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Debate Article

Making aDNA useful for kinship analysis

Bradley E. Ensor*

* SAC Department, Eastern Michigan University, USA (✉ bensor@emich.edu)

Joanna Brück (2021) opens an overdue debate. Having ignored early warnings (e.g. Moore 1994; Sims-Williams 1998; Wildcat *et al.* 2004), the majority of European aDNA research deserves criticism for its astonishing propagation of disproven, antiquated, androcentric and essentialising beliefs. Echoing Sahlins (2013), Brück emphasises the ideologies of relationality and progeniture to critique the biologising of kinship. While I find no errors in this argument, I caution against the post-modernist/post-processualist tendency to reduce kinship to ideology. Descent, residence and marriage are important social practices that structure lives, identities and burial associations. A century of social anthropology demonstrates that kinship is not the same as biological relatedness. Geneticists should not confuse kinship (the subject) with genetic relationships (their materials). Unlike Brück, I believe that aDNA can be useful for investigating kinship, assuming sufficient familiarity with the subject. At stake is the value of this emerging, high-profile line of investigation.

Population biology is inappropriate for investigating kinship. Analytical biological groupings do not have immutable or homogeneous kinship practices. Female-biased haplogroup admixture does not indicate patrilocality. Foreign women (and men) are married and adopted into societies with all manner of descent and residence practices (e.g. Scheffler 2001: 120–59)—not just patrilocality. Population biology can use small, non-contemporaneous samples, including biased sex ratios, unsexed individuals and children. Kinship analysis—observing how descent, residence and marriage distribute biological relatedness—requires larger, balanced cemetery samples of coeval sexed adults, who lived long enough to marry (Ensor in press).

Western bias is most apparent in the obsession with nuclear families. These are not the building blocks of kinship, are not necessarily biological in composition, are not important subgroupings in most configurations, and certainly do not provide evidence for patrilocality. All residence practices place nuclear relations together; their identification tells us nothing about kinship (Ensor in press). The identification of non-biological relations in Neolithic European co-burials (e.g. Haak *et al.* 2008; Lee *et al.* 2012; Gomes *et al.* 2017; Juras *et al.* 2017) is no surprise. Most kin groups have equated 'mothers', 'fathers', 'brothers', 'sisters', 'sons' and 'daughters' who lack even third-degree genealogical relationships (Ensor *et al.* 2017). Non-biologically related co-members are not 'fictive' kin.

Prevailing interpretative models are too simplistic, not exclusive to specific practices, misunderstand group compositions and assume that spouses are buried together (Ensor in press). Matrilineages and patrilineages represent biologically heterogeneous corporate groups, not lines of descent. Female and male co-members—not spouses—are buried together (Ensor *et al.* 2017). Without understanding lineage compositions and adequate samples, some adults in patrilineage cemeteries with mt haplotype matches (HVS-I, -II, or SNP

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polymorphism sequence mutations) can be misinterpreted as evidencing matrilocality. Some males in matrilineage cemeteries with Y haplotype matches (Y-STR and/or non-recombining SNPs) can be misinterpreted as evidencing patrilocality. Bilateral descent is associated with spouse co-burial (Ensor *et al.* 2017). With bilateral descent, bilocality (where individuals negotiate and renegotiate residence in unpredictable ways), matrilocality and patrilocality are, however, difficult to distinguish without appropriate samples and interpretative models. Furthermore, some investigators need reminding that shared haplogroups are not evidence for close biological relations.

For kinship research, aDNA is best combined with other lines of evidence. For example, pooled strontium isotope ratios from the Neolithic massacre burial at Koszyce (Schroeder *et al.* 2019)—from individuals having patrilineal genetic relations—indicate bilocality with a matrilocal bias. Attention to the individual life histories suggests a range of residential practices and changes to them—only possible with bilocality—prior to their patrilineal convergence (Ensor in press). Close scrutiny of mt haplotype matches and strontium isotope ratios from prehistoric Lech Valley (Knipper *et al.* 2017) suggests some matrilocal negotiations among local groups, but patrilocal negotiations with distant groups (i.e. bilocality) (Ensor in press). If one applied archaeological analysis (e.g. Ensor 2013; Souvatzi 2017), only bilocality could be interpreted for Neolithic to Early Bronze Age Central Europe (Ensor in press). Decades of phenotypic data also deserve renewed attention. Finally, most European aDNA (and isotope) research continues to accept associations discredited half a century ago. Farming, livestock, patrilineal descent and conflict are not correlated with patrilocality (see Aberle 1961; Divale 1974; Ember 1974; Ember *et al.* 1974).

As Brück (2021) points out, the use of genetic data does not make interpretation more scientific or accurate. The use of aDNA is only as good as practitioners' knowledge of kinship. For productive contributions, European aDNA researchers require greater familiarity with social anthropology, informed models for interpretation, appropriate sampling methods and research designs that combine multiple methods and sources of evidence.

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