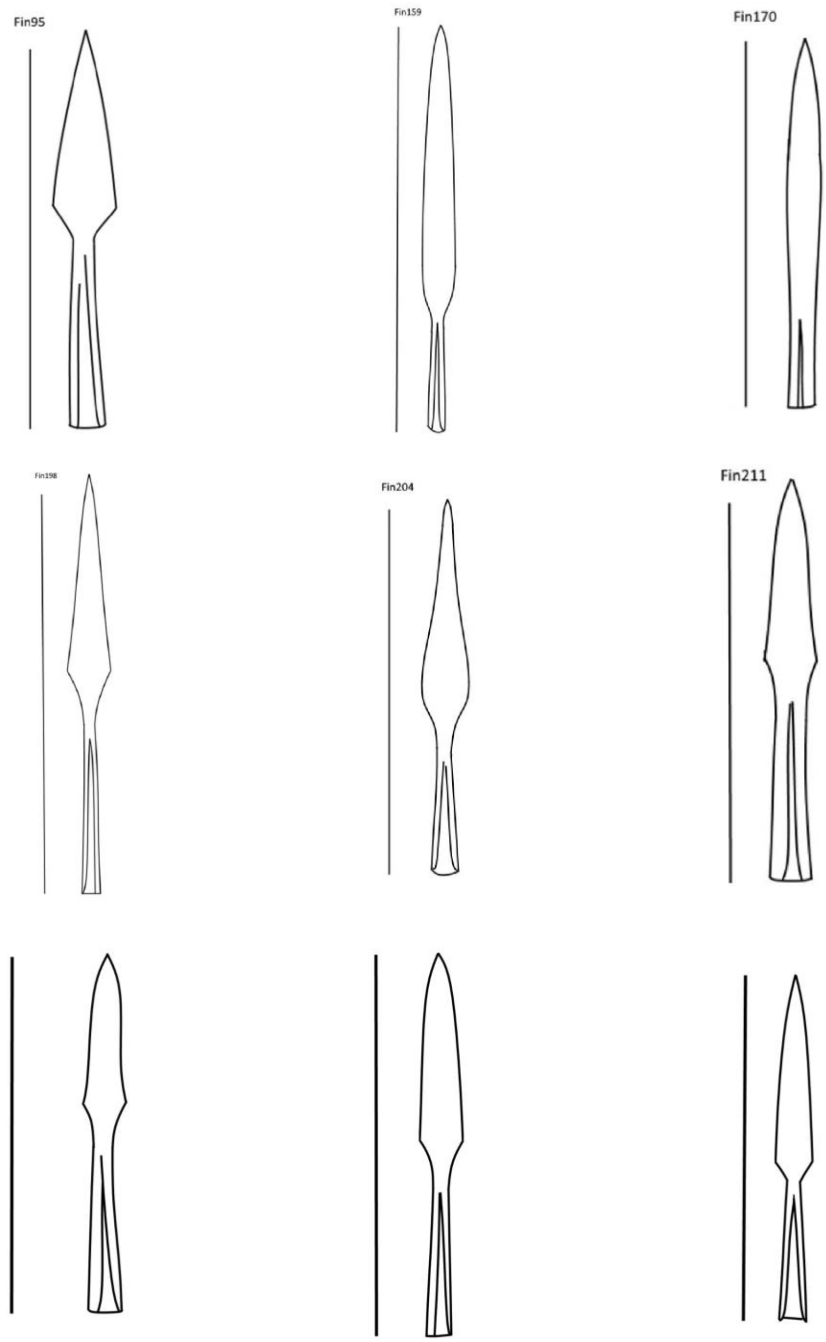

Figure A-17. Redrawn spearheads from Finglesham and Flixton. Top, from left: Fin095, Fin159, Fin170. Middle, from left: Fin198, Fin204, Fin211. Bottom, from left: Fli01, Fli01, Fli27B.

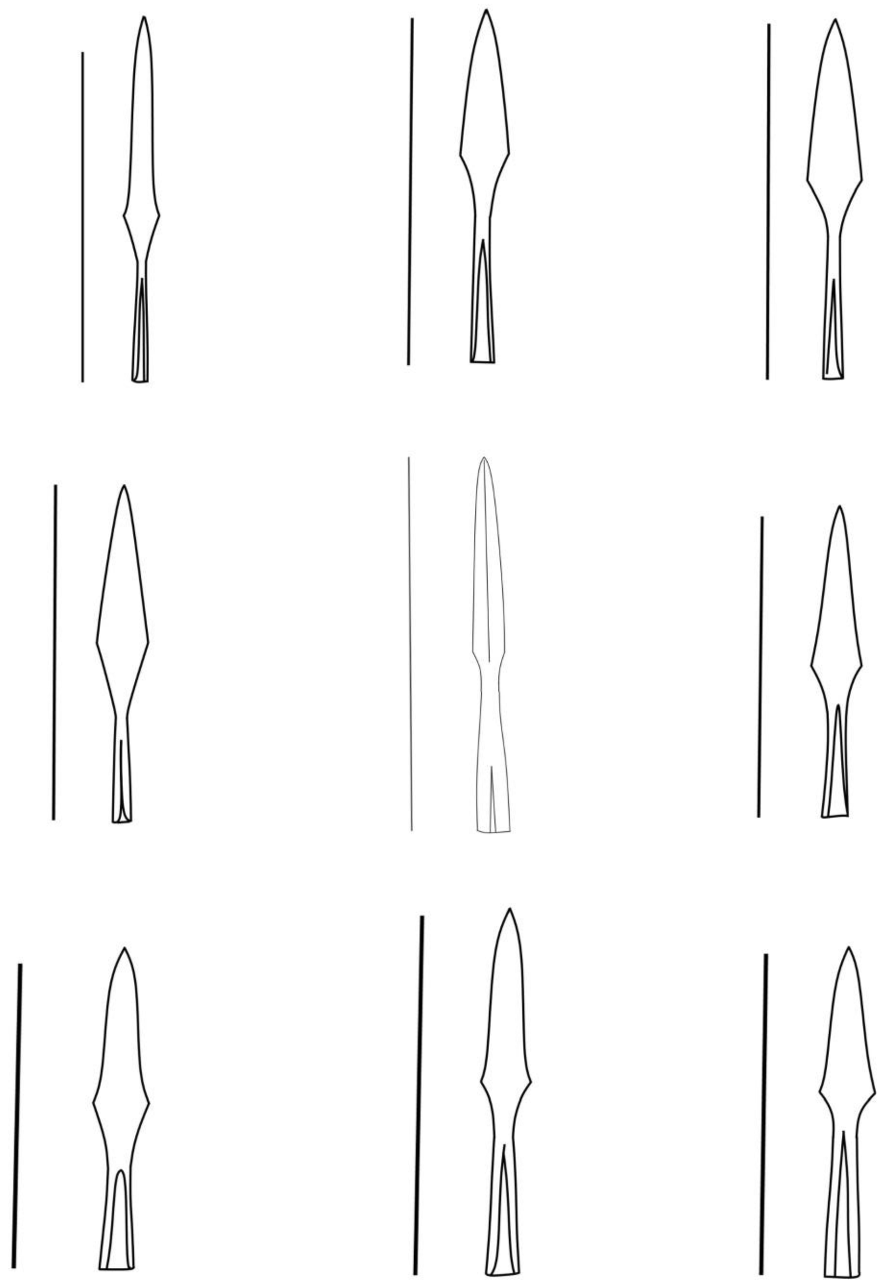

Figure A-18. Redrawn spearheads from Flixton, Gallows Hill, and Great Chesterford. Top, from left: Fli37, Fli37, Fli52. Middle, from left: Fli53, GaH, GCh004. Bottom, from left: GCh016A, GCh022, GCh022.

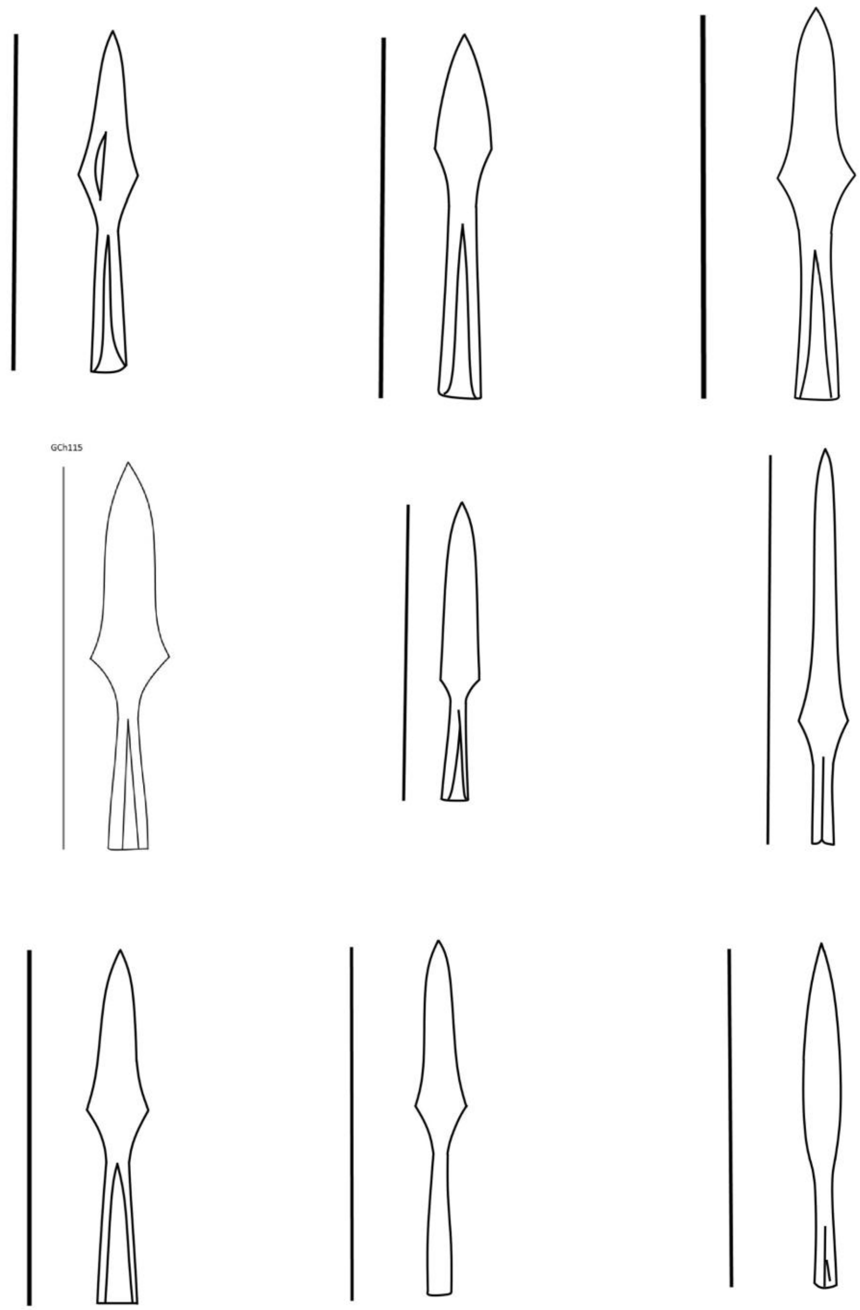

Figure A-19. Redrawn spearheads from Great Chesterford, Gunthorp, and King’s Garden. Top, from left: GCh065, GCh076, GCh086. Middle, from left: GCh115, GCh122, GCh140. Bottom, from left: GCh142, GunF19, KGar14.

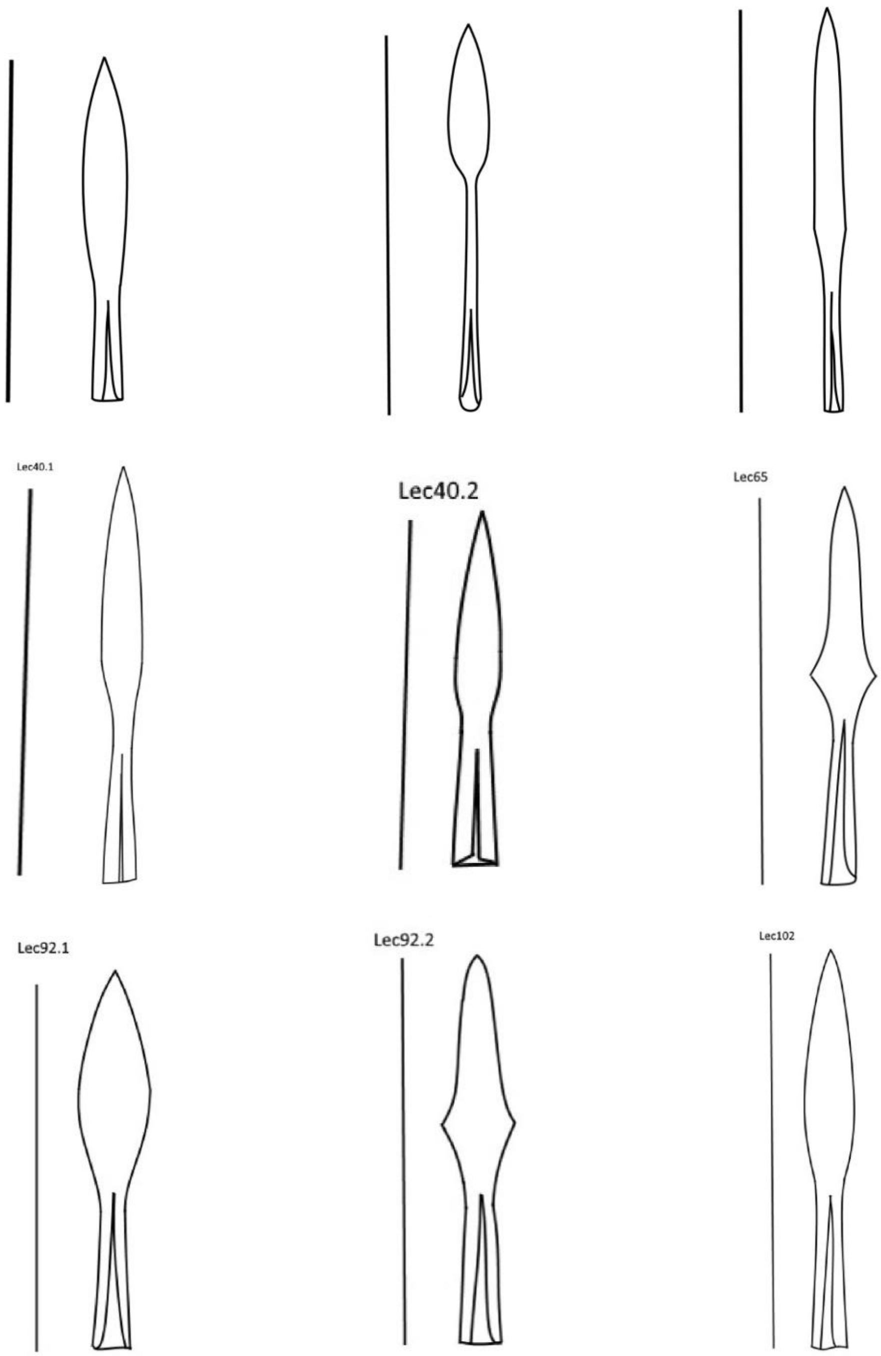

Figure A-20. Redrawn spearheads from King's Hostel, Kilverston, Little Chesterford, and Lechlade. Top, from left: KHL26, KilF148, LCh04. Middle, from left: Lec40.1, Lec40.2, Lec065. Bottom, from left: Lec092, Lec092, Lec102.

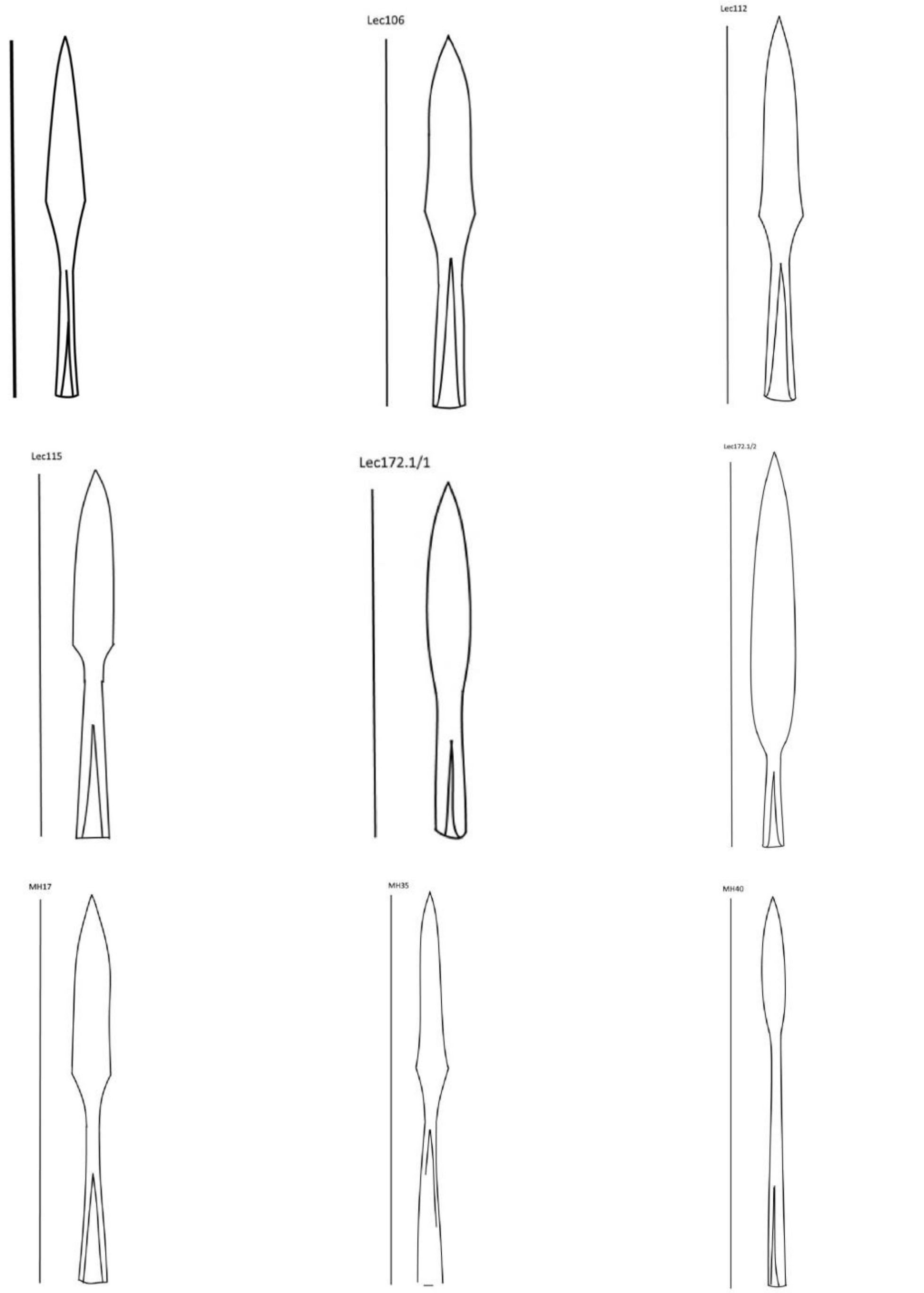

Figure A-21. Redrawn spearheads from Lechlade and Mill Hill. Top, from left: Lec104, Lec106, Lec112. Middle, from left: Lec115, Lec172/1, Lec172/2. Bottom, from left: MH017, MH035, MH040.

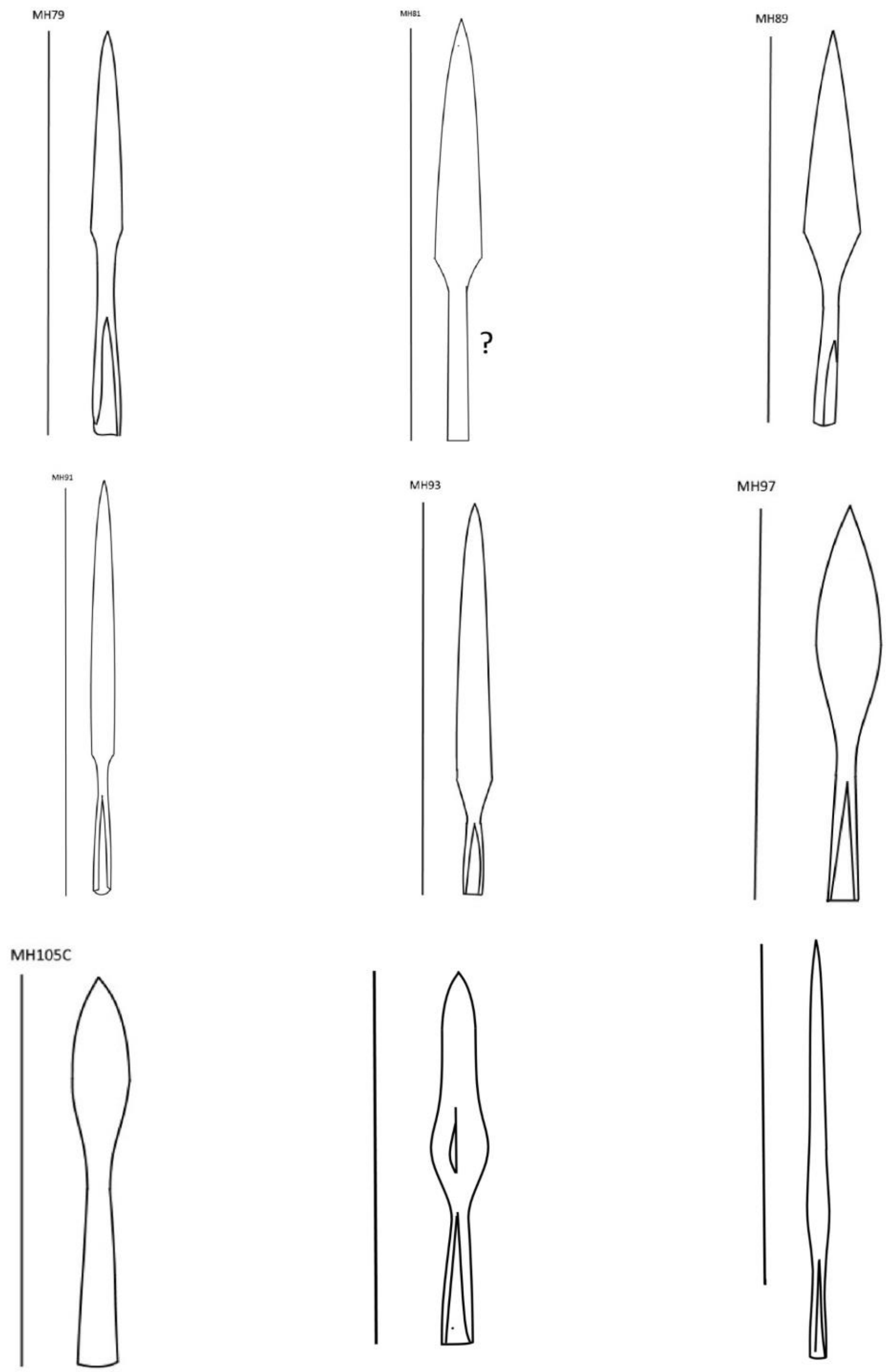

Figure A-22. Redrawn spearheads from Mill Hill and Market Lavington. Top, from left: MH079, MH081, MH089. Middle, from left: MH091, MH093, MH097. Bottom, from left: MH105C, MLav06, MLav32.

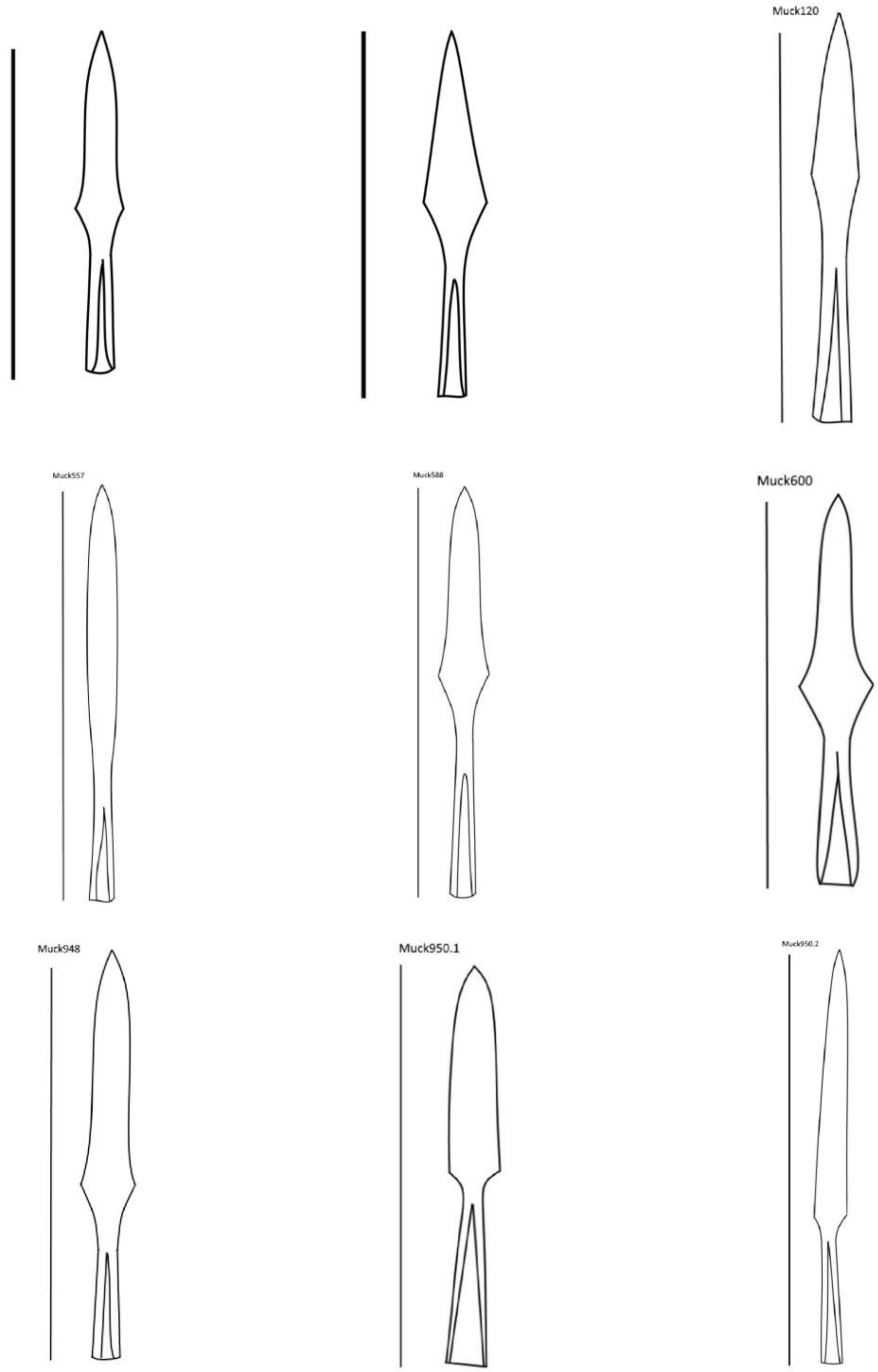

Figure A-23. Redrawn spearheads from Market Lavington and Mucking II. Top, from left: MLav34, MLav35, MuckI120. Middle, from left: MuckII557, MuckII588, MuckII600. Bottom, from left: MuckII948, MuckII950, MuckII950.

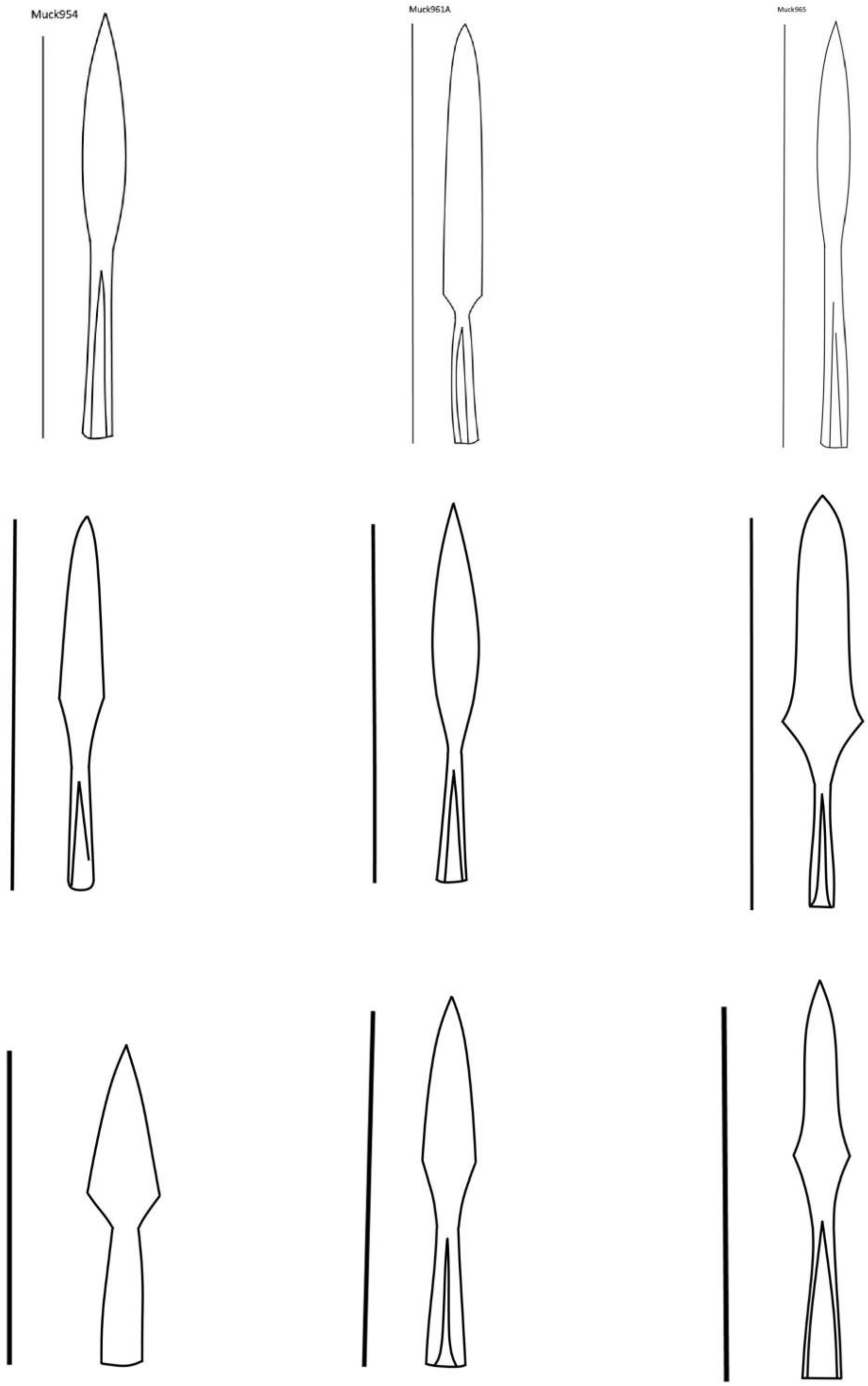

Figure A-24. Redrawn spearheads from Mucking I and II. Top, from left: MuckII954, MuckII961A, MuckII965. Middle, from left: MuckI159, MuckI245, MuckI248. Bottom, from left: MuckI272/101, MuckII493, MuckII554.

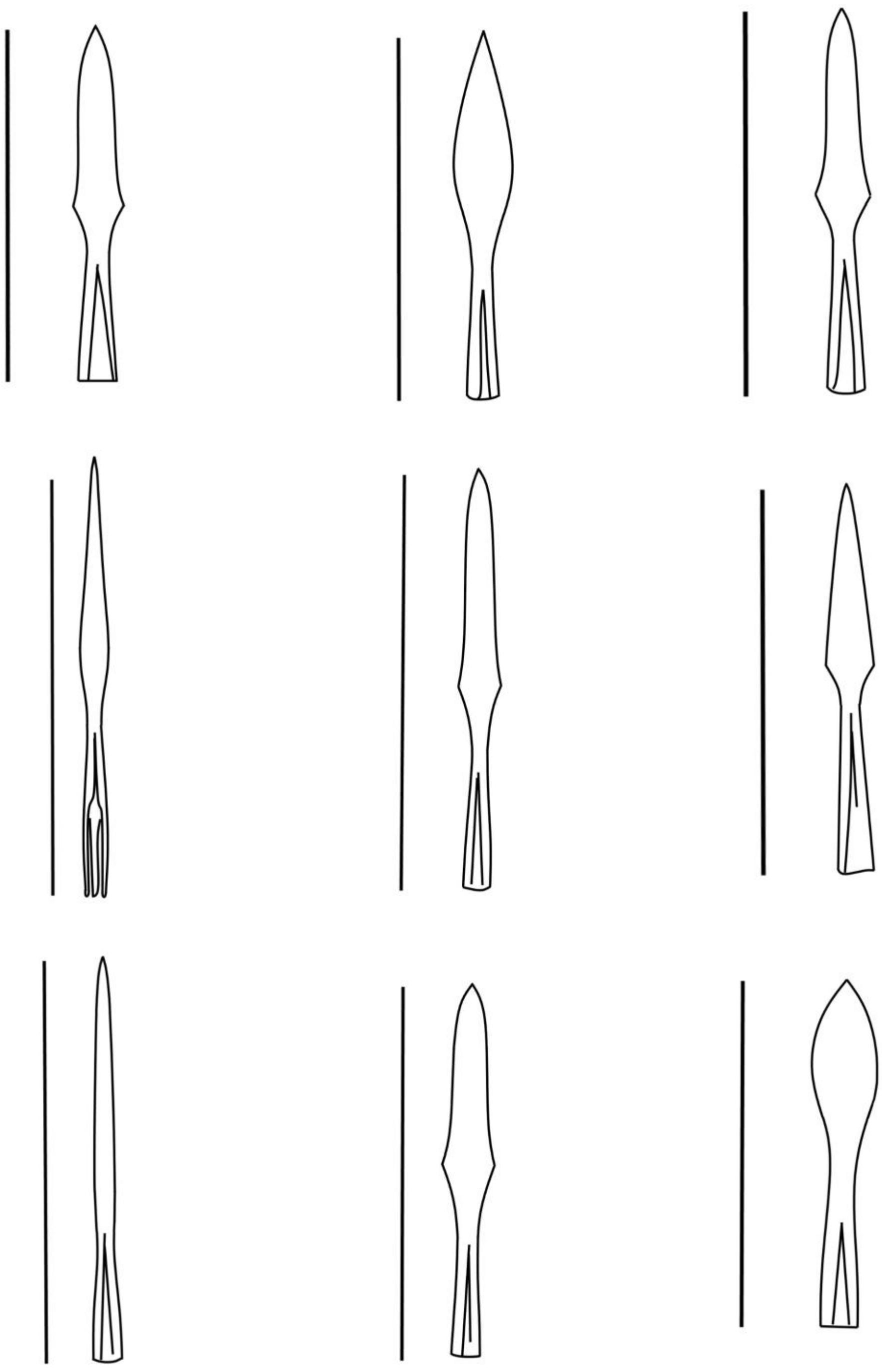

Figure A-25. Redrawn spearheads from Mucking II. Top, from left: MuckII556, MuckII583, MuckII618. Middle, from left: MuckII682, MuckII766, MuckII777. Bottom, from left: MuckII789, MuckII858, MuckII863.

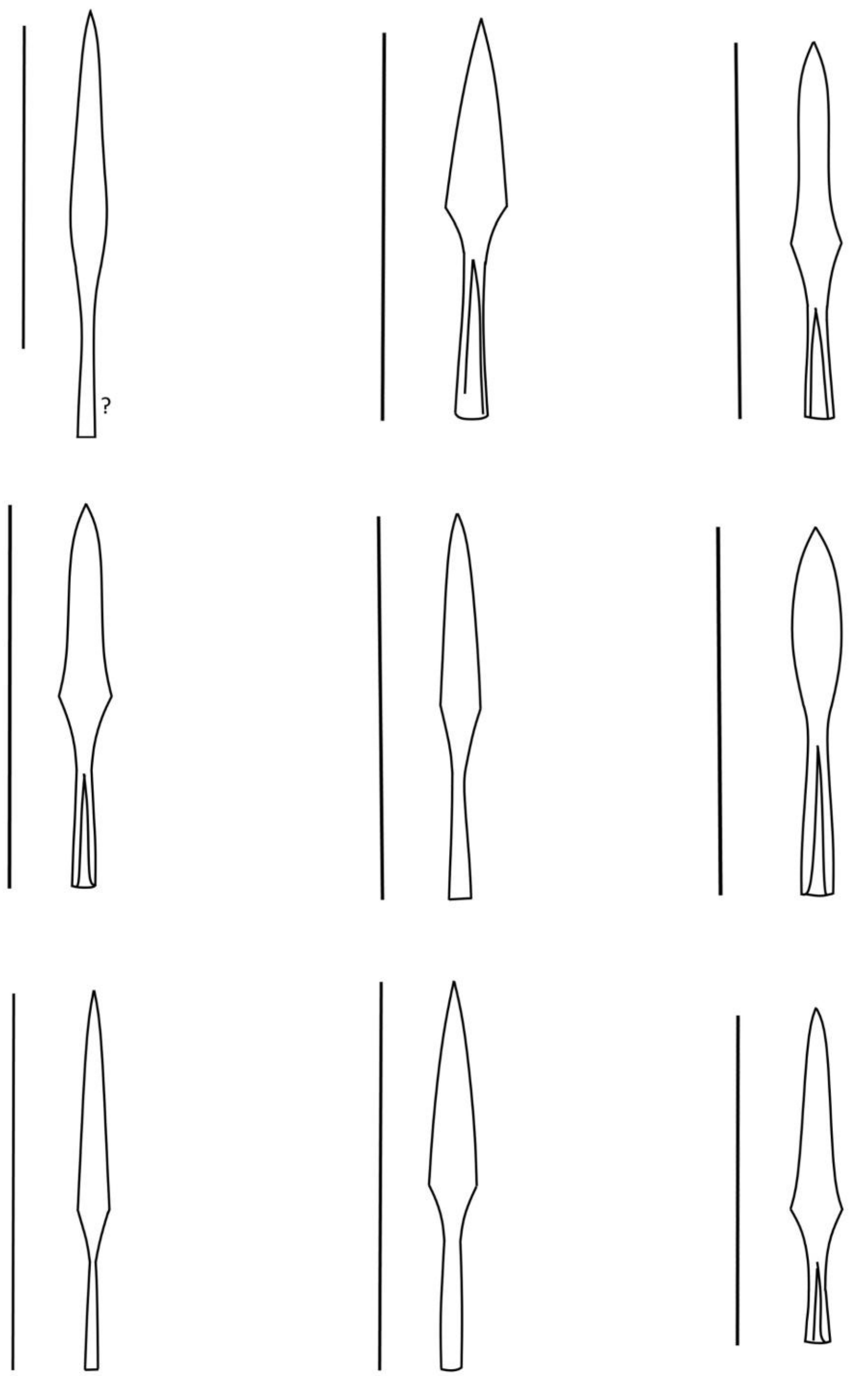

Figure A-26. Redrawn spearheads from Park Lane, Pilgrim's Way, and Quarrington. Top, from left: PL09, PL17, PL147. Middle, from left: PL204, PL339, PW7010. Bottom, from left: PW7049, PW7067, Quar01.

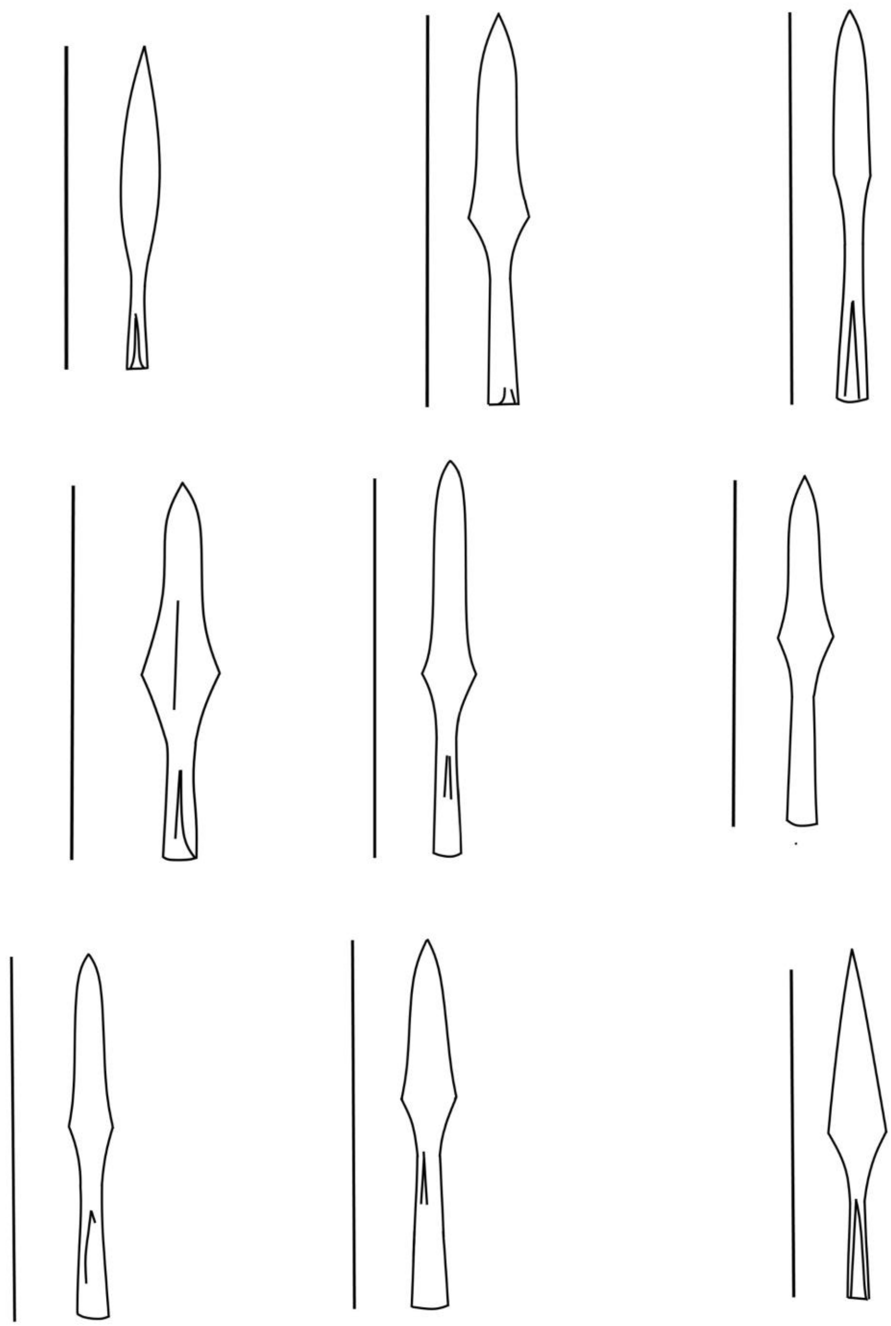

Figure A-27. Redrawn Spearheads from Sancton A, Spong Hill, and Shavord's Farm. Top, from left: SancA307, SH27, SH31. Middle, from left: SH36, SH40, SH41. Bottom, from left: SH49, SH51, ShaF01.

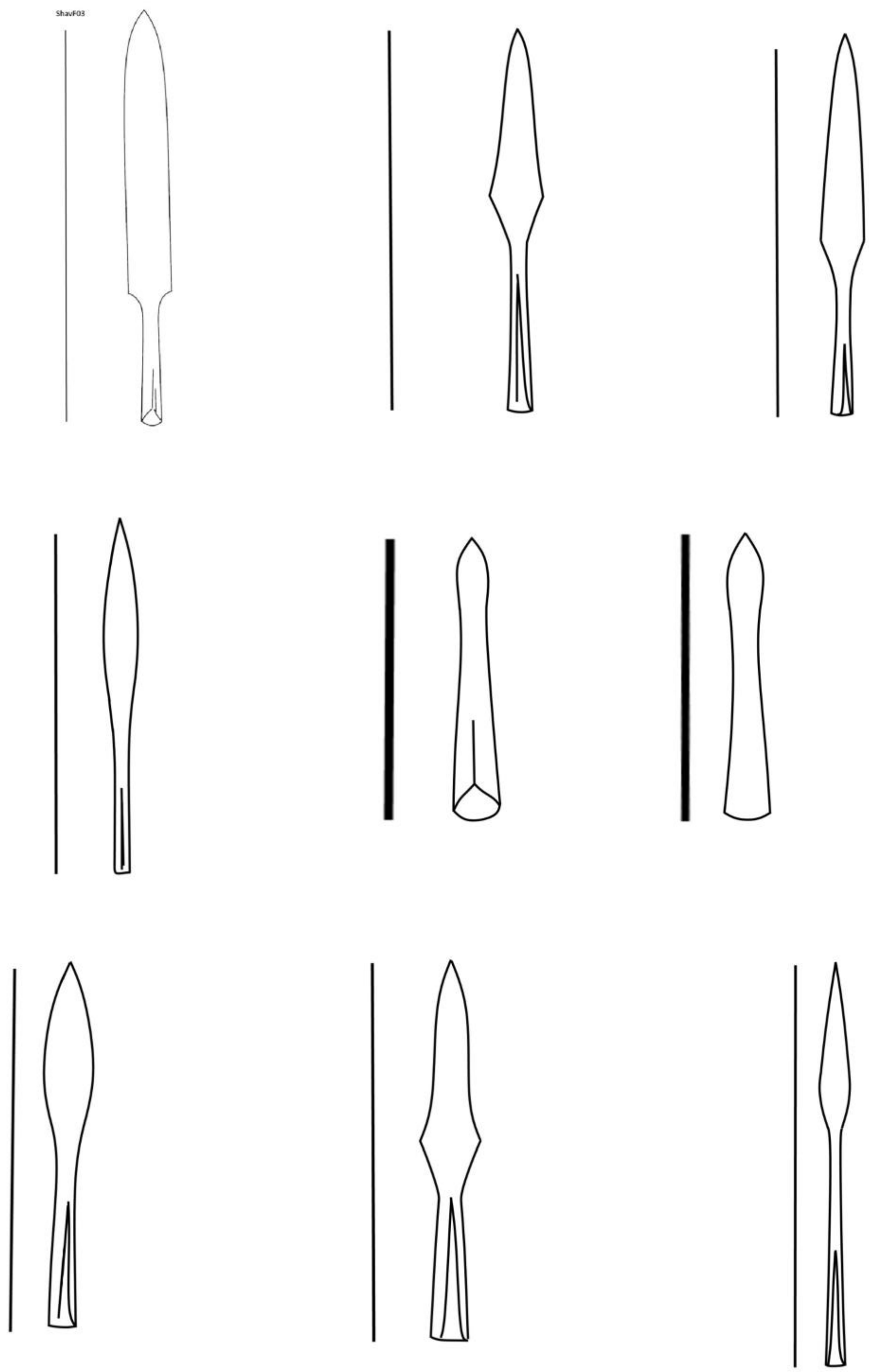

Figure A-28. Redrawn spearheads from Shavord's Farm, Snape, and Springfield Lyons. Top, from left: ShaF03, Sna03, Sna06. Middle, from left: Sna47, Sna47, Sna47. Bottom, from left: SpL2674, SpL4966, SpL6545.

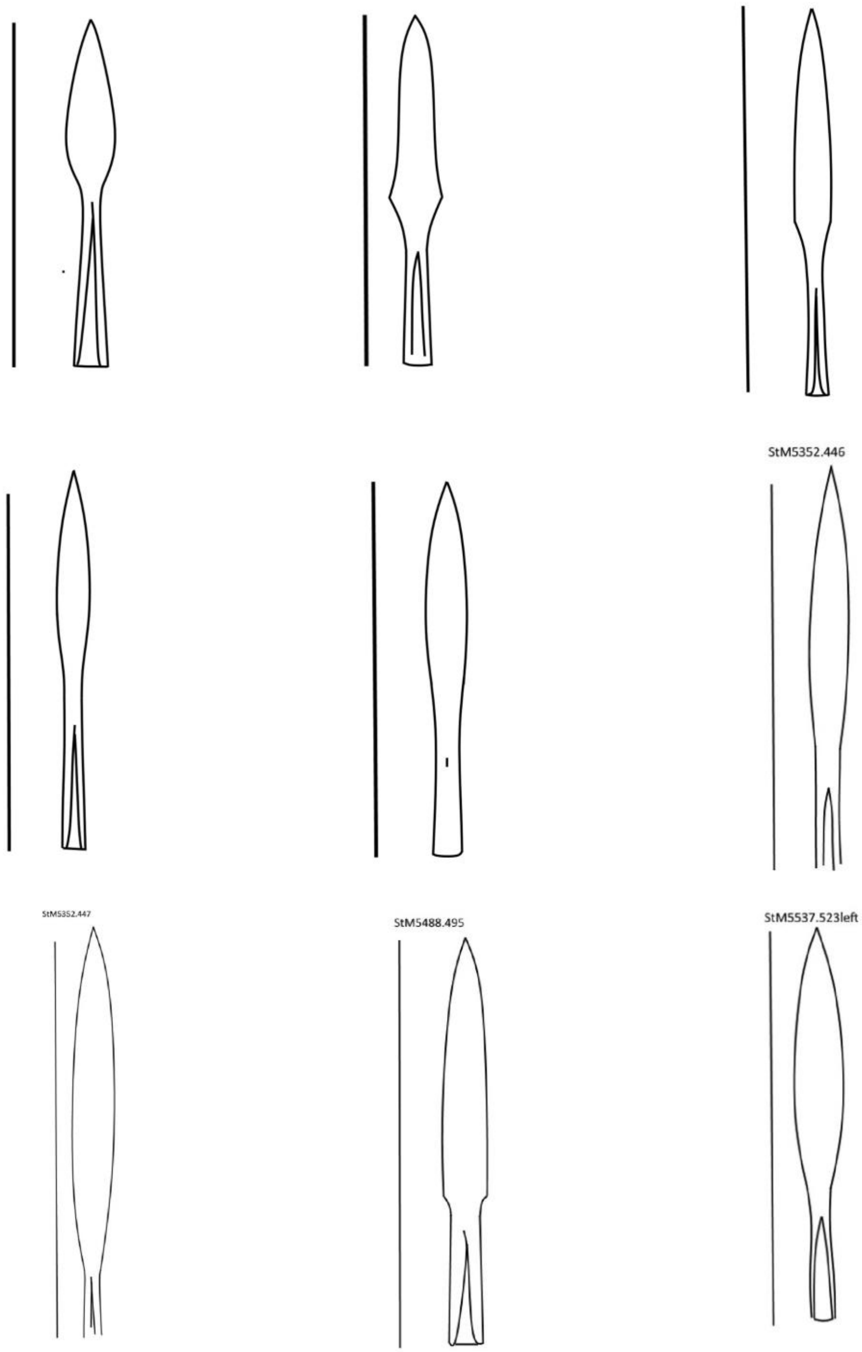

Figure A-29. Redrawn spearheads from Springfield Lyons, Springhead I and II, and St. Mary's Stadium. Top, from left: SpL6545, SpL6609, SprI2101. Middle, from left: SprII2134, SprII2620, StM5352. Bottom, from left: StM5352, StM5488, StM5537.

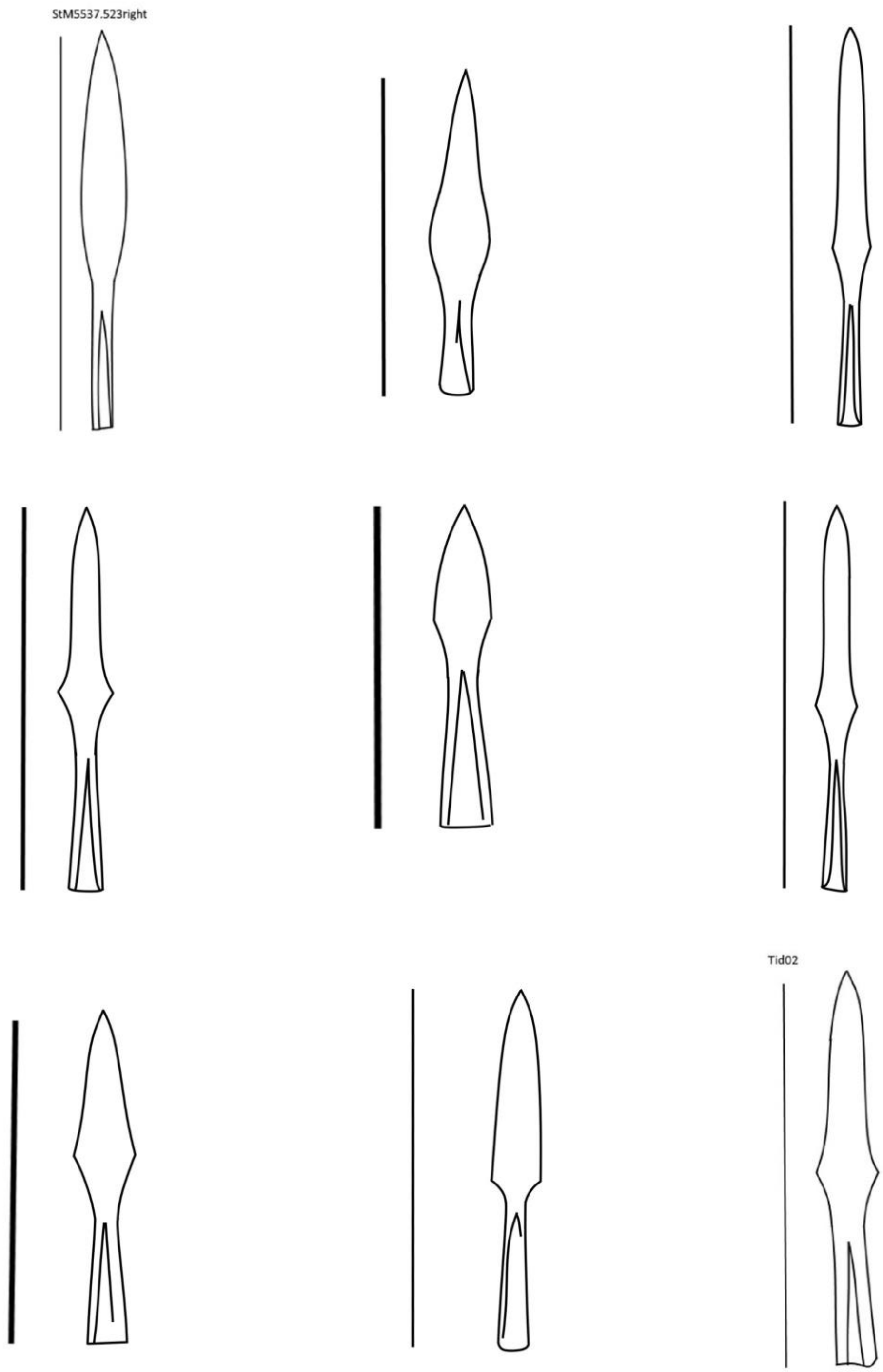

Figure A-30. Redrawn spearheads from St. Mary's Stadium, Stretton on Fosse, Temple Hill, and Tidwell. Top, from left: StM5537, StrFF10, StrFF100. Middle, from left: StrFF88, StrFF95, StrFF96. Bottom, from left: StrFF96, TH47, Tid02.

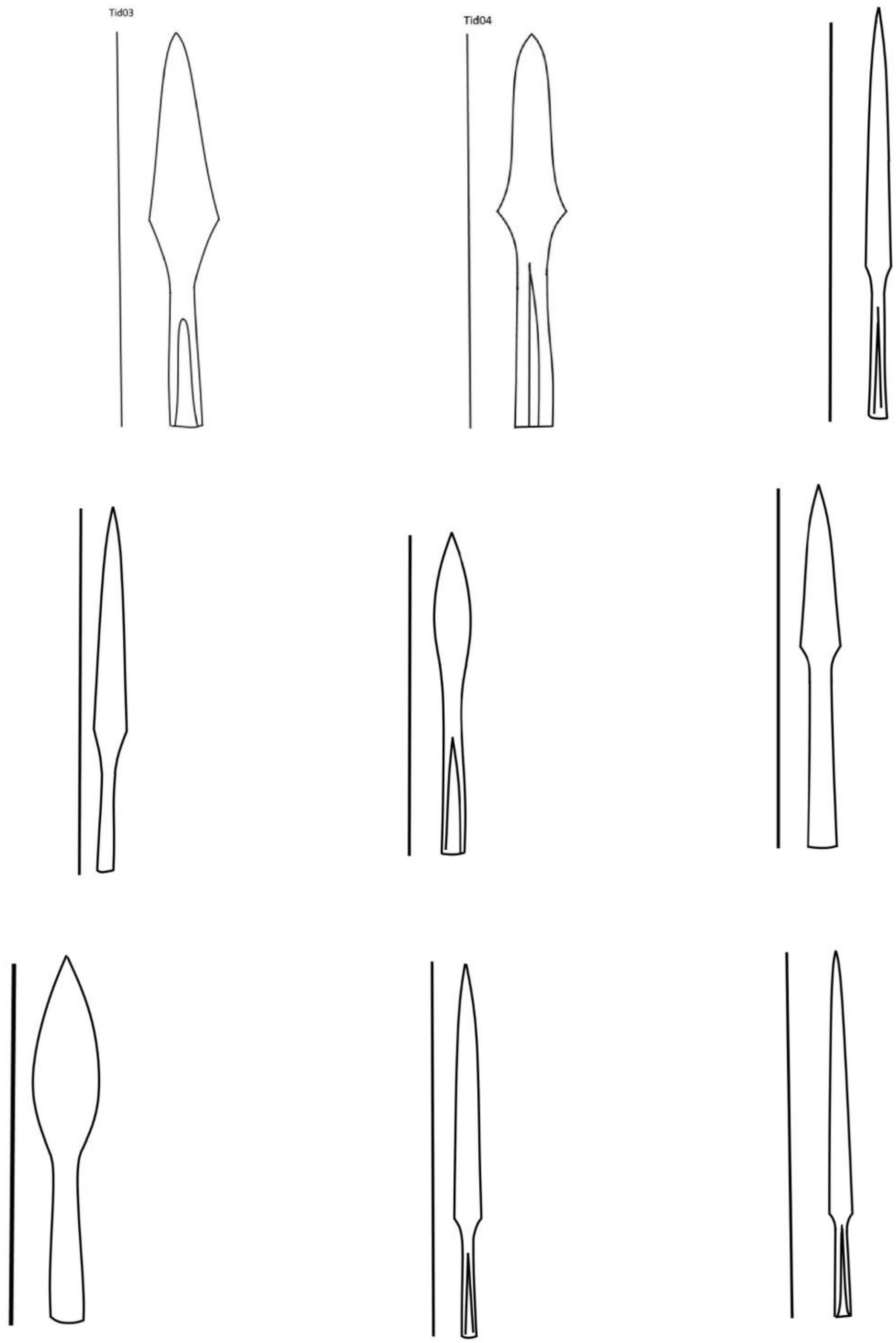

Figure A-31. Redrawn spearheads from Tidwell and Tranmer House. Top, from left: Tid03, Tid04, TraH14. Middle, from left: TraH16, TraH17, TraH21. Bottom, from left: TraH23, TraH24, TraH24.

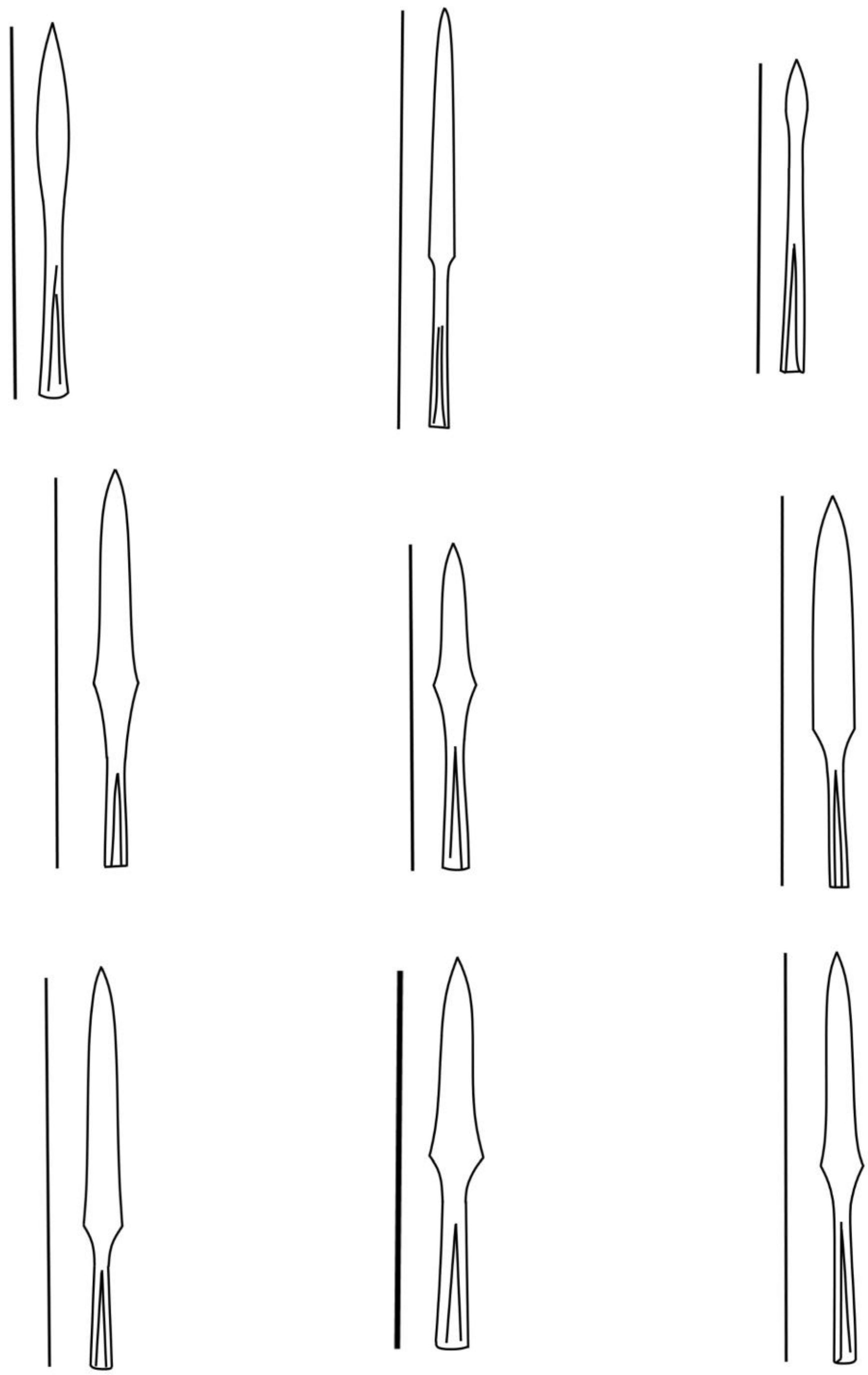

Figure A-32. Redrawn spearheads from Tranmer House and Wasperton. Top, from left: TraH27, TraH28, TraH32. Middle, from left: Was06, Was10, Was22. Bottom, from left: Was23, Was33, Was44.

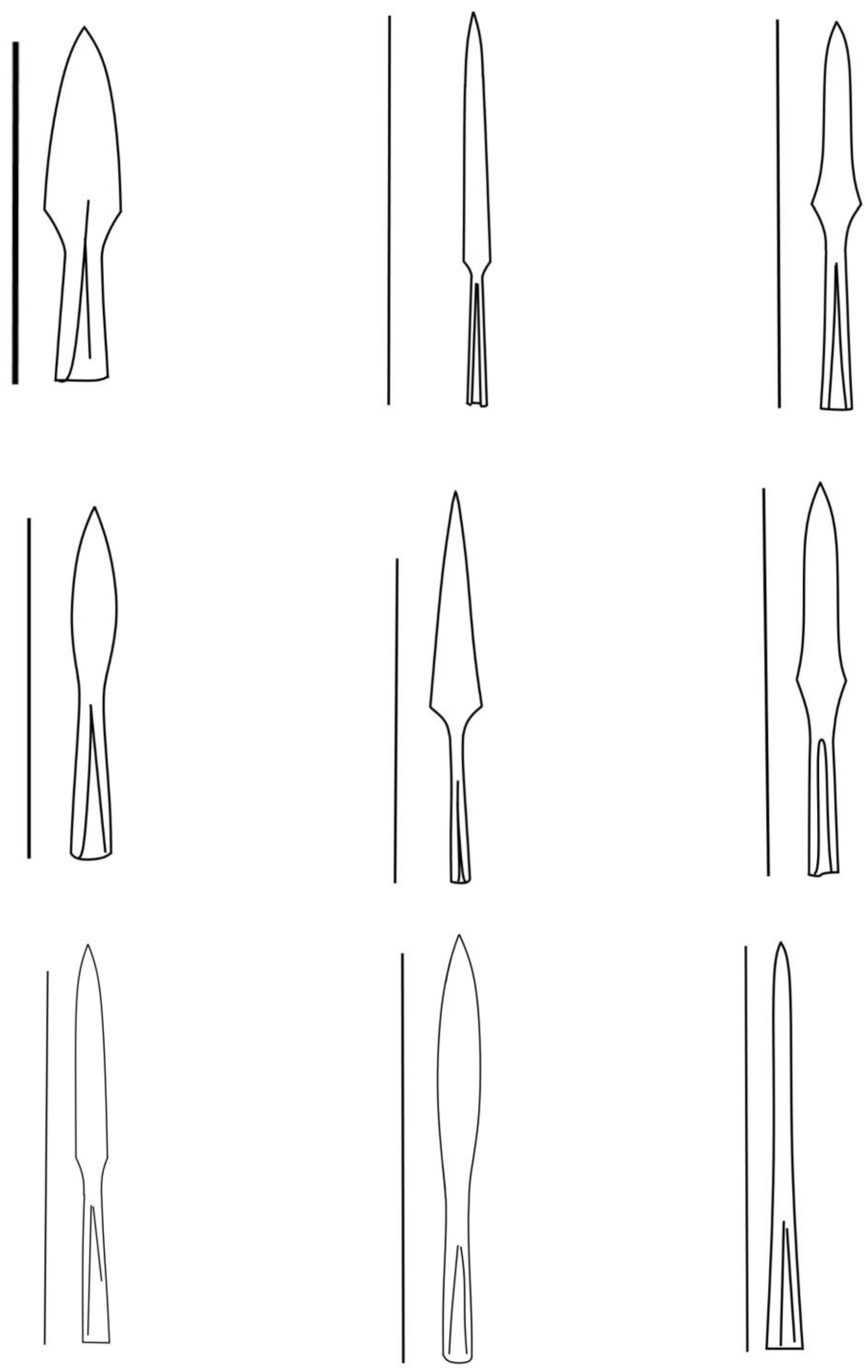

Figure A-33. Redrawn spearheads from Wasperton, West Hendred, and West Heslerton. Top, from left: Was44, Was58, Was91. Middle, from left: Was104, Was142, WHen03. Bottom, from left: WHes19, WHes72, WHes72.

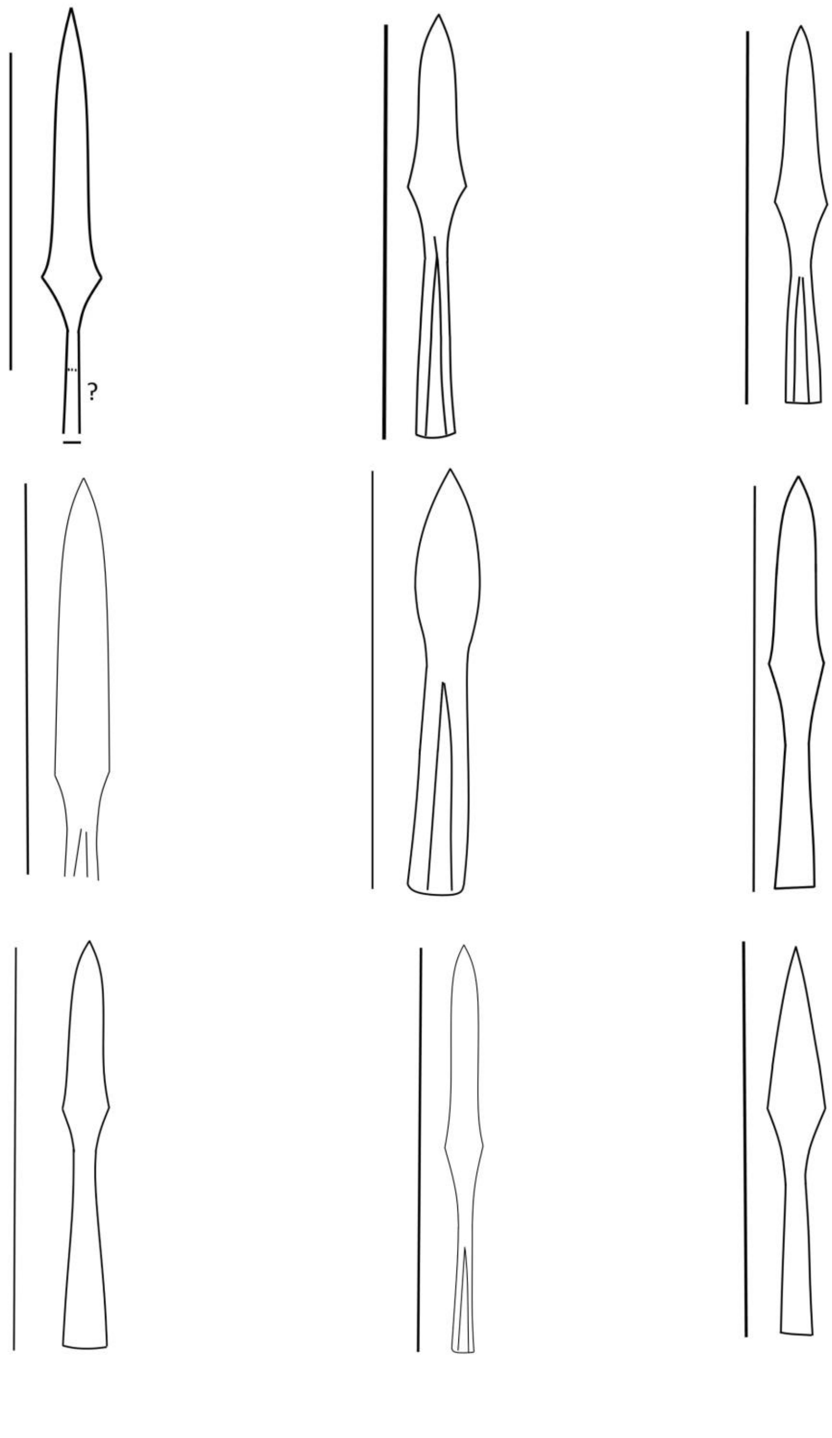

Figure A-34. Redrawn spearheads from West Heslerton. Top, from left: WHes73, WHes74, WHes74. Middle, from left: WHes151, WHes151, WHes158. Bottom, from left: WHes179, WHes183, WHes184.

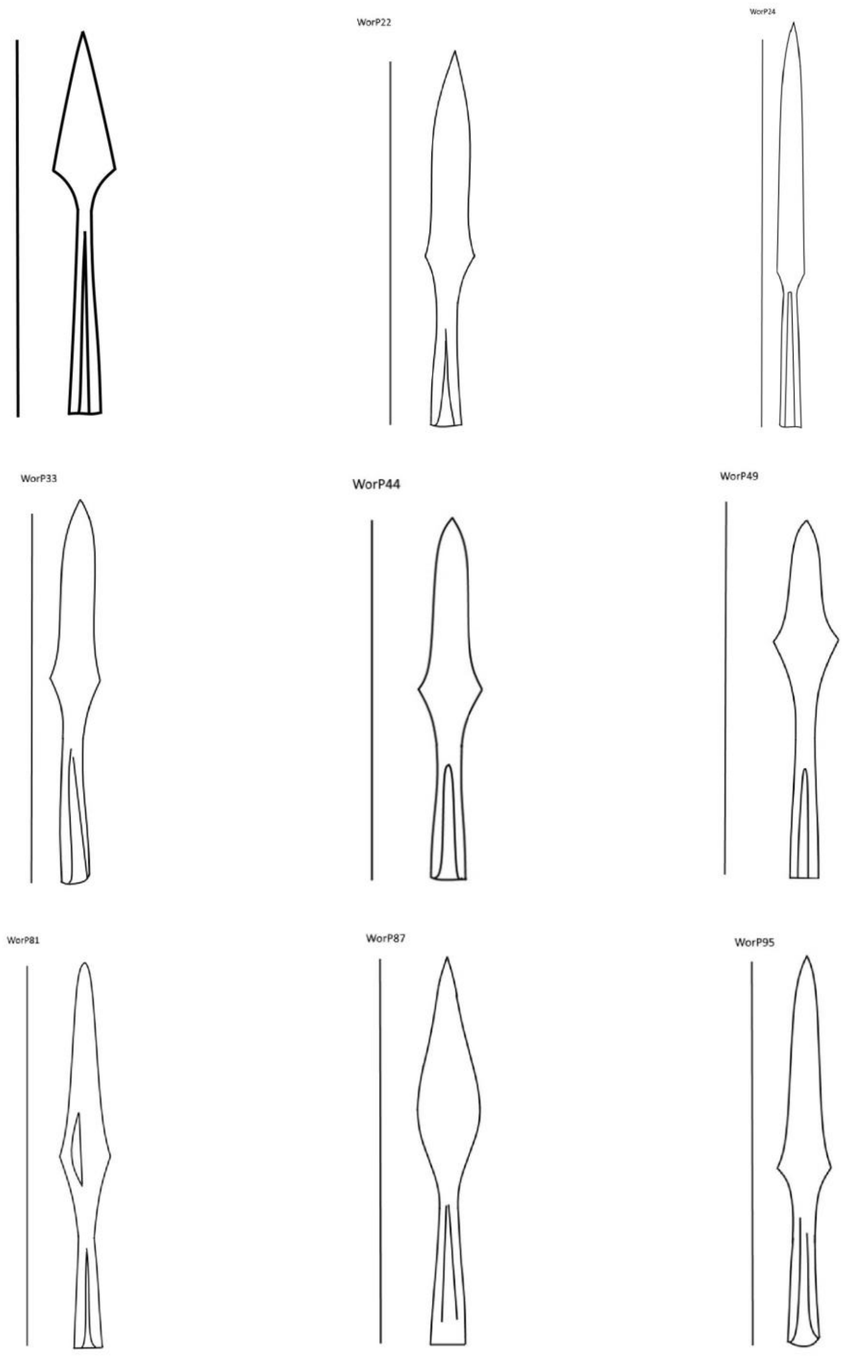

Figure A-35. Redrawn spearheads from Water Lane and Worthy Park. Top, from left: WL77, WorP22, WorP24. Middle, from left: WorP33, WorP44, WorP49. Bottom, from left: WorP81, WorP87, WorP95.

APPENDIX B
TABLE OF SPEARHEADS SKETCHED

The following table lists the sketched spearheads and the types to which each was assigned by the AHC analysis in Chapter 3. The sites and graves that correspond to the code abbreviations are listed in Appendix C.

Table B-1. Spearheads assigned new types in Chapter 3.

Code	Type
Alt01	SP-ang7
Alt01	SP-ang3
Alt02	SP-ang5
Alt02	SP-leaf-step
Alt04	SP-leaf1
Alt04	SP-ang-step
Alt06	SP-ang5
Alt07	SP-ang-fuller
Alt16	SP-ang1
Alt16	SP-ang-step
Alt34	SP-ang-fuller
Alt36	SP-ang4
Alt40	SP-ang10
Alt42	SP-ang5
Alt44	SP-ang4
Alt45	SP-ang9
Alt49	SP-leaf-fuller
BarCsk6002	SP-ang2
Bay0	SP-leaf5
BeckA02	SP-ang2
BeckA04	SP-ang4
BeckA04	SP-ang-fuller
BeckA06	SP-ang4
BeckA06	SP-ang-step
BeckA13	SP-ang6
BeckA14	SP-ang6
BeckA14	SP-ang6
BeckA22	SP-ang9
BeckA25	SP-ang4
BeckB05	SP-ang6
BeckB07	SP-ang4
BeckB47	SP-ang9
BeckB51	SP-leaf5
BeckB60	SP-ang2

Table B-1. Continued

Code	Type
BeckB64	SP-ang5
BeckB72	SP-ang5
BeckB72	SP-ang6
BeckB77	SP-leaf4
BeckB81	SP-ang6
BeckB81	SP-leaf4
BeckB92	SP-ang6
BeckB94	SP-ang8
BeckB95	SP-ang2
Bed02	SP-ang5
Ber024	SP-leaf2
Ber028	SP-ang11
Ber028	SP-ang13
Ber034	SP-ang2
Ber051	SP-leaf-step
Ber052	SP-ang11
Ber053	SP-ang4
Ber069	SP-ang5
Ber110	SP-ang2
Ber128	SP-ang2
Ber141/1	SP-leaf2
BlaP08	SP-ang-step
BlaP09	SP-ang-step
BlaP22	SP-ang11
BlaP34	SP-ang5
BlaP47	SP-leaf-fuller
BlaP62	SP-ang4
BlaP68	SP-ang6
BlaP94	SP-leaf-step
Bos74	SP-ang4
Bos74	SP-leaf4
Bos87	SP-ang-step
Bos95	SP-ang2
Bos96	SP-ang-step
Bre704	SP-ang6
BroL019	SP-ang6
BroL036	SP-ang2
BroL036	SP-ang-step
BroL100	SP-ang10
BruW12	SP-ang2
BuD000C	SP-ang9

Table B-1. Continued

Code	Type
BuD027	SP-ang3
BuD033	SP-ang11
BuD039	SP-ang7
BuD050	SP-ang2
BuD056	SP-ang11
BuD065	SP-ang7
BuD071	SP-ang10
BuD090	SP-leaf1
BuD091	SP-ang6
BuD093	SP-ang-step
BuD096a	SP-ang2
BuD096b	SP-leaf5
BuD128	SP-ang2
BuD131	SP-leaf2
BuD135	SP-leaf2
BuD137	SP-leaf1
BuD230	SP-ang10
BuD249C	SP-ang6
BuD251	SP-ang7
BuD264	SP-leaf5
BuD265B	SP-ang6
BuD297	SP-ang6
BuD375	SP-ang6
BuD414	SP-leaf5
BuD423	SP-ang6
But1306	SP-ang7
But1306	SP-
CasD06	SP-ang2
CasD161	SP-leaf4
Cle25	SP-ang5
CliE2557	SP-ang9
CliE2559	SP-ang11
CliE3066	SP-leaf1
Cod01	SP-ang10
Cod02	SP-ang3
ColD77	SP-ang5
ColD82	SP-ang4
Cux165	SP-ang3
Cux316	SP-ang3
Cux373	SP-ang7
Eas76:11	SP-leaf2

Table B-1. Continued

Code	Type
Eas76:13	SP-leaf4
Eas76:14	SP-leaf2
Eas76:17	SP-ang1
Eas76:19	SP-leaf4
Eas76:35	SP-leaf4
EH07	SP-ang4
EH12	SP-ang7
EH12	SP-ang10
EH28	SP-ang11
EH33	SP-ang6
EH46	SP-leaf-fuller
EH48	SP-leaf2
EH51	SP-ang4
EH88	SP-ang5
EmpII026C	SP-ang1
EmpII026C	SP-ang4
EmpII036	SP-ang5
EmpII045	SP-ang2
EmpII056	SP-ang3
EmpII074	SP-ang8
EmpII092	SP-ang5
EmpII106	SP-ang5
Eris104	SP-ang5
Fin006	SP-leaf4
Fin082	SP-leaf4
Fin083	SP-leaf4
Fin159	SP-leaf3
Fin170	SP-leaf1
Fin198	SP-ang7
Fin211	SP-ang4
Fli01	SP-ang4
Fli01	SP-ang2
Fli27B	SP-ang2
Fli37	SP-ang2
Fli37	SP-
Fli52	SP-ang3
Fli53	SP-ang3
GaH	SP-ang3
GCh004	SP-ang-step
GCh016A	SP-ang4
GCh022	SP-ang4

Table B-1. Continued

Code	Type
GCh022	SP-ang4
GCh065	SP-ang-fuller
GCh076	SP-ang1
GCh086	SP-ang4
GCh115	SP-ang5
GCh122	SP-ang3
GCh140	SP-ang9
GCh142	SP-ang4
GunF19	SP-ang5
KGar14	SP-leaf5
KHL26	SP-leaf4
KilF148	SP-leaf2
LCh04	SP-ang7
Lec065	SP-ang5
Lec092	SP-ang4
Lec092	SP-leaf-step
Lec102	SP-leaf4
Lec104	SP-ang3
Lec106	SP-ang5
Lec112	SP-ang6
Lec115	SP-ang8
Lec172/1	SP-leaf5
Lec172/2	SP-leaf1
MH017	SP-ang6
MH035	SP-ang6
MH040	SP-leaf3
MH079	SP-ang3
MH081	SP-ang11
MH089	SP-ang3
MH091	SP-ang12
MH093	SP-ang7
MH097	SP-leaf4
MH105C	SP-leaf4
MLav06	SP-leaf-fuller
MLav32	SP-leaf3
MLav34	SP-ang5
MLav35	SP-ang-step
Muck979	SP-leaf4
MuckI120	SP-ang2
MuckI159	SP-ang3
MuckI245	SP-leaf2

Table B-1. Continued

Code	Type
MuckI248	SP-ang6
MuckI272/101	SP-ang-step
MuckII493	SP-ang2
MuckII554	SP-ang4
MuckII556	SP-ang5
MuckII557	SP-leaf5
MuckII583	SP-leaf-step
MuckII588	SP-ang6
MuckII600	SP-ang5
MuckII618	SP-ang5
MuckII682	SP-leaf5
MuckII766	SP-ang6
MuckII789	SP-leaf5
MuckII858	SP-ang6
MuckII863	SP-leaf1
MuckII948	SP-ang6
MuckII950	SP-ang3
MuckII950	SP-ang7
MuckII954	SP-leaf2
MuckII961A	SP-ang7
MuckII965	SP-leaf5
PL09	SP-leaf-fuller
PL17	SP-ang2
PL339	SP-ang3
PW7010	SP-leaf4
PW7049	SP-ang11
PW7067	SP-ang3
Quar01	SP-ang6
SancA307	SP-leaf2
SH27	SP-ang5
SH31	SP-ang2
SH36	SP-ang-fuller
SH40	SP-ang6
SH41	SP-ang5
SH49	SP-ang5
SH51	SP-ang4
ShaF01	SP-ang-step
ShaF03	SP-ang10
Sna03	SP-ang2
Sna06	SP-ang7
Sna47	SP-leaf1

Table B-1. Continued

Code	Type
Sna47	SP-leaf1
Sna47	SP-leaf5
SpL2674	SP-leaf4
SpL4966	SP-ang5
SpL6545	SP-leaf5
SpL6545	SP-leaf1
SpL6609	SP-ang5
SprI2101	SP-ang8
SprII2134	SP-leaf2
SprII2620	SP-leaf4
StM5352	SP-leaf4
StM5352	SP-leaf5
StM5488	SP-ang10
StM5537	SP-leaf4
StM5537	SP-leaf4
StrFF10	SP-leaf1
StrFF100	SP-ang1
StrFF88	SP-ang6
StrFF95	SP-ang5
StrFF96	SP-ang1
StrFF96	SP-ang6
TH47	SP-ang3
Tid02	SP-ang5
Tid03	SP-
Tid04	SP-ang4
TraH14	SP-ang11
TraH16	SP-ang7
TraH17	SP-leaf4
TraH21	SP-ang2
TraH23	SP-leaf4
TraH24	SP-ang11
TraH24	SP-ang11
TraH27	SP-leaf2
TraH28	SP-ang7
TraH32	SP-leaf2
Was06	SP-ang6
Was10	SP-ang5
Was104	SP-leaf4
Was142	SP-ang7
Was22	SP-ang7
Was23	SP-ang9

Table B-1. Continued

Code	Type
Was33	SP-ang5
Was44	SP-ang1
Was44	SP-ang6
Was58	SP-ang11
Was91	SP-ang5
WHen03	SP-ang5
WHes151	SP-
WHes151	SP-leaf1
WHes158	SP-ang-fuller
WHes179	SP-ang5
WHes183	SP-ang6
WHes184	SP-ang2
WHes19	SP-ang3
WHes72	SP-leaf1
WHes72	SP-leaf2
WHes73	SP-ang11
WHes74	SP-ang4
WL77	SP-ang2
WorP22	SP-ang6
WorP24	SP-ang7
WorP33	SP-ang-step
WorP44	SP-ang4
WorP49	SP-ang-step
WorP81	SP-ang-fuller
WorP87	SP-leaf-step
WorP95	SP-ang5

APPENDIX C
PHASE ASSIGNMENTS FOR GRAVES IN THE CHRONOLOGICAL MODEL

The following table details the phases assigned to the graves using the chronological model in Chapter 3.

Table C-1. Phase assignments in the chronological model.

Code	Site	Grave Number	Phase
Alt01	Alton	1	E
Alt01	Alton	1	E
Alt02	Alton	2	B
Alt02	Alton	2	B
Alt04	Alton	4	D
Alt04	Alton	4	D
Alt16	Alton	16	D
Alt16	Alton	16	D
Alt42	Alton	42	B
Alt45	Alton	45	B
BarCsk6002	Barrow Clump, Figheldean	6002	C
Bay0	Bayfield	n/a	E
BeckA02	Beckford A	2	C
BeckA06	Beckford A	6	B
BeckA13	Beckford A	13	B
BeckA14	Beckford A	14	A
BeckA14	Beckford A	14	A
BeckA22	Beckford A	22	B
BeckA25	Beckford A	25	A
BeckAA4	Beckford A	4	A
BeckAA4	Beckford A	4	A
BeckB05	Beckford B	5	B
BeckB07	Beckford B	7	B
BeckB47	Beckford B	47	A
BeckB51	Beckford B	51	C
BeckB64	Beckford B	64	A
BeckB77	Beckford B	77	C
BeckB92	Beckford B	92	C
BeckB94	Beckford B	94	A
BeckB95	Beckford B	95	C
BeckBB72	Beckford B	72	B
BeckBB72	Beckford B	72	B
BeckBB81	Beckford B	81	C
BeckBB81	Beckford B	81	C
Bed02	Beddingham	2	C
Ber028	Berinsfield	28	C

Table C-1. Continued.

Code	Site	Grave Number	Phase
Ber028	Berinsfield	28	C
Ber034	Berinsfield	34	C
Ber051	Berinsfield	51	A
Ber052	Berinsfield	52	D
Ber053	Berinsfield	53	B
Ber069	Berinsfield	69	A
Ber110	Berinsfield	110	C
Ber128	Berinsfield	128	U
Ber141/1	Berinsfield	141/1	C
Ber24	Berinsfield	24	C
Bi43	Bifrons	43	A
BlaP08	Blacknall Field, Pewsey	8	B
BlaP09	Blacknall Field, Pewsey	9	B
BlaP22	Blacknall Field, Pewsey	22	B
BlaP34	Blacknall Field, Pewsey	34	A
BlaP47	Blacknall Field, Pewsey	47	A
BlaP62	Blacknall Field, Pewsey	62	B
BlaP68	Blacknall Field, Pewsey	68	B
BlaP94	Blacknall Field, Pewsey	94	A
Bos074	Boss Hall	74	C
Bos074	Boss Hall	74	C
Bos074	Boss Hall	74	C
Bos087	Boss Hall	87	C
Bos095	Boss Hall	95	C
Bos096	Boss Hall	96	C
Bre704	Breamore	704	C
BroL019	Broughton Lodge	19	B
BroL100	Broughton Lodge	100	D
BroL36	Broughton Lodge	36	C
BroL36	Broughton Lodge	36	C
BruW12	Brunel Way	12	B
BuD000C	Dover, Buckland	C	B
BuD027	Dover, Buckland	27	D
BuD033	Dover, Buckland	33	D
BuD039	Dover, Buckland	39	E
BuD056	Dover, Buckland	56	E
BuD065	Dover, Buckland	65	D
BuD071	Dover, Buckland	71	E
BuD090	Dover, Buckland	90	D
BuD091	Dover, Buckland	91	C
BuD093	Dover, Buckland	93	D
BuD096a	Dover, Buckland	96a	C

Table C-1. Continued.

Code	Site	Grave Number	Phase
BuD096b	Dover, Buckland	96b	C
BuD128	Dover, Buckland	128	D
BuD131	Dover, Buckland	131	D
BuD135	Dover, Buckland	135	E
BuD137	Dover, Buckland	137	E
BuD230	Dover, Buckland	230	C
BuD249C	Dover, Buckland	249C	C
BuD251	Dover, Buckland	251	E
BuD264	Dover, Buckland	264	D
BuD265B	Dover, Buckland	265B	A
BuD297	Dover, Buckland	297	C
BuD375	Dover, Buckland	375	C
BuD414	Dover, Buckland	414	C
BuD423	Dover, Buckland	423	C
BuD50	Dover, Buckland	50	C
But1306	Buttermarket	1306	F
But3659	Buttermarket	3659	F
CasD06	Castledyke South	6	C
CasD161	Castledyke South	161	E
Cle25	Cleatham	25	B
CliE2557	Cliff's End Farm, Ramsgate	2557	C
CliE2559	Cliff's End Farm, Ramsgate	2559	D
CliE3066	Cliff's End Farm, Ramsgate	366	D
Cod01	Shrubland Hall Quarry	1	F
Cod02	Shrubland Hall Quarry	2	E
ColD77	Collingbourne Ducis	77	A
ColD82	Collingbourne Ducis	82	A
Cux165	Cuxton	165	E
Cux316	Cuxton	316	E
Cux373	Cuxton	373	E
Eas76:11	Updown (Eastry III)	11	E
Eas76:13	Updown (Eastry III)	13	E
Eas76:14	Updown (Eastry III)	14	E
Eas76:17	Updown (Eastry III)	17	C
Eas76:19	Updown (Eastry III)	19	E
Eas76:35	Updown (Eastry III)	35	D
EH007	Edix Hill (Barrington A)	7	B
EH012	Edix Hill (Barrington A)	12	E
EH012	Edix Hill (Barrington A)	12	E
EH028	Edix Hill (Barrington A)	28	C
EH033	Edix Hill (Barrington A)	33	B
EH046	Edix Hill (Barrington A)	46	A

Table C-1. Continued.

Code	Site	Grave Number	Phase
EH048	Edix Hill (Barrington A)	48	E
EH051	Edix Hill (Barrington A)	51	B
EH088	Edix Hill (Barrington A)	88	B
EmpII026C	Empingham II	26C	B
EmpII026C	Empingham II	26C	B
EmpII036	Empingham II	36	A
EmpII045	Empingham II	45	B
EmpII056	Empingham II	56	C
EmpII074	Empingham II	74	A
EmpII092	Empingham II	92	B
Fin006	Finglesham	6	E
Fin083	Finglesham	83	E
Fin159	Finglesham	159	D
Fin170	Finglesham	170	E
Fin198	Finglesham	198	E
Fin204	Finglesham	204	C
Fin211	Finglesham	211	B
Fin82	Finglesham	82	E
Fli01	Flixton II	1	C
Fli01	Flixton II	1	C
Fli27B	Flixton II	27B	D
Fli37	Flixton II	37	B
Fli52	Flixton II	52	E
Fli53	Flixton II	53	E
GCh04	Great Chesterford	4	B
GCh115	Great Chesterford	115	B
GCh122	Great Chesterford	122	C
GCh140	Great Chesterford	140	B
GCh142	Great Chesterford	142	A
GCh16A	Great Chesterford	16A	B
GCh22	Great Chesterford	22	A
GCh65	Great Chesterford	65	A
GCh76	Great Chesterford	76	C
GCh86	Great Chesterford	86	A
GunF19	Gunthorpe	19	A
KGar14	Kings Garden Hostel	14	D
KHL26	King Harry Lane, Verulamium	26	E
KilF148	Kilverstone	148	D
LCh04	Little Chester, Derby	4	C
Lec040	Lechlade	40	F
Lec040	Lechlade	40	F
Lec065	Lechlade	65	A

Table C-1. Continued.

Code	Site	Grave Number	Phase
Lec092	Lechlade	92	A
Lec092	Lechlade	92	A
Lec102	Lechlade	102	C
Lec104	Lechlade	104	E
Lec106	Lechlade	106	A
Lec115	Lechlade	115	A
Lec172/1	Lechlade	172/1	U
MH017	Mill Hill	17	C
MH035	Mill Hill	35	C
MH040	Mill Hill	40	C
MH089	Mill Hill	89	C
MH091	Mill Hill	91	U
MH093	Mill Hill	93	D
MH097	Mill Hill	97	C
MH105C	Mill Hill	105C	C
MH79	Mill Hill	79	E
MLav06	Market Lavington	6	A
MLav32	Market Lavington	32	C
MLav34	Market Lavington	34	B
MLav35	Market Lavington	35	C
Muck120	Mucking I	120	C
Muck557	Mucking II	557	C
Muck588	Mucking II	588	C
Muck600	Mucking II	600	A
Muck948	Mucking II	948	B
Muck950	Mucking II	950	E
Muck950	Mucking II	950	E
Muck954	Mucking II	954	E
Muck961A	Mucking II	961A	E
Muck965	Mucking II	965	D
MuckI159	Mucking I	159	C
MuckI245	Mucking I	245	C
MuckI248	Mucking I	248	B
MuckI272/101	Mucking I	272/101	C
MuckII493	Mucking II	493	C
MuckII554	Mucking II	554	A
MuckII556	Mucking II	556	A
MuckII583	Mucking II	583	B
MuckII618	Mucking II	618	B
MuckII682	Mucking II	682	C
MuckII766	Mucking II	766	C
MuckII789	Mucking II	789	C

Table C-1. Continued.

Code	Site	Grave Number	Phase
MuckII858	Mucking II	858	C
MuckII863	Mucking II	863	C
PL09	Park Lane	9	A
PL147	Park Lane	147	B
PL147	Park Lane	147	B
PL17	Park Lane	17	C
PL339	Park Lane	339	D
PW7010	Pilgrim's Way	7010	E
PW7049	Pilgrim's Way	7049	E
PW7067	Pilgrim's Way	7067	D
Quar01	Quarrington II	1	B
SancA307	Sancton	A307	E
SH27	Spong Hill	27	B
SH31	Spong Hill	31	B
SH36	Spong Hill	36	A
SH40	Spong Hill	40	C
SH41	Spong Hill	41	A
SH49	Spong Hill	49	A
SH51	Spong Hill	51	A
ShaF01	Shavards Farm	1	C
ShaF03	Shavards Farm	3	F
Sna03	Snape	3	C
Sna06	Snape	6	D
Sna47	Snape	47	D
Sna47	Snape	47	D
Sna47	Snape	47	D
SpL2674	Springfield Lyons	2674	C
SpL4966	Springfield Lyons	4966	A
SpL6545	Springfield Lyons	6545	D
SpL6545	Springfield Lyons	6545	D
SpL6609	Springfield Lyons	6609	B
SprII2134	Springhead 300258	2134	D
SprII2620	Springhead 300258	2620	E
StM5352	St Mary's Stadium	5352	E
StM5352	St Mary's Stadium	5352	E
StM5488	St Mary's Stadium	5488	E
StM5537	St Mary's Stadium	5537	F
StM5537	St Mary's Stadium	5537	F
StrFF10	Stretton-on-Fosse	10	C
StrFF100	Stretton-on-Fosse	100	C
StrFF88	Stretton-on-Fosse	88	B
StrFF95	Stretton-on-Fosse	95	B

Table C-1. Continued.

Code	Site	Grave Number	Phase
StrFF96	Stretton-on-Fosse	96	B
TH10	Temple Hill	10	C
TH47	Temple Hill	47	E
Tidw2	Tidworth	2	A
Tidw4	Tidworth	4	B
TraH14	Tranmer House, Bromeswell	14	C
TraH16	Tranmer House, Bromeswell	16	C
TraH17	Tranmer House, Bromeswell	17	D
TraH21	Tranmer House, Bromeswell	21	C
TraH23	Tranmer House, Bromeswell	23	D
TraH24	Tranmer House, Bromeswell	24	C
TraH27	Tranmer House, Bromeswell	27	C
TraH28	Tranmer House, Bromeswell	28	D
TraH32	Tranmer House, Bromeswell	32	D
Was06	Wasperton	6	C
Was10	Wasperton	10	B
Was104	Wasperton	104	D
Was142	Wasperton	142	F
Was22	Wasperton	22	D
Was23	Wasperton	23	B
Was33	Wasperton	33	B
Was44	Wasperton	44	C
Was44	Wasperton	44	C
Was58	Wasperton	58	C
Was91	Wasperton	91	B
WHen03	West Hendred	3	B
WHes158	West Heslerton	158	A
WHes179	West Heslerton	179	B
WHes183	West Heslerton	183	B
WHes184	West Heslerton	184	B
WHes19	West Heslerton	19	D
WHes72	West Heslerton	72	D
WHes72	West Heslerton	72	D
WHes73	West Heslerton	73	C
WHes74	West Heslerton	74	C
WHes74	West Heslerton	74	C
WL77	Water Lane, Melbourn	77	D
WorP22	Worthy Park, Kingsworthy	22	C
WorP24	Worthy Park, Kingsworthy	24	D
WorP33	Worthy Park, Kingsworthy	33	B
WorP44	Worthy Park, Kingsworthy	44	A
WorP49	Worthy Park, Kingsworthy	49	C

Table C-1. Continued.

Code	Site	Grave Number	Phase
WorP81	Worthy Park, Kingsworthy	81	A
WorP87	Worthy Park, Kingsworthy	87	A
WorP95	Worthy Park, Kingsworthy	95	A

APPENDIX D
LIST OF SITES EXAMINED USING METALLOGRPAHIC ANALYSIS

Forty swords were analyzed from fourteen fifth- through seventh-century sites. Brian Gilmour analyzed twenty swords dating between the 5-7th centuries, from the following sites:

- Aylesford (Kent, x1)
- Bifrons (Kent, x2)
- Chesterton (Cambs., x1)
- Eastry (Kent, x1)
- Holborough (Kent, x1)
- Lenham (Kent, x1)
- Loveden Hill (Lincs., x1)
- Mitcham (Surrey, x2)
- Sarre (Kent, x5)
- Sarre or Wickhambreux (Kent, x2)
- Unrecorded site in Kent (x1).[740]
- Bifrons (Kent, x2)

Gilmour also identified a sword buried at Castledyke South (Lincs).[741] He examined ten further swords from Saltwood Tunnel (Kent), and four from Park Lane, Croydon (Surrey).[742] Janet Lang examined five swords from Dover Buckland (Kent).[743]

118 knives were examined from eleven fifth- through seventh-century sites. Brian Gilmour and Chris Salter examined eighteen knives from the Edix Hill (Cambs.) cemetery.[744] Gerry McDonnell examined fourteen knives from the southwestern British cemetery at

[740] Tylecote and Gilmour, *The Metallography of Early Ferrous Edge Tools and Edged Weapons.*

[741] G. Drinkall, M. Foreman, and M.G. Welch, *The Anglo-Saxon Cemetery at Castledyke South, Barton-on-Humber*, Sheffield Excavation Reports 6 (Sheffield: Collis, 1998), 243-44, Mf. 2.C13-D5.

[742] Gilmour, “Metallurgical analyses on Early Anglo-Saxon grave goods from Saltwood Tunnel”; McKinley, 97-100.

[743] J. Lang, “Metallographic Study: Five Swords,” in *Buckland Anglo-Saxon Cemetery: Dover Excavations 1994*, ed. by K. Parfitt and T. Anderson, 237-66 (Canterbury Archaeological Trust, 2012).

[744] Gilmour and Salter.

Cannington (Som.).[745] McDonnell also examined several knives from the Loveden Hill cemetery.[746] Karen Wiemer analyzed twelve knives from the Empingham II (Leics.) cemetery.[747] David Starley examined six knives from the Wasperton (Warwicks.) cemetery. Tylecote analyzed seven knives from the Poundbury (Dor.) settlement site.[748] Tylecote also examined five, and Eleanor Blakelock a further fifteen, knives from the West Stow (Suff.) settlement.[749] Blakelock examined knives from four further sites for her PhD thesis: the Collingborne Ducis (Wilts.) cemetery (x25); Gwithian (Corn.) settlement (x4); Quarrington (Lincs.) cemetery (x6); and Twyford (Hants.) cemetery (x5).[750]

Seventy spearheads were analyzed from eleven fifth- through seventh-century cemetery sites. Vanessa Fell and David Starley examined three spearheads from Boss Hall (Suff.).[751] Starley examined eight further spearheads from Wasperton.[752] Gilmour and Salter analyzed

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[745] G. McDonnell, "Metallurgical analyses of fourteen iron knives and three other iron artefacts from Cannington, Somerset," *Ancient Monument Laboratory Report* 89 no. 9 (London: Historic England, 1989).

[746] G. McDonnell, "Metallurgical analysis of iron artefacts from Lovedon Hill, Lincolnshire," *Ancient Monument Laboratory Report* 89 no. 132 (London: Historic England, 1989).

[747] J.R. Timby and A. Bartlett, *The Anglo-Saxon Cemetery at Empingham II, Rutland: Excavations Carried out Between 1974 and 1975*, Oxbow Monograph Series 70 (Oxford: Oxbow, 1996), 76-85.

[748] R.F. Tylecote, "A report on the metallurgical analyses of the knives from Poundbury," in *Excavations at Poundbury, Dorchester, Dorset 1966-1982: Volume 1 the Settlements*, by S.P. Green, Dors. Nat. Hist. and Archaeol. Soc. Monogr. Ser. 7 (Dorset: Dorset Natural History and Archaeological Society, 1987).

[749] Tylecote and Gilmour; E. Blakelock, "The Early Medieval Cutting Edge of Technology: An Archaeometallurgical, Technological and Social Study of the Manufacture and Use of Anglo-Saxon and Viking Iron Knives, and their Contribution to the Early Medieval Iron Economy," Ph.D. Diss., University of Bradford, 2012.

[750] Blakelock, "The Early Medieval Cutting Edge"; K. Dinwiddy and N. Stoodley, *An Anglo-Saxon Cemetery at Collingbourne Ducis, Wiltshire*, Wessex Archaeology Report 37 (Salisbury: Wessex Archaeology, 2016).

[751] V. Fell and D. Starley, "A technological study of ferrous blades from the Anglo-Saxon cemeteries at Boss Hall and St Stephen's Lane Buttermarket, Ipswich, Suffolk," *Ancient Monuments Laboratory Report* 99 no. 18 (1999), available at: http://services.english-heritage.org.uk/ResearchReportsPdfs/018-1999.pdf (accessed 3 April 2017)

[752] Starley, "The metallurgical examination."

twenty spearheads from Edix Hill.[753] Gilmour also analyzed seven spearheads and three angons from Saltwood Tunnel.[754] Gilmour examined two further spearheads from Broom Hill Quarry (Beds.) and Sancton (Yorks.).[755] Janet Lang analyzed four spearheads from Dover Buckland.[756]. Lang also analyzed five spearheads from Flixton II (Suff.).[757] Lang, with Q. Wang, evaluated five further spearheads from Tranmer House (Suff.).[758] Tylecote analyzed a spearhead from Sewerby (Yorks.).[759] Doug Moir analyzed twelve spearheads from West Heslerton (Yorks.).[760]

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753 Gilmour and Salter.

754 Gilmour, "Metallurgical analyses on Early Anglo-Saxon grave goods from Saltwood Tunnel."

755 K. Leahy, *Anglo-Saxon Crafts* (Stroud: Tempus, 2003), 127-28; B. Gilmour, "Analysis of the spearhead from A307," in "Sancton I Anglo-Saxon cemetery excavations carried out between 1976 and 1980," by J. Timby, *The Archaeological Journal* 150 (1993): 243-365, esp. M 2/25.

756 J. Lang, "Metallographic study: Four spearheads," in *Buckland Anglo-Saxon cemetery: Dover excavations 1994*, ed. by K. Parfitt and T. Anderson, 269-73 (Canterbury Archaeological Trust, 2012).

757 J. Lang, "The metallurgy of the spearheads," in *Circles and Cemeteries: Excavations at Flixton,* ed. by S. Boulter and P. Walton Rogers, 131-32, East Anglian Archaeology Reports 147 (Bury St Edmunds: Suffolk County Council Archaeological Service, 2012); J. Lang, "Flixton Spearheads: A Technical Examination," Unpublished metallographic analysis (summarized in Lang 2012b).

758 J. Lang and Q. Wang, "Metallurgical Analysis of the Spearheads," in *Before Sutton Hoo: The Prehistoric Remains and Early Anglo-Saxon Cemetery at Tranmer House, Bromeswell, Suffolk*, by C.J.R. Fern, East Anglian Archaeology Reports 155 (Bury St Edmunds: Suffolk County Council Archaeological Service, 2015), 121-23.

759 R.F. Tylecote, "Metallurgical Examination of Iron from Sewerby (East Yorks.) Pagan Saxon Cemetery," *Ancient Monument Laboratory Report* (1982).

760 D. Moir, "The metallographic and scanning electron microscope analysis of some iron spearheads from the Anglian cemetery at West Heslerton, North Yorkshire," in *Paléométallurgie du fer & cultures*, by P. Benoit and P. luzin, 453-63 (Vulcain, 1995); D. Moir, "The metallographic and scanning electron microscope analysis of nine spearheads from the Anglian cemetery at West Heslerton, North Yorkshire," MA Thesis, University of Bradford, 1990.

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BIOGRAPHICAL SKETCH

Andrew Welton spent his childhood in Western Pennsylvania in the foothills of the Appalachian Mountains, where he attended Grove City College ('10) for his undergraduate degree in History. He began his study at the University of Florida in 2010, earning his M.A. in 2012. He completed his Ph.D. at the University of Florida in 2018. Andrew joined his first archaeological project as an undergraduate, traveling to Carthage, Tunisia, to catalog finds from a second-century Roman house. He also excavated at Lyminge, Kent, the site of an early Anglo-Saxon period great hall complex. Not content to restrict his study of history to the library or museum, Andrew has spent most of his life learning to recreate medieval objects and artifacts. He has taught himself to sew, spin, and weave, to blacksmith, and to brew, and has recreated replicas of Early Medieval antler combs, lyres, ceramics, and shoes—and of course, many spearheads.