
The Mandate for Speculation: Responding to Uncertainty in Archaeological Thinking

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The aim of the article is to reframe speculation from being seen as synonymous with unacademic conjecture, or as a means for questioning consensus and established narratives, to becoming a productive practical engagement with the archaeological and responding to its intrinsic uncertainties. In the first part of the article, we offer a review of speculation in the history of archaeological reasoning. In the second part, we proceed to discussing ways of embracing the speculative mandate, referring back to our engagements with the art/archaeology project Ineligible and reflections on how to work with the unknowns and uncertainties of archaeology. In the third and last part, we conclude by making the case for fertilizing the archaeological potential nested in the empirical encounter, creating more inceptions than conclusions, fostering ambiguities, contradictions and new spaces of experiential inquiry. This leads us to suggest that—when working with the archaeological—speculation should be seen not only as a privilege, but also as an obligation, due to the inherent and inescapable uncertainties of the discipline. In other words, archaeology has been given a mandate for speculation through its material engagements.

Thy bones are marrowless, thy blood is cold.
Thou hast no speculation in those eyes
Macbeth, Act 3, Scene 4

From leather, bark and bone

In the spring of 2019, Doug Bailey invited the three of us—alongside 79 other archaeologists and artists—to contribute to an art/archaeology project, co-curated with Sara Navarro, titled *Ineligible* (Bailey & Navarro 2020a,b). For the project, each of us was given a ‘mystery box’ (our term, not Bailey’s) with material to work with. Anna was given a box containing a traditional archaeological field bag with fragmented leather and some pieces of thick wooden bark. The leather was twisted, and its surface cracked from drying up, but it was still discernible that it had once been a pair of shoe soles. The bark was fragmented, and parts of it had turned into a dark brown dust that covered everything in the bag.

Marko was handed a zip-lock bag full of brown unburned bones that on closer examination looked like cow ribs. Tim received a cardboard box containing a collection of four fragmented and cut animal bones, at first assumed to be sheep or goat, but later identified as horse vertebrae. At the time, Bailey provided us with little or no context for the material, only informing us that the finds derived from an excavation in downtown San Francisco without disclosing further details about dating, context, culture-historical background, or the like. He only informed us that the material had been decommisioned by the responsible archaeological authority, and that he was given the opportunity to adopt the material, then deciding to redistribute it into the world as part of *Ineligible* (for further details, see Bailey 2020).

Thus, the things given to us to work with arrived in our possession with no labels, contextual information or other forms of metadata. In this

sense, the dried-up leather soles, cow ribs and horse vertebrae were no different from most other archaeological material: all archaeological matter initially constitutes as an encounter with a kind of ‘mystery box’ like the ones we received in 2019. ‘The archaeological’ is inherently the confrontation with something as yet unknown, strange and partial, and the nature of this encounter calls for a response on the archaeologist’s part. The aim of this article is not to detail what we ended up submitting to Bailey for his art/archaeology project (see instead Marila 2020; Sørensen 2023b). Instead we will dwell on our processes of reacting to the confrontation with the archaeological material in the mystery boxes. We thus want to use our responses to Bailey’s invitation as a springboard for looking more closely at the ways in which we encountered the archaeological. We believe this process has something to say about the role of speculation in archaeology, and in particular about the relationship between archaeological material and thinking in archaeology. Our point is that encountering the not-yet-familiar is at the heart of the empirical archaeological process, and that *speculation* is crucial to this engagement. We use this to recast the notion of speculation in archaeology, relieving it from its conventional reference to conjectural conclusions, interpretations and explanations. Instead, we see it as denoting a practical and experiential event, which is determined to remain committed to the inherent *interstitiality* of the archaeological: its incompleteness, unknowns and alterity.

Importantly, we do not claim to be outlining a radically new take on the archaeological in any way, but instead to juxtapose and address qualities already present in archaeological literature and practice. Therefore, in the first part of the article, we offer a review of speculation in the history of archaeological reasoning, charting various attitudes to speculation and its perceived merits and dangers. In the second part of the article, we proceed to discussing ways of embracing the speculative mandate referring back to our engagements with the mystery boxes, yet focusing on how this has stimulated reflections on a hands-on empirical approach to working with the unknowns and uncertainties of archaeology. In the third and last part of the article, we conclude by making the case for fertilizing the potential nested in the empirical archaeological encounter, creating more inceptions than conclusions. Altogether, we hope to be able to argue convincingly for a reframing of speculation as a productive practical engagement with the archaeological and its inherent uncertainties.

Archaeological anxieties

In 1955, at a time when archaeology was developing rapidly through its integration with the natural sciences—with the advances of radiocarbon dating and pollen analysis among other methods—British archaeologist Margaret Smith (1955) deemed archaeological inference a hopeless task. Her epistemic pessimism was partly animated by the realization that there is no direct and logical link between past realities and archaeological remains. A great number of possible explanations, she argued, *could* account for observed archaeological remains, and she took the multiplicity of possible explanations to question ‘how far archaeological cultures correspond to actual societies’ (Smith 1955, 6): archaeologists can produce multiple equally valid explanations for the same material assemblage, rendering it impossible to decide which explanation is correct. If archaeology’s ultimate goal were to be ‘the re-creation of the past’, as Smith argued via Mortimer Wheeler (Wheeler 1950; Smith 1955, 4), how can one do justice to the actual complexities of the past, rather than randomly choosing an explanation made possible by the archaeological remains, but at the same time restricted to and by the very same material? Smith considered archaeology helpless in front of all the untestable conjectures that the archaeological material can afford, and she opted for a Berkeleyan idealism instead, contending that archaeology should never aim to re-create or reconstruct the past, but only *recover* and *describe* its fragmented material remains (Smith 1955, 7).

To some readers, this outline may appear as an unnecessary rehearsal of worn-out or clichéd concerns in archaeology: What are the limits of knowledge in archaeology, and how should archaeologists respond to such limits? Some would contend that archaeological methodology after Smith has moved well beyond the problems she identified. It may be argued that Smith’s concerns have been resolved by the stringent scientific research designs of the New Archaeologies, or relieved by the interpretative mediations of post-processualism. Others may consider the discipline replenished by the speedy acceleration of scientific methods, currently highlighted by many archaeologists as a means of doing away with past uncertainties, offering a renewed potential for establishing ‘absolute knowledge’ of the past (Marila 2019). All these advances after Smith, some might argue, render her worries redundant.

Nevertheless, we argue that the basic challenges to archaeology, identified by Smith, have never really

been resolved, nor will it ever be possible to eliminate them. We hold archaeology to be inescapably characterized by the condition that some things disappear, while other things linger (Lucas 2015), which is why David Clarke (1973, 17) defined archaeology as the discipline of ‘indirect traces in bad samples’. The archaeological record is a form of ‘dark matter’ marked by absence, fragmentation, vagueness, and occasional tracelessness (Sørensen 2021b). Our hesitation or doubt may sound like a wholesale dismissal of archaeology, representing a pessimism on behalf of the discipline akin to the one formulated by Smith. However, what we want to suggest is that the limits of knowledge should not be perceived as incapacitating archaeology. Rather, the limits of knowledge are in fact an opening for the discipline to generate contributions that exceed documentation, proof, evidence, falsification, or validation, offering the discipline several open-ended possibilities in any attempt to account for, reconstruct, explain, model, or interpret the past. Following feminist critics (e.g. Conkey 2007; Conkey & Gero 1991; Gero 2007; Pétursdóttir & Sørensen 2023; Wylie 1993; 2002), we want to propose that the blurry and chronically unstable limits of knowledge bestow upon the discipline of archaeology *a mandate for speculation*. Importantly, we contend that speculation is precisely a *mandate*: it is at the same time a privilege and an obligation, arising from the fact that there are things archaeology simply cannot know *with certainty* but nevertheless must engage with.

Positioning our epistemological approach thus, we realize that we may be moving speedily into the mire of old and perhaps all too familiar problems. Since we argue archaeology should not *only* be concerned with ‘getting it right’ in the explanation or interpretation of the archaeological record, we might seem to succumb to some kind of crippling radical relativism or a free-floating archaeology, where all postulates about the past are equally valid. If archaeologists cannot know with absolute certainty whether their explanation or interpretation of events transpiring thousands of years ago are correct, are we then simply suggesting that archaeologists might just as well ‘jump on the post-processual archaeological band wagon, and thereby become free to create their own unique picture of the past’ (Blehr 1993, 30)?

While we do not categorically want to rule out the usefulness of imaginative conjecture, or what Alison Wylie calls ‘armchair speculation’ (2002, 21) or ‘arbitrary speculation’ (2002, 131), we frame speculation in a different way: as a mode of exploring ways of intensifying the experience of ‘the

archaeological’ beyond retrospective explanations or interpretations of past realities. For us, speculation is nested in a slow empiricist approach: it depends on archaeological traces, yet it is not restricted to producing factual knowledge or compensating for blanks in existing narratives, but will open trajectories in the event of encountering archaeological matter. We thus seek to reclaim speculation by referring back to its Old French etymology,¹ denoting ‘close observation, rapt attention’, and associated with it, ‘intelligent contemplation, consideration; act of looking’. A definition of speculation along these lines implies a necessary propinquity with ‘the archaeological’, which does not describe a field or a discipline, or a class of objects, but *an experience and a practice* (Shanks 1995, 54–5), and, as such, defining where all engagements with ‘the archaeological’ begin. It is the cultivation of the *encounter* in such experience and practice we wish to pursue in this article, exploring how archaeology can own up to its speculative mandate (see also Pétursdóttir & Sørensen 2023; Sørensen 2021a).

Trajectories of speculation in archaeological thinking: an historical review

Before venturing on to our attempt at reclaiming speculation in archaeological thinking, we want briefly to survey some of the dominant tropes associated with speculation and its contested role in the discipline. As we see it, these are closely associated with the epistemological anxieties expressed by Smith and to responses related to her concerns in the later twentieth and twenty-first centuries. We argue that speculation has been a central ingredient in concerns about the limits of archaeological reasoning, even though speculative thought has largely been associated with unacademic and pseudo-scientific conjecture. Historically, speculation has typically been circumscribed by disdain or scepticism in archaeology, and archaeologists have warned against—or accused each other of—speculating on archaeological evidence. In this perspective, speculation—otherwise, ‘conjecture’—denotes a form of academic pathology that not only departs from evidence, but more so parts with it. In opposition to speculation, the value and utility of narratives and representation of the past have been benchmarked with reference to their plausibility or probability of being ‘right’. In this sense, many archaeologists have considered speculation to be the fanciful antithesis to scholarly explanation and interpretations, as an untethered fiction unsubstantiated by archaeological evidence, variously

characterized as ‘alternative archaeology’ (Holtorf 2005; Moshenska 2008), ‘inauthentic archaeology’ (Lovata 2007), ‘pseudo-archaeology’ (Fagan 2006) or ‘bullshit archaeology’ (Glyn Daniel in Fagan & Feder 2006, 720). Typically, professional archaeologists perceive these approaches as a fundamental threat to the integrity and credibility of archaeology, as they are seen to unleash wanton conjecture and an ‘anything goes’ attitude to archaeological narratives, leading directly to a harmful, disabling relativity or simply towards an effacement of the very authority of archaeology, reducing it to mere guesswork.

Speculation and the past as it really was

We do not defend such ‘alternative’ archaeologies, but it is worth noting that the very fuel for fanciful conjectures about, for example, ley lines, alien origins and divine intervention may perhaps arise more readily in archaeology than in other disciplinary contexts, because of the ‘dark matter’ of the archaeological record and the inability to make direct observations of past realities, as noted by Smith. While Smith opted to resign from making speculations on the archaeological material, choosing to go no further than describing it, other archaeologists have struggled to find ways to navigate the troubled route through fragmented and absent data to arriving at knowledge of the past without succumbing to mere conjecture. David Mellor thus writes (1973, 498):

No doubt the data will always be flimsy, the tests inconclusive, the scope for imaginative alternative theories great. None of this reduces archaeological theorizing to the level of guesswork. The complexity of the subject and the relative paucity of data may well be part of what makes archaeology, like cosmology, endlessly fascinating and likely to be endlessly unsettled. But it is a great mistake to suppose that what is endlessly fascinating and unsettled therefore cannot be scientific. If it were so, there would be very few sciences.

Hence, being endlessly unsettled, the archaeological record—due to its absences, fragmentation and alterity—lends itself to speculation, for better or for worse. And historically, it seems speculation has indeed assumed the role of a *double entendre*, being portrayed most typically as a risk to archaeological credibility, but sometimes also as a necessity or strength. As implied by Mellor, speculation carries connotations of unacademic guesswork, leading to ‘anything goes’ interpretations with little or no substantiation, while also constituting the fundamental lure of the field.

This has led to many cautions about the limits of archaeological narratives, for instance as formulated by Phil Kohl, arguing that when ancient people are not discernible in the archaeological material, ‘one should restrain or modify one’s poetic, fictional impulse to concoct a just-so story. As archaeologists, we should not aspire to be Jean M. Auel’ (Kohl 1993, 15), insisting that if archaeologists realize they cannot answer the questions they ask of the archaeological record, they ‘should simply admit it and ask other questions of these materials’ (Kohl 1993, 15). Similarly, Christopher Hawkes (1954, 167) contended that archaeological reasoning must proceed ‘towards the unknown from the known’, whereby explanations need to be built from the facts up, and always be checked against those facts. Otherwise, archaeological pasts that are not immediately knowable will be filled by an imaginary account fabricated by the narrator independently of the material (Hawkes 1954, 163). Bruce Trigger further recommends it is necessary to pursue sobering alternatives to illusory ‘story-telling’ (2006, 518) because ‘deliberately introducing unsubstantiated and often ideologically driven speculation into narratives raises serious ethical issues’ (Trigger 2006, 472). However, according to Trigger, some archaeologists—i.e. post-processualists—claim it is impossible to determine which interpretation of the archaeological material is valid, yet for them ‘this impossibility justifies a speculative approach, since it is the best that is possible and without it prehistoric archaeology would be irrelevant to the present’ (Trigger 2006, 474–5).

Curiously, it is precisely the open-endedness of the interpretative possibilities that led Clarke to contend that there is a *need* for speculation in archaeology, because the ‘exposure of archaeological metaphysics’ allows the discipline to ‘consider the possibilities of altering or rejecting current disciplinary concepts in favour of some alternative forms’ (Clarke 1973, 13). As an example, he argued that archaeological classifications are predetermined ‘taxonomic postulates’ that do not necessarily correspond to past reality of the material under scrutiny. To address the potential conflict between taxonomy and empirical reality, he considered ‘fundamental speculation [...] exceedingly important if only because the more fundamental the metaphysical controlling model, the less we are *normally* inclined to rethink it’ (Clarke 1973, 14). In this way, speculation becomes warranted as a means of critiquing, interrogating, and rethinking observations that depend on assumptions and canonized postulates (see also Marila 2018, 40; Sørensen 2023a), not unlike Lewis Binford’s (1967) argument that analogies serve as

instruments for *questioning* and not for explaining or modelling the ordering of archaeological data.

Speculative narrativity

While Clarke thus described speculation as a necessary scientific method for disrupting consensus-based assumptions, Ian Hodder has framed speculation as a means of making transparent how any form of archaeological knowledge transpires as interpretations. He argues that archaeology has been caught up in a dilemma by striving to be scientific and objective, thus suspicious of speculation and subjectivity, while at the same time wanting to make meaningful interpretations of the past. This implies a need to move beyond the data themselves, yet 'there can be no testing of these interpretations because the data themselves are formulated within and are part of the same argument as the theories. Speculation and the subjective are therefore part of the "scientific" process' (Hodder 1992, 111). In other words, 'all cultural reconstruction depends on imputing subjective meanings to particular historical contexts' (Hodder & Hutson 2003, 153). Likewise, Michael Shanks and Christopher Tilley contend that, in archaeological writing, 'there can be no simple choice between fictional creations and objective copies of the past' (Shanks & Tilley 1992, 8). Nevertheless, they maintain that their 'intention is not to sacrifice objectivity and replace it with an extreme and disabling relativism' (Shanks & Tilley 1992, 8). Indeed, they echo Smith as well as Clarke, stipulating that 'there can be no *objective* link between patterning perceived in material culture and processes which produced that patterning' (Shanks & Tilley 1992, 14). Hence, the archaeological transfer of the past into the present 'is not free or creative in a fictional sense' (Shanks & Tilley 1992, 104).

Nevertheless, untethered imaginative narratives is precisely what post-processual archaeology has been accused of time and time again, although authors such as Janet Spector (1991, 395–7) and Mark Edmonds (1999, ix–x) in their explicitly fictional narratives explain and situate their writing of the past as empathetic, subjective engagements that hinge on archaeological facts and artefacts. Critics, however, have argued that the hermeneutic, post-processual approach leads archaeology astray, considering it dependent on personal experience, imagination and 'uncontrolled storytelling' (Redman 1991, 301) more than on evidence and facts that provide an 'orderly' and 'accurate appreciation of the past' (Binford 1987, 404). The scepticism against making the past meaningful through subjective interpretations often refers to 'problems of

validation' and to 'inadequate, mute data', whereby 'many will feel that we have gone too far towards the contextual and speculative' (Hodder & Hutson 2003, 153). Bruce Trigger's phrasing of this scepticism is unmistakable:

The refusal of many postprocessual archaeologists to consider the evidential limitations of their efforts to study prehistoric material has resulted in attempts to justify inferences regarding habits and beliefs associated with prehistoric cultures that are based largely on speculation and intuition. Such approaches are justified on the grounds that they offer hypotheses that may later become testable or, even more lamely, that nothing more convincing is currently possible. Such interpretations become conduits through which all sorts of unexamined prejudices and personal biases are introduced into archaeology. They ignore the alternative course of remaining silent regarding matters that are unknowable. Unsubstantiated speculation currently threatens to return archaeological interpretation to the highly subjective and irresponsible state of 'story-telling' from which Lewis Binford and David Clarke, each in his own way, sought to rescue it in the 1960s. I do not deny the importance of formulating hypotheses for advancing a scientific understanding of the past, but maintain that, if this activity is to be useful, it must be accompanied by serious efforts to test such propositions. (Trigger 2006, 517–18)

This tension between the subjective and the objective has a deeper pedigree in the history of archaeology as illustrated in Trigger's *magnum opus* on the history of archaeological thought. He demonstrates in several places how the relationship between the archaeological and the speculative has been construed historically (e.g. Trigger 2006, 100, 154, 162–3, 321), frequently contrasting the epistemic roles of 'fanciful speculation' against 'sober investigations' (Trigger 2006, 89), 'mere speculation' against 'a hypothesis for which there was already some evidence' (Trigger 2006, 123), and 'philosophical speculations' against 'scientific theories' (Trigger 2006, 154).

For Hodder, those contrasts also hinge on rhetoric style in the history of archaeological dissemination. He describes how eighteenth-century excavation reports are characterized by 'excitement', 'personal pronouns' and 'actor-oriented accounts', while identifying 'unwarranted interpretation' as 'conjecture' (Hodder 1992, 229). As archaeology increasingly adopted scientific methods in the latter half of the nineteenth and the early twentieth century, Hodder traces how specialist reports became the standard, placing archaeological objects in schematic typologies and turning the rhetoric towards an increasingly technical, detached and impersonal

ethos. Archaeologists employed the passive voice in their writing style more consistently, while personal pronouns, authors or actors disappeared somewhat from the accounts. To Hodder, the change in writing style ‘seems to suggest there can only be one possible interpretation. Indeed, admitted interpretation has largely disappeared behind objective description. Thus, “a comparison ... will show that”—as if the observations as well as the artifacts had been found, and as if the description is self-evident, distanced from any onlooker or author’ (Hodder 1992, 230). In this way, ironically, the passive voice makes it more difficult to distinguish factual descriptions from interpretation and speculation, whereas the active, personal rhetoric at least preserves transparency in terms of the author’s ownership of the text.

From hypothesis to the final interpretation

Interestingly, in Trigger’s criticism of post-processualism, he refers to the justification of speculations ‘on the grounds that they offer hypotheses that may later become testable’ (Trigger 2006, 518). In principle, this latency in speculative thought can be connected with otherwise more ‘scientific’ strategies in archaeology. For instance, the epistemic optimism associated with New Archaeology’s adoption of logical empiricism, a strict scientific logic of elimination, and the hypothetico-deductive method can be regarded as hinging on a temporary speculative element (e.g. Binford 1968; Watson *et al.* 1971; cf. Gibbon 1989; Kelley & Hanen 1988; Wylie 1989). A decisive element in the hypothetico-deductive method is, of course, precisely the hypothesis, offering the first step in the research process by proposing a *possible* answer to a question. The researcher or the research team must be able to imagine what *might* be the answer to a given question in order to be able to test it. Speculation is here set in an agenda, where only the hypotheses that seem probable are tested, and only survive if adapting to its data. Ideally, this does not allow for only partially ‘correct’ speculations or for the possibility of fuzzy boundaries between ‘true’ and ‘false’ verdicts (Clarke 1978, 16; see also Sørensen 2016, 745). Yet testing hypotheses may not lead solely to attempts at strengthening the empirical support of the hypothesis, i.e. proving it correct. Wylie thus describes how the testing of a hypothesis should not be seen as the process of building evidence in support of the hypothesis, ‘but rather as a matter of subjecting bold conjectures to the most rigorous tests they can devise’ (Wylie 2002, 19). Scientific speculation is thus a way of testing analytical propositions at their most extreme,

requiring the researcher to be able to think the extreme without transcending into the unreasonable or self-evidently improbable.

The question remains where the more recent advance of technical and scientific discourse on the archaeological record sits in this discussion, i.e. the developments frequently referred to as the ‘Third Science Revolution’ (Kristiansen 2014). Central to the notion of the ‘Third Science Revolution’ is the transition from ‘relative’ to so-called ‘absolute’ knowledge (Kristiansen 2014), which at first sight seems to suggest a move in the direction of eliminating subjectivity and speculation. The idea of ‘absolute knowledge’ was already introduced in Kristiansen’s landmark article from 2014, but until recently, it was never made entirely clear what ‘absolute knowledge’ implied, perhaps suggesting interpretation is relative, while knowledge is absolute, resting on the notion that ‘knowledge’ is not situated, but interpretation-free. Or maybe it was implied that *knowledge* is a production of absolute data and indisputable facts, while their *understanding* is subject to interpretation.

In a recent book on genetic evolution in European prehistory, however, Kristiansen is clearer about the ‘transformation of previous relative knowledge to absolute knowledge’ (Kristiansen 2022a, 1; 2022b, 31):

It all comes down to the complexity of evidence that is anchored in different theoretical and methodological traditions, each of whose results have an impact on the interpretation of other types of data. In the end, *the final interpretation* will have to be presented in the form of *an interpretative narrative* [...]. Therefore, we need to develop the concept of interpretative narratives, which have long been debated in the discipline of history. Perhaps it suffices, for the moment, to define them as platforms for the formulation of testable new hypotheses. We may then perceive scientific practice as a layered process, proceeding—through processes of proof and falsification—from basic information toward increasingly wider-ranging interpretations, ending in an interpretative narrative [...]. [The] results should in the end be compatible. If not, a new interpretation is needed, and the process starts all over again. (Kristiansen 2022a, 17–18, our emphasis; compare with Kristiansen & Kroonen 2023, 8)

Importantly, Kristiansen’s ‘interpretative narrative’ means that speculation becomes central to his line of reasoning, because it constitutes a provisional measure allowing archaeological observations to become culture-historically meaningful for the time being. In part, this follows Binford’s maxim not to view interpretations ‘as an end product of our

investigations' (Binford 1967, 10), yet this also implies that Kristiansen's 'interpretative narrative' is at odds with his notion of a 'final interpretation': the former appears to be a temporary, analytical component in the archaeological process, while the latter seems more analogous to the utopian or messianic anticipation of complete or exhaustive knowledge of the past, cleansed of epistemic gaps and uncertainties. In other words, this version of archaeology aims to collect all the pieces, close the gaps and complete the archaeological puzzle.

Speculation as reaction, not retrospection

Our grossly generalizing summary above of speculation in the history of archaeological thinking is everywhere—from 'bullshit archaeology' to positivist scientism—marking the ambition of mending ruptures in the archaeological material and of conjuring up retrospective narratives. Moving on from this review, we believe to have established a useful frame of reference for taking a step towards proposing a more empirically engaged attitude to speculation. As should already be evident, we want to challenge the largely product-oriented references to speculation, stimulated by our own experience of responding to Bailey's invitation to contribute to *Ineligible*. When distributing the 82 mystery boxes to archaeologists and artists, Bailey urged each of them 'not to think of the material as archaeological, as artefactual, or as historic' (Bailey 2020, 19). In so doing, whatever would emerge from the engagement with the material would release the objects from their original archaeological contexts and 'repurpose' them.

The invitation to participate in *Ineligible* was given individually, and the three of us did not collaborate in the process; yet discussing our working process has made us realize that we shared much of the experience. Each of us worked with archaeological material without determining its potential in advance or knowing what purpose we saw in the objects. We wanted to see what might happen when dwelling on unassuming objects relegated from the coordinates of culture-historical narratives and dominant heritage values. Our approach may thus be described as aesthetic, experimental, or feminist (e.g. Bailey & Simpkin 2015; Benjamin 2018; Lee 2018; Pétursdóttir 2018a; Sørensen 2023a; Tringham 2020), yet what turned out to be more significant for us was the realization that the combination of these attitudes allowed for an open-ended one that sustained and embraced interstices and uncertainties in the archaeological material rather than removing them. Each of us found the working process

tremendously challenging, either because of the obscurity of our material as culture-historical artefacts, due to its seeming resistance or irresponsiveness in our presence, or its departure in unplanned and perplexing directions. This could, of course, have invited us to try to replenish the gaps and silences with retrospective imaginaries of where the things came from or what they were composed of. Yet Bailey's conceptual obstacles dictated that we were to stay true to the material itself instead of turning it into historicized objects or scientific data.

So, for instance, in the case of Anna's work, the lack of a traditional culture-historical context provoked other connections to be built and woven between the materials at hand. Trajectories emerged between the imprint of the foot on one sole and the worn hole on another, the pattern of small holes from connecting the sole to the rest of the shoe, the similarities in the organic texture of the bark and the dry leather, the activity of walking, the fashion and production of shoes: and further on, in an associative stream of thoughts, how dreams of life in modern Western societies are so closely tied up with the possibility to buy stuff to questioning the footprints left by modern consumption on the environment. In this way, a new kind of context appeared, still linked to the archaeological objects, but more flimsy, unstable and harder to articulate. As an attempt to represent this new kind of context, Anna knitted and tied one of the leather soles into a net with the string made from the field bag originally encasing the material donated to her and from that created a pastiche of a traditional dream-catcher; in itself an example of an object exposed to modern commodification (Fig. 1). The context of the archaeological was no longer a stable and permanent condition framed by a well-defined culture-historical narrative, but a flexible and impermanent situation that developed in the process of making it at the same time as space was left open for questions, explorations and new engagements.

In Marko's process with his cow ribs, he first cremated the bone fragments he had received from Bailey, ground them up in a mortar and then placed the resulting bone sand on a thin aluminium plate that attached to the diaphragm of a small loudspeaker with a brass rod (Fig. 2). The plate was made to vibrate by playing different frequencies through a small amplifier that connects to the speaker, resulting in geometric patterns in the bone sand. The sound played through the amplifier was a simulation of 'the hum', a low-pitched droning sound experienced by a small percentage of the global human population. The source of the hum,



Figure 1. Do Dreams Leave Footprints (2019). Wire, ribbon, worn leather sole, plastic waste. (Photograph: Anna S. Beck.)

however, remains unknown, suggesting a host of possible origins, both primordial and anthropogenic. The process engages with the archaeological in a very direct way, yet it does not do so by holding on to the past, but by creating a space for exploring different and possible modes of experiencing and acting on it.

In a comparable process of decomposition, Tim involuntarily encountered the erosion of the horse bones he had been given, and the associated process of undermining the very ability to work towards a contribution to *Ineligible* in terms of a product. Each time he removed the material from the cardboard box to handle it, any touch—however delicate and caring—left a small amount of bone dust behind. The bones were dry and light, yet they were not so brittle or frail that they simply crumbled away immediately. Touching them only produced an ever so tiny scatter of coarse dusty grit, which constantly led the bones to disperse and displace—become less coherent, yet more numerous. It was thus not possible to get in touch with the bones in any straightforward way, since they multiplied and vanished in a simultaneous process of emergence and dissolution. The bones seemed to deplete themselves (paraphrasing Claire Bishop 2015), yet in such a slow way that the encounter with the bones transpired

most of all as a protracted unsettledness. This ontological interstice seemed to defy the ability to capture them as formal artworks, artefacts, or objects, instead leading to a transfiguration in the form of obscure photographs that revolved more around internal thing-relations than their ability to act as evidence of something outside themselves (Fig. 3).

Altogether, our responses to the material that happened to be at our disposal revolved around the upholding of uncertainties, de/formation processes, ruptures and unanticipated futures engendered by material and conceptual interstices or states of in-betweenness, forcing us to explore what things are, when they are relieved of being defined by their past or having to answer to their past biographies. So, although Bailey tasked us with shedding notions of the material as ‘archaeological’, each of us reacted to the material precisely through archaeological engagements: probing, reconfiguring, touching and observing its details. This means that staying with the archaeological trouble (paraphrasing Haraway 2016) implies a curatorial practice of relieving things of their conventional typological branding or classifications, leaving open what things are, how they are situated and in what forms they should transpire. Our engagements with the material prolonged the

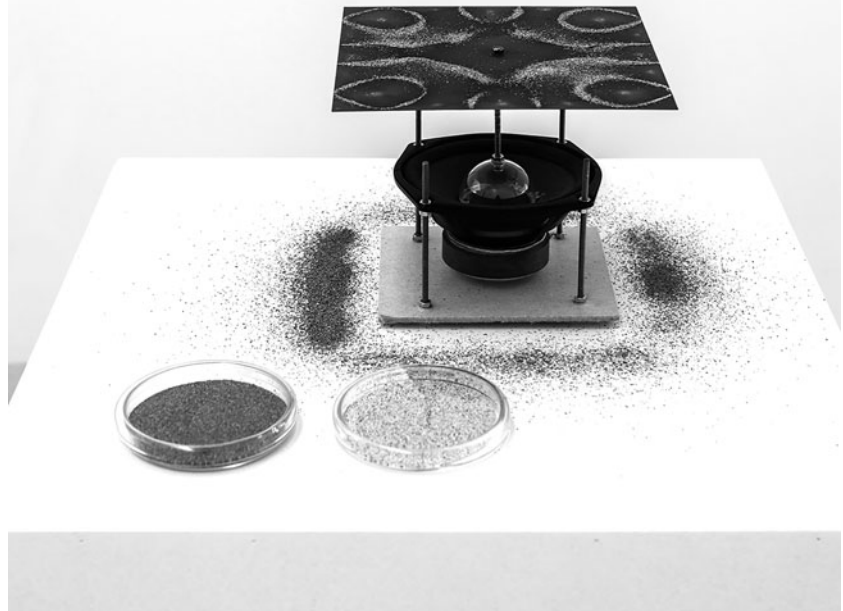


Figure 2. The Hum (2019). *Burnt bone sand on aluminium plate with loudspeaker and amplifier.* (Photograph: Miguel Ângelo & Lília Machado.)

time of undecidability in the engagement with objects (Pétursdóttir & Sørensen 2023). In contrast to seeing speculation as the promise of a ‘final interpretation’, the material invited us to pursue speculation as a way of protracting the inconclusive encounter with the archaeological rather than the cessation of these engagements. As argued by Uzma Rizvi (2019, 157),

Opening up the speculative is akin to an entry into a conversation, not an interpretive framework. It is how we might reorganize our epistemologies to test our limits of how and where our knowledge is produced, where it comes from, and then push just a bit more to consider something else.

This is something different from what we documented in the history of archaeological thinking, where speculation has largely been defined as inference unchecked by data, and a way of ‘introducing assumptions without knowing that there is evidence for those assumptions’ (Achinstein 2018, 1). This attitude is also what Smith and Trigger reject explicitly and what Shanks and Tilley caution against (in line with Hawkes 1954). The notion of speculation as beyond the limits of inference is akin to the formulation of new ‘hypotheses’, pursued by Clarke, and

in Kristiansen’s case also the proliferation of ‘re-theorising’, which he uses interchangeably with hypotheses, models, or interpretations. As should be clear, such constructs have the tendency to lead to conclusions or determinations, such as rejections or modifications, new hypotheses and new ‘theories’.

Contrasting the dominant attitude to speculation, we also want to emphasize that our approach taps into recent archaeological discourse on knowledge production as process. Such work has explicitly stressed the need for speculation, often resting implicitly on older feminist scholarship, which in particular has made such concerns an explicit agenda in terms of the academic ethos in the form of ‘situated knowledges’ (Haraway 1988) and ‘standpoint theory’ (Wylie 2003). The qualities of these frameworks are many, but what we emphasize here is the implied necessity for ownership of texts and the elucidation of ambiguity and uncertainty in analyses and interpretations (Gero 2007). As Margaret Conkey (2007, 289) notes, with reference to Alison Wylie, archaeology has vacillated between two extremes: one avoiding inference beyond empirically given ‘facts’, and another that perceives speculation as necessary if archaeology is to be culturally and historically meaningful.



Figure 3. *To the Bone* (2019)
reworked as *Obscuragrammetry*
#1–4 (2023). *Bone, light and shade.*
(Photograph: Tim Flohr Sørensen.)

Yet, Conkey argues, feminist archaeology refuses to side with either of these epistemic extremes, advancing instead a ‘strategic ambivalence’ (Conkey 2007, 287; also Wylie 1997, 81). Joan Gero has aptly characterised archaeology’s prioritisation of quite the opposite, i.e., unambiguous language and scientific conclusion as ‘mechanisms of closure’ (Gero 2007; cf. Marila 2017; Sørensen 2016). Gero contends that archaeology’s widespread insistence on certainty and exactitude tends to simplify phenomena that are inherently underdetermined, interpretively complex and incomplete, and that in doing so archaeologists paradoxically undermine their objective of attaining a deeper understanding of the past. As a remedy against archaeology’s established ‘mechanisms of closure’, Gero (2007, 323) urges archaeologists to remain transparent about their epistemic ambiguities, and to protect and preserve—so to speak—ambiguity as a valuable research reality, rather than aiming at its elimination.

Speculation as underdetermined theorization

Following from this feminist critique, we see speculation literally as a ‘return to empiricism’, only not a positivist empiricism. Instead of treating the

archaeological facts as the touchstone of a given archaeological theory, this speculative empiricism is driven by the conviction that the subject matter of archaeology continually unfolds in multiple ways through the very practice of archaeology, thus necessitating a speculative understanding of archaeology’s epistemology (Witmore 2014; 2015). In essence, the rather broad ‘posthumanism’ of archaeology appears to be developing as a reaction against the reductive strategies of positivist as well as post-structuralist archaeologies (for recent discussions, see Govier 2022; Govier & Steel 2021). In this sense, the archaeological record, as a phenomenon in the present, is treated as radically multiple, relational and dynamic, emerging from—rather than reducible to—the archaeologist’s engagement with it (see also Shanks 1995, 54–5). In the ontological sense, the past is partly created, but by no means exhausted, by archaeological theory and practice. What we take from posthumanism may thus be not so much a strategy for doing away with methodologically systematic approaches to the archaeological, but instead a response to their limitations and an insistence on their open-endedness.

If, following the ethos of posthumanism, we are to grant things their say in the interplay between the

material and archaeological thinking, ontological concerns become deeply entangled with the epistemological, and archaeologists must seriously reconsider how epistemological strategies will have to be shaped accordingly. Þóra Pétursdóttir and Bjørnar Olsen thus argue that theory—like objects—have an unknown ‘dark side’, and ask whether it is possible to recognize their ‘unrealized excess—and the unanticipated potentials mutually discharged through the synergy between data and theory’ (Pétursdóttir & Olsen 2018, 104). One of the achievements in archaeological theory in the wake of posthumanism has then been the recognition that speculation is not an epistemological deficiency to be overcome, but is instead a necessary consequence of the very nature of the ontology of objects and the way they can be approached (Edgeworth 2016). The archaeological, then, is not simply a collection of parts that we gradually come to know, but rather a network of practices, both human and non-human, that continually create something new in the process.

We stress that this is not merely about the reaction to the material at hand, but also what the encounter provokes in terms of thinking, which happened to assume unforeseen and multitemporal directions referring to the past, the present and the future at the same time. Such confrontations with the archaeological have already been elaborated in terms of archaeological theorization by Pétursdóttir and Olsen (2018; see also Pétursdóttir 2017), contending that just like objects, theories have the potential for becoming much more than what they were initially set out to do. Theory can do many things: it may change or evolve, giving rise to novelty or emergence in the ontological and epistemological sense. Theory is restless, not due simply to archaeologists arguing and bickering, but because the nature of theory is unstable, revolving around a never fully exhaustible potentiality for responsiveness and critique in the face of archaeological material. Accordingly, Pétursdóttir and Olsen argue that ontology and epistemology cannot be disentangled: the ontology of the object of study changes with the epistemological concerns.

How does the fading of ontological polarities and the growing recognition of non-human agency actually come about? Is it likely that these changes stem solely, or even primarily, from pure reasoning, speculations or ‘magical’ happenings in the theorists’ minds? Or is it rather the case that they emerge as a consequence of experience and knowledge gained from attending to things, to how they behave and to what is disclosed through acquaintance with their mingled articulations? In other words, that ontology depends on knowing as

much as knowing depends on being. (Pétursdóttir & Olsen 2018, 107)

This analysis of archaeological theory as something that is never fully fixed, but is instead in a constant state of becoming something other than we think it is, highlights archaeology as a speculative, empiricist and materialist philosophy (Sørensen 2019). As a discipline with a deep history in trying to understand and appreciate the past with all of its ambiguities and idiosyncrasies, archaeology may be described as an ontologically and empirically sensitive philosophy (Marila 2017). This is, of course, only possible if we accept that archaeological knowledge is inexhaustible, rather than absolute. Instead of setting up intellectual parameters designed to diminish the risk of error, we need to relax, lower our theoretical guard and remain open to the archaeological (e.g. Pétursdóttir 2014). In a similar vein, speculation, according to Matt Edgeworth, is ‘more than mere conjecture’ (Edgeworth 2016, 94). He notes the etymological root of the verb ‘to speculate’, referring to ‘thinking beyond the surface appearances of the phenomenal world or, in the case of speculative realism, “beyond human finitude”’ (Edgeworth 2016, 94). This means that speculation need not refer exclusively to human relations with things retrospectively, nor to how things tap into human sociality or mechanical causality.

Departing from the conventional notion of archaeology as the study of the past, other approaches to the discipline tend to see the discipline as an engagement with traces (e.g. Crossland 2021; Joyce 2006; 2015; Routledge 2023; Sørensen 2021b). In this sense, archaeology builds on *what there is*, or on *whatever* there is: humble things without great explanatory power in terms of the past or any utility for predicting the future (Sørensen 2023b). Following these sentiments, and emphasizing their pedigree in feminist archaeological scholarship, our take on speculation resides in the slow, the small and the modest (Marila 2019; Sørensen 2019). We contend that it is not so interesting to speculate about ‘general laws’ or ‘modelling’ (as processual archaeology would have it), ‘interpretations’ (as post-processual archaeology would have it), or ‘grand narratives’ (as Third Science Revolution would have it). The speculation we outline is not interested in fast, big, and ambitious theorizing about the large mechanism of human behaviour, or the true meaning of Stonehenge, i.e. in speculating about finite answers to concrete questions. Instead, we are aiming at the exploration of the processes and reflections that are born out of the encounter *with* the archaeological,

focusing on engagements, responsivity and processes more than scenarios, explanations, or results (see also Govier 2019).

In a similar fashion, Pétursdóttir (2017; 2018b) contends that speculative philosophy did not just emerge from the theorists' minds as a system that now allows her to approach any archaeological material from a particularly speculative point of view. Instead, the very nature of archaeological materials is ambiguous and unfinished, which necessitates correspondingly speculative and open-ended forms of theorizing. Moreover, as Edgeworth (2012, 77) notes, such response is nested in 'the meaning-generating character of the archaeological encounter itself, and the power of emerging evidence to re-shape our actions and thoughts'. He stresses that it is the encounter 'by virtue of being partly unanticipated' which gives rise to knowledge as 'more than merely a re-combination of existing ideas' (2012, 77). In this sense, the speculative stems from the archaeological itself rather than some pre-given philosophical system. We believe it is worth taking this critique further and refer to speculation as the part of theorizing that is explicitly empirical and responsive, pursuing the archaeological *encounter* as the moment where speculation arises (Rizvi 2019, 156; see also Godin 2022; Pétursdóttir & Sørensen 2023). Again, we want to emphasize that we see this as a *mandate*: not just a privilege, but also an obligation.

Towards speculative practice

The considerations above, and our responses to the material Bailey offered us in the context of *Ineligible*, lead us finally to contemplate what means and concepts archaeology provides for speculative thought. In academia generally, speculation has been taken to imply the many ways in which statements can be made without academic accountability, being synonymous with 'conjecture', rather than denoting the rich diversity of the possible. The same is undoubtedly true for archaeology, as we have shown in the historical review (see also Sørensen 2016, 744). Our approach, we believe, adopts another attitude by taking speculation seriously as a material engagement, a force of creation and a mode of critique. This frames speculation not as a retrospective causal, explanatory framework, but as a non-linear practice for *leading on*, perhaps as an intensification of experience, if you will.

We realize that our examples of speculative practice may, for some readers, seem to be situated in the realm of art rather than archaeology, and

perhaps far removed from the discipline's traditional expectations to provide an explanation or understanding of the past. At first sight this might warrant the criticism that what we mean by speculation is not rooted in archaeological practice at all. However, the materials that we worked with were very much archaeological: they were excavated from an archaeological context, they were bagged, tagged and documented according to the most rigorous archaeological practices, but finally classified by archaeologists as 'ineligible': of no significant knowledge potential to the discipline, to the public, or to any future engagements (Bailey 2020, 15–17). Our engagement with the objects was also fundamentally archaeological: we investigated whatever presented itself to us, discovering the possibilities it contained. We argue this process is identical to any other archaeological engagement, where unknown material is translated into something more or less graspable. In some sense, our speculative practice with the materials did not release them from their archaeological confines, but simply explored what archaeological practice might mean when handling ineligible objects with uncertain futures.

We contend that uncertainty denotes a deeper and more ethical consideration of the creative and social aspects of speculation, because it takes an interest in the full scope of 'the archaeological' as an experience and a practice: i.e. as an incessant re-evaluation of what archaeological knowledge is, both practically and epistemologically. This re-evaluation pertains to destabilizing consensus about canonized truths, which was Clarke's point, as noted earlier. Yet it also speaks to the increasing awareness of being able to take seriously the claims that are being made by, for instance, indigenous descendant communities by inviting perspectives on places and materials that challenge dominant Western discourse on 'knowledge', 'evidence' and 'data' (e.g. Kimmerer 2013). Not only may this opening be vitally important in terms of heritage and identity, but equally significant for the ability to uphold and share ethical, epistemological and ontological relations (see e.g. Atalay 2008; Cipolla 2021; Montgomery 2021; Rizvi 2015).

We therefore argue that the concept of speculation is a way of rethinking what archaeological 'knowledge' means while nevertheless retaining a connection to the practicalities, epistemologies and aesthetics of archaeology. At a time when scientific advances and public media pursue a perceived need for establishing 'results' and 'breakthroughs' of new 'absolute' knowledge, we argue that speculation on the inescapable interstices and uncertainties

of archaeological traces may be a way of wedging in questions and possibilities that might otherwise be overlooked. Equally, speculation has the quality of leading to less categorical and conclusive rhetoric in archaeology, staging the uncertainties of archaeological knowledge as an inescapable condition of the discipline—a condition to be admitted, embraced, and perhaps even confidently cared for. One only has to turn to public archaeology or Indigenous archaeology to understand how important such caring for different forms of knowledge is. It is this caring for the possible and the enduring uncertainty in the encounter with the archaeological that we argue is worth curating.

Note

1. According to <https://www.etymonline.com/word/speculation> (accessed 10 November 2023).

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References

- Achinstein, P., 2018. *Speculation: Within and about science*. Oxford: Oxford University Press.
- Atalay, S., 2008. Multivocality and Indigenous archaeologies, in *Evaluating Multiple Narratives: Beyond nationalist, colonialist, imperialist archaeologies*, eds J. Habu, C. Fawcett & J.M. Matsunaga. New York (NY): Springer, 29–44.
- Bailey, D., 2020. Art/archaeology: the Ineligible project, in *Ineligible: A disruption of artefacts and artistic practice*, eds D. Bailey & S. Navarro. Santo Tirso: Museu Internacional de Escultura Contemporânea de Santo Tirso, 10–25.
- Bailey, D. & S. Navarro (eds), 2020a. *Creative (Un)Makings: Disruptions in art/archaeology*. Santo Tirso: Museu Internacional de Escultura Contemporânea de Santo Tirso.
- Bailey, D. & S. Navarro (eds), 2020b. *Ineligible: A disruption of artefacts and artistic practice*. Santo Tirso: Museu Internacional de Escultura Contemporânea de Santo Tirso.
- Bailey, D. & M. Simpkin, 2015. Eleven minutes and forty seconds in the Neolithic: underneath archaeological time, in *Subjects and Narratives in Archaeology*, eds R.M. Van Dyke & R. Bernbeck. Boulder (CO): University of Colorado, 187–213.
- Benjamin, J., 2018. Human-plant mutualism in the built environment. *Pinsapo Journal* 2, 32–40.
- Binford, L.R., 1967. Smudge pits and hide smoking: the use of analogy in archaeological reasoning. *American Antiquity* 32(1), 1–12.
- Binford, L.R., 1968. Archaeological perspectives, in *New Perspectives in Archeology*, eds S.R. Binford & L.R. Binford. Chicago (IL): Aldine, 5–32.
- Binford, L.R., 1987. Data, relativism and archaeological science. *Man* 22(3), 391–404.
- Bishop, C., 2015. History depletes itself. *Artforum* 54(1), 324–30.
- Blehr, O., 1993. On the need for scientific method in archaeology: Nämforsen reconsidered. *Current Swedish Archaeology* 1, 25–31.
- Cipolla, C.N., 2021. Posthuman potentials: considering collaborative Indigenous archaeology. *Cambridge Archaeological Journal* 31(3), 509–14.
- Clarke, D.L., 1973. Archaeology: the loss of innocence. *Antiquity* 47, 6–18.
- Clarke, D.L., 1978. *Analytical Archaeology* (2nd edn). London: Methuen.
- Conkey, M.W., 2007. Questioning theory: is there a gender of theory in archaeology? *Journal of Archaeological Method and Theory* 14(3), 285–310.
- Conkey, M.W. & J. Gero, 1991. Tensions, pluralities, and engendering archaeology: an introduction to women and prehistory, in *Engendering Archaeology: Women and prehistory*, eds J. Gero & M.W. Conkey. Oxford: Blackwell, 3–30.

- Crossland, Z., 2021. 'Contextual archaeology' revisited: reflections on archaeology, assemblages and semiotics, in *Far From Equilibrium: An archaeology of energy, life and humanity. A response to the archaeology of John C. Barrett*, eds M.J. Boyd & R.C.P. Doonan. Oxford: Oxbow, 85–102.
- Edgeworth, M., 2012. Follow the cut, follow the rhythm, follow the material. *Norwegian Archaeological Review* 45(1), 76–92.
- Edgeworth, M., 2016. Grounded objects. Archaeology and speculative realism. *Archaeological Dialogues* 23(1), 93–113.
- Edmonds, M., 1999. *Ancestral Geographies of the Neolithic: Landscape, monument and memory*. London: Routledge.
- Fagan, G.G. (ed.), 2006. *Archaeological Fantasies: How pseudoarchaeology misrepresents the past and misleads the public*. Abingdon: Routledge.
- Fagan, G.G. & K.L. Feder, 2006. Crusading against straw men: an alternative view of alternative archaeologies: response to Holtorf. *World Archaeology* 38(4), 718–29.
- Gero, J.M., 2007. Honoring ambiguity / problematizing certitude. *Journal of Archaeological Method and Theory* 14 (3), 311–27.
- Gibbon, G., 1989. *Explanation in Archaeology*. Oxford: Blackwell.
- Godin, G., 2022. Meeting things: on material encounters along the River Thames. *Journal of Contemporary Archaeology* 9(1), 23–38.
- Govier, E., 2019. Do you follow? Rethinking causality in archaeology. *Archaeological Dialogues* 26(1), 51–5.
- Govier, E., 2022. Pre-critical archaeology. Speculative realism and symmetrical archaeology. *Archaeological Dialogues* 29(2), 188–99.
- Govier, E. & L. Steel, 2021. Beyond the 'thingification' of worlds: archaeology and the new materialisms. *Journal of Material Culture* 26(3), 298–317.
- Haraway, D., 1988. Situated knowledges: the science question in feminism and the privilege of partial perspective. *Feminist Studies* 14(3), 575–99.
- Haraway, D., 2016. *Staying with the Trouble: Making kin in the Chthulucene*. Durham (NC): Duke University Press.
- Hawkes, C., 1954. Archeological theory and method: some suggestions from the Old World. *American Anthropologist* 56(2) 155–68.
- Hodder, I., 1992. *Theory and Practice in Archaeology*. London: Routledge.
- Hodder, I. & S. Hutson, 2003. *Reading the Past: Current approaches to interpretation in archaeology* (3rd edn). Cambridge: Cambridge University Press.
- Holtorf, C., 2005. Beyond crusades: how (not) to engage with alternative archaeologies. *World Archaeology* 37 (4), 544–51.
- Joyce, R.A., 2006. The monumental and the trace: archaeological conservation and the materiality of the past, in *Of the Past, For the Future: Integrating archaeology and conservation*, eds N. Agnew & J. Bridgland. Los Angeles (CA): Getty Conservation Institute, 13–18.
- Joyce, R.A., 2015. Transforming archaeology, transforming materiality. *Archaeological Papers of the American Anthropological Association* 26(1), 181–91.
- Kelley, J. & M. Hanen, 1988. *Archaeology and the Methodology of Science*. Albuquerque (NM): University of New Mexico Press.
- Kimmerer, R.W., 2013. *Braiding Sweetgrass: Indigenous wisdom, scientific knowledge and the teachings of plants*. Minneapolis (MN): Milkweed Editions.
- Kohl, P., 1993. Limits to a post-processual archaeology (or, The dangers of a new scholasticism, in *Archaeological Theory: Who sets the agenda?*, eds N. Yoffee & A. Sherratt. Cambridge: Cambridge University Press, 13–19.
- Kristiansen, K., 2014. Towards a new paradigm? The Third Science Revolution and its possible consequences in archaeology. *Current Swedish Archaeology* 22, 11–34.
- Kristiansen, K., 2022a. *Archaeology and the Genetic Revolution in European Prehistory*. Cambridge: Cambridge University Press.
- Kristiansen, K., 2022b. Towards a new prehistory: re-theorizing genes, culture, and migratory expansions, in *Homo Migrants: Modeling mobility and migration in human history*, ed. M.J. Daniels. Albany (NY): State University of New York Press, 31–53.
- Kristiansen, K. & G. Kroonen, 2023. Re-theorizing interdisciplinarity, and the relation between archaeology, linguistics, and genetics, in *The Indo-European Puzzle Revisited: Integrating archaeology, genetics, and linguistics*, eds K. Kristiansen, G. Kroonen & E. Willerslev. Cambridge: Cambridge University Press, 3–11.
- Lee, D., 2018. Experimental mapping in archaeology: process, practice and archaeologies of the moment, in *Re-Mapping Archaeology: Critical perspectives, alternative mappings*, eds M. Gillings, P. Haciguzeller & G. Lock. Abingdon: Routledge, 143–76.
- Lovata, T., 2007. *Inauthentic Archaeologies: Public uses and abuses of the past*. London: Routledge.
- Lucas, G., 2015. *Evidence of What? On the possibilities of archaeological interpretation*, in *Material Evidence: Learning from archaeological practice*, eds R. Chapman & A. Wylie. London: Routledge, 311–23.
- Marila, M.M., 2017. Vagueness and archaeological interpretation. A sensuous approach to archaeological knowledge formation through finds analysis. *Norwegian Archaeological Review* 50(1), 66–88.
- Marila, M.M., 2018. Finnish reactions to New Archaeology. *Fennoscandia Archeologica* 35, 21–49.
- Marila, M.M., 2019. Slow science for fast archaeology. *Current Swedish Archaeology* 27, 93–114.
- Marila, M.M., 2020. On the nature of the aesthetic in (an) art/archaeology, in *Ineligible: A disruption of artefacts and artistic practice*, ed. D. Bailey & Sara Navarro. Santo Tirso: Museu Internacional de Escultura Contemporânea de Santo Tirso, 105–21.
- Mellor, D.H., 1973. On some methodological misconceptions, in *The Explanation of Culture Change: Models in prehistory*, ed. Colin Renfrew. London: Duckworth, 493–8.

- Montgomery, L.M., 2021. Indigenous alterity as archaeological praxis, in *Archaeological Theory in Dialogue: Situating relationality, ontology, posthumanism, and Indigenous paradigms*, eds R.J. Crellin, C.N. Cipolla, L.M. Montgomery, O.J.T. Harris & S.V. Moore. London: Routledge, 51–66.
- Moshenska, G., 2008. 'The Bible in Stone': pyramids, lost tribes and alternative archaeologies. *Public Archaeology* 7(1), 5–16.
- Pétursdóttir, Þ., 2014. Things out-of-hand: the aesthetics of abandonment, in *Ruin Memories: Materialities, aesthetics and the archaeology of the recent past*, eds B. Olsen & Þ. Pétursdóttir. London: Routledge, 335–63.
- Pétursdóttir, Þ., 2017. Climate change? Archaeology and Anthropocene. *Archaeological Dialogues* 24(2), 175–205.
- Pétursdóttir, Þ., 2018a. Drift, in *Multispecies Archaeology*, ed. S.E. Pilaar Birch. London: Routledge, 85–101.
- Pétursdóttir, Þ., 2018b. Lyrics for a duskier Enlightenment. In response to Alexandra Ion. *Archaeological Dialogues* 25(2), 205–13.
- Pétursdóttir, Þ. & B. Olsen, 2018. Theory adrift: the matter of archaeological theorizing. *Journal of Social Archaeology* 18(1), 97–117.
- Pétursdóttir, Þ. & T.F. Sørensen, 2023. Archaeological encounters: ethics and aesthetics under the mark of the anthropocene. *Archaeological Dialogues* 30(1), 50–67.
- Redman, C.L., 1991. Distinguished lecture in archeology: In defense of the seventies – the adolescence of New Archeology. *American Anthropologist* 93(2), 295–307.
- Rizvi, U., 2015. Decolonizing archaeology: on the global heritage of epistemic laziness, in *Two Days after Forever: A reader on the choreography of time*, ed. C. Panayiotou. Berlin: Sternberg Press, 154–63.
- Rizvi, U., 2019. Archaeological encounters: the role of the speculative in decolonial archaeology. *Journal of Contemporary Archaeology* 6(1), 154–67.
- Routledge, B., 2023. An archaeology of traces. *Cambridge Archaeological Journal*. <https://doi.org/10.1017/S095977432300029X>
- Shanks, M., 1995. The archaeological imagination: creativity, rhetoric and archaeological futures, in *Whither Archaeology? Papers in honour of Evžen Neustupný*, eds M. Kuna & N. Venclová. Prague: Institute of Archaeology, Academy of Sciences of the Czech Republic, 52–68.
- Shanks, M. & C. Tilley, 1992. *Reconstructing Archaeology: Theory and practice* (2nd edn). Cambridge: Cambridge University Press.
- Smith, M.A. 1955. The limitations of inference in archaeology. *Archaeological Newsletter* 6(1), 3–7.
- Sørensen, T.F., 2016. In praise of vagueness: uncertainty, ambiguity and archaeological methodology. *Journal of Archaeological Method and Theory* 23(2), 741–63.
- Sørensen, T.F., 2019. The triviality of the new: innovation and impact in archaeology and beyond. *Current Swedish Archaeology* 26, 93–117.
- Sørensen, T.F., 2021a. A gentle shock of mild surprise: surface ecologies and the archaeological encounter, in *Heritage Ecologies*, eds Þ. Pétursdóttir & T.R. Bangstad. London: Routledge, 145–64.
- Sørensen, T.F., 2021b. That raw and ancient cold: on Graham Harman's recasting of archaeology. *Open Philosophy* 4, 1–19.
- Sørensen, T.F., 2023a. Going nowhere, slow: an exercise in pataphysical curiosity, in *Miscellanea: A cabinet of curiosities*, ed. T.F. Sørensen. Copenhagen: The Hub for Speculative Fabulations upon Incidental Observations, 71–83.
- Sørensen, T.F., 2023b. *Insignificants: speculative fabulations for the incidental and useless*. *Norwegian Archaeological Review* 56(2), 214–28.
- Spector, J.D. 1991. What this awl means: towards a feminist archaeology, in *Engendering Archaeology: Women and prehistory*, eds J. Gero & M. Conkey. Oxford: Blackwell, 388–406.
- Trigger, B.G., 2006. *A History of Archaeological Thought* (2nd edn). Cambridge: Cambridge University Press.
- Tringham, R., 2020. Closely observed layers: storytelling and the heart, in *Archaeologies of the Heart*, eds K. Supernant, J.E. Baxter, N. Lyons & S. Atalay. Cham: Springer International Publishing, 239–52.
- Watson, P.J., S.A. LeBlanc & C.L. Redman (eds), 1971. *Explanation in Archaeology: An explicitly scientific approach*. New York (NY): Columbia University Press.
- Wheeler, R.E.M., 1950. What matters in archaeology? *Antiquity* 24(95), 122–30.
- Witmore, C.L., 2014. Archaeology and the new materialisms. *Journal of Contemporary Archaeology* 1(2), 203–24.
- Witmore, C.L., 2015. Archaeology and the second empiricism, in *Debating Archaeological Empiricism: The ambiguity of material evidence*, eds C. Hillerdal & J. Siapkis. London: Routledge, 37–67.
- Wylie, A., 1989. Archaeological cables and tacking: the implications of practice for Bernstein's 'Options Beyond Objectivism and Relativism'. *Philosophy of the Social Sciences* 19(1), 1–18.
- Wylie, A., 1993. A proliferation of new archaeologies: 'Beyond objectivism and relativism', in *Archaeological Theory: Who sets the agenda?*, eds N. Yoffee & A. Sherratt. Cambridge: Cambridge University Press, 20–26.
- Wylie, A., 1997. The engendering of archaeology: refiguring feminist science studies. *Osiris* 12, 80–99.
- Wylie, A., 2002. *Thinking From Things: Essays in the philosophy of archaeology*. Berkeley (CA): University of California Press.
- Wylie, A., 2003. Why standpoint matters, in *Science and Other Cultures: Issues in philosophies of science and technology*, eds R. Figueroa & S.G. Harding. New York (NY): Springer, 26–48.

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