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Introduction: As a type of genealogical evidence, DNA is both unique and very mainstream. Despite its differences, we also need to apply tried-and-true genealogical criteria to the use of DNA test results in genealogy in order to meet the Genealogical Proof Standard. This begins with reasonably exhaustive research and incorporates good citation practices, thorough analysis and correlation of data, and resolution of conflicts, all of which are essential if we are to reach a sound conclusion.

A Brief History of DNA and Genealogy

In January 1998, it was a genealogical given. Although mtDNA testing was at least theoretically possible, we were told, "DNA testing … is not available for general use." Just two years later, DNA burst onto the scene as a standard genealogical tool with the founding of Family Tree DNA and its initial offering of YDNA tests. By 2010, autosomal DNA testing was commercially available from 23andMe, FTDNA and others, and by 2014, the *National Genealogical Society Quarterly* had declined to publish a paper because the conclusion needed – and didn't have – support from DNA test data. In less than 20 years, DNA had gone from an exceptional research technique to an everyday part of genealogy.

DNA as a form of genealogical evidence

How it is unique: DNA is unique in some ways as genealogical evidence because of its purely scientific underpinning. Unlike a deed or a tax record, it requires a level of additional education in order to understand and properly use the results. And because it so often relates to living people, there are unique ethical considerations in its use.

How it is also very mainstream: It's also very much like any other kind of genealogical evidence. It has to be source-cited, properly analyzed, correlated, compared and contrasted with other evidence, and conflicts in the evidence resolved. That process, by definition, implicates the Genealogical Proof Standard.

DNA and the Genealogical Proof Standard

The GPS: The GPS components are: (1) reasonably exhaustive research for all evidence that might answer a genealogist's research question; (2) complete, accurate citations to the source or sources of each information item used; (3) analysis and correlation of all sources, information items, and evidence; (4) resolution of conflicts among evidence items; and (5) a soundly reasoned, coherently written conclusion based on the strongest available evidence.

DNA fits with reasonably exhaustive research: The GPS requires us to examine "a wide range of high quality sources" to minimize "the probability that undiscovered evidence will overturn a too-hasty conclusion." Clearly, DNA testing is among the "high quality sources" that help us avoid error. It has to be considered but, in some cases, can't (or need not) be used. Not every genealogical question can be answered by DNA testing, it often requires cooperation of others who may not be willing to help, and testing sufficiently broad in scope to answer a question may be prohibitively expensive.

DNA must be cited: Source citations are intended "to demonstrate the research extent and sources' quality. They enable others to replicate the steps taken to reach a conclusion. (Inability to replicate research casts doubt on its conclusion.)" Test results have to be cited with enough detail to verify the results and show that we understand the information we're using.

DNA must be analyzed and correlated: DNA ***by itself*** can't answer even the simplest genealogical question. Only with the paper trail evidence is it really useful at all, so it needs to be added to the mix of other evidence, and thoroughly analyzed and correlated with all other evidence uncovered in the process of reasonably exhaustive research.

Conflicts with DNA evidence must be resolved: Any conflict in the evidence has to be resolved, whether DNA-based or not. "If conflicting evidence is not resolved, a credible conclusion is not possible."

Reaching a sound conclusion … or missing out: A "soundly reasoned, coherently written conclusion eliminates the possibility that the conclusion is based on bias, preconception, or inadequate appreciation of the evidence. It also shows or explains how the evidence leads to the conclusion." When it comes to DNA, we miss out when we shoot from the hip, don't understand the evidence or leap to conclusions.

DNA and other genealogical standards

DNA and traditional genealogical standards: There isn't anything new or different about DNA when it comes to traditional genealogical methodology or standards. With this type of evidence, as with any type of genealogical evidence, we apply the full range of methodology tools and standards exemplified by the GPS and set out in, among others, *Genealogy Standards* (BCG, 2021), which now has DNA-specific guidance.

DNA and ethical standards: Although standard genealogical ethics concepts apply fully to DNA tests, there are some different ethical concerns and constraints that come into play when living people are impacted. Guidance is available from *Genealogy Standards* and from the *Genetic Genealogy Standards*, developed by genealogists and geneticists.

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