

Migration Narratives in Archaeology

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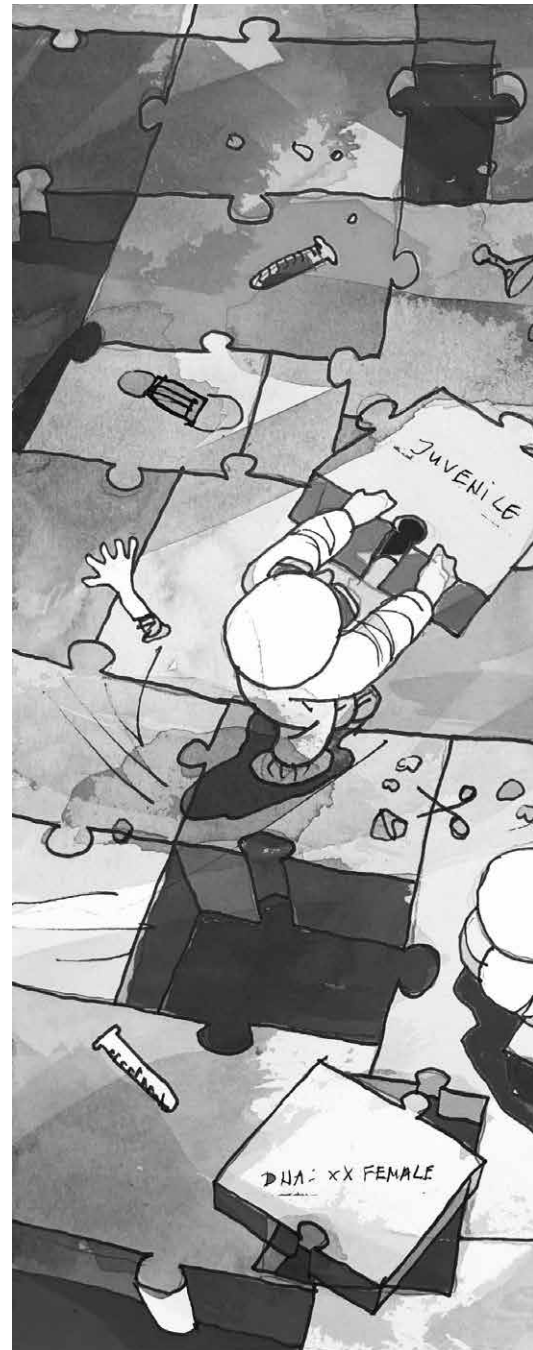
How does ancient DNA work?

Eva Fernández-Domínguez

DNA, the “molecule of life”, is present in every single cell of living organisms, and can be extracted, copied, and interpreted by scientists using sophisticated laboratory techniques and methods of analysis. Since the late 1980s it is possible to obtain “ancient DNA”, i.e. DNA from bone, tooth, hair, mummified tissue, seeds, plants and even fossilised faeces that are hundreds or thousands of years old! DNA degrades as years go by, so not all remains retain enough genetic material to be studied.

The analysis of ancient DNA from past human groups allows researchers to reconstruct different aspects of their lives. On average, 99.9% of the DNA is identical among humans, so all the differences we observe between people fit into just 0.1% of our DNA. The variability of DNA in a person makes it possible to investigate who they were biologically related to and even understand the social structure of human groups. For example, DNA from skeletons in the same grave could determine if those buried together were a biological family and by extension, if family ties

were taken into consideration by the community when burying their dead. The study of DNA can also tell us about the movement and interactions of human groups. Individuals from a human group with shared recent ancestors usually share the same information in certain parts of the DNA, and this information tends to be different in other geographically distant groups. By studying these DNA segments, we can therefore learn if different groups came into contact and exchanged genes in the past. However, translating this gene-flow into actual migrations is challenging, as we cannot be certain of exactly how and when this DNA was exchanged. The information provided by ancient DNA always needs to be pieced together with other sources of evidence, like archaeology. For example, precise dating of the individuals studied for ancient DNA is essential if we want to establish a timeline for the observed genetic changes.



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