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FORUM

Response to 'Brexit, Archaeology and Heritage: Reflections and Agendas'

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This research was presented at the UCL Brexit, Archaeology and Heritage workshop and here it is summarised as a response to the lead forum article 'Brexit, Archaeology and Heritage: Reflections and Agendas'.

Keywords: Big Data; DNA; Brexit; National Identity; Archaeology; Digital Social Research; Heritage; Nation

Inspired by the many discussions on the subject of nation and national identity prompted by the vote for Brexit in June 2016, this area of research was chosen to combine the authors' research interests and specialisms – Ancient DNA and digital social research. In 2017, the authors undertook some initial exploration of the possibilities of using a variety of digital social research methods to explore public attitudes to Ancient DNA and its meaning and impacts in online communities. The ability to collect 'Big Data' from social media sites for social analysis is a direct result of the growth in the use of digital devices and platforms, especially in the Global West. There are numerous opportunities for large scale data analysis offered by the growth in interest and use of social media, not least for discussions of genealogy, national identity and the results of DNA testing. The use of these sorts of data and tools for analysis have not been widely employed in archaeology to date, and the social science researcher can find a wealth of open and public opinions and comments on diverse topics related to archaeology and heritage in online spaces.

The pilot exploration undertaken by the authors aimed to capture data on the terms 'Ancient DNA' using Twitter and the white supremacist, neo-Nazi discussion forum 'Stormfront' as initial sources for this analytical work. The Twitter data was collated using the Twitter Archiving Google Sheets (TAGS) which is a free Google Sheet template which allows users to set up and run an automated collection of search results from Twitter. The data from the Stormfront website was scraped from the discussion forums using Python. However, the Stormfront website name was removed by its domain registrar for promoting racism, deadly violence and hate speech in August 2017 (Daily Telegraph 2017), and so this data cannot be further verified or used at this time. Discussions on the issues of ethics and personal safety associated with the use of these data sources will

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be outlined in the future publication – for the purposes of this paper, no identifying metadata has been used and these are fully anonymised.

The reasoning for taking a digital social research approach to this work on the public understanding of Ancient DNA is the ability of such approaches to highlight at volume why archaeologists need to understand that the complex information contained within news, popular and academic articles in the public domain is being misinterpreted, misused and used to uphold ultra-racist political beliefs within complex social contexts online. The resulting data collated from Twitter emphasise the misunderstandings associated with DNA testing amongst non-specialist publics, as well as the personal and group meanings of ethnicity and associated identity. There are also numerous associations that can be found in this dataset between neo-Nazi ideas of northern European 'whiteness', and the location of very specific geographic origins that can be found in archaeological work with ancient DNA. Overwhelmingly, as these data will demonstrate, the complicated association between present ethnic identity and ancient DNA is misunderstood, oversimplified, and frequently used to fit into nationalist narratives and support ideas of white supremacy.

It has long been argued that archaeological public engagement needs to adjust, adapt and evolve according to the prevailing social and political winds, and the post-Brexit vote backlash against experts is a clarion call for professional archaeologists to promote themselves as public intellectuals and engage with difficult societal issues. This feeds directly into the theme of 'intuitive knowledge' which is perceived to have driven some of the arguments around Brexit and may lie at the heart of new nationalisms and post-Brexit heritage. Two 'intuitive tenets' related to these issues are pervasive in the public consciousness: that ancestry and heritage are fundamentally linked, and that British biology and nationhood were simultaneously forged in the Early Medieval period. Analyses of both modern and ancient DNA are now undermining these biologically determinist notions of nationhood and heritage.

With each generation, the number of an individual's ancestors increases exponentially whilst overall populations usually decrease, meaning that we quickly reach a point where each individual has more theoretical ancestors than there were people alive. The genetic isopoint of modern people with white European ancestry (that is, the point in time at which everyone that was alive in Europe who passed on descendants is an ancestor of all people with white European ancestry alive today) is the 10th Century AD (Ralph & Coop 2013). Therefore, every modern person with white European ancestry has the same dispersed Early Medieval genealogical ancestors in common.

Recent ancient DNA studies of population change in prehistoric Europe have found several significant population shifts, in some cases resulting in an almost complete replacement of preceding populations (Allentoft et al. 2015; Fu et al. 2016; Haak et al. 2015; Olalde et al. 2017). The impact of these findings in heritage terms is demonstrated in an analysis of British Neolithic, Beaker and Bronze Age populations, which suggested that there was a >90% replacement of the local Neolithic population by migrants with ultimate origins in the Pontic steppe region of Eurasia (Olalde et al. 2017). This means that in general terms, modern British white Europeans are *not* directly descended from the people that originally built Stonehenge, and in a biologically determinist model of heritage, Stonehenge *would not* be British heritage. Ancient and modern DNA research has the potential to disrupt such problematic biologically determinist narratives of nationhood and heritage, but this potential is not being realised. This is in part because it is counter-intuitive to the prevailing public understanding, but also because many individuals working on the frontline of public dissemination in archaeology simply do not have the knowledge to confidently advocate for these new genetic findings.

Encouraging a baseline level of knowledge in the general public with regards to what ancient and modern DNA can and cannot tell us about ancestry and heritage is increasingly pertinent, especially at a time when relatively cheap direct-to-consumer genetic ancestry testing kits are quickly becoming a popular way for the public to explore their ancestry and family history (Royal et al. 2010; Jobling et al. 2016; Phillips 2016). These tests have the potential to disrupt biologically determinist ideas of nations and new nationalisms, in that they invariably suggest that individuals have diverse ancestral origins. This potential is demonstrated by a recent study of US white supremacists' reactions to personal ancestry testing results which failed to fall within their own definitions of 'whiteness' (Panofsky & Donovan 2017).

However generally, these tests are failing to live up to their disruptive potential, because the companies behind them are reluctant to caveat and explain their results in ways that challenge public expectations (Jobling et al. 2016). For instance, many members of the public in Britain believe that these tests can link them to specific Early Medieval cultural groups, as evidenced by the data collected for this research by the authors (Scully et al. 2013; 2016). Marketing by some genetic ancestry testing companies has exploited these beliefs. These companies are also conspicuously vague about how far back in time their ancestry tests can go, and the limitations in using modern populations as proxies of historical ones (Royal et al. 2010; Jobling et al. 2016). As far as modern populations can be used as historical proxies, these ancestry composition tests are likely to only reflect the last c.300 years and certainly cannot be used to link an individual's genetic information in any meaningful way with Early Medieval cultural groups. However, the reluctance of genetic ancestry testing companies to explain these aspects of their tests means that the public are left to interpret their ancestry composition results themselves, perhaps with the aid of the internet, which will inevitably produce narratives consistent with their own preconceived ideas or desires regarding their deep ancestry (Scully et al. 2013; 2016). This situation is potentially problematic as, without caveats, the idea that it is possible to use genetics to distinguish world populations can reify concepts of race and ethnic nationalism (Morning 2014; Nash 2015).

Geneticists themselves have started to counter some of the more egregious claims made by genetic testing companies (Jobling 2016). However, geneticists are perhaps not always best placed to undertake this kind of public engagement with archaeological sources, and rarely directly encounter the public in arenas for discussing heritage and ancestry specifically. Public archaeologists encounter the general public more often, and these encounters may take place in contexts where they are more likely to be contemplating questions of ancestry and heritage. Archaeologists perhaps need to consider how they can effectively and aggressively ground the new social narratives that are created as a result of work on archaeological genetics within local and national archaeologies, starting from the point that these discoveries are published both within the academic sphere and in popular media. Since open access academic publications are becoming increasingly common, it is not unusual for popular media to interpret the findings of an academic research paper after publication, and this can lead to misleading information being taken out of context. By making these DNA-based social narratives much more understandable, both to the layperson as well as to the archaeological professional, and establishing them as discussions of the diversity that can be found in local, regional and national archaeologies, we can support the creation of focused, small-scale and tangible ideas about the lives of populations, rather than enabling grand narrative abstract discussions of genes, migrations and indigeneity. Archaeologists would then be enabled to better promote the inherent diversity of past populations, and how these populations lived in, and

changed the wide range of British landscapes past and present. Geneticists could better facilitate the promotion of these kinds of syntheses, and perhaps there is a need to develop venues and mechanisms for the two to come into contact more often, or at least set up a 'translation service'. These kinds of collaborations would be mutually beneficial as geneticists are often naïve to the local or even national archaeological contexts of the samples they are investigating, so they may not often appreciate some of the interesting questions they can investigate until they speak to an archaeologist, although increasingly this is changing as geneticists and archaeologists work together more closely. In the meantime, the full results of the analyses of these websites discussed in this article will be submitted for publication in late 2018.

Competing Interests

The authors have no competing interests to declare.

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