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Liv Nilsson Stutz

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Rewards, Prestige, and Power: Interdisciplinary Archaeology in the Era of the Neoliberal University

Liv Nilsson Stutz

Linnaeus University, Department of Cultural Sciences, 351 95 Växjö, Sweden, liv.nilssonstutz@lnu.se

Abstract

Archaeology has always been situated in a borderland between disciplines. However, in recent years a vigorous debate about the relationships between the humanities and the natural sciences has emerged within the field, warning that with the “Third Science Revolution” in archaeology, the important perspectives provided by the humanities are being marginalised, and that this can have long-lasting and detrimental effects on the discipline. This article critically examines the debate and situates it in the context of the development of the neoliberal university and its impact on research and intellectual work more broadly and identifies the underlying ideologies of ever-increasing research output and quantification as the real threat to an intellectually rich and engaged archaeology, not the natural sciences.

Keywords

Epistemologies, paradigms, power, Third Science Revolution, neoliberal universities

Zusammenfassung

Die Archäologie befindet sich seit jeher in einem interdisziplinären Grenzbereich. In den vergangenen Jahren kam es jedoch innerhalb des Fachs zu einer heftigen Debatte über die Beziehungen zwischen den Geistes- und den Naturwissenschaften. Dabei wird davor gewarnt, dass mit der ‚*Third Science Revolution*‘ in der Archäologie wichtige geisteswissenschaftlichen Perspektiven marginalisiert werden, wodurch das Fach nachhaltige Schäden nehmen könne. Dieser Artikel nimmt eine kritische Untersuchung der Debatte vor und stellt sie in den Kontext der Entwicklung der neoliberalen Universität und ihrer Auswirkungen auf die Forschung und intellektuelle Arbeit per se. So identifiziert er nicht etwa die Naturwissenschaften als Bedrohung für eine intellektuell vielfältige und engagierte Archäologie, sondern die zugrundeliegenden Ideologien des ständig steigenden Forschungsoutputs und der Quantifizierung.

Schlagwörter

Erkenntnistheorien, Paradigmen, Macht, *Third Science Revolution*, neoliberale Universitäten

Introduction: We Have Never Been Monodisciplinary

Addressing interdisciplinarity in archaeology is like taking on its very soul. Throughout its history, archaeology has developed its own methods and built up a unique approach to human history based on the analysis and contextualisation of material culture, but this work has always been situated in a borderland between disciplines. A survey of research papers published in the Swedish archaeology journal *Fornvännen*, conducted by Kerstin Lidén, shows that in Sweden, the use of scientific methods in archaeology dates back to its 18th century beginnings (Lidén 2006). In another paper Christopher Prescott declares that, while archaeology has a strong identity, it is “inherently a borrower discipline” (Prescott 2013: 42), underscoring its openness in integrating theories and methods from other fields. This position between disciplines becomes obvious when we look at how archaeology is categorised within university structures. Depending on the academic culture in different countries, archaeology as a subject

can be part of the humanities, natural sciences, or social sciences. Sometimes this diversity can be found within individual national systems, reflecting different research traditions, and sometimes they can even be found within a single university, reflecting different specialisations within the field itself. It is thus clear that archaeology is not, and never has been, monodisciplinary. It has grown out of and thrived in the fertile soils between disciplines. That being said, with the recent emergence of the “Third Science Revolution” in archaeology, the balance of scientific collaborations has shifted and caused a new debate. Critique has been launched in particular against the work of successful and controversial researchers from other disciplines in the natural sciences, such as David Reich (2018), who from the vantage point of their own disciplines (in this case, genetics) have encroached on the territory of archaeology to tell their story about prehistoric migration, often, according to their critics, without carefully weighing or acknowledging the archaeological knowledge built up over decades of research. It is therefore important to question what lies beneath the surface of this current debate on interdisciplinarity in archaeology, and why it seems to be such a point of contention.

When we discuss collaborations across disciplinary boundaries it is useful to identify the different forms they may take, in order to identify what kinds of collaborations we are seeing and what our expectations are for the field going forward. Building on Marilyn Stember (1991) and Bernard C. Choi and Anita W. Pak (2006), I have outlined these definitions elsewhere (Nilsson Stutz 2018), but to situate this discussion here, I provide a short recapitulation.

The most basic form for disciplinary collaboration is *multidisciplinarity*. The term refers to a model where different disciplines each provide their own perspective and bring their disciplinary expertise to bear on an issue while at the same time staying within their respective boundaries. In archaeology, an example of this type of research would be traditional collaborations with osteologists or palynologists, who add their specialised analysis, often provided in a separate chapter or appendix to a site report or publication, and where the archaeologist is in charge of bringing it all together in a final interpretation. This type of collaboration was common in archaeology in the second half of the 20th century.

Multidisciplinarity is increasingly replaced by *interdisciplinarity*, which refers to a higher degree of integration of perspectives and expertise, where links between disciplines are analysed, synthesised, and harmonised into a “coordinated and coherent whole” (Choi and Pak 2006: 359). Through this kind of collaboration, the interdependent parts of knowledge are brought together, considering different scales of connectedness, resulting in an integrated approach. This kind of higher-level interdisciplinarity characterises most archaeological collaborations today and can be exemplified by the characteristic close cooperation between different specialists, bringing their perspectives into the research design of an excavation project from its conception through to interpretation. The increasing number of co-authored articles in archaeology in the past decades is a clear indication of a shift toward actual interdisciplinarity as a norm for the field.

Finally, *transdisciplinarity* can be considered as an even more integrated level of connectedness, creating an intellectual framework beyond the disciplinary perspectives. This can be exemplified by scholars who, already in their own scholarship, draw on a range of disciplines and allow them to mutually inform one another, or who work with methods developed in one discipline and apply them in another (for example, when ethnography is applied in archaeology). The distinction between interdisciplinarity and transdisciplinarity is somewhat unclear. The distinction has been criticized on the basis that in the end, they both remove “the disciplinary impasses where these block the development of problems and the corresponding responses of research. Interdisciplinarity is in fact transdisciplinary” (Mittelstrass 2001: 497). However, Jürgen Mittelstrass (2001) distinguishes transdisciplinarity by stressing its lasting effects:

“While scientific co-operation means in general a readiness to co-operation in research, and thus interdisciplinarity in this sense means a concrete co-operation for some definite period, transdisciplinarity means that such co-operation results in a lasting and systematic order that alters the disciplinary order itself.” (Mittelstrass 2001: 497)

From an epistemological point of view, this form of collaborative research is easier to conceptualise, as long as every contributor still relies on a specific disciplinary foundation. However, it can become more challenging for a single scholar incorporating this type of scholarship in their work, trying to convey an integrated but still-complex whole. Here, the disciplinary boundaries eventually become difficult to define, as they blend and feed into each other to a point of redefinition or destabilisation. Paradoxically, while we allegedly celebrate the idea of work across disciplines, this kind of transdisciplinarity is not always rewarded, as the researcher may be questioned as

to where their actual expertise resides. Are you an archaeologist? A biological anthropologist? A cultural anthropologist? A philosopher? Or what? Here we start to sense that there may be invisible limits within the definitions of disciplines that resist further expansion outside of the disciplinary box. As I explore the role of power in this dynamic below, I will return to this observation.

Finally, for many, transdisciplinarity also includes a component of incorporating collaborations and knowledge systems that transcend the boundaries of the academy itself to engage other stakeholders in order to try to affect change in society (e.g. Mittelstrass 2001; Nicolescu 2002; Pohl and Hirsch Hadorn 2007; contributions in Hirsch Hadorn et al. 2008; Zierhofer and Burger 2007; Østreng 2010). This dimension is becoming increasingly important to consider in the contemporary political and academic landscape which emphasizes different forms of engagement outside of the university, through activist and applied scholarship. In archaeology we see emerging scholarship relating to ecology, preservation, and sustainability (Isendahl and Stump 2019), sustainable communities (collaborative archaeology), or that address social problems (Zimmerman et al. 2010; Kiddey and Schofield 2011; De León 2015; Hamilakis 2017).

Mittelstrass (2001) stresses that transdisciplinarity is a *practical research principle* and not primarily a theoretical position. He points out that this is an integrating concept that resolves methodological isolation without constructing a “unified” interpretative or explanatory matrix. It makes sense that disciplines exist, since they provide clear organisational and epistemological structures for inquiry, training, and communication; but this setting can also contribute to stagnation. Transdisciplinarity can help existing disciplines deal with such impasses. Usually, these new forms of collaboration do not lead to old disciplines dying and new ones forming. Rather, transdisciplinarity can revitalise the disciplines involved. However, the impact may also be transformative. In anthropology and archaeology, we can see how a bio-cultural perspective for an understanding of humanity crosses disciplinary boundaries in a way that can arguably be viewed as a new explanatory matrix. We can also ask, is transdisciplinary scholarship limited to its immediate “usefulness” in proposing concrete solutions to targeted challenges (climate change, erosion, health outcomes, etc.), or can we claim transdisciplinarity also for intellectual, artistic, and exploratory work? We will return to this below.

Given our history with interdisciplinarity, it is easy to imagine that archaeology should be leading the movement. But when we examine the history of archaeology as a discipline, we notice that the different forms of collaboration and their level of integration have not been consistently improving, but rather have fluctuated over time. It could be argued that archaeology started out as an interdisciplinary endeavour, and over the course of the 20th century became increasingly multidisciplinary as specialisation in research in general drove us into narrower categories of research and inquiry. But, as mentioned above, the multidisciplinary model has its limitations, and we are currently working towards a breaking-down of those barriers, to integrate a more complete and complex perspective in our research questions. As archaeology has moved from multidisciplinary to interdisciplinarity, the field has shifted. This shift is due to a series of factors that are all related and that all affect the power relationships in the field:

1. a shift toward the natural science disciplines that have a longer tradition of collaborative research practices and that fit well the interdisciplinary model of work. They have also experienced a rapid development of methods that are well adapted to archaeological source materials;
2. a so-called “crisis of the humanities” in a general cultural debate, involving a questioning of the value of research traditions since the impact of postmodernism. These traditions are concerned with the boundary between the acknowledgement of the subjectivity of interpretation and a distancing from hyperrelativism;
3. the development of the neoliberal university, which, through reward systems based on quantification following structures adapted to the natural sciences, stimulates the STEM fields at the expense of other disciplines, especially the humanities.

Taken together, all these interrelated developments – intellectual, political, and economic – have led to a shift in power and prestige within archaeology which has increasingly shaped itself according to a model of the natural sciences in the past two decades.

To better understand what the current debates about interdisciplinary work in archaeology are really about and to allow us to formulate a way forward, this article takes a multipronged approach. By analysing the debate, it examines the positioning and relationships forged by the disciplinary theoretical developments over the past several decades. It then places these debates within a broader context of contemporary political structures. Finally, and using the different concepts for collaboration, it proposes a way to rethink interdisciplinarity in (and through) archaeology in a manner that explicitly challenges the current hegemonic structures.

Pendulums and Wrecking Balls: The Dynamics of Archaeological Debates

As already stated, archaeology has never been monodisciplinary. On the contrary, by drawing on and finding inspiration in other disciplines, archaeologists have developed a large theoretical and methodological toolbox. This dynamic becomes especially clear in an analysis of the internal theoretical debates that have moved archaeology in different directions, often tearing it apart at the centre, while forging relationships with other disciplines through theoretical and methodological interdisciplinary partnerships. This tension has brought strength to archaeology and prepared us for scientific and intellectual collaboration. It has also contributed to internal conflicts, including what Robert Chapman and Alison Wylie recently called “theory wars” (Wylie and Chapman 2016: 7). When reviewing the literature on interdisciplinarity in archaeology from the last decades it is clear that there is a power struggle brewing below the surface. The conflict is often framed by the dichotomy set up by Charles Percy Snow in his lecture on *The Two Cultures and the Scientific Revolution* (Snow 1959; e.g., Prescott 2013; Sørensen 2017a; Ribeiro 2019). Snow critically examined the gap between the humanities and the natural sciences, caused by a lack of shared references and general culture – the result of an elitist educational system that traditionally had overrewarded the humanities at the expense of the natural sciences. The essay proposed an interesting point of departure to discuss the “theory wars” in archaeology, especially since it included a consideration for shifting dynamics of value and status, of ideas about usefulness, and of the concept of literacy across disciplines (cf. Nilsson Stutz 2016).

Epistemological developments of scientific knowledge are often likened to the movement of a pendulum, where the movement back and forth between different paradigms and perspectives moves the field forward. In the second half of the 20th century, these pendulum movements can be tracked in archaeological theory through the relationship of processual and post-processual archaeologies that in different ways built on and complemented each other. At the same time, they were perceived as epistemological polar opposites. Processual archaeology emerged as a reaction against a culture historically-oriented archaeology in the 1960s (Trigger 1989) and embraced modelling and analytical tools from cultural anthropology, computer sciences, and natural sciences. In the 1980s, a reaction developed in the form of the post-processual paradigm. The term is problematic in that it contains a broad range of different theoretical directions, united by what it is *not*, i.e., processualism, rather than by what it is (a broad range of theoretical frameworks loosely building on the insights of postmodernism). In the course of this shift, archaeology (re)turned to the humanities in the 1980s, opening itself to history and philosophy but also to social theory for inspiration and epistemological partnerships, while it simultaneously, and in the spirit of the pendulum, turned its back on the natural sciences. In the years that followed, the oscillation gained in amplitude. Artur Ribeiro (2016) has pointed out that the amplitude of this movement may have been considerably greater in the UK and parts of Scandinavia, where post-processualism had a firmer foothold than in other parts of Europe and the United States. This reminds us that these movements are not everywhere identical, and it may also give us a clue as to why a considerable amount of ink is spilled on the current debate in Scandinavian archaeology journals, while the return of the pendulum toward the natural sciences causes less of a stir elsewhere.

Indeed, following the physical law of pendulums, the pattern was bound to repeat itself – and it just did – with a backlash, a movement in the opposite direction with the “Third Science Revolution” (Kristiansen 2014), which took hold at the beginning of the 21st century. It has been driven by methodological advances in a range of laboratory sciences applied to archaeology, including DNA analysis, isotope analysis, etc. This return to the natural sciences is fuelled by a range of methodological advances, but it also coincides with the so-called “crisis of the humanities.” After a golden age in the 19th and 20th centuries, the humanities started to face a crisis often associated with the postmodern critique. It is paradoxical but somehow has become legitimate to claim that the theoretical movement that broke up the unilinear metanarratives in favour of multivocality, postcolonial perspectives, and cultural

relativism made the humanities *less* relevant to understand the contemporary world. At the heart of the critique lies the discomfort with the destabilisation of objectivity, and it has constituted a very successful attack on the humanities in general. In the end, a few years into the new millennium, this critique finally left a lasting imprint on archaeology, pushing it toward the “harder sciences.” Now, finally, archaeology – long thought of as a humanist discipline – can produce what is perceived to be more scientific and objective results, and it appears to be a relief to many.

It is interesting to note that, with the Third Science Revolution, the changes in archaeological attitudes were not limited to views on the natural sciences. The theoretical swing could be traced to a deeper dissatisfaction with the efficacy of the postprocessual paradigm. The social theory of the 1990s was often framed in linguistic terms of meaning and significance, with Ian Hodder’s *Reading the Past* as a case in point (Hodder 2003). While initially enriching archaeological interpretation, bringing it into a more mature theoretical academic discussion, it often failed to deliver a good fit between theory and sources. At the turn of the new millennium there was a growing awareness that the dominating linguistic frameworks involving ascribed meaning were less effective than theories exploring practice and materiality to understand human prehistory (Nilsson Stutz 2008). This lack of satisfaction with the connection between theoretical models and the archaeological sources as well as the need for empirical grounding have developed further within archaeological theory over the past 15 years. As a consequence, we have recently seen a broader turn toward the material world, resulting in approaches such as symmetrical archaeology (Webmoor 2007; Witmore 2007; Olsen 2010; Olsen and Witmore 2015; Edgeworth 2016) and toward post-humanist perspectives, Actor-Network-Theory (ANT), and Object-Oriented Ontologies (OOO), all breaking away from a humanocentric processing of the world (e.g. Morton 2017). However, these turns toward materiality have stayed mostly out of the fray of debates regarding interdisciplinarity, probably because its most successful proponents remain identified as “theorists”.

Dissatisfaction drives change, but there are different ways to go about it. When looking at the debate surrounding the “Third Science Revolution” in archaeology, there seems to be a common view that we are dealing with a pendulum that has the tendency to be deployed as a wrecking ball (cf. Sørensen 2017b), tearing down everything in its path. However, as we move forward into an interdisciplinary future, I propose another strategy. On closer inspection we note that below the surface of grandstanding in archaeological theory and current archaeological debates, there is a lot of work just happening. To illustrate the effects of this, I propose that we instead use the 1851 experiment of Léon Foucault with his pendulum as a metaphor, where the movement back and forth is complemented by a gradual rotation moving sideways to fill the plane of oscillation. The movement of this pendulum between perspectives gradually fills in the blanks of our knowledge in a manner that stresses circularity over polarity. Thinking back to the development of archaeological theory, this would mean that we have room in our models to keep some of the knowledge we have acquired along the way as we move with the pendulum, and we can acknowledge that we keep coming back to questions, models, and tools we have used before. Instead of destructively crashing into them, we can pick them up and let them ride along with us. A similar argument has been proposed by Ribeiro who has criticized what he calls the fetishization of “newness” in archaeological theory, questioning the notion that archaeology should be in need of paradigmatic change. Instead, he recommends “a culture which prioritizes the quality of archaeological theories regardless of whether they are new or old” (Ribeiro 2016: 146). I could not agree more.

The Current Debate: Revisiting the Two Cultures

Since the turn of the millennium, we have seen first a gradual and now an increasingly sharp return to empiricism, materiality, and, perhaps most important for our discussions here, toward the natural sciences. Different forms of collaboration between laboratory sciences and archaeology have gained in strength and importance, and this has without a doubt yielded important and interesting results and insights enriching archaeology. This so-called “Third Science Revolution” in archaeology is embedded within the development of laboratory-based sampling and methods of analysis, along with big-data mining and hypothesis-driven research design – all core practices in the natural sciences. It certainly constitutes a return to the material dimension of archaeology, with – in an important respect – a widening of the epistemological scope to include more scientific theory. It also relies unavoidably on interdisciplinarity. While this development has found enthusiasm within the field (e.g., Kristiansen 2017), it has

also been vigorously criticized (see below). Before we go any further, we must first ask: are the archaeological sciences useful? If the answer is yes, which I believe it is, our next question must be why there is so much debate about them. Is it really about the science?

The answer to the second question is both yes and no. It appears that, beyond the new data and information, the turn of the field has had deeper impacts on archaeological knowledge production than can be analysed in epistemological terms alone. But in addition to that, and as will be developed below, the debate is also conditioned by political factors impacting university structures and research practices that affect *all* research and where we could identify a common adversary. These layers are all interconnected, but for the sake of clarity I will present them separately.

Epistemological Hierarchies

The first critique has to do with epistemological hierarchies, respect, and flow of ideas within the interdisciplinary model. As the “Third Science Revolution” has taken hold, it should not be surprising that theoretical archaeological reflection has increasingly involved critique. Yet, most of the critique raised in the current debate does not question whether we should be doing archaeological science per se. Note that this is quite different from the postprocessual critique of processual archaeology. Now nobody seriously doubts the value of the data, and everybody agrees that it must be interpreted. It is here, though, that critics point to an insufficiency, a failure to engage substantially with an archaeology informed by the humanities, resulting in a lack of nuance and theoretical depth in interpretations (Sørensen 2017a; Ion 2019; Ribeiro 2019). The valuable synchronisation between methods, theory, and data is lost, and the archaeologist often struggles to get the point across that, with the publication of laboratory results, there all too often remains a lack of problematisation. This critique has especially focused on the interpretations of ancient DNA analyses in explaining prehistoric migrations (i.e., Frieman and Hofmann 2019; Furholt 2019; Ion 2019). Because the methodological developments are so exciting, with great amounts of new data extracted, there is a real risk at the moment that the methodological development overshadows the theoretical work. If we are not cautious, we run the risk of producing a range of data points that are not sufficiently framed by a contextual understanding of past processes (for example, of migrations in the past), of biological or genetic processes, or a deeper understanding of human experience.

This lack of engagement with the humanities side of archaeology is not only a matter of adding colour to the interpretations. The stakes are higher than that. The allure of objective truth that can come with scientific laboratory results has both disciplinary and political consequences. Åsa Larsson (2013) reminds us that all research is and should be a process toward increasingly better insights but that it is never a finalised stable interpretation. When it works, science proceeds by correcting itself, but that does not mean that it is ever reaching a definitive end. If we are to combine science and archaeology, Larsson argues, then we should be scientific about it. She uses radiocarbon dating and the molecular clock as examples where scientific model methodologies have been adjusted after archaeology and palaeontology provided a well-warranted critical response (Larsson 2013: 31). There are also dangers that extend beyond the research field itself. Elisabeth Niklasson points out the risk (and in particular, the political risk) in a false sense of security provided by seemingly objective data. It is not enough, she argues, to simply “add critics and stir” once the interpretation is out there. Since knowledge is produced at a deeper level, that critical mindset must be inherent in the research process. We need to understand that ideology is intrinsic to archaeological knowledge production, not merely “an infiltrator” (Niklasson 2014: 60).

So why do these problems occur at the interpretative level? Some of the challenges may emerge from the problem with academic specialisation. The more we specialise, the more our value as partners in interdisciplinarity increases. But interdisciplinarity does not only require specialisation. It also requires a broad understanding of the complex issues we are tackling. The intersections of perspectives from different epistemologies enrich our understanding, perhaps especially of humanity, interconnected across multiple scales with our material surroundings, wrapped up in a complex, deep, biocultural history. Despite this compelling potential for interdisciplinarity, archaeology often lacks experience in real interdisciplinary work. If we critically examine its oft-celebrated role, we do not always encounter inspirational examples. Despite the lip service given to interdisciplinarity in the 1980s and 1990s, it often appeared as if archaeology – the so called “handmaiden of history” – had found a handmaiden all of her own in the natural sciences, one that should just “do the work and not ask too many questions.” Within

the postprocessual paradigm, the natural sciences were not infrequently demoted to deliver data to be interpreted by “archaeological theory.” The collaborations often appear to have been multidisciplinary in nature, rather than providing environments for collaboration and mutual learning, sometimes even resulting in the hostile attitudes described by Kerstin Lidén and Gunilla Eriksson (2013) as a “filter” preventing exchange and dialogue. Today, as the natural sciences have regained ascendant status in archaeology and postprocessual perspectives have lost their hegemonic position in the field, archaeology risks bypassing the opportunity to build true collaborative relationships. What we seem to witness is a rather weak relationship between parties who compete over both data and interpretation, rather than build them in collaboration (as noted above, this is especially clear in the often-public debates about ancient DNA research and prehistoric migration). Unfortunately, this means that instead of being in a position of harnessing the true potential of transformative transdisciplinary and collaborative work on equal terms, we often simply see a shift in the positions of power. This is definitively holding us back, but Tim Flohr Sørensen (2017a: 111) has warned that it may also have a longer-lasting impact on the field. If collaboration is replaced by a state where scientific methods are incorporated to a point of marginalising central tenets within the humanities, archaeology may become perhaps permanently transformed at a deeper level.

The Research Process

This deeper transformative effect, touched upon by Sørensen, relates to a less-discussed dimension of the epistemological shift toward the natural sciences, and I argue that it goes beyond the lack of depth in interpretation. This dynamic affects the research process itself. How we formulate research questions, and what kind of answers we value, differs between the natural sciences and the humanities. The natural science approach to building knowledge is crafted around the principle of hypothesis testing. In the 1960s, processual archaeology turned to this approach. It had clear benefits, but it also led archaeology down a path that prevented it from exploring research questions that were not suited for hypothesis testing. Broad and challenging themes emerged with new, important, and exciting questions in the turn to postprocessual archaeology. Foci included ideology, belief systems, values, emotion, ritual, experiences, and so on. While notable exceptions exist, with the “Third Science Revolution” we now see all too often a return to the lower steps of Christopher C. F. Hawkes’ *Ladder of Inference* (1954), with more limited inquiry into these dimensions of human life in favour of questions that can be tested and answered with more certainty. Another possible direction is the move toward a “macroarchaeology” that captures long-term changes, perhaps more accurately, but at the expense of the scale of human lived experience (e.g., Perreault 2019).

This shift does not only affect what questions we ask, but also, increasingly, what kind of knowledge and results we value. It is possible that what we are seeing is a culture clash between different traditions of research. In the natural sciences there is value in adding a small piece to the bigger puzzle in order to provide data and results that can later be examined and retested. Here, even a rather modest insight is valuable to share, in order to be re-examined, complemented, or questioned. This is a sound approach to the collective and cumulative creation of knowledge, but it has not always translated well to a discipline such as archaeology, which often seeks to create grand narratives even after just excavating a single posthole. The result is that when scientific data are published in archaeology, they tend to become extrapolated to fit our expectations of a great story, and even if the data are simply not there, we allow the application of scientific methods to convince us that there really is a “there” there.

An example of this is the recent study of projectile points associated with big-game hunting from the 9000-year-old graves of two women in the Andean highlands (Haas et al. 2020). Due to poor bone preservation, the assessment of the biological sex was made using proteomic analysis of sexually dimorphic amelogenin peptides in the tooth enamel. This result, representing an exciting contribution by a novel archaeological science application of a new methodology, clearly associated two women with projectile points and inspired an interpretation of them as potential big-game hunters, a hypothesis that challenges preconceived ideas about the gender division of labour in Holocene hunter-gatherer societies. To test whether or not this would have been a more common association, the team carried out a comparative review of Late Pleistocene/Early Holocene burials in the Americas. Out of 429 individuals from 107 sites, 27 sexed individuals from 18 sites were associated with big-game hunting tools, and of these, eleven were identified as female. However, only three of these eleven are considered strong associations, in that they present a good stratigraphic association with the tools, are securely sexed, and directly dated by radiocarbon on bone collagen. Of these three, two are infants and were not hunters *per se*, leaving but one adult female who may potentially have hunted big game using the tools placed in her grave. Despite all the reservations presented

by the authors in the article, they still conclude that their findings indicate non-gendered labour practices in which women were big-game hunters. Here, the leap between the data and the interpretation is huge, and it is reasonable to ask if this study would have been published in a highly regarded interdisciplinary scientific journal had it not been for the scientific methods it deployed. The will to make this leap in the interpretation might of course be explained by the enthusiasm of the researchers and the desire to problematise gender stereotypes in archaeology, but it may also be explained by a culture that drives us to break through the media filter and collect accolades that translate in the reward systems of the current state of the academy (this will be discussed in more detail below). A more remarkable example of hypothesis testing is the evaluation of the possibility to fabricate and use knives made from frozen human feces (Eren et al. 2019). While these two studies have very little else in common, what they both demonstrate, on different points along a spectrum, is the favouring of scientific protocol and hypothesis testing without taking into consideration aspects such as the symbolic use of artefacts in narrative, myth, and ritual, aspects that, without a doubt, are more difficult to test, but that nevertheless provide important insights into the human past we study.

Stuck on Two Cultures

This takes us to a final observation that regards both the debate itself and how it frames interdisciplinarity. When analysing the debate, it becomes clear that it is situated within an unreflected, narrow understanding of what interdisciplinarity in archaeology is and can be, limiting it to a formulaic dyadic concept of the Two Cultures the humanities and the natural sciences. This unproblematised assumption – in the debate, but also to a large extent within our practices – results in a maintenance of the disciplinary divisions, engages them in a power relationship and an epistemological hierarchy, and most regrettably, cuts off the important influx of ideas from other disciplines that we should include more actively, in particular from the social sciences. From an American perspective, where archaeology is a part of anthropology, itself defined as a social science, this is entirely inexplicable. While there is an emerging push in archaeology to collaborate with the art world, psychology, etc., these initiatives are more often than not seen as exciting if somewhat experimental personal projects, or as creative theoretical insights, rather than for what they are: serious transdisciplinary projects. Going forward, archaeology must break free from limiting our understanding of research collaborations to the definitions of the Two Cultures. We must look to forge new partnerships with the social sciences, but also with the creative fields of art, theatre, literature, and music.

Reward Systems, Prestige and Power

The shift away from the humanities (allegedly in crisis) and toward the natural sciences in archaeology was prompted by exciting new methodological developments, but it was also framed by the emergence of the neo-liberal university with its focus on competition, productivity, output, entrepreneurship, profit, and “usefulness” (Shear and Brin Hyatt 2015; Heatherington and Zerilli 2016). This includes “growing symbolic and financial privileges accorded to STEM fields (science, technology, engineering, and mathematics),” at the expense of fields perceived as less relevant or marginal – the arts, humanities, and social sciences (Heatherington and Zerilli 2016: 44; see also Shore and Wright 2016).

“In the new university, what ‘counts’ are those things that can be ‘counted’, quantified and translated as financial returns to the institution. As one Danish minister summed it up, the aim is to speed up the translation of research from ‘idea to invoice’.” (Shore and Wright 2016: 48)

The productive value of the academy is no longer measured in intellectual work and inspiring arguments and thoughts, but rather in immediately measurable outcomes, for example, effects in society or a breakthrough in media where the framing of the results often is more central than its contents. The pressures on academic institutions are pushed down to individual researchers, who see their value measured in grants, publications, and citation indices, all of which are rigged to favour the natural sciences. All the structures that frame our scholarly work – including granting agencies, publication businesses, and public interest – reward this development and continue to reproduce it. The result is that archaeology today, while still situated in the fertile soils of epistemological diversity between disciplines, is caught in a system that, through an intricate quantification mechanism including impact factors, citation indices and grant funding structures, pushes it toward the natural sciences and does so at a time when archaeological science is experiencing methodological breakthroughs that make this strategy very

palatable. These processes within our field have remarkably tangible effects on the deeper level of the archaeological knowledge production chain, driven by the career games we all are forced to play, and that are highly structured by the cultural values permeated by publication and grant politics. Today, the big grants and many of the most prestigious journals will be rewarding research anchored in the natural sciences (see also Larsson 2013: 30; Ion 2017: 185; Ribeiro 2019: 116). These powerful structures also have a negative impact on experimental and untested research ideas that do not fit into the mould already shaped by disciplinary traditions. To be sure, how individual researchers respond to these pressures depends on their personal ethics, interests, and needs. But individuals' decisions can have very diverging benefits and costs to respective scholars' careers. It is easier to step away from these pressures once one's career and income are secured.

The same processes are at work in the relationships between researchers, scientific publications, and general media outlets. While many academics may claim that they do not care about media attention (some may even find it problematic and challenging), university structures and many leading science publishers operate with a media strategy that aims at breaking through what Larsson terms the media filter. This strategy to break through resides in what Larsson calls *the innate paradox of combining science with archaeology*:

“It is the *former* that warrants a study being published in prestige science journals and which gives its conclusions gravitas. But it is the *latter* that generates the ‘human interest’ angle which will allow it to be publicised heavily by the editors and to be picked up by journalists in public media.” (Larsson 2013: 29)

It should not come as a surprise to anybody, then, that it is the archaeology that is increasingly dotted by better funded subdisciplines that simultaneously provide access to the most prestigious journals with the highest impact factors and with a media strategy that facilitates the breaking through of the media filter, that gets the most attention (for a more in-depth study of the phenomenon of the scientific economy of attention, see Franck 2002; van Krieken 2019). When sitting down with one's institution's communications or public relations office, one may well face the question: Why should the readers of the *New York Times* care about your research? It may be easier to give a well-received answer if you provide a grand narrative about large-scale migrations or conflicts, or if you can make broad statements about gendered labour in the past, than if you want to problematise and nuance the implications of your research.

What Is at Stake, and Where Do We Go Next?

After reviewing the debate, we can conclude that while the discussion at times might be heated, nobody argues that the natural sciences have no place in archaeology. What we are debating relates more to the ways in which the current “Third Science Revolution” in archaeology tends to shift the positions of power in the relationship, favouring the natural sciences at the expense of the humanities. While this state of affairs might be a product of recent “theory wars,” it is more likely linked to a lack of mutual understanding or literacy across disciplines. However, whether it is the theory wars, academic specialisation, or both, they continue to contribute to ideological discourse that distracts us from the underlying structures giving power to the natural sciences. Given that it is valuable to fight back against unnuanced and sometimes wrong or theoretically retrograde – grand narratives, we need to ask ourselves who the real adversary is. The problem we are really struggling with here is not the growing importance of natural science in archaeology, but rather the rise of the neoliberal university. It is the systemic mechanisms that reward and value different forms of research differently that should be targeted, not individual fields or researchers.

So, where do we go from here? If we return to the understanding that archaeology resides in the borderlands between disciplines, we must be creative and knowledgeable enough to build an archaeology that continues to grow and flourish in those interdisciplinary interstices. Viewed in this light, it becomes clear that the internal problems which have to do with the relationships within the archaeological research community can be solved. We can become more literate across disciplines (Nilsson Stutz 2016). Sørensen cautions us not to underestimate the challenge we are facing, stating that it “is not resolved merely by becoming more conversant with the nature of research across the disciplines, as suggested by Snow. Rather, we need to consider the potential that a question, an observation, an object, a fact, are not synonymous concepts in science and in the humanities” (Sørensen 2017a: 108). Achieving the level of literacy that allows us to translate these meanings will require both

effort (see also Lidén and Eriksson 2013) and an overhaul of our education and training of future archaeologists (Prescott 2013: 43). In the meantime, we can all work on removing our filters (Lidén and Eriksson 2013: 18), practice civil discourse, and develop a curiosity for that other side across “the two cultures,” be less prestigious, and learn how to collaborate – or choose not to, when the questions we want to pursue are better solved through other processes. These steps are necessary in order for us to deeply understand the different perspectives well enough to develop the potential for transdisciplinary work, both within our own research and in our collaborations.

But to resist the forces placed on us by the neoliberal university, we need to do more than offer goodwill to colleagues across the Two Cultures divide. To try to change the system may be a big, long-term task. We can begin by resisting it where we can. To resist the system will require those of us who are lucky enough to have a secure career to make choices that go against the neoliberal priorities: resist the pressure to maximise output, prioritise readership and fit over quantified prestige when choosing where to publish, build and sustain supportive research communities that explore new and unsupported research ideas, resist the pressures to adapt entrepreneurial goals to projects, and insist on and articulate the value of the humanities and the social sciences. We also need to actively rethink what a new transdisciplinary archaeology might look like. Can we claim the term beyond the usefulness impacts formulated within a neoliberal mindset and apply it to intellectual, artistic, and exploratory work? Maybe it is in this kind of collaboration, when expanded beyond the narrow frame of the Two Cultures to embrace the social sciences, the arts and even activism, where archaeology can have an impact, make a contribution to intellectual debates and be a part of meaningful social change beyond the academy, and truly engage with emerging discourses – including those that call for us to tear down the walls of the academy itself that will matter in the long run.

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