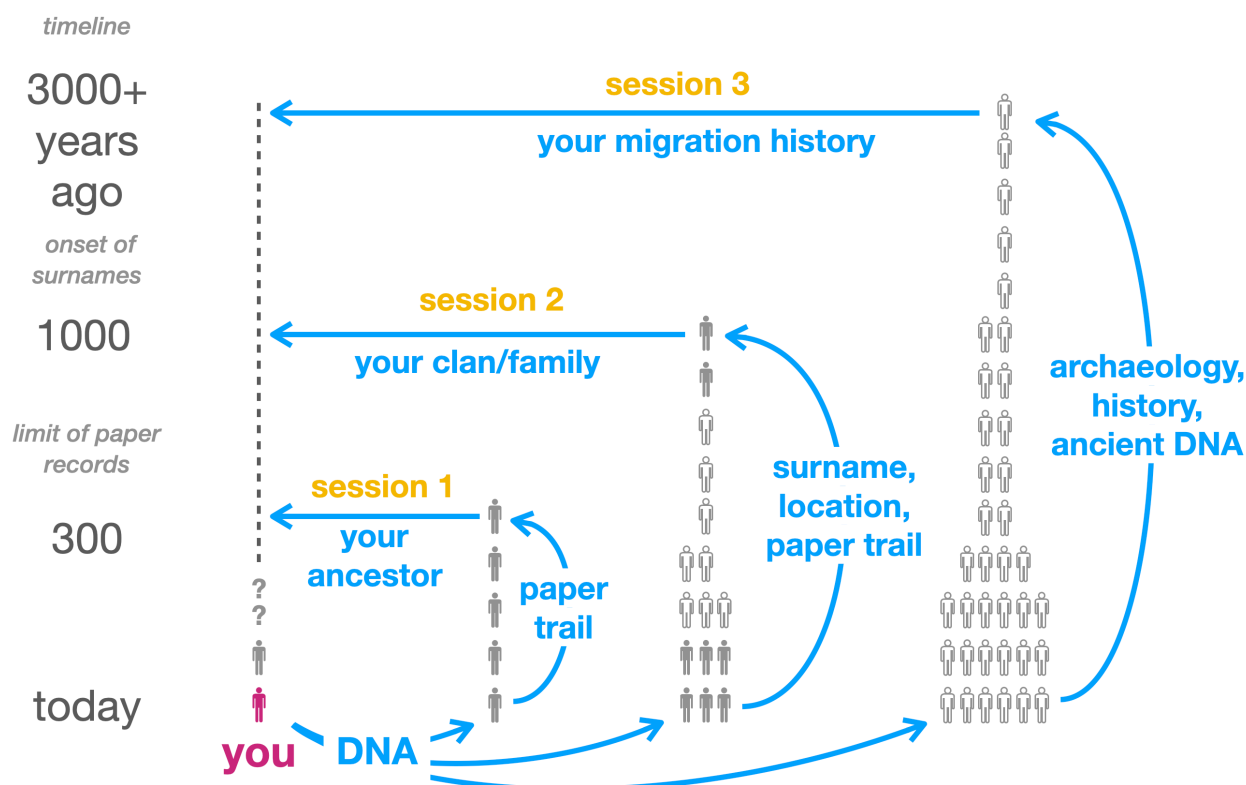


# Extending Time Horizons with DNA

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DNA is often used in genealogy simply to confirm or refute traditional paper evidence. These sessions illustrate a broader approach in which DNA connects to previously unknown people, living or dead, who may have other evidence relevant to your ancestry. DNA can jump over gaps in a lineage to connect to earlier ancestors.



In the first session, autosomal and Y STR DNA tests connect to other DNA testers whose paper records and DNA connections may suffice to build out your own family tree back about 300 years. Y STR data (a type of mutation inexpensive to test but limited in scope) also may reveal a pattern of descent from a single American immigrant. Several important considerations in DNA genealogy (not apparent in paper genealogy) are also discussed: first, that any given surname group will be composed of many unrelated lineages -- in fact, any group of N men will contain about N/2 unrelated lineages. Secondly, men with a common ancestor but different surnames may imply an NPE if the ancestor lived within 25 generations, but otherwise different names simply show that related men took different names when surnames first arose. Paper genealogy cannot reach this far back, but DNA does so easily. Thirdly, the very different survival rates in the Old and New Worlds from 1650-1850 show why we usually fail to find European connections with DNA -- because their descendant lines died out.

Session Two explores ancestry from 300 to about 1000 years ago, where surnames exist but paper trails do not. Available DNA and census data generally limit these explorations to British and Irish lineages. Two examples show that clades (= extended genetic families) with different surnames in fact have common 10th-12th century ancestry that can be located fairly accurately by date and county. Thus people in these families could benefit by combining their traditional paper evidence to clarify their ancestry. In a third example we see that legendary records of clan origins from a 9th century Scottish king are consistent with only one Y lineage.

Session Three uses Y SNP data (another type of mutation, more expensive but that persists and is unique) to reach back to our origins in Africa 240,000 years ago. The data from over 200,000 male DNA testers can be expressed as a haplotree, essentially a family tree that branches at SNPs. A variety of methods (ancient skeletal DNA, modern tester citations, surnames and census data, and mathematical modeling) can be used to locate SNP events in space and time across the globe, after which simply knowing one's most recent SNP suffices to reveal a personal paternal journey. Several examples illustrate the great diversity of our paths and origins. The Y haplotree is now so detailed that the SNP trail frequently overlaps paper genealogic records, providing a complete path from paleolithic Africa to the modern era.

Additional details for the sessions, do-it-yourself software tools, and original research are available at <http://scaledinnovation.com/gg/ext/rt22/index.html> .