The Problem-Solver's
GREAT TRIFECTA

GPS + FAN + DNA

Elizabeth Shown Mills
CG, CGL, FASG, FUGA, FNGS
EvidenceExplained.com • HistoricPathways.com
&
QuickTips: The Blog @ Evidence Explained
https://www.EvidenceExplained.com/quicktips

A Skillbuilding Session of the Board for Certification of Genealogists

Problem:

Can you really "prove" a female line when, for four straight generations, absolutely no document identifies a parent or sibling?

Auxiliary Issues:

Burned courthouses • Illegitimacy

Approach:

This session will demonstrate how to use

- the FAN Principle to build a case for identity and parentage in each generation
- the GPS (Genealogical Proof Standard) to create proof arguments
- DNA testing—multiple types of tests and triangulation in each generation—to confirm (or disprove) the validity of those proof arguments

also

- how to deal with the mass of data the FAN principle can generate
- how to reduce that mass of data to the confines of a single proof argument

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Case Study:

Zilphy [—?—] Price Cooksey Cooksey, *c.*1780–1856

Wherein an orphan's sister's husband's stepmother's sister's father's second wife held the DNA link to prove 4 female generations that supposedly were no kin to her.

The Genealogical Proof Standard: A BCG* Model

Basic Principle:

The five criteria of the GPS must be met before *any* assertion can be considered 'proved.' This principle applies to direct evidence (explicit and relevant statements made by a source), as well as cases built upon multiple pieces of indirect and/or conflicting evidence.

Reasonably exhaustive research	*means*	• identifying and using all relevant sources • applying sound and effective research strategies
	does not mean....	• using only what is conveniently at hand or published online • searching for "three pieces of evidence that say the same thing," after which the point can be considered 'verified' or 'confirmed' (this popular advice misuses the concept of *verification*)
Complete & accurate source identification	*means*.....	• recording all details necessary to relocate the source • recording analytical and descriptive details necessary to evaluate the reliability of the information taken from the source
Skilled analysis & correlation of data	*means*	• understanding the nature of the record and the conditions under which it was created • understanding the language of the record • understanding the relevant laws of the place and time • understanding the cultural context of the community • comparing and contrasting minute details to establish a meaning for the whole that is greater than the sum of its parts • determining what 'facts' qualify to be considered *evidence*
Resolution of any conflicts in evidence	*means*	• any evidence that contradicts the proposed conclusion must be fully discussed and validly rebutted
	does not mean....	• avoiding mention of contradictory evidence lest it "confuse people"
A soundly reasoned conclusion or 'proof argument'	*means*	• a formal, written statement of the evidence that proves a point IN CASES OF UNCONFLICTING DIRECT EVIDENCE • *citations* to multiple sources that are independently created; or • a *proof summary* that identifies a source or sources of direct evidence and discusses the factors that support credibility IN CASES OF COMPLEX OR CONTRADICTORY EVIDENCE • a *proof argument*—i.e., a thorough discussion of the problem (the available resources, the methodology used, the evidence found, any contradictions that exist, how those contradictions are resolved) and a clearly expressed, convincing conclusion—together with the reasoning that supports the conclusion and thorough citations for each and every piece of evidence

* Board for Certification of Genealogists

The FAN Principle

Basic Principle:

To prove identity, origin, and parentage, study individuals in the context of their FAN Club: Family, Associates, and Neighbors.

Corollary:

To identify shadowy women, trace the men to whom she was attached: husbands, brothers, employers, slave masters, in-laws, and suspected male kin.

DNA Tests That Currently Offer Problem-Solving Potential

MtDNA basics:

- Mitochondrial DNA traces the maternal line
- A male may test because he inherits his mother's mtDNA
- A male cannot pass on his mother's mtDNA
- Using mtDNA to prove a female line is possible only when there is no intervening male as the line is traced back into time

Y-Line basics:

- The Y-chromosome follows the agnatic (paternal) line, with no intervening female
- Females do not carry a Y-chromosome; therefore Y-DNA is not usable for proving a maternal line

atDNA basics:

- Autosomal DNA covers our 22 *numbered* pairs of chromosomes
- It includes both males and females, all ancestral lines
- Use is limited by the fact that, in each generation, roughly half of each parent's genetic material is not passed on to the child
- It is more complex to use for genealogical problem-solving and requires a greater understanding of underlying issues
- For problems involving distant generations, it should be combined with mtDNA, X-, or Y-line testing to work around false matches and small-segment limitations

X-line basics:

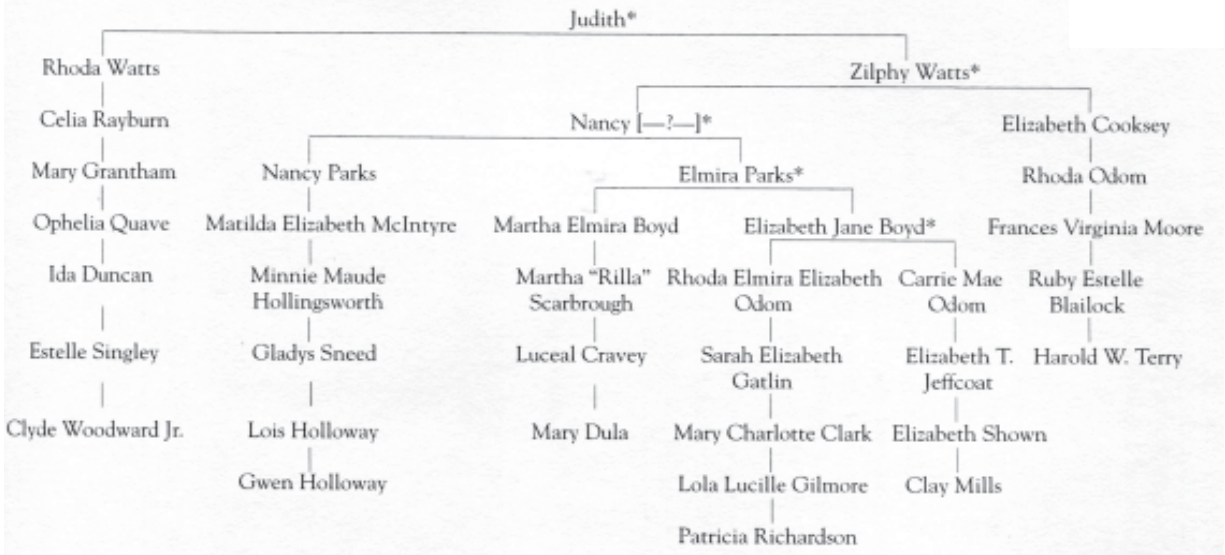
- Matching must follow one of our X-chromosome transmission lines*
- Fathers pass on their mother's X; mothers pass on random portions of their father's and mother's X
- X-matching can be used for tracing maternal lines, with limitations similar to those of atDNA

Ethnicity tests:

- These have quite limited use for genealogical problem-solving in past generations
- They *can* be useful when tradition asserts, for a specific Y-line or mt-line, an ethnic identity that has distinctive markers in a genealogical time-frame.

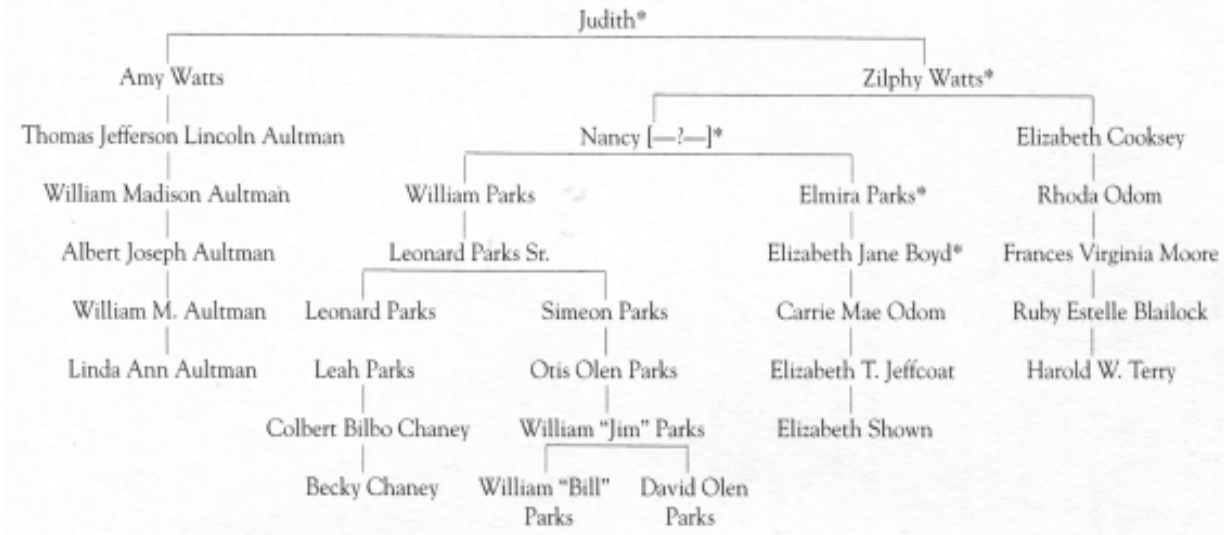
*Blaine Bettinger, Ph.D. (biochemistry), offers two color-coded charts that highlight X-lines inherited from the maternal side and paternal side, see *The Genetic Genealogist* (www.thegeneticgenealogist.com) for "Unlocking the Genealogical Secrets of the X Chromosome," posted 21 December 2008; and "More X-Chromosome Charts," posted 12 January 2009.

Mitochondrial DNA Matches in Lines Descending from Judith [—?—] Watts



Note: Mitochondrial DNA is identical between the last generation of each line. The five names marked with asterisks designate the five-generation mitochondrial line proposed via proof arguments built entirely on indirect evidence.

Autosomal DNA Matches in Lines Descending from Judith [—?—] Watts



Note: The last individual in each line has one or more significantly matching segments on chromosomes 1, 4, 6, 15, 20, 22, and X. The five names marked with asterisks designate the five-generation mitochondrial line proposed via proof arguments built entirely on indirect evidence.

*Reproduced from Elizabeth Shown Mills, "Testing the FAN Principle Against DNA: Zilphy (Watts) Price Cooksey Cooksey of Georgia and Mississippi," *National Genealogical Society Quarterly* (June 2014): 129–52.