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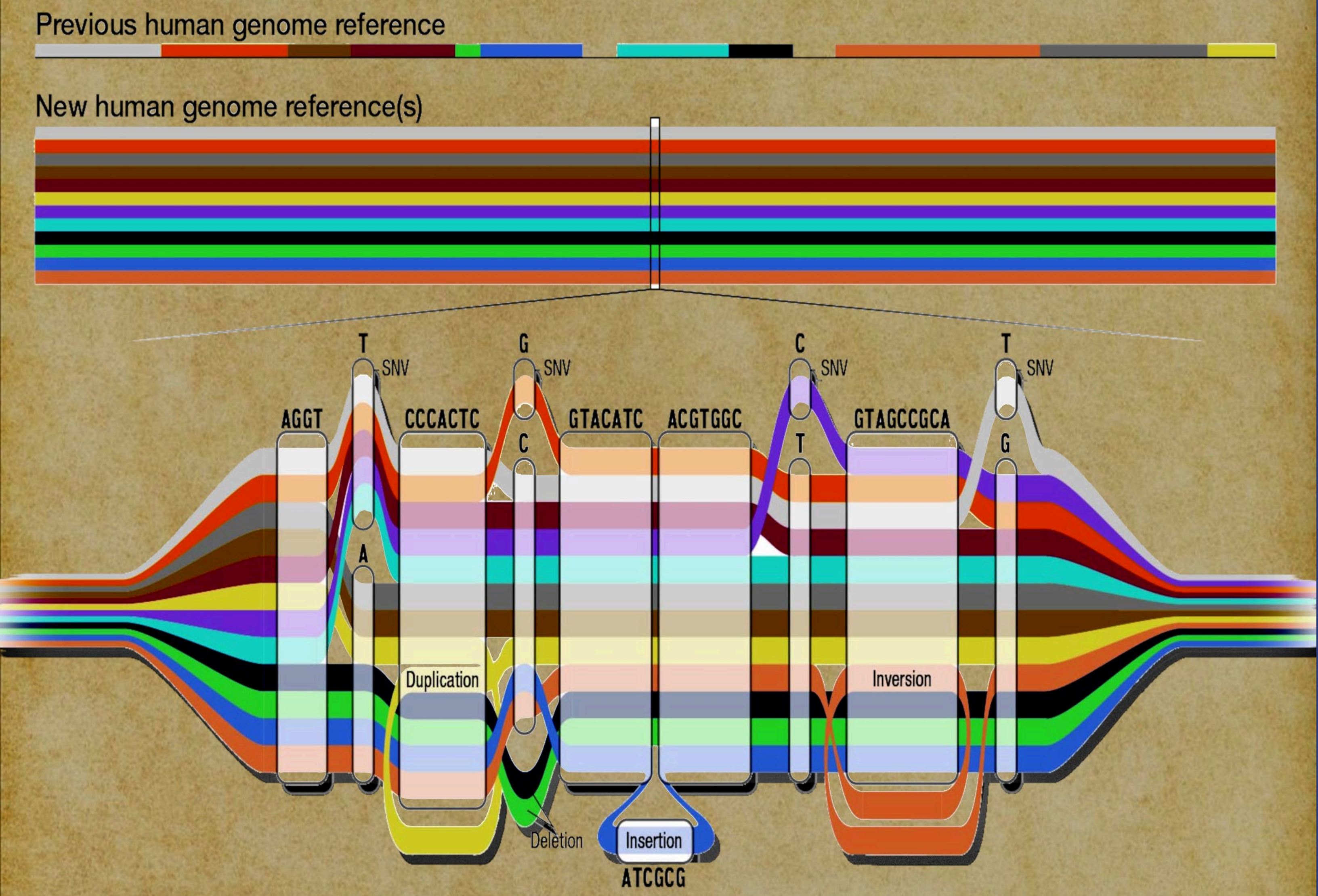

"Tube diagram" of the first draft Human Pangenome Reference. Credit: National Human Genome Research Institute.

Journal of Genetic Genealogy

Inside this Issue *(table is clickable in PDF Readers)*:

Journal of Genetic Genealogy

EDITOR'S CORNER

By J. David Vance

Another 2024 issue of the Journal hits the presses! While the steady stream of scientific articles is a welcome indicator of the continuing advances in genetic genealogy, we are also building up a library of case studies and examples of the application of genetic genealogy techniques on groups of varying sizes and family connections. One of the inspiring results of these examples for me is the differing approaches across autosomal, Y and mt DNA testing that authors have developed. If you or anyone you know are looking for help in applying genetic genealogy techniques, be sure to tell them to visit our Issue and Articles Archives and use the search and filter options to find real-life examples!

The cover of this Summer 2024 issue shows a "tube diagram" version of the draft pangenome reference for the human genome which was recently released by the Human Pangenome Reference Consortium (http://humanpangenome.org, a multi-institutional consortium working on the next official iteration of a reference for human chromosomes). This first draft reference was built from 47 individuals selected so the reference includes a representation of the diversity of the human genome as well as begin to document the larger structural variants that occur as currently-unmapped larger mutations in our chromosomes.

But building this diversity into the reference genome comes at a cost in complexity that we haven't accounted for yet in genetic genealogy – our reference genome is still the "official" (and largely static) hg38 reference. Unlike that reference where each chromosome can be represented by a single string of alleles, these new pangenomes have to be represented using more complicated structures like the "tube diagram" on our cover page.

So our cover page for this issue is both a warning and a promise that genetic genealogy will have to address this complexity in time. How will SNPs and STRs be represented under a pangenome reference? How will we handle mutations that occur on strands of DNA which themselves are only carried by a fraction of the population? And are structural variants stable enough to indicate shared ancestry and become as useful to us as other types of mutations?

We live indeed in interesting times…

Journal of Genetic Genealogy

TMRCA FOR A MATCHING Y-STR CLUSTER BY FITTING A BINOMIAL DISTRIBUTION

By T. Whit Athey

Abstract

There exist standard tools for calculating the time-to-the-most-recent-common-ancestor, or TMRCA, for the Y-STR values for a pair of individuals, for example, there is the TIP tool at Family Tree DNA (FTDNA). There are fairly large uncertainties in the resulting values. The existence of projects with numerous participants forming a Y-STR cluster provides the opportunity to calculate the TMRCA to much better accuracy, provided there are suitable analysis tools. One such approach is presented here for a group of Y-STR haplotypes. The number of cases of 0, 1, 2, 3, . . . mutations or differences from the ancestral haplotype of the TMRCA forms a histogram that theoretically should approximate a binomial distribution. This report shows how to apply this idea to a cluster of Y-STR results and obtain the TMRCA in generations.

Introduction

In a set of closely matching Y-STR haplotypes, there will be various numbers of differences of each individual's haplotype (the set of Y-STR values) from the ancestral haplotype of the TMRCA. The ancestral haplotype, without significantly affecting generality, can be assumed to be the modal values of the cluster being considered. In this development it will be assumed that each haplotype has the same number of markers and that the Y-STR markers of each haplotype are one of the standard panels offered by FTDNA. That is, each haplotype should contain one of the standard 12-, 25-, 37-, 67-, or 111-marker sets, and each haplotype should have the same number of markers. For the cluster of Y-STR markers, if the number of cases of 0, 1, 2, 3, . . . mutations from the ancestral haplotype is calculated and graphed as a histogram, the distribution should theoretically approximate a binomial distribution. This report will show how the best (binomial) fit to the observed distribution can estimate the TMRCA.

The present method would be most suitable for cases where the TMRCA lived within the last 1000 years, so that back mutations would be minimized. For deeper ancestry, such as determining the TMRCA for haplogroups, methods such as those based upon Nordvedt's Interclade Estimation method would be more appropriate.[1,2]

[1] Ken Nordvedt has developed a number of utilities and descriptive files that are linked at the ISOGG web site. See also the Reference Section and Footnote 2.

[2] Vance JD (2020) SAPP Toolset (based upon Nordvedt's Interclade Estimation method). http://www.jdvsite.com/

Naturally, clusters with larger numbers of Y-STR haplotypes will yield a TMRCA with a smaller uncertainty. In practice, at least ten haplotypes should be used, and ideally more than 20. There will be a trade-off between selecting a larger number of markers for more "marker transmissions" and a lesser number of markers, which will usually mean more haplotypes to consider in the cluster. Often in practice choosing the 37-marker panel may be optimal, but the process may be repeated for 25 markers and 67 or 111 markers where the data are available. This issue will be discussed again later in this report.

Methods and Data

For each of the panels of Y-STR markers from FTDNA, 1-12, 1-25, 1-37, 1-67, and 1-111 markers. various approaches have been used to determine the average mutation rate For the purposes of this report the average mutation rate for each of the five panels shown in Table 1 will be used[3,4].

Table 1 Average Mutation Rates: Five Y-STR Panels

Panel of Markers	Average Mutation Rate (mutations per marker per generation)
1-12	.0025
1-25	.0028
1-37	.0042
1-67	.0031
1-111	.00258

If more accurate rates are available, they may be substituted in the program, which is easily implemented in an Excel spreadsheet (see Reference Section for an example of an implementation.

The Binomial Distribution

When events are expected to occur randomly, independently, and at a constant rate, the probability of the event occurring on the xth trial out of n trials, follows a binomial distribution. That is, the probability of the number of events, n, occurring when the rate is p is given by the binomial distribution:[5]

$$\mathrm{B(x, n, p)} = \frac{n!p^x(1-p)^{(n-x)}}{x!(n-x)!} \qquad (1)$$

Where x = 0, 1, 2, 3, . . . , (in our case, this will be the genetic distance from the ancestral haplotype)

n = number of trials (in our case, this will be the number of marker transmissions after k generations, which will be k times the number of markers). n! = n x (n-1) x (n-2) x . . .x 1 (n factorial)

p = probability of an occurrence (in our case, the average probability of a mutation in a marker)

A table of the distribution of the probability for the 111-marker case (p = .00258) can be generated in Excel using the BINOM.DIST function. The function's syntax is:

[3] An example of the determination of average mutation rates for the first three panels, which are slightly different from those used here, may be found in Chandler J (2006) Estimating per locus mutation rates. *Journal of Genetic Genealogy*, 2:27-33.

[4] A discussion of mutation rates from different sources may be found in Athey TW (2007) (Editorial) Mutation rates—who has the right values? *Journal of Genetic Genealogy*, 3(2):i-iii. The values used here represent an average from different sources.

[5] https://en.wikipedia.org/wiki/Binomial_distribution

BINOM.DIST(x,n,p,FALSE)

The "FALSE" value is necessary to distinguish the present case from a cumulative distribution. In some versions of Excel, the function may be written as "BINOMDIST" without the "dot." Table 2 was calculated using the Excel function:

BINOM.DIST(x,n,0.00258,FALSE)

n will be the product of 111 and the generation number G (that is, after each generation, 111 markers will have been transmitted to the next generation in the line by each participant).

In the following example we will consider 26 haplotypes, each with 111 markers. Each column of the BINOM.DIST distribution will represent the theoretical distribution of the fraction of the 26 haplotypes that are a genetic distance of x from the ancestral haplotype. The third column of Table 2 has the corresponding observed distribution, and we will be seeking the BINOM.DIST column that best fits the observed distribution. The interpretation of the column under Generation 1 is that after one generation, we would expect .759 of the haplotypes to have the unmutated ancestral values, .209 of the haplotypes to have one mutation from the ancestral values, .028 of the haplotypes to have two mutations from the ancestral values, etc.

Table 2 Observed Distribution and Candidate Bionomial Distributions (for 111 markers)

Distribution for Example			Binomial Distribution							
Genetic Distance from the Ancestral Values (x = 0, 1, 2, . . .)	**Observed number of individuals with x genetic distance from the ancestral values**	**Actual Distri-bution Divide By No. of haplo-types (26)**	**Gen 1 n=111**	**Gen 2 n=222**	**Gen 3 n=333**	**Gen 4 n=444**	**Gen 5 n=555**	**Gen 6 n=666**	**Gen 7 n=777**	**Gen 8 n=888**
0	**5**	**0.1923**	0.75910	0.57623	0.43742	0.33204	0.25205	0.19133	0.14524	0.11025
1	**10**	**0.3846**	0.20948	0.31804	0.36214	0.36653	0.34779	0.31681	0.28057	0.24341
2	**9**	**0.3461**	0.02864	0.08737	0.14945	0.20184	0.23951	0.26189	0.27065	0.26838
3	**2**	**0.0769**	0.00259	0.01593	0.04100	0.07393	0.10976	0.14411	0.17383	0.19706
4	**0**	**0.0000**	0.00017	0.00217	0.00841	0.02027	0.03766	0.05939	0.08362	0.10840
5	**0**	**0.0000**	0.00001	0.00024	0.00138	0.00443	0.01032	0.01955	0.03214	0.04765
6	**0**	**0.0000**	0.00000	0.00002	0.00019	0.00081	0.00235	0.00535	0.01028	0.01743
7	**0**	**0.0000**	0.00000	0.00000	0.00002	0.00013	0.00046	0.00126	0.00282	0.00546
8	**0**	**0.0000**	0.00000	0.00000	0.00000	0.00002	0.00008	0.00026	0.00067	0.00150
9	**0**	**0.0000**	0.00000	0.00000	0.00000	0.00000	0.00001	0.00005	0.00014	0.00036

10	**0**	**0.0000**	0.00000	0.00000	0.00000	0.00000	0.00000	0.00001	0.00003	0.00008

In the second and third columns of Table 2 are shown the actual distribution of the genetic distances from the ancestral haplotype of an example cluster of 26 haplotypes with 111 markers. Note that the columns labeled Gen 5 and Gen 6 appear closest to the observed values, as shown in Table 3. However, we can calculate a better value for the TMRCA if we use all of the information available.

Table 3 The Three Columns That Are Best Fits to the Observed Distribution

Genetic Distance x from the Ancestral Values	Number of Individuals with this Distance from Ancestral Haplotype (out of 26)	The resulting observed fraction of the cluster at this distance = #mut/26	Column Bracketing Gen 5 on the left (Column from Table 2 for Gen 4)	Column for Gen 5 (possibly the best fit, though Gen 6 is also a possibility)	Column Bracketing Gen 5 to the right (Column from Table 2 for Gen 6)
0	5	0.1923	0.3320	0.2520	0.1913
1	10	0.3846	0.3665	0.3478	0.3168
2	9	0.3461	0.2018	0.2395	0.2618
3	2	0.0769	0.0739	0.1098	0.1441

We see that our observed distribution lies close to the theoretical (binomial) distributions for Gen 5 or 6, or that our cluster TMRCA is approximately 5 or 6 generations back from the present test takers. Of course, we have assumed that everyone in the cluster is the same number of generations removed from the common ancestor. When that is not the case, the final TMRCA will be an average of the number of generations back to the common ancestor.

In terms of the present example, we can calculate the best fit to the theoretical distribution by using the method of least squares. That is, we can automate the above "bracketing" by calculating the sum of squares for the differences between observed and binomial distributions for the most likely generation, along with the two bracketing generations—those columns on either side of the one with lowest sum of squared differences. This can be followed by determining a second-degree polynomial fit to the sum-of-squares values and finding the generation value G that represents the minimum of the fitted polynomial.

Table 4 Sum-of-Squares of Differences Between Observed and Binomial Distributions

	Gen 1	Gen 2	Gen 3	Gen 4	Gen 5	Gen 6	Gen 7	Gen 8
Sum of Squares of Differences	0.4582	0.2225	0.1006	0.0411	0.0189	0.0201	0.0362	0.0615

Our observed distribution is very unlikely to be near the generation 1 binomial distribution, so naturally the sum-of-squares for Gen 1 is the largest (of those showing) in Table 4. The sum-of-squares values decrease for a few generations as we approach more likely possibilities, and finally start rising again as we move beyond the most likely generation. As an example of the Table 4 calculation, consider the sum-of-squares for the column for Gen 5:

$$\text{Sum} = (.1923-.2520)^2 + (.3846-.3478)^2 + (.3461-.2395)^2 + (.0769-.1098)^2 + (.0769-.0739)^2 + (0-.0377)^2 + (0-.0103)^2 + \ldots$$

$$= .00356 + .00135 + .01136 + .00108 + .00001 + .00142 + .00011 + \ldots = 0.0189$$

We can see that the best fit—the column that minimizes the sum-of-squares--is near Generation 5 or 6. If we let s_1, s_2, and s_3 represent the sum-of-squares values from the columns for Generations 4, 5, and 6, and let d be the generation number of the middle of the three columns with the lowest sum-of-squares value (column 5), then the generation number that minimizes the second-degree polynomial fit to those values is given by:[6]

$$G = d-1+(1.5s_1-2s_2+0.5s_3)/(s_1-2s_2+s_3) \qquad (2)$$

Substituting the values from Table 4:

$$G = 5 - 1 + [1.5(0.0411)-2(0.0189)+0.5(0.0201)]/[0.0411-2(0.0189)+0.0201] =$$
$$= 4 + .0338/.0233$$
$$= 5.45$$

Therefore, the best fit to the given data is TMRCA = 5.45 generations, which represents an average value for the group of haplotypes. For example, this average for the 26 haplotypes might result from 14 of the 26 being 5 generations from the common ancestor and 12 being 6 generations.

The above procedure may be set up in an Excel spreadsheet with inputs: number of markers, number of haplotypes, the observed distribution of distances from the ancestral haplotype, and an array with the mutation rates for the five possible panels of Y-STR values. A table like Table 2 can be set up, followed by a table of squared differences for Gen 1, Gen 2, etc, with a summation at the bottom of each column similar to Table 4 above. Finally, the Generation number with the lowest sum-of-squares value can be used, along with values from the two adjacent columns, and the generation number may be calculated from Equation 2.

When selecting the best-fit column, there may be cases like the one above where there is only a small difference in sum-of-squares for two columns, it is not really critical as to which one is chosen as the best one. If we had chosen Gen 6 as the “central column” in the above calculation, we would get G = 5.41, which is very close to our previous value.

Therefore, the best fit to the given data is TMRCA = 5.4 generations, which is an average value for the group of participants.

A Special Case

Consider Equation 1 for the case of x = 0. That is, consider only the fraction of participants who are unchanged from the ancestral value after n marker transmissions. In our example the observed fraction value would be 5/26 = .1923. When we substitute x = 0 into Equation 1, we get:

[6] The process for determining Equation 2 is as follows. We fit a quadratic (second-degree) polynomial of the form $G = ax^2 + bx + c$ to the s_1, s_2, and s_3 values for x = 4, x = 5, and x = 6, then the minimum value for G is found by setting dG/dx = 0, and solving the resulting equation for x. This results in the minimum value given by $x_{min} = -b/2a$.

$B(0,n,p) = n!p^0(1-p)^{(n-0)}/[0!(n-0)!]$

But, $n!/(n-0)! = 1$, $p^0 = 1$, and $0! = 1$ (by definition), so we get a much simpler form:

$B(0,n,p) = (1-p)^n$

If let g_0 represent the observed value corresponding to the theoretical B(0,n,p), let G be the number of generations to the TMRCA, and let j be the number of markers, then substitute into this equation we get

$g_0 = (1-p)^n = (1 - p)^{jG}$

If we take the logarithm of both sides of this equation, we get

$\log(g_0) = jG \log(1 - p)$

Or $G = \log(g_0)/[j \log(1 - p)]$ (3)

For example, if we had used this simpler approach for the example above of the 26 haplotypes with j = 111 markers, 5 of which still had exactly the ancestral Y-STR values, we would have:

$G = \log(5/26)/[111 \log(1 - .00258)]$

$= - 0.7160/(-0.1245)$

$= 5.75$

This compares to the value of 5.45 that we found when using equation 2 on the entire observed distribution. Note, however, that there is more uncertainty in the result when using this simpler formula. If there were just one more mutation (leaving 4 of the 26 unmutated), or just one less mutation, our Equation 3 would have given a result of 6.5 or 5.1.

Discussion

In planning an analysis of a Y-STR cluster, it is likely that the best approach in choosing the number of markers and number of haplotypes to be analyzed will be a choice that maximizes the number of marker transmissions per generation in the whole cluster. There will be a trade-off since the larger the choice of markers in the panel to be considered, the smaller will be the number of participants in the cluster who have that many markers. So, one would usually seek to maximize the product jk where j is the number of markers and k is the number of participants with at least that number of markers.

For example, in our case study above, we used 111 markers, which gave us 26 participants with that number of markers, so the product gives us 111 x 26 = 2886 marker transmissions per generation for the group. If we considered 67 markers and assumed (for example) that we would have 32 participants available with results on that number of markers, then the product would be 2144. If we assumed the participants with at least 37 markers (for example) to be 73, then the product would be 2701, which is almost as large as in the 111-marker case. The best choice will, of course, depend on the particular cluster under consideration, but one should not always assume that choosing 111-marker haplotypes will be the best one, though it was in this example.

Another approach to choosing the best number of markers for a cluster is simply to use the one that results in the broadest distribution of mutations.

References

Nordvedt K (2008) See links to his utilities and informational files under the Y-DNA tools at the ISOGG website:
https://isogg.org/wiki/Y-DNA_tools

Chandler J (2006) Estimating per locus mutation rates. *Journal of Genetic Genealogy*, **2**:27-33.

Athey TW (2007) (Editorial) Mutation rates—who's got the right values? *Journal of Genetic Genealogy,* **3**(2):i-iii.

Athey TW. An Excel spreadsheet that shows an implementation of the program described above is available for download at:
http://www.hprg.com/storage/binomial3.xlsx

Conflicts of Interest

The author declares no conflicts of interest and no commercial interests in the subjects covered or companies mentioned in this report. Family Tree DNA (FTDNA) is mentioned above only because currently, it is the primary company still offering testing services for Y-STR markers, it is the main source of surname projects that potentially have sufficient Y-STR clusters, and whose panel definitions have become widely used.

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YDNA-CONFIRMED DESCENDANTS OF DOCUMENTED 1600S IMMIGRANT HUBERT PETTY: COMPARISON OF THEIR PHYLOGENETIC HIERARCHY WITH THEIR PATRILINEAL FAMILY TREE

By Robert Lee Petty, PhD, Mary Ellen Gleason Petty, and P.J. Roots

Abstract

Documentation in support of immigrant Hubert Petty and his arrival in Colonial America in 1652, of his only son, Thomas Petty (1673-1750), and of Thomas's six sons, is presented. Conventional genealogical research on 26 members of the FTDNA Petty Surname Y-DNA Project is presented as evidence of their direct descent from Hubert Petty through his only son, Thomas, and one of three of Thomas's sons. Y-SNP test results are presented for assigning the Project members' most recent common ancestor, Thomas, their shared haplogroup, I-BY34474, and as confirmation of their interrelationships with one another. A conventional patrilineal descendant tree for Hubert Petty is merged with the corresponding haplotree in such a way as to allow the phylogenetic hierarchy of the members' genetic results to be clearly correlated with their conventional family tree structure. The use of the "Rule of Three" Y-DNA testing strategy in the selection of testers is presented, and its advantages are discussed.

Introduction

One of the lineages in the Family Tree DNA (FTDNA) Petty Surname Y-DNA Project ("Project") consists of the direct descendants of a 17th century English immigrant to Colonial America, Hubert Petty, which was determined roughly 50 years ago through extensive conventional genealogical research by late Project member James Winter Petty, AG (1948-2020). An FTDNA Big Y test in 2017 established James's haplogroup as I-BY34474. Around 2021 a concerted effort was begun to expand this portion of the Project from the roughly 15 members then sharing James's I-BY34474 haplogroup. Using Bill Wood's "Rule of Three" (Wood, 2019) to help identify and select new living descendants of Hubert Petty for Big Y-700 testing, we have now nearly doubled the number of participants who fall under the I-BY34474 haplogroup, and whose Y-SNP results have begun to reveal their phylogenetic hierarchy, genetically confirming specific levels of relatedness between one another and to their most recent common ancestor (MRCA), Hubert's only son, Thomas Petty. In conjunction with this study, conventional genealogical research was used to further document the pedigrees of 25 additional Big Y testers, and connect them to Hubert Petty.

This combination of Y-SNP genetic testing and conventional genealogical research – a classic application of Genetic Genealogy – has allowed us to achieve four important interim goals on the way to reaching our ultimate goal, which is to have our tree of known Hubert Petty descendants fully genetically characterized (see 'The Value of Full Genetic Characterization' in the Discussion section). These interim goals are: (1) establish likely generational connections between an early ancestor and his living descendants (using conventional genealogical research); (2) establish a hierarchy of ancestors' haplogroups through Y-SNP testing of multiple well-documented descendants (using combined genetic testing and conventional genealogy); (3) confirm the biological connections between suspected, presumed, and even well-documented descendants and their early ancestors, as well as each other, through their Y-SNP test results (requires genetic testing); and (4) directly correlate the phylogenetic hierarchy of their genetic results with their conventional family tree structure (using combined genetic testing and conventional genealogy). This last point in particular provides a clear demonstration of the synergistic effect of combining the two methodologies, and coordinated colorization of both family tree and haplotree charts is used to enhance the visualization of this effect.

Methods

Conventional Genealogical Research

The defining genealogical research that led to the identification of Hubert Petty as the immigrant ancestor of the line of Pettys herein discussed was carried out in the late 1960s through the '70s by late professional genealogist and Project member James Winter Petty, AG (1948-2020), in accordance with standard genealogical research practices of that pre-internet period. Tax records, wills, land documents, and other primary sources were examined either as originals or facsimiles where they reside, or as microfilm/microfiche images of the originals located at the Family Search Library (formerly the Genealogical Society Library of the Church of Jesus Christ of Latter-day Saints) in Salt Lake City, Utah. Each of the ancestors in James's line from his father to Hubert Petty was thereby identified and documented.

Recent genealogical research on other branches of this line's family tree, performed largely in conjunction with this study and carried out by conventional methods utilizing online access to primary and secondary sources, has been used to identify and document the patrilineal ancestry of 25 additional members of the Project to Hubert Petty, through his only son Thomas (abt. 1673-1750, m. Catherine Garton), and one of three of Thomas and Catherine's six sons (Thomas, William or James).

Y-DNA Testing and Results

All Y-DNA test kits used in this study (mainly Big Y-700 ("Big Y"), but also Y-37, Y-67, and Y-111), are genetic analysis products from Family Tree DNA ("FTDNA" (FTDNA, 2023)). After purchasing and receiving a Sample Kit, each tester returned his sample to FTDNA, where it was analyzed, and the results returned to the tester. When the testers joined the Petty Surname Project, their results became available to the Project administrator(s). Interpretation of the analysis results was assisted by applications provided on the FTDNA website, such as "Discover" (FTDNA-Discover, 2023), but is ultimately the authors. In the family tree chart images shown below, Big Y testers are identified by their anonymized FTDNA test kit number and by their FTDNA-designated haplogroup (RLP, 2024 "Designated" Haplogroup).

Big Y Testers

Prior to 2019 thirteen men had been identified through FTDNA's Big Y test results to fall under the I-BY34474 haplogroup; one of BY34474's subclades, BY120617, had been identified by that time as well. Since then, 16 additional Big Y testers have been shown to fall under the I-BY34474 haplogroup. (Of these 29 Big Y testers, only 26 are currently either active or deceased members of the Project. The results of resigned or otherwise inactive (other than deceased) members of the Petty Surname Project are not included in this paper's Figures, Results, or Discussion.) With these additional test results - many from "targeted" relatives (see Genetic Testing

Strategy: The Rule of Three in the next section and The Rule of Three in the Discussion section) - three levels of subclades below BY34474 have now been revealed, with the number of unique terminal SNPs having reached a total of 13. (The **KEY** in **Fig. 1b** will assist in visualizing the Levels, as well as the SNPS belonging to each. See also "Haplogroup Levels" in the Discussion section.)

Genetic Testing Strategy: The Rule of Three

As originally presented (Wood, 2019), the Rule of Three describes its three Y-DNA testers as (#1) an initial Big Y tester, (#2) a close relative (brother, father/son, uncle/nephew, or 1st cousin), and (#3) a more distant relative (2nd or 3rd cousin or great uncle, or a 4th or greater cousin). It further describes the purpose of each tester's results.

The first tester provides:

(a) a list of SNPs and unnamed variants that are unique to one paternal profile
(b) identifies SNPs/variants seen for the first time

The second tester's results:

(a) begin to build the Family Clade
(b) can help to name any unnamed variants
(c) begin to break up blocks of phylogenetic equivalents

The third tester's results will:

(a) confirm the results of the first tester
(b) continue to break up blocks of equivalents

The possibility of extending the Rule to include more distant relatives (through more distant cousins) is alluded to ("Additional Big Y Candidates" (Wood, 2019, p. 15), and we've found this concept useful. Additionally, we have found slight modifications of the originally presented Rule, consisting of a re-worded #3 tester description and more clearly specified extensions, to be advantageous. Thus, testers #1 and #2 are as originally defined, but #3 would be selected from one of the next two generations (2nd or 3rd cousin, or similar generational relative such as grandfather or great uncle, if available). The first "extended" tester (#4) would be a 4th or 5th cousin. As such, his results would continue to break up further blocks of equivalents, but this tester's results could alternatively provide the possibility of establishing a new genetic branch in the family tree, which would utilize the descendants of a brother of the original tester's 2nd or 3rd great grandfather. Additional (extended) testers (#5 and beyond) may follow the same 2-generation pattern of more distant cousins to augment the original branch, or they may continue to build on the newly established branch (as just described). (For an older #1 tester, considering a grandchild or grandnephew, as for what might be considered a "#0" tester in an expanded Rule of Three, could be useful as well.)

Average Interval Between Mutations

Although an average 3-generation interval between mutations (based on the long-term average for new mutations of around 75 years (YDNA Warehouse, n.d.), equating to roughly three average generations of 25 years each (RJ Wang, 2024)) is often assumed in genealogical studies, in this study, birth year and generational information from the Project's members and their ancestors, combined with the FTDNA Time Tree's (FTDNA Time Tree, 2023) very approximate Y-SNP origination estimates, are in closer agreement with a roughly 60 year and two average (30 year) generation interval between Y-SNP mutations over the roughly 300-year time span of this study. (This additionally supports the 2-generation average interval implied in Wood's Rule of Three (op. cit.).) These values have provided a useful guideline for identifying and selecting those Project members' relatives whose Big Y test results would be most likely to provide greater help in the chronological resolution of equivalent SNPs in the branches of our Hubert Petty tree.

Results

Conventional Genealogy

Identification of Hubert Petty as the Immigrant Ancestor of James Winter Petty

Late Project member James Winter Petty, AG, was able to trace his own Petty family line back 9 generations to his immigrant ancestor, who he identified and documented as Hubert Patey/Patty/Petty. (These and other surname spellings have been encountered for Hubert in the older literature, though most of his recent descendants have settled on either "Petty" or "Pettey"). James published much of his research in a quarterly newsletter he started in 1976 called *The Petty Papers*, and readily shared his findings with others researching this Petty lineage. In Vol. 1, No. 2 (Petty, 1976) James presented extensive details on the life of Hubert's only son, Thomas Petty (Gen 2 in the pedigree below), conclusively connecting him to Hubert, and providing documented evidence for his six sons and three daughters. These relationships had also been described in a May 1974 letter sent to a Petty researcher in Texas, Katherine Reynolds (almost exactly 50 years prior to the submission of this article for publication), and although the letter appeared in Ms. Reynolds' 4 volume treatise "The Petty Family," (Reynolds, 1976), James's findings were unfortunately not utilized in her published pedigree of this Petty family line (with the result of its not being entirely correct). In subsequent genealogical research, James was able to identify and document Hubert as his earliest New-World ancestor, and determine his entire Petty line as follows.

Generation 1. **Hubert Petty** Bef. 1634 (Engl.) – 1687 (Col. VA), arr. Colonial Maryland 1652, m. (1) Rebecca (Unk.) bef. 1667, (2) Faith (Unk.) aft. 1673

Gen 2. **Thomas Petty** Abt. 1673 (Col. VA) – Abt. 1750 (Col. VA), m. C(K)atherine/Kat Garton abt. 1700

Gen 3. **James Petty** Aft. 1721 (Col. VA) – 1806 (SC), m. Martha Clanton Abt. 1742

Gen 4. **Thomas Petty** 1765 (Col. NC) – 1842 (TN), m. Jane Cowan Darwin 1789

Gen 5. **Robert Cowan Petty** 1812 (TN) – 1856 (OK Ter.), m. Margaret Jefferson Wells 1831

Gen 6. **Robert Thomas Petty** 1842 (TN – 1904 (UT), m. Julia Ann Wright 1865

Gen 7. **William Henry Petty** 1874 (UT Ter.) – 1964 (UT), m. Ann Eliza Beers 1900

Gen 8. **Russell Beers Petty** 1901 (UT) – 1968, (UT) m. Josephine Volker 1923

Gen 9. **Robert William Petty** 1924 (IL) – 2015 (UT) , m. Medalou Winter 1946

Gen 10. **James Winter Petty** 1948 (CA) – 2020 (UT), m. Mary E. Gleason 1972

Gen 11. Living son of James W. Petty and Mary E. Petty. (Additional personal information withheld.)

Gen 12. [Members of this generation of James Winter Petty's line are withheld.]

Expanding Hubert Petty's Descendant Tree

James Winter Petty's research determined that Hubert Petty had only one son, that Thomas married Catherine Garton, that Thomas and Catherine had six sons and three daughters, and that his own line descended from their next-to-youngest son, James (m. Martha Clanton) (op. cit.). Most Project members, however, though they were generally confident of who their more recent ancestors were, had not completed the extensive conventional genealogical research needed to identify and document their early ancestors, and could usually only speculate as to from which son, grandson, and great grandson of Thomas and Catherine Petty they descended. (Their Big Y test results proved that they descended from Thomas Petty (and by extension, his father Hubert), but these results could not (prior to this study) conclusively differentiate which of Thomas's sons (or their further descendants) they descended from) - which is critical for tying the Y-SNP test results unequivocally to the conventional genealogical results.

An effort was therefore made to complete the conventional genealogies of each of the Project's Big Y testers back to Thomas Petty, and their ancestors were thereby identified and documented. A family tree incorporating these genealogical results and including extensive documentation, has been created on Ancestry.com and is posted on the rlpetty1046 account (rlpetty1046 (2024). (This publicly accessible but un-editable tree has been augmented with hundreds of additional identified and documented descendants of Hubert Petty as well.)

A graphic version of Hubert's descendant tree for the members of the Project and their ancestors, is shown in **Fig**. **1d**, below. **Figures 1a**, **1b**, and **1c** are three sections of the full tree: Left Side, Middle Portion (with KEY), and Right Side, respectively. Due to its size and complexity, the full tree image is provided mainly for its overall view, while the three sections allow the descendants' names and other information to be more readily visualized.

The vertical time scale of the tree is generation based. Hubert's descendants are identified by name, along with birth and death years and their respective locations (states), all in black font, except for the most recent two or three generations in most branches. These are usually labeled "Private," and their details not included due to privacy concerns; Y-SNP testers are labeled in **blue** font. For testers who are now deceased, their name and other details are shown, unless privacy is still considered a concern.

Genetic identifiers (haplogroups and SNPs) are incorporated into this tree as well. The names of the terminal SNPs measured in living individuals (some of whom are now deceased) are shown - with no background color - below the colored boxes representing the testers themselves. FTDNA Kit Numbers are provided (below the haplogroup name) as anonymized identification for each project member. The color used for each tester's box and/or information is associated with his measured haplogroup. Thus, the haplogroup names with colored backgrounds below deceased descendants with un-colored boxes, indicate that those men either inherited that haplogroup, or were individuals with whom that haplogroup is likely to have originated (see Assignment of Haplogroups in the **Discussion** section, below). The boxes representing the latter men additionally have a double red-colored outline. Note however that these assignments can be speculative (refer again to Assignment of Haplogroups in the **Discussion** section). Descendants without a haplogroup label are presumed to share the haplogroup of the most recent haplogroup-labeled ancestor above them.

In summary, Big Y testers are represented by colored boxes - labeled "Private" when the tester is still living - and have colorless-background SNP labels, while their ancestors are represented by uncolored boxes and colored-background haplogroup labels. Uncolored boxes labeled "Private" may be either living or deceased descendants of Hubert Petty, but will not have taken a Big Y test. The KEY (in **Fig. 1b**) provides, in addition to explanatory information, a ready reference as to which colors are associated with which haplogroups.

Figure 1a. Hubert Petty Descendant Tree (Left Side).

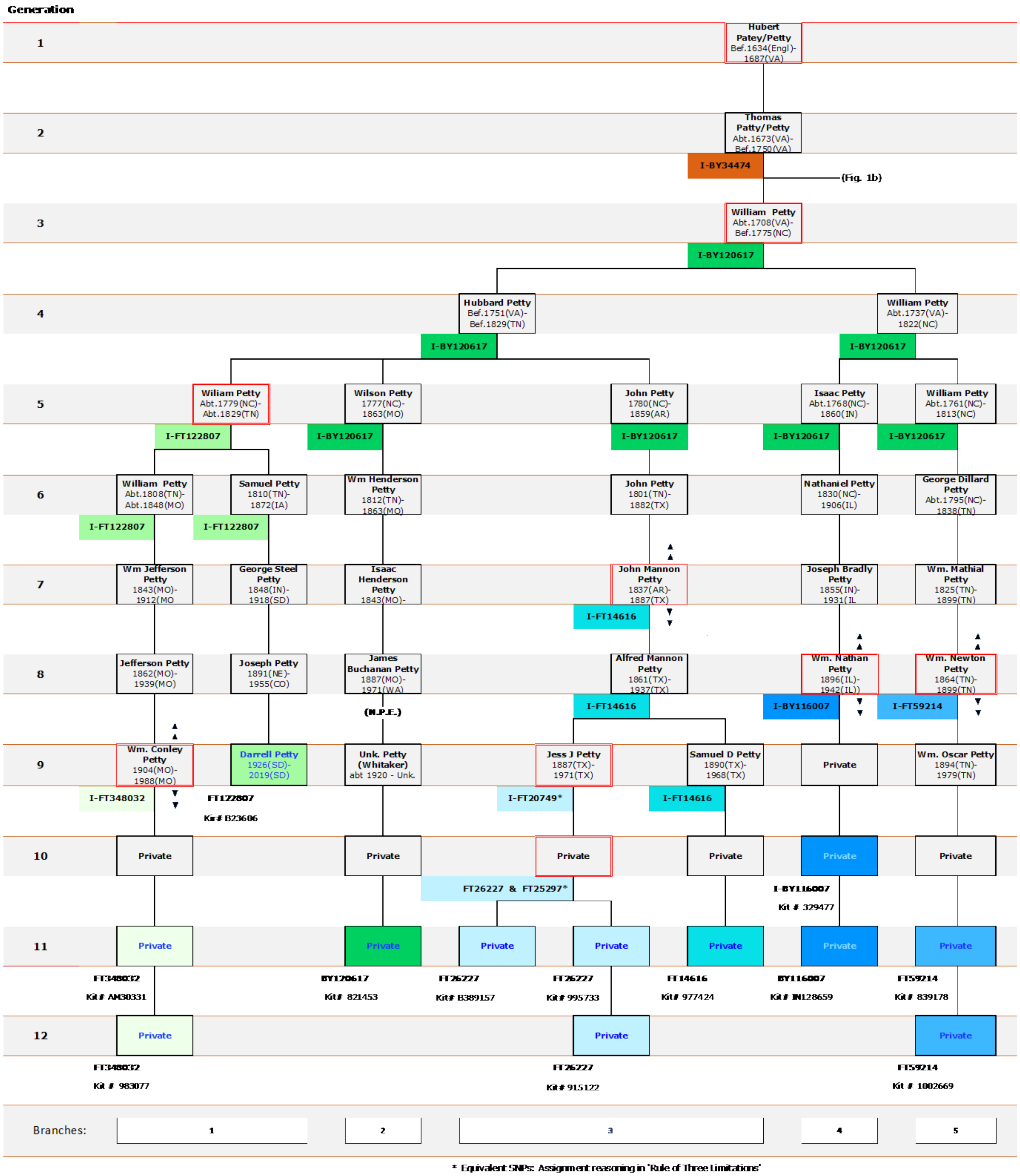
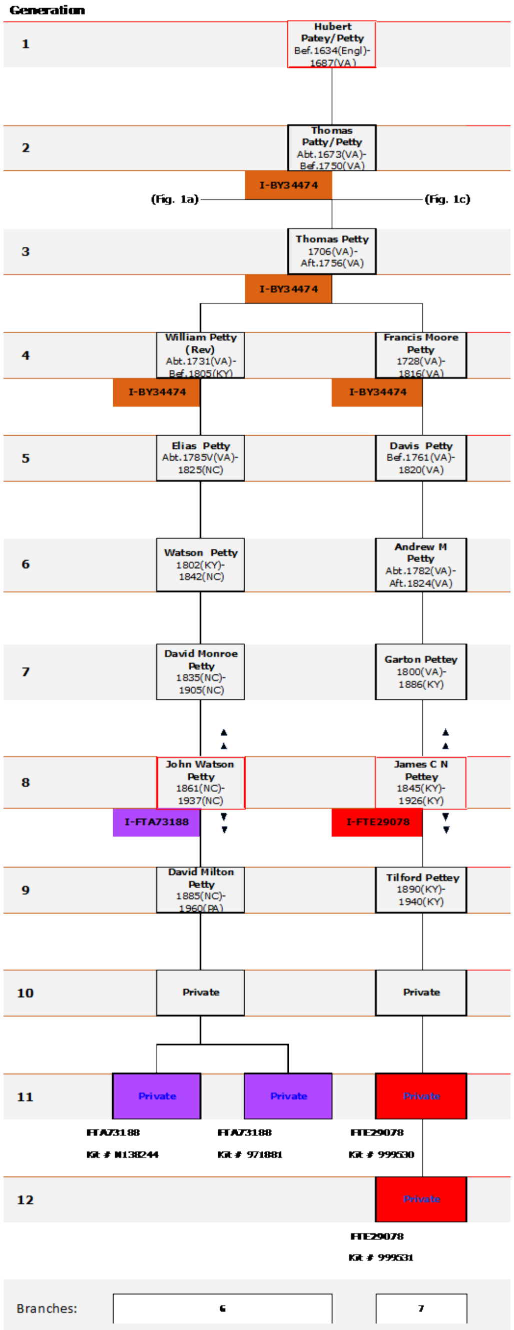


Figure 1b. Hubert Petty Descendant Tree (Middle Portion), with Key



KEY

Box Contents	Hapgrp Level	Box Shadings (Big Y Testers and Branch SNP Mutations/Haplogroups)						
Ancestor Name	1	BY34474						
Birth Yr (State) - Death Yr (State)	2	BY120617				FTA73188	FTE29078	FT404340
Double Red Outline: Possible ancestor with whom new haplogroup was formed	3	FT122807	FT14616	BY116007	FT59214			Z39481, FT399203
	4	FT348032	FT26227					

Haplogroup (Terminal SNP): *Measured* if background is uncolored; *Presumed* if background is colored

Name in blue: Y-DNA test performed, member of Petty Surname Project

Name in black: Y-DNA test NOT performed (usually deceased ancestors)

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Figure 1c. Hubert Petty Descendant Tree (Right Side)

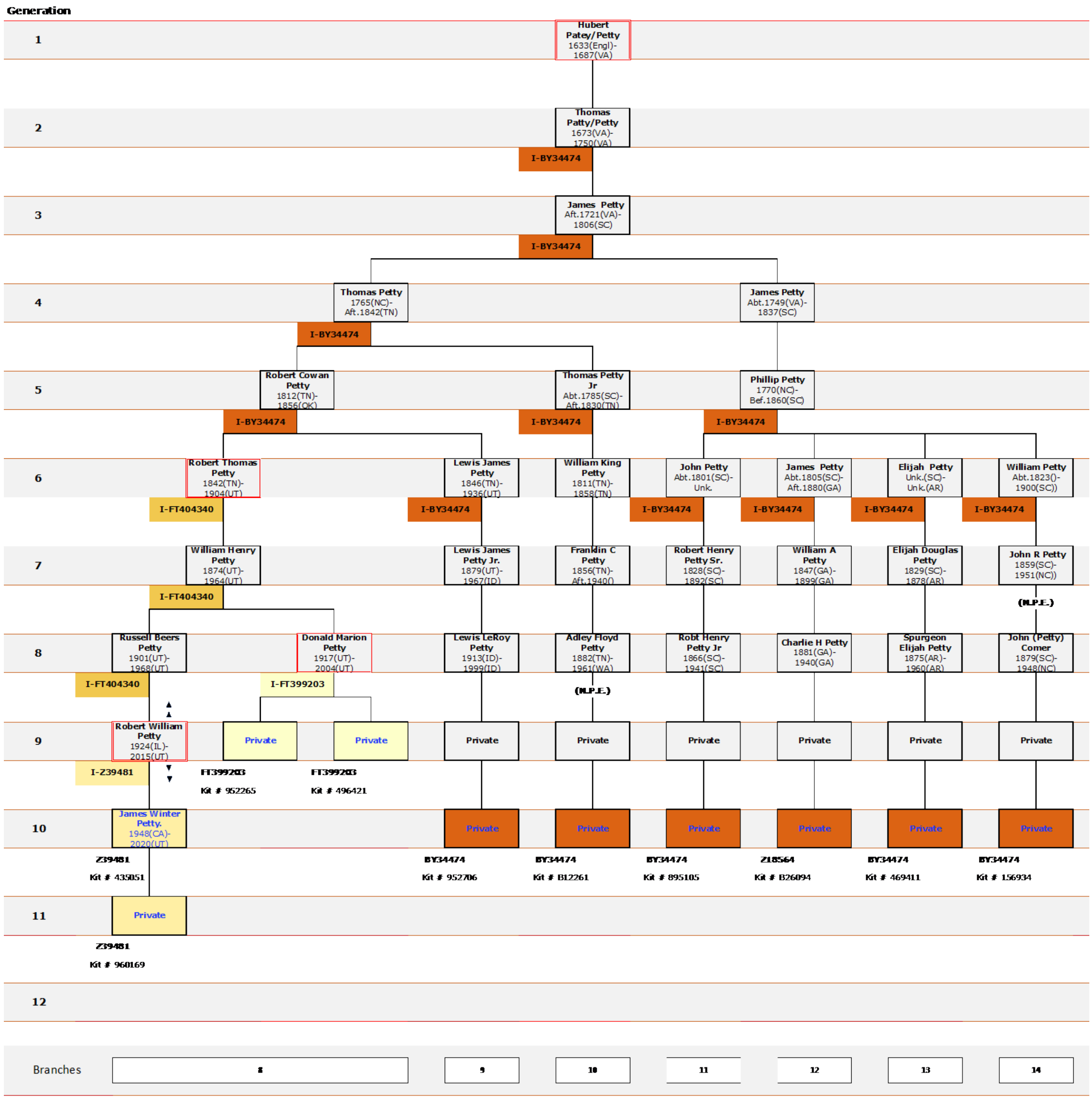


Figure 1d. Descendants of Hubert Petty (Full Tree). (Scaled for overall view, not intended for identification of individual descendants.) Box colors are correlated with genetic identifiers (haplogroups/SNPs): see KEY in Figure 1b, above. See also Figure 2, below.)

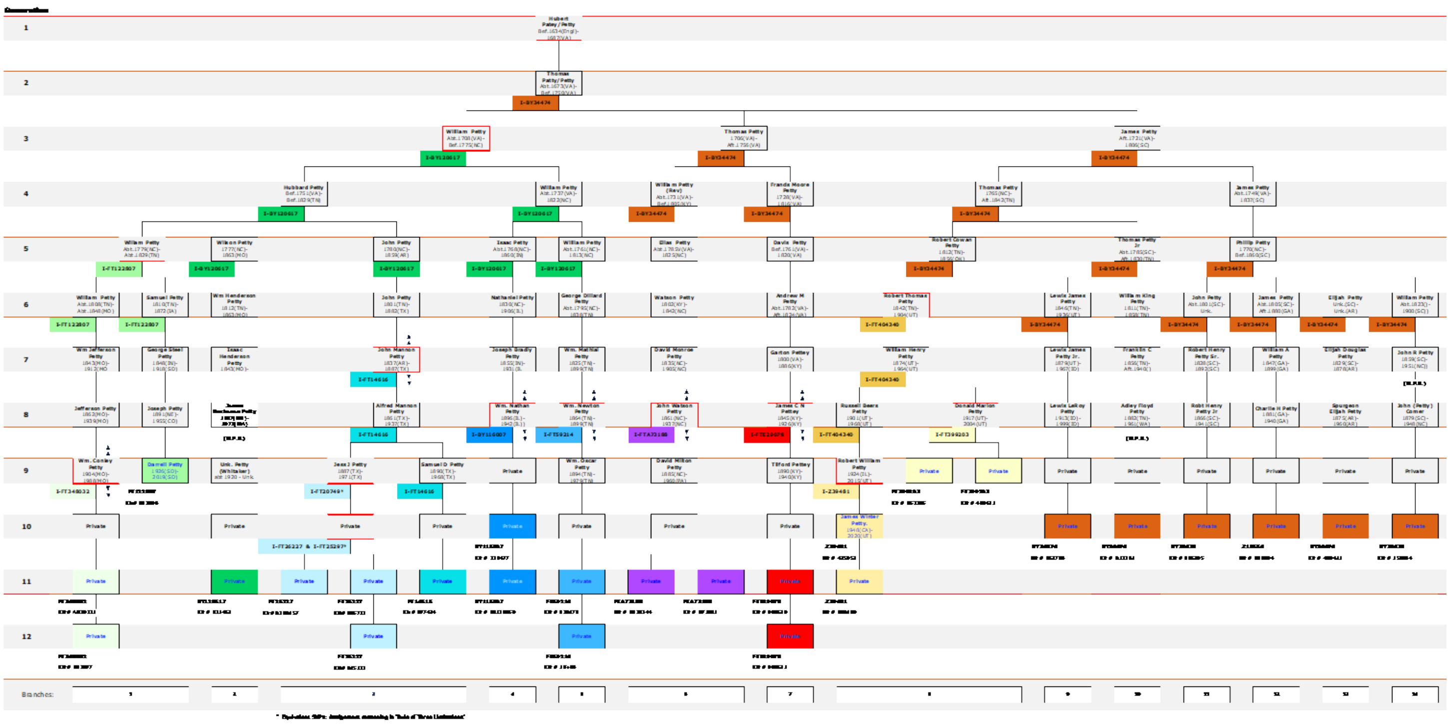
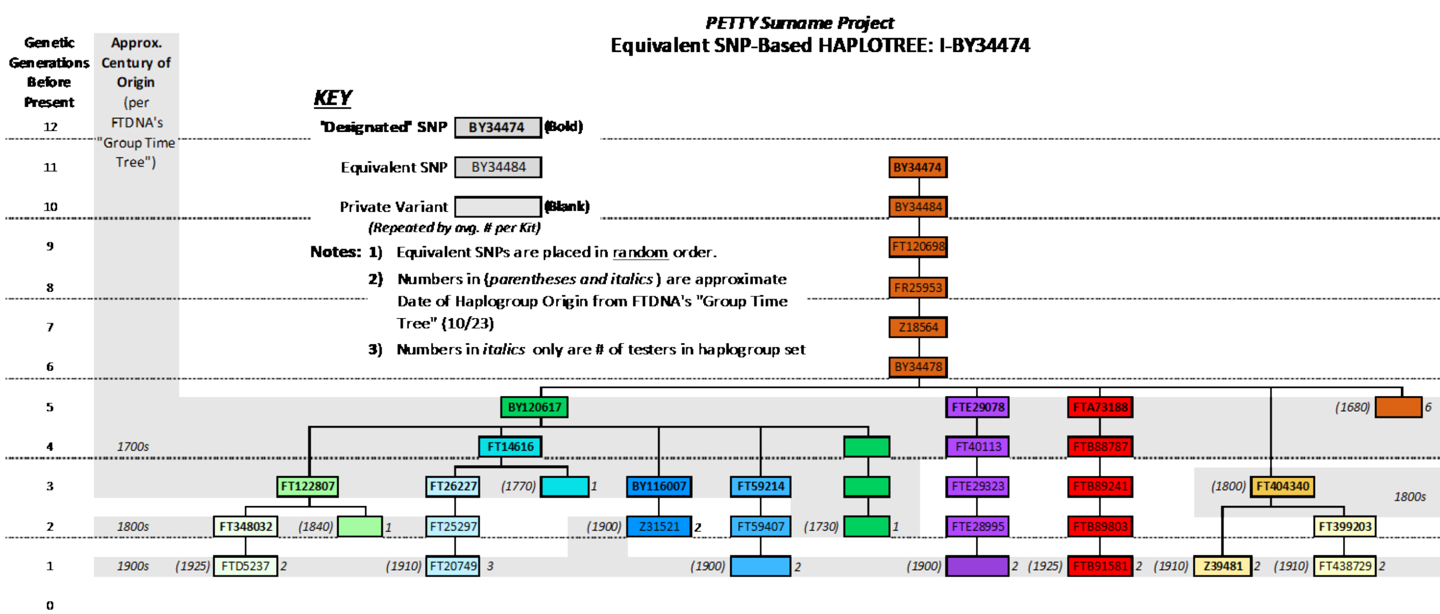


Figure 2. Haplotree of I-BY34474 and its subclades. (Haplogroup colors are coordinated with box colors in Figures 1a, 1b, 1c and 1d.)



Y-DNA Results.

Y-STR Test Results

Y-STR results are much less precise than Y-SNP results in identifying relatively close interrelationships between testers, and other than in this section, are not used in this study. However, these results, which are provided in the lower-level Y-37, Y-67, and Y-111 tests (with the number indicating the number of STR values measured), can be useful in suggesting approximate relationships (with a higher number of measured STRs being more useful than a lower number), and are important as a lower-cost option for ruling out more distant connections. (Over 700 STR values are provided along with the SNP results in the Big Y-700 test.)

I-M253 is the ancient haplogroup (approximate origin around 4500 years ago) under which the Big Y testers fall, and is the "predicted" haplogroup of 6 testers in the Project who have only taken one of the lower-level tests (four having taken the Y-37 test, one the Y-67, and one the Y-111). Comparing the values of the first 37 measured STRs in the 26 Big Y testers, the 37 values match in all but five of the them. In each of these 5 testers, one of their 37 STR values differs from the mean of the value of the same STR for all the of the testers – which is referred to as a genetic difference ("GD") of 1. This means that for the 26 men in this study, who range from close relatives to 9th cousins, their first 37 STR values are all either an exact match, or only one STR is different. In the six low-level testers, one has a GD of 1 in his first 37 STRs, and the rest are exact matches. Results from testing only 37 STRs are not considered highly reliable at predicting close relationships, but this comparison would suggest that all of these low-level testers are at least somewhat related to the Big Y testers, and that upgrading to Big Y should be encouraged.

The Y-67 and Y-111 testers also have a GD of 1, though with more STRs having been tested. Having especially the Y-111 tester upgrade to Big Y would appear to be even more likely to result in the identification of a new member of the Hubert Petty Clan.

Haplotree

Figure 2, the "Haplotree of I-BY34474 and its subclades," (above, loosely patterned after FTDNA's Block Tree (FTDNA-BlockTree, 2023), but more compact, with a more pronounced tree structure), shows the branches of and interconnections between the haplogroups determined for Hubert Petty's direct male descendants. As with the Block Tree, the vertical scale of the chart is in "genetic generations," each of which is associated with a named haplogroup (either "designated" or phylogenetic equivalent) and/or un-named private variants. Shown on either side of the last equivalent SNP (or the last private variant if there are any, or the named terminal SNP if there are neither equivalent SNPs nor private variants) in a haplogroup set (with "set" referring to a group of associated designated and equivalent haplogroups and their accompanying private variants), are the estimated year of formation (FTDNA-TimeTree, 2023) for the most recent SNP of the set (left side), and the number of testers with the designated haplogroup (right side). Equivalent SNPs and average numbers of private variants per tester are represented as well.

At the first Level (see "Haplogroup Levels" in the Discussion section) *beneath* BY34474 (and its equivalent SNPs) (Level 2), four subclades have been identified, which, with their respective associated subclades, account for 20 of the Project's 26 members. (The remaining 6 retain the BY34474 haplogroup). The four Level-2 subclades are BY120617 (12 members), FTA73188 (2 members), FTE29078 (2 members), and FT404340 (4 members). There are no additional subclades below FTA73188 and FTE29078, but FT403340 has two, and BY120617 has four. The

Level-3 subclades below BY120617 are FT122807, FT14616, FT59214, and BY116007. The Level-3 subclades below FT404340 are Z39481 and FT399203. Subclades FT122807 and FT14616 each have one additional (Level-4) subclade, consisting of haplogroups FT348032 and FT26227, respectively.

Rule of Three Results.

We have (arbitrarily) defined a branch of the Hubert Petty descendant tree as the shortest series of at least 5 generations below a branching point, which provides a set of 14 logical and appropriate branches of from 5 to 9 generations. The Branch numbering is shown at the bottom of **Figures 1a-d**, and is used as the primary row in the **Branch Table** (shown under the 'Rule of Three Applied' in the Discussion section, where the Rule of Three results are discussed in detail.

Discussion

Visualizing Correlations Between the Descendant Tree and Haplotree

We've melded the portion of Hubert Petty's descendant tree derived from conventional genealogical research on specific branches of his tree, with its corresponding (though incomplete) haplotree derived from the Y-SNP testing of living members of those same specific branches, by incorporating genetic indicators from the haplotree into the descendant tree. The result is what we've referred to here as Hubert Petty's descendant tree (**Fig**. **1d** and its sub-sections (**1a**, **b**, and **c**)), but the incorporated color-coded genetic indicators make it much more than just a descendant tree. In the combination tree – the layout of which is dictated by the genealogy, of course, but also by the genetics – makes it easy to follow the flow of genetic changes from the clan haplogroup to its subclades, to their subclades, and so on, by following the color changes, while still maintaining the family tree structure. By adding a graphic distinction between "normal" generations and those with which genetic mutations are likely to have occurred (boxes with double red-lined borders), the timing of those mutations can also be visualized and associated with specific sections of the branch. This layout also makes it very easy to recognize which branches are in most need of additional Y-SNP testing – and which generations (i.e., distance of cousins) would be likely choices to fulfill this need.

Making the Connection between Surname Lineage and Haplogroup.

James Winter Petty's meticulous conventional genealogical research in the late 1960s and '70s (referenced and summarized above) uncovered and verified Hubert Petty as his immigrant (and earliest known) ancestor, and Thomas as Hubert's only son. In 2015, after many more years of conventional genealogical research on the Petty surname and Hubert Petty's origins, with the hope of being able to break through remaining brick walls, James took a Y-DNA test from FTDNA and joined the Petty Surname Project. Two years later he upgraded to their Big Y test, which revealed his terminal SNP to be BY34474. The 26 current members of this group, each descending from one of three of Thomas's six sons, all share the I-BY34474 haplogroup, confirming Thomas, born about 1673, as the most recent common ancestor of the group.

Other "sibling" SNPs of BY34474 (Y78878 and FT186158), subclades of their parent haplogroup (I-Y24458), are known to be associated with surnames other than Petty (RLP (2024)), increasing the likelihood of Hubert carrying the BY34474 SNP, though this is not possible to prove at this time. Nevertheless, we've chosen to designate I-BY34474 as the Hubert Petty "Clan haplogroup."

Haplogroup Levels and the Phylogenetic Hierarchy of Y-SNP Results

(We have found it convenient to use "Levels" in discussing SNP hierarchy here, rather than the "upstream" and "downstream" terminology.)

*(Please refer to the **KEY** in **Figure 1b** – "Hubert Petty Descendant Tree (Middle Portion), with Key" – for a table showing the Levels for the 12 Haplogroups determined from work related to this study.)*

Level 1: I-BY34474

I-BY34474, the Hubert Petty "Clan haplogroup," is designated the *Level 1* haplogroup.

Levels 2 – 4

With several early Big Y testers being (fortuitously) somewhat closely related to each other (in the 4th – 7th cousin range) – and also being (unknowingly) descendants of the same grandson of Hubert Petty (William, abt. 1708-1775) – the first subclade of BY34474 (I-BY120617) was revealed not long after the determination of BY34474 itself (see *Rule of Three Summary and Extension*, below), establishing *Level 2*. As the Rule of Three strategy was recognized and began to be applied (see below), *Level 2* saw a small increase in haplogroups, and an additional level was revealed (*Level* 3), with the number of haplogroups in that level beginning to increase significantly. Securing #3 testers for a few branches added more haplogroups to *Level 3*, and revealed two in *Level 4*.

The Rule of Three

In early 2021 the Petty Surname Project was experiencing a surge in interest, and thanks to an effort to recruit more Big Y testers, the portion of the Project associated with the Hubert Petty Clan (those under the haplogroup I-BY34474) was growing especially quickly. About this same time, we became aware of the "Rule of Three," (Wood, 2019) and began using it as a guide for identifying and targeting those relatives of Project members whose tests would be likely to provide the greatest help in further genetic characterization of their individual branches of the tree. (These would generally be relatives with documented placement in the family tree, whose Big Y test would be likely to chronologically resolve one of a branch's equivalent haplogroups, and not just duplicate an earlier haplogroup.) Although strictly speaking we've only been able to fully apply this Rule in three of our branches thus far (see Branch Table, below), it's instructive to include the single- and double-tester branches as well in discussing the use of the Rule and the results it has provided.

Rule of Three Applied

As is readily seen in the **Figure 1a** and **1c** descendant tree charts, not all of our testers fit the "strict" definitions of the Rule of Three. Slight variations of the categories have been utilized, necessitated by difficulties in (a) locating individuals who fit the exact category definitions and/or (b) convincing them to test. Test results of the 26 members of this study have nevertheless allowed the identification of 12 haplogroups in three levels below the Clan haplogroup, as shown in the Branch Table, and described in the subsequent breakdown of the results by number of testers.

Branch Table

Branch:	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Color(s):	Greens	Deep Grn	Turquois	Dark Blue	Med. Blue	Purple	Red	Yellows	Brown	Brown	Brown	Brown	Brown	Brown
MRCA	William Petty	Wilson Petty	John Petty	Isaac Petty	William Petty	Ilias Petty	Francis M Petty	William H Petty	Lewis J Petty	Thomas Petty	John Petty	James Petty	Elijah Petty	William Petty
Measured SNPs:	FT122807 FT348032	**BY120617**	FT41616 FT26227	BY116007	FT59214	FTA73188	FTE29078	FT404340 FT399203 Z39481	**BY34474**	**BY34474**	**BY34474**	**BY34474**	**BY34474**	**BY34474**
RoT Testr(s):	1,2,3	1	1,2,3	1,2	1,2	1,2	1,2	1,2,3	1	1	1	1	1	1

(This Table is intended to be used in conjunction with the descendant tree charts, Figures 1a – 1d.)

1. *Single Testers*. For the seven branches with just a single tester (*tester #1* in the Rule of Three) – Branches 2 and 9 - 14 – the measured haplogroups would, due to the limited genetic resolution provided by a single tester, be expected to be a more distant (upper-level) haplogroup, and this is seen to be the case, with the tester's early ancestor (at the top of his numbered branch) sharing his measured haplogroup. In Branches 9 - 14 this is the Clan haplogroup (I-BY34474), and in Branch 3 it's a (still upper-level) subclade of the Clan haplogroup (I-BY120617).

2. *Two Testers*. In all the other seven Branches, a close relative of the initial tester (*tester #2* in the Rule of Three), at least, has taken the Big Y test. Of the four two-tester-only branches in this group of seven, in one pair (Branches 6 and 7) each branch has a subclade of the Clan haplogroup I-BY34474 (I-FTA73188 and I-FTE29078, respectively), and in the other pair (Branches 4 and 5) each branch has a subclade of the clan haplogroup's subclade (I-BY120617): I-BY116007 and I-FT59214, respectively.

   Interestingly, in these two pairs of branches (6/7 and 4/5), the fact that the measured haplogroups are pairs of subclades of the Clan Haplogroup (BY34474) and its own subclade (BY120617) (I-FTA73188 and I-FTE29078, and I-BY11607 and I-FT59214, respectively) means that the MRCA for each branch pair had to be the Clan Haplogroup and its immediate subclade, respectively. This in turn tells us that the MRCA of the double branch 4/5 must have inherited that SNP from his father, William Petty, Sr. (1708-1775), and since William Sr.'s father, Thomas Petty (as has been previously described) had haplogroup I-BY34474, the I-BY120617 haplogroup must have originated with William Sr. From similar reasoning, the son of Thomas Petty (1673-1750), Thomas Jr. (1706 – 1756), must have retained the Clan Haplogroup, and likely passed it on to his sons, Rev. William Petty and Francis Moore Petty. (See also the section Assigning of Haplogroup Origins to Likely Ancestors, below.)

3. *Three Testers (+).* In the one three 3-tester *only* branch (Branch 1), the Rule of Three is followed closely, although the third tester is a 3rd cousin twice removed – probably more similar to a 4th or 5th cousin than 2nd or 3rd. The "plus" testers in Branches 3 and 8 are not #4 testers, but rather additional "close" relatives. The third tester in these two branches (completing the Rule of Three) is essentially a 2nd or 3rd cousin (or a 1st cousin once removed in the case of Branch 8). Additional subclades are revealed in these branches, with Branches 1 and 3 each having two new successive SNPs below BY120617 (FT122807 and FT348032, and FT41616 and FT26227, respectively). Branch 8, with its two pairs of close relatives, has revealed three new SNPs, one a subclade of BY34474 (FT404340), and two being subclades of FT404340 (FT399203 and Z39481).

Rule of Three Extensions

Extending the Rule of Three beyond tester #3 can be used to identify additional haplogroups in a branch, up to the point where all equivalents and unnamed variants have been identified (the ultimate goal of our project – see **Introduction**). A 4th tester (#4), for example, would be a 4th or 5th cousin of the initial tester, and would be expected to continue breaking blocks of equivalents in that branch. Alternatively, the 4th tester could become the initial tester of a new branch of the tree. This could also apply to a 6th or 7th cousin, which was the case in Branches 4 and 5. Thus, when a 6th cousin of the father (of the father/son pair of testers) in Branch 5 was tested, a brother (Isaac Petty, 1768-1860) of the father's 4th great grandfather (William Petty, 1761-1813) became the head of that cousin's branch (Branch 4); when the father of that cousin tested, he was the #2 tester of that new branch.

So far though, our Project has unfortunately not been able to locate a #4 tester for any of its branches.

Rule of Three Limitations and Alternative Scenarios

It should be pointed out that even having completed the Rule of Tree in the three branches discussed above, more SNPs still need to be named (private variants) and/or chronologically characterized (phylogenetic equivalents), with the total number of SNPs that can be uncovered by additional testers in a given branch being, as mentioned, dependent on the total number of unnamed private variants plus the number of equivalent SNPs existing in that branch. Using Branch 3 (turquoise colors) as an example and referring to **Figure 2**, haplogroup I-FT26227 still has two equivalent SNPs (FT25297 and FT20749), and I-FT14616 still has one private variant. With the tested descendant of Samuel D Petty having SNP FT14616 and the descendants of Jess J Petty having a subclade of FT14616, it's clear that Jess and Samuel's father, Alfred Mannon Petty, must have had the FT14616 SNP as well, so the not-fully-characterized mutations of FT14616 (a private variant and three equivalent SNPs) would appear to have originated within generations 9 and 10 (Jess and Samuel, and their sons, respectively). This happens to be author RLP's own branch, and it's personally known that Alfred Mannon Petty had only the two sons shown, Jess and Sam, and that Jess and Sam each had two sons – though one of Jess's sons died before adulthood. (His other son is the author's father, Sid.) For Sam's sub-branch, there's a clear solution to having his private variant named, and that's to have another of his grandsons tested. Since all three of Jess's tested descendants, including his only two grandsons, share the FT26227 haplogroup and its equivalents, all three equivalent SNPs must have originated in Jess and/or Sid. But with Jess and Sid, along with Sid's brother, all having passed away, and both of Sid's sons (and a grandson) having tested and been shown to share the three equivalent SNPs, chronologically differentiating the three SNPs would seem to be impossible. In **Figures 1a** and **1d**, Jess has been assigned one of the three SNPs (FT20749) and Sid the other two (FT25297 and FT26227), but this is largely speculation. Sid was, however, a fighter pilot in World War II (RLP, knowledge passed directly from father), so considering the increased time spent at higher altitudes while flying, an increased likelihood of Sid having multiple mutations – as suggested by the two SNPs assigned to Sid – is not unreasonable. Chronological differentiation of the three equivalent SNPs, however, doesn't appear to be possible.

Rule of Three Summary

Test results in this study confirm the tenets of the Rule of Three, and clearly demonstrate its ability to help uncover a branch's recent haplogroups. Several ways of fulfilling the Rule with a third tester of intermediate generational distance have been demonstrated, and extension of the rule beyond three testers has been described. There are some practical aspects of applying this rule that may be useful as well. First, testing of a close relative (tester #2) is not only an important component of the Rule, as it immediately results in the naming of most (if not all) private variants, but, assuming the relative is available, it's often the easiest starting point for an initial Big Y tester to begin the genetic resolution of his own branch of his larger family tree. Second, thanks to the wide variety of alterations possible to the "strict" rule categories, our study has demonstrated different ways of completing the rule with a third tester of intermediate distance - and many additional ways remain. Finally, we've demonstrated various possibilities for extending the "Rule" by adding additional testers based on average mutation intervals and other criteria.

Assignment of Haplogroup Origins to Likely Ancestors

When a new haplogroup is revealed in a new tester, the question arises as to when and with whom that haplogroup might have originated. (This was already touched on in the Rule of Three Limitations and Alternative Scenarios section.) Thanks to the genealogies of the Petty Project members having been determined, we've been able to use the known branching in the family tree, along with rough estimates of the time of SNP formation provided by the FTDNA Time Tree app (FTDNA-TimeTree, 2023)), to help determine the originator of the SNP and thus the haplogroup's placement in the descendant tree. For instance, the first subclade of the Clan haplogroup identified, BY120617, was observed in a known descendant of Thomas and Catherine's son William (1707-1775). Since William's father (Thomas) was already known to have the Clan Haplogroup, the formation of BY120617 was considered to have occurred with William, or possibly one of his early descendants. Known descendants of William's two sons, Hubbard and William Jr., however, were also shown to have the BY120617 terminal SNP, so it was clear that it had to have originated with the birth of William (Sr.) himself (abt. 1708) – which is coincidentally close to the Time Tree's median estimate of 1730. Similar reasoning was applied to determine with whom each haplogroup is most likely to have originated. (Most of these determinations, denoted by the double-red outlined boxes in the family tree charts (**Figures 1a**-**d**), are well-reasoned estimates, based largely on known branching patterns in the tree, and are most likely no more than a generation off. Those located in branches without nearby sub-branching, however, could vary by multiple generations either way, as indicated by the arrow symbols next to their double red-colored box outlines.)

The Value of Full Genetic Characterization

The discovery of new haplogroups in a group of related men is important in determining - and especially in confirming - their exact relationships, and can lead to the confirmation of extended family relationships. Uncovering a specific haplogroup sequence in a group of tested men provides confirmation of the sequential relationship of the men – such as a series of cousins from close to distant – and these men then may connect each of their shared ancestors (e.g., 2nd cousins are related through a shared grandfather, 4th cousins are related through a shared great-great grandfather, etc.), thus connecting their genealogical lineage to the genetic sequence. Tying several related haplogroup sequences to one another through shared haplogroups then grows the haplotree, which is similarly correlated with the physical family tree through conventional genealogical research. In this way the value of initially short haplogroup sequences in confirming genealogical relationships is magnified to the confirmation of family-wide relationships that were previously unknown or only suspected.

Using the Rule of Three, known relatives of current members of the Petty Surname Project have been targeted, recruited, and tested, enhancing the correlations between known biological connections and their corresponding genetic connections. It is the Project's long-term goal to achieve full genetic characterization of all known branches of its Hubert Petty descendant tree – which means naming all private variants and chronologically resolving every equivalent haplogroup. Achieving this (rather lofty) goal would allow any man who descends from Hubert Petty (whether he's aware of it or not) to be, first, confirmed as Hubert's descendant, but further, have his exact place in the Hubert Petty Clan identified - simply by taking a Big Y or other Y-SNP test.

Thus far, only James Winter Petty's five-generation, two-haplogroup branch, from his great grandfather (William Henry Petty) to his son, has reached this goal. (Testing of one of James's 2nd cousins (grandsons of Donald Marion Petty) will likely distinguish the FT399203 SNP from its phylogenetic equivalent (FT438727), expanding James's fully characterized branch to 5 generations and 4 haplogroups.) Other sub-branches are approaching a similar level of success though, and the effort to extend their characterized range to even further generations is well under way.

Conclusions

The research described in this paper has resulted in the creation and genetic confirmation of a 12-generation descendant tree for the 17th century English immigrant to America, Hubert Petty, through a combination of conventional genealogical research and Y-SNP genetic testing. It has also provided genetic and genealogical evidence confirming 26 of Hubert's living descendants. Being shared by all these descendants, the haplogroup I-BY34474 has been assigned to, and is offered as the Clan haplogroup of, Hubert Petty. The descendants' haplogroups, presented graphically in both their color-coded Y-haplotree and their correlated descendant tree, have allowed the confirmation, as well as clear visualization, of their relationships to Hubert and their interrelationships between themselves. The advantages of following the "Rule of Three" to enhance genetic characterization of the descendant tree have been demonstrated as well.

Acknowledgements

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Conflicts of Interest

The authors declare no conflicts of interest in their contributions to this study, and specifically declare no commercial or business interests in the FamilyTreeDNA organization (FTDNA) or any other genealogical testing or consulting company. However, authors RLP and MEGP do acknowledge their volunteer positions as co-administrators of FTDNA's Petty Surname Y-DNA Project. Author MEGP acknowledges past association, but no current involvement, with the no-longer active genealogy firm Heirlines Family History and Genealogy of Salt Lake City, Utah.

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Journal of Genetic Genealogy

DNA Lights the Way: Integrating Genetic and Traditional Genealogy to Reconstruct the Family of Heinrich Stöckel from Alsace to America

By Jonathan W. Long

ABSTRACT

I conducted genealogical research with the aid of various autosomal, X and Y-DNA test results to first connect my family tree to Henry Stickel (a.k.a. Johann Heinrich Stöckel) and then reconstruct his life and other members of his family. The research involved extensive collaboration with other Stickel researchers and descendants who were organized through a surname project at FamilyTreeDNA (with six members in the study subgroup), an ancestor project at GEDmatch (with over 50 members), and shared match lists at Ancestry (including 20 testers). The DNA analyses led me to records and family histories that served to identify descendants from all of his children, and also his relatives from Alsace, France who bore the surnames Stöckel (German spelling) or Stoeckel (French spelling). The results reconnect several families whose ancestry was questionable or entirely unknown to their descendants. I cite traditional records (will, baptism, marriage, tax, land, immigration) to explain how we determined individuals' identities, birthdates and relationships, which were essential in interpreting the DNA results and to overcome complications such as pedigree collapse and double-in-law-marriage. The body of the article focuses on Henry and his children; however, I used the combination of traditional and genetic genealogical research to compile a three-generation genealogical record that I include as an appendix for reference and to help interpret the charts. Next-generation Y-DNA sequencing yielded estimated dates to common ancestors that comported with the genealogical record, and those results also discriminated between paternal lineages descending from his sons. This case study demonstrates the value of integrating autosomal, X, and Y-DNA testing with traditional genealogical research and collaboration through a surname study project.

INTRODUCTION

Objective: Find the mother of Mary Susan Slaughter

My primary objective at the start of this research was to identify the mother of my ancestor, Mary Susan Slaughter. I had identified her father as Frederick Slaughter of Guernsey County, Ohio, and I had found a biography that described him as "Fred Slaughter, from Virginia, of Dutch descent."[1] The term "Pennsylvania Dutch" was commonly applied to people of German ethnicity in Northern Virginia who had immigrated to Pennsylvania,[2] such as Frederick Slaughter (details about Frederick are included in the Appendix). I had a few clues about the identity of Frederick's wife. First, a tombstone, located in a cemetery bearing other members of her family, appeared to identify her as "Elizabeth Slaughter" with specific dates of birth and death.[3] Second, her great-granddaughter, Etta Slaughter Mathison, identified her as "Katherine Stigler" in an application to join the Daughters of the American Revolution.[4] It was important to determine that I was searching for only one woman so that we could evaluate DNA matches from any of Frederick's descendants when trying to identify his wife's family. As I explain in the Appendix, I determined that Frederick did have only one wife and that she was likely known by two names: her "saint name" (Katherine) and her "call name" (Elizabeth). This naming convention was common among Pennsylvania Germans in the 18th century.[5] Later in this article, I reference baptism records that demonstrate that it was also followed in naming her sisters and parents.

[1] Goodspeed Publishing. 1892. "Biographical and Historical Memoirs of Muskingum County." Press of John Morris Company, Chicago.

[2] Scheel, Eugene. "Lovettsville - A German Settlement." The History of Loudoun County, Virginia. (https://www.loudounhistory.org/history/lovettsville/. Accessed 6/1/2024.

[3] Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/33570529/elisabeth-slaughter: accessed 5/11/2023, memorial 33570529, Elizabeth Slaughter (1767-1842), McQuade Cemetery, Guernsey County, Ohio; gravestone photograph by TwoRoos.

[4] Etta M. Slaughter Mathison application for membership to Daughters of the American Revolution (National no. 48647) based upon ancestor Frederick Slaughter (A105024, 1743 [sic]-29 Apr 1856), Vol. 49, p. 294 submitted 24 November 1903; National Society Daughters of the American Revolution, Office of the Registrar General, Washington, D.C.

[5] Kerchner, Jr., Charles F. 18th Century PA German Naming Customs. 2018. Pen Pal, newsletter sponsored by the Pennsylvania Palantines to America, Vol. 38, No. 1, p. 1.

Finding autosomal DNA Matches with a shared surname

I began the search for Katherine Elizabeth Stickel's family by compiling a network of my father's cousins (ranging from 1st to 4th degree) who shared descent from her and Frederick Slaughter. Members of this network already had received DNA test results over several years before initiating this research; I had recruited some of them to test while investigating closer ancestors, while others were serendipitous discoveries. Then I looked for matches in common within that group who did not have a clear relationship with the Slaughter family. My research showed that Frederick was from Bedford County, Pennsylvania and had two siblings, John Slaughter, who raised a family in Jefferson County, Kentucky, and Mary Slaughter Rush, who raised a family in Darke County, Ohio (and I identified autosomal DNA matches with descendants of both). Autosomal DNA results revealed numerous matches with Stickel descendants from colonial Virginia. Importantly, descendants with the names "Stickel," "Stickle," and "Stickell" all appear as a match to "Stigler" when selecting the "include similar surnames" option in the AncestryDNA search tool.

Connecting to a surname project

That discovery led me to contact the administrators of the Stickle surname project. They had already determined that members of this Stickel family belonged to Haplogroup J2. All testers in that subgroup were thought to descend from two sons of Henry Stickel Sr. , Henry Jr. and George, of Fauquier and Loudoun counties in Virginia. Previous efforts to document his family history include a privately published manuscript[6] and two websites compiled by descendants.[7,8] Those efforts, and many family trees posted at Ancestry.com, had substantive errors and omissions, including misidentifying Henry's wife, confusing the identifies of his sons George and Henry Jr. (sometimes even combining them into "George Henry Stickel"), missing some of his children, listing some of his grandchildren as his children, and linking them to Stickels from colonial New York. However, the initial Y-DNA evidence showed only matches among the Virginia Stickels and not to Stickels from other states.

BUILDING A BASE USING TRADITIONAL GENEALOGY

Finding a will revealed Henry's wife and children

After the initial autosomal matches revealed connections to Henry Sr., I made a key breakthrough in finding the will of a Henry Stickle from Guernsey County Ohio, where my direct ancestor, Katherine Elizabeth Stickel, had been buried in 1842. In his will, which he wrote in 1822, [9] he named his wife "Eve" and five of his children: Henry Stickel Jr., George Stickel, Polly Stickel Smith, Catherine "Caty" Stickel Marshall, and Nicholas Stickel (Table 1). He indicated that his sons Henry Jr. and Nicholas were deceased with possible heirs. Although my ancestor, Katherine Elizabeth Stickel, had not been linked to the family, and the will did not even name her as Henry Stickel's daughter. However, that relationship was implied in naming her husband Frederick Slaughter as the first beneficiary, and their son Philip Slaughter as the executor.

Table 1: Family of Henry Stickel Sr. as identified in his will

As named in will (in order)	Relationship to Heinrich Stöckel
Henry Stickle	Self
Frederick Slaughter, 1st named heir	Son-in-law, husband of eldest daughter Elizabeth
Henry ("my deceased son or his heirs"), 2nd named heir	Eldest son
George ("my son"), 3rd named heir	Middle son
Polly ("my daughter Polly now Polly Smith"), 4th named heir	Middle daughter
Catherine ("my daughter Catherine now Catherine Marshall"), 5th named heir	Youngest daughter
Nicholas ("my son deceased or his heirs"), 6th named heir	Youngest son (deceased or his heirs)
Eve ("my wife")	Wife

[6] Donald E. Watts, "Henry and George Stickle of Fauquier County, Virginia and their descendants: includes other, associated families." Published by the author, 2009. V REF 929.2 STICKLE, Loudoun County Public Library, Leesburg, Virginia.
[7] "The Stickel(s) Family Name 'Stickels.Org'". www.stickels.org, Accessed 5/7/2023.
[8] "Mark Stickels Family Website, Genealogy Record for Henry Stickle, I - (Mark's G5 Grandfather)" https://www.mark.stickels.org/FamilyTree2/Stickle-Henry1.html. Accessed 5/7/2023.
[9] Will of Henry Stickle, Guernsey County will book vol A, p. 115. Ohio Probate Records, 1789-1996," database with images, FamilySearch (https://familysearch.org/ark:/61903/3:1:3QS7-89M2-LCRM?cc=1992421&wc=S24F-SPD%3A266276001%2C267129801 : 1 July 2014), Guernsey > Wills 1812-1852 vol A-B > image 82 of 524.

Philip Slaughter ("my sole executor")	Grandson through Frederick Slaughter and daughter Elizabeth

Additional vital records identify his children but leave important gaps

With the will providing the names of his other children, my next step was to learn when they were born and who they married. The marriages of three of the children--Henry Stickel Jr., George Stickel, and Catherine Stickel—had been recorded in Virginia. Henry Jr. and George Stickel had married Catherine "Caty" Michael and Jane "Jennie" Michael, respectively, who were two daughters of Daniel Michael/Michel. However, that double-in-law marriage made it more difficult to discern which of Henry Stickel's grandchildren belonged to each of them based upon solely upon autosomal DNA, and I found only a few birth records for these families in Virginia. I did find birth and baptism records in Maryland for the two other daughters of Henry Sr. (as "Heinrich Stickel") and Eve (as "Anna Eva"): Polly was christened as Anna Maria Stickel on 19 August 1772 after being born 31 July 1772,[10] and Catherine was christened 2 May 1775 as Anna Catharina Stickel after being born 20 Feb 1775.[11] Their baptisms were recorded in the Evangelical Lutheran Church in Frederick, Maryland; however, Henry and Eve were likely attending the New Jerusalem Lutheran Church of Lovettsville in Loudoun County, Virginia. That affiliated church was founded in 1765 by German-speaking immigrants from the Palatine in Germany and Alsace and Lorraine in France.[12] Reverend John Andrew Krug served the New Jerusalem Church during the period when Henry and Eve baptized their children, and they may have been among the founding members. However, records for the church are only available for the following dates: May 27, 1772; November 7, 1773; May 20, 1775 and September 2, 1775.[13] The church in Loudoun did not have its own records until 1784, and "what happened before that is to be found in the records of Evangelical in Frederick— many of which have not been translated and transcribed."[14] Henry and Eve were likely married and had their other children baptized in the years missing from the available church records.

Despite finding key dates and relationships in the will and some vital records, there remained substantial challenges in identifying all six children, who they married, and who were their children. Another challenge lay in identifying Henry's family and origins. For most of these challenges, answers came through the integration of DNA analysis with traditional genealogy.

USING AUTOSOMAL AND X-DNA TO IDENTIFY HENRY'S CHILDREN AND THEIR SPOUSES

After identifying Henry and Eve's six children, we could more clearly attribute DNA testers to the different branches and leverage those matches to identify other genetic relatives, including those who lacked any hints of the Stickel surname in their trees, as well as those who carried the surname and even associated Y-DNA. Traditional genealogy helped to identify which individuals were possible ancestors of particular lineages based upon when they were born, when they married, and where they lived. I collaborated with one descendant, Michael Godown, to set up a Stickel "ancestor project" at GEDmatch.com into which we recruited dozens of descendants with DNA test results (ancestor projects are a free service at GEDmatch.com that requires a minimum of 50 kits). The GEDmatch project allowed me to identify which specific autosomal and X-DNA segments were shared among the descendants (triangulated segments). I also used AncestryDNA results to identify whether any matches were in common between two kits with apparent descent from Henry and Eva Stickel who also seemed to have a connection to that couple. I prepared two figures (2 and 6) for this article by identifying shared matches between two kits at Ancestry.com. Shared matches can be easily viewed when the shared DNA exceeds 20 centimorgans (cM). Almost all of those shared matches (excluding a few kits with no discernible trees) had a connection to Henry Sr.; a few others were later identified as connecting to an earlier Stöckel ancestor (discussed later). Only a few more shared matches with deep and complete trees were not connected—I have interpreted those as likely representing descendants of Eva's unknown

[10] Hahn, Marcia and Fouts, Bob. Evangelical Lutheran Church Records, Frederick MD, Baptism Records. Vol. II, pg. 82, #140. http://bobfoutgenealogy.com/records/wp-content/uploads/2015/06/FELC-Baptisms-1765-1774.pdf.
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[13] Joyner, Peggy S. 1982. Extant German church records from Virginia and West Virginia: a checklist. Society for the History of the Germans in Maryland, Baltimore, Md., 1982. P. 15-34.
[14] Spannaus, Edward. 2015. "History Minute: Reverend John Andrew Krug". https://static1.squarespace.com/static/547651f8e4b0e8780ffbb71c/t/553d5639e4b04c98280c367a/1430083129008/HM_020115.pdf. Accessed 4/26/2023.

ancestors, as they are also associated with German or Alsatian immigrants to Northern Virginia. I probed many of these shared matches more closely by obtaining permission from several testers with apparent Stickel ancestry to view their Ancestry DNA match lists. Such access allowed me to evaluate additional matches between two tests when shared DNA was less than 20 cM. That step was unnecessary for the findings presented here, but viewing shared matches below the 20 cM threshold may be important when researching more distant connections.

Overcoming the challenges of autosomal DNA

Because autosomal DNA can be inherited from any of an individual's ancestors, and many matches have incomplete or faulty trees, there is a risk of identifying the wrong ancestral couple as the source of an autosomal DNA match. I sought to minimize the possibility of a false inference through several steps. First, the primary trees that I utilized have been thoroughly researched so there were very few missing ancestors at the generation of Katherine Elizabeth Stickel. Furthermore, I used the "sideview" technology at AncestryDNA to explore matches only on the side of my father and his cousins that could connect on the side with Stickel ancestry. Third, I relied on shared matches with 3rd and 4th degree cousins to ensure that I was focused on matches on the Slaughter-Stickel side. Fourth, I did not rely on a single autosomal DNA match or cluster with a single family, but instead found shared matches across the full range of siblings, as I show in the DNA descendancy figures (1, 2, and 6). Fifth, I looked not simply for triangulated matches, but also for specific triangulated segments by using chromosome browsers and other tools that were available at GEDmatch and FamilytreeDNA. Sixth, I also examined shared X-DNA connection among some of the matches; while X-DNA can be challenging to interpret, the distinctive pathways of X-DNA inheritance can point to specific relationships. Finally, I recognized instances where complex relationships, including double-in-law marriage, second wives, and pedigree collapse required additional investigation.

Identifying children of Nicholas despite limited vital records

The only records I found for Henry's youngest son, Nicholas, were personal property tax records in Virginia in which he was first recorded as a tithable, and later as a neighbor, of Henry Sr. For some time, we were unsure whether Nicholas had any descendants with DNA results, or even any children at all. However, I identified a triangulated DNA segment that was shared among descendants of Frederick Slaughter and Elizabeth Stickel and a descendant of Thomas Chappell Stickel who was one of the original members of the Stickle surname project (Figure 1). Thomas was born about 1803, which suggested that, if related to Katherine Elizabeth Stickel, he was likely her nephew. A Thomas Stickel had witnessed Henry and Eve's sale of land in Muskingum County on 19 February 1820.[15] However, Thomas' father had never been identified, and the first name Thomas did not appear among the other descendants we had identified. Initially, we speculated that Thomas was a son of Henry Jr., who had several children who moved with Henry Sr. to Ohio after Henry Jr. apparently died about 1810. However, because Nicholas had also passed at about the same time, he could also have been Thomas' father.

Important clues came in the form of his distinctive middle name "Chappell" and autosomal DNA matches who also connected to that name. While records only give his middle initial, the "Chappell" name was given in a family bible passed down to descendants (Wesley Stickel, pers. communication July 2023); that accounts for the name being included in his Find-A-Grave profile.[16] Collaboration with a fellow Stickel researcher, Linda Herman, called my attention to another Stickel whose father was unknown--a Sarah Stickel born about 1804. Sarah's mother was identified as a "Polly Steckles" who married William Bethard on 25 October 1813 in Madison County, Ohio.[17] A biography for their son William Beathard (born 1820) described his parents as "William and Mary (Chappel) Beathard."[18] A descendant of Sarah's matched several descendants of Thomas Chappell Stickel at AncestryDNA. The most logical explanation for these relationships was that Mary Chappell had married Nicholas Stickel, becoming known as "Polly Steckles," and that Thomas and Sarah were the children of Nicholas and Polly. Mary "Polly" Chappell was likely a daughter of Thomas Chappell of Loudoun County, so that Thomas was likely named for his maternal grandfather.

[15] Muskingum County, Ohio Deed Book F, p. 47-48, Henry and Eve Stickell to Michael Peters, sale, 4 March 1820. https://www.familysearch.org/ark:/61903/3:1:3Q9M-CS4Y-FCCF.
[16] https://www.findagrave.com/memorial/105226726/thomas-chappell-stickell.
[17] "Ohio, County Marriages, 1789-2016", database with images, *FamilySearch* (https://www.familysearch.org/ark:/61903/1:1:XDPH-67W : 29 September 2021), William Bethard and Polly Steckels, 1813.
[18] "The History of Union County, Ohio" by W.H. Beers & Co., 1883, Chicago. https://archive.org/details/historyofunionco00dura/page/274/mode/2up?q=Stickle

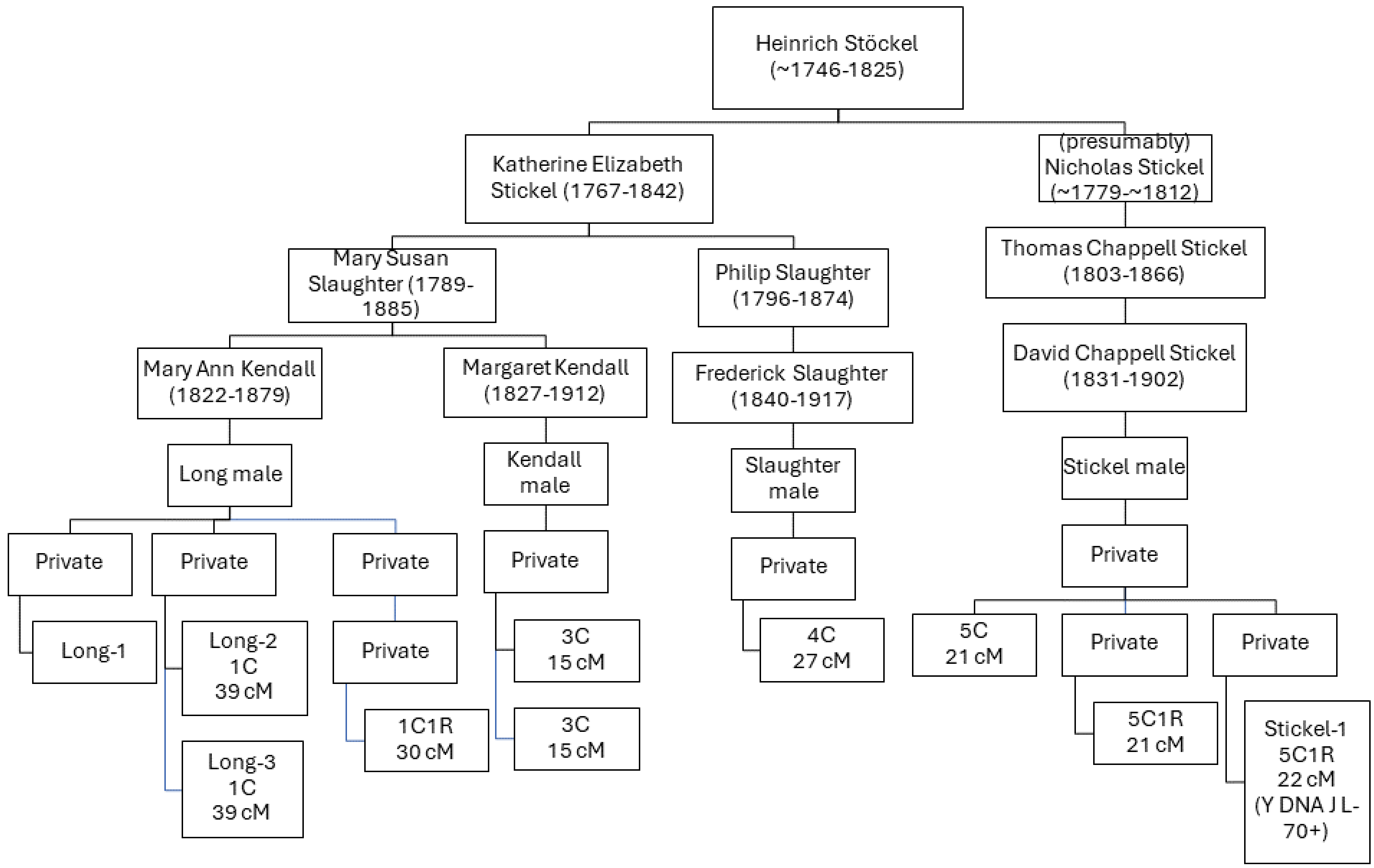

Figure 1: Individuals who share a common DNA segment inherited from Johann Heinrich Stöckel or his wife Eva, as determined through the "Stickel" ancestor project at GEDmatch.com. Bottom boxes show amount of DNA shared in the segment (on Chromosome 13) and relationship to Long-1.

Identifying "Polly Smith" despite a common name and some intermarriage

An important puzzle that I solved with autosomal DNA was tracing Henry's second daughter, Polly Stickel, who was married to a Smith according to Henry Sr.'s will. I knew that she might be identified in any records as Mary, since my ancestor, Katherine Elizabeth Stickel, had a daughter, Mary Susan Slaughter, and a granddaughter, Mary Ann Kendall who were both known to family members by the nickname Polly. Because Smith is such a common surname, and Mary is such a common first name, it can be very difficult to conclusively identify a specific family, especially in records prior to the 1850 census when women are rarely named in records. That perpetual challenge highlights the utility of genetic genealogy to find the right individual.

I identified autosomal DNA matches whose family trees traced back to a Mary Smith and Joseph Smith of Guernsey County Ohio. Indeed, I found an array of matches in common between descendants of Katherine Elizabeth Stickel, George Stickel, and that Mary Smith, by noting all the matches shared between my father's 1st cousin (Long-2) and a descendant of that Mary Smith (Smith-1), who shared a relatively large (39 cM) segment of autosomal DNA (Figure 2). AncestryDNA does not provide a chromosome browser to determine if all those matches share the same DNA segments; however, Figure 2 shows *all* those shared matches who had family trees that I could trace (the figure excludes some siblings of matches that would be redundant)—the fact that I could not identify other matches who did not have that Stickel-Smith connection suggests that it is the source of the shared DNA. However, this analysis of the

Smith branch has some complexity due to intermarriage. First, as shown in Figure 2, one of those matches likely had a double connection to Long-2 through the coupling of Elizabeth Kendall, a granddaughter of Elizabeth Stickel, with William Smith, a son of Mary "Polly" Stickel Smith. That descendant shares three segments of autosomal DNA with Long-2, which is more segments than any of the distant cousins in Figure 2.

When tracing autosomal DNA through women, it is also important to evaluate the complications when men have more than one wife. Smith-1 descends from Elias Smith, a son of John Smith and grandson of Polly (Figure 2). Elias was born 17 February 1838 according to his tombstone, the 1870 census,[19] and the 1860 census, which shows him, age 22, living with John Smith and Sarah (Botts) Smith.[20] However, John Smith's first wife was Margaret Slaughter, a daughter of Frederick Slaughter and Katherine Elizabeth Stickel, and therefore a granddaughter of Henry and Eve who also possessed Stickel autosomal DNA. However, Margaret Slaughter Smith evidently died before Elias Smith was born in 1838, and so Elias' mother must have been John Smith's second wife, Sarah Botts, whom he married in April 1837 (see Appendix).[21] The ancestors of Sarah Botts appear in family trees[22] to be from England and Ireland and do not appear to be related to this Stickel family. Reinforcing this conclusion, we identified shared DNA matches descending from John through Elias' younger brother Joseph Smith (Figure 2). Collectively, these results indicate that the shared DNA came through John Smith from his mother, Mary (Polly) Stickel Smith.

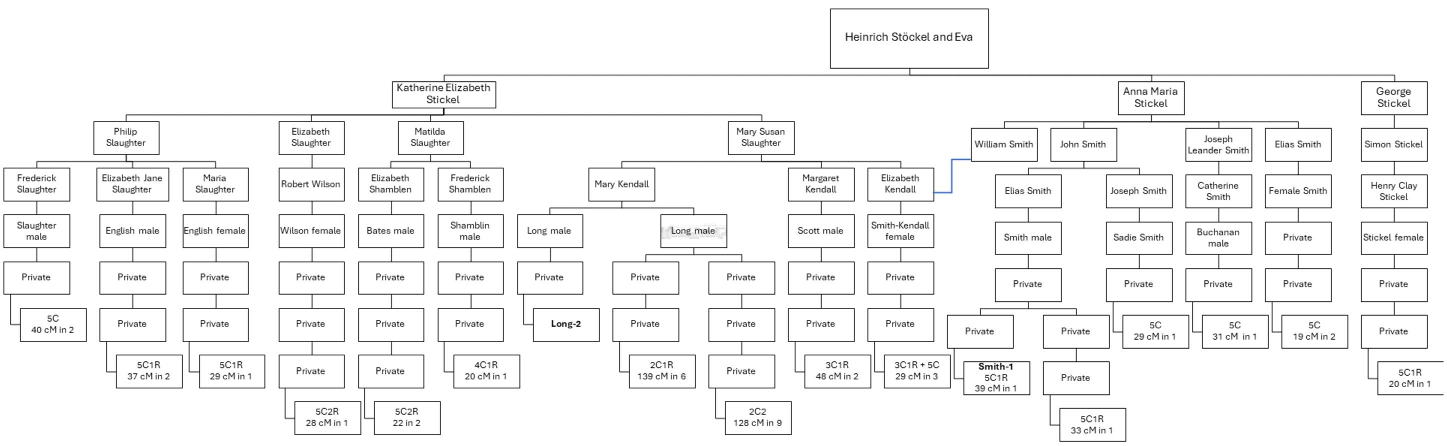

Figure 2: Shared autosomal DNA (total cM and segments) and relationships for autosomal matches at AncestryDNA shared between Long-2 and Smith-1, who share descent from Henry Stickel Sr. and his wife Eva (some additional closely related shared matches are not shown to save space).

Verifying Relationships with X-DNA

Analysis of results in the Stickel ancestor project at GEDMatch.com revealed significant amounts of shared X-DNA among several descendants of Henry and Eve. After conducting a "segment search" (a Tier 1 tool at GEDMatch) for one of those tests, I identified many more kits who shared the same segment (Figure 3). Although those additional kits had not been included in the Stickel ancestor project, I was able to identify two of them as descendants of George Stickel and Katherine Elizabeth Stickel based upon their linked family trees. These results provide valuable confirmation of the relationships among the Stickel siblings (specifically, Katherine Elizabeth, George, and Anna Maria/Mary/Polly) (Figure 3). This analysis demonstrates the distinctive power of X-DNA to establish distant connections through particular relationships, because men can only pass down the X chromosome they received from their mothers. Consequently, the matching segments confirmed that both Sophia and Phoebe Stickel could not have been granddaughters of George Stickel through one of his sons, as some trees had suggested, because X-DNA could not be inherited through two males in succession. And even more intriguingly, we know that their X-DNA had to come from Eve, because hers was all the X-DNA that George could have passed down. Figure 3 confirms that the shared DNA came to each descendant through paths that never represent father-son DNA inheritance. Indeed, the largest amount of shared DNA for Private-1 came from a 6th cousin rather than either of his 5th

[19] Entry for "Elias Smith" in 1870 Federal Census for Good Hope, Gibsonville, Hocking, Ohio, USA.
[20] Entry for "Elias Smith" in 1860 Federal Census for Good Hope, Hocking, Ohio, USA.
[21] Ohio, County Marriage Records, 1774-1993 film number 000317295.
[22] Entry for Sarah Ann Botts, ID# K64H-KYR, in the Family Tree at Familysearch, https://www.familysearch.org/tree/person/details/K64H-KYR.

cousins. That increased amount of shared DNA reflects the fact the 6th cousin has an alternating female-male pattern of inheritance, which conserves that X-DNA as it is passed down.

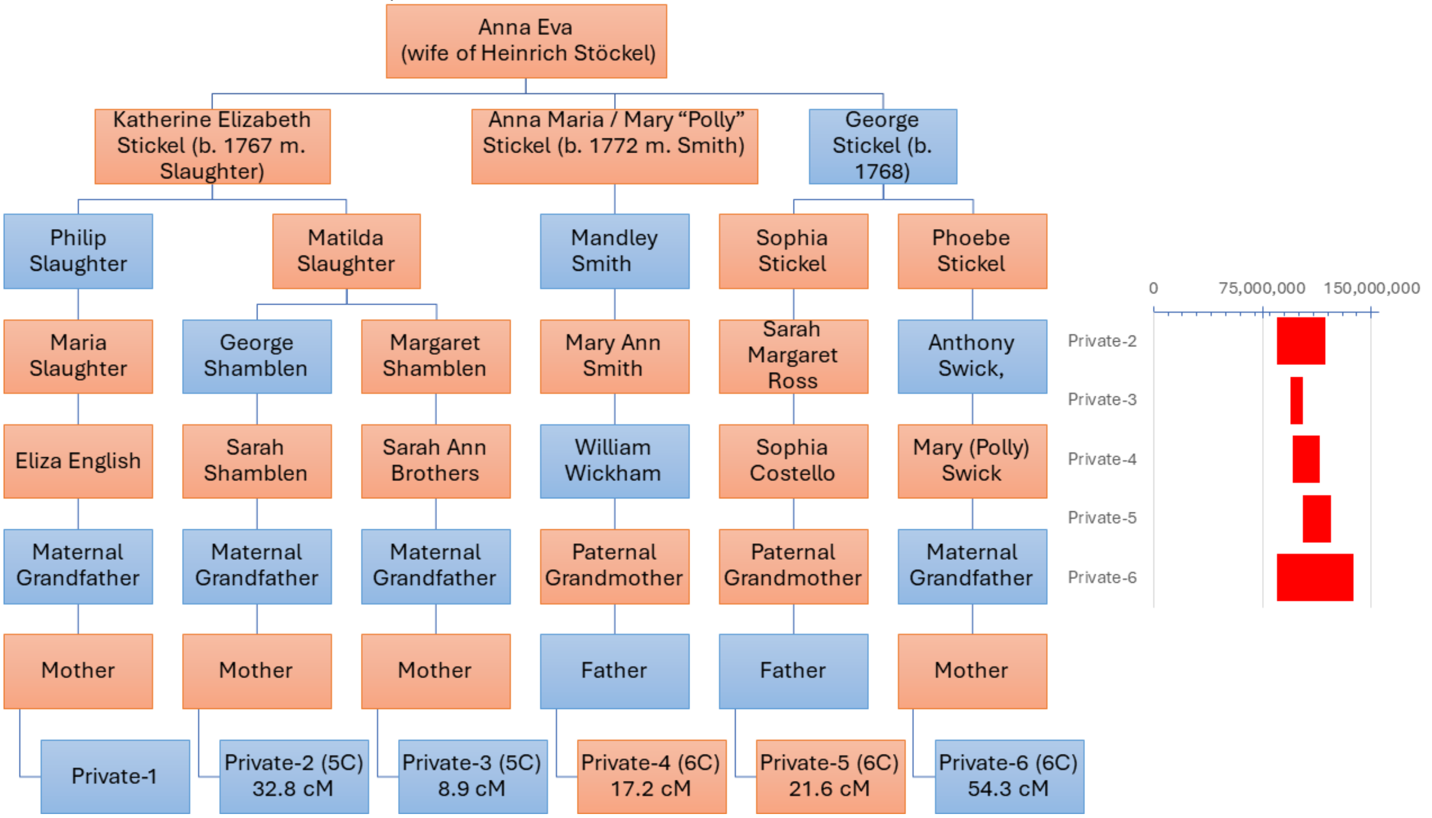

Figure 3: X-DNA matches among descendants of Anna Eva (Stöckel), with centimorgans shared with Private-1 noted at the bottom, and segment overlap shown among each of the 5 matches (Private-2 through 6) shown in the inset chart at the right. Male are represented with light blue rectangles and women with light orange. Each of the lines could have passed X-DNA segments from Anna Eva to the testers.

Evaluating relationships with mitochondrial DNA

Mitochondrial DNA is another important tool for genetic genealogy, although I did not use it extensively in this research. Years earlier I had recruited two matrilineal descendants of two different daughters of Mary Susan Slaughter, the wife of Zebedee Kendall, to do mitochondrial DNA tests. The first did only an HVR1 test (because that was all was available), while the second did a full mitochondrial sequence (FMS) test. They matched each other fully in the HVR1 region and the second obtained a haplogroup result of H2a2a1. I have not recruited any matrilineal descendants of Mary Susan Slaughter's sisters to test, and the second tester has no full sequence matches closer than a genetic distance of 2 at this time. My Stickel research has not identified any matrilineal descendants from the other two daughters, Polly and Caty. As detailed in the Appendix, Mary "Polly" Stickel Smith had one daughter identified but died young, apparently unmarried and without issue. Meanwhile, the only identified child for Catherine Stickel Marshall was a son, John; although it is possible that she had other unidentified children since she lived with her husband for a long time. The mitochondrial DNA is important for evaluating the possible ancestor of Eva; that research will continue.

DNA AND IMMIGRATION RECORDS CONNECT HENRY TO STOECKELS FROM ALSACE

The next breakthrough came when finding shared autosomal DNA matches with individuals with the surname Stoeckel in their trees. I first identified matches to three descendants of an immigrant from Schoenbourg, Alsace, France named Theobald/Thiebaut Stoeckel, who was born 20 May 1798, Schoenbourg, Bas-Rhin, Alsace, France to Theobald Stoeckel (Sr.) and Christina Beck.[23] A marriage record identified that elder Theobold Stoeckel as the son of Nicholas Stoeckel and Elisabethe Dietrich.[24] Further research on the French genealogy sites Geneanet.com and Filae.com indicated that Nicholas was born in the village of Lohr in Alsace. That discovery led me to family histories compiled by French genealogist Gilbert Etter for that village.[25] Although it lies in France, its residents were linguistically and ethnically German in the 18th century. Etter's work identified Theobold Sr.'s father as Jean Nicholas Stoeckel, a farmer and church censor/administrator born in Lohr about 1730 who had moved to Schoenbourg before his death in 1775.[26,27] Furthermore, Etter's family history for Lohr revealed that Jean Nicholas Stoeckel (a.k.a., Johann Nicklaus Stöckel) had a younger brother, Johann Heinrich Stoeckel (Stöckel) born about 1746 who had lived in Lohr until 1763, after which there was no further record.[28] I realized that I had found the likely origin of Henry Sr.

Heinrich's disappearance from Lohr after 1763 fits neatly with a migration record for a Heinrich Stöckel into Philadelphia, Pennsylvania in November 1764.[29] Heinrich signed an oath of allegiance with his name (appearing as "Heinrich Stöckel", Figure 4); signing the record (rather than leaving a mark) was common among the passengers but also consistent with being the son of a school master. I compared the signature on that record to that of Henry Sr. when he sold land in 1820 (Figure 5). The spellings are the same, although the land sale was written in English cursive rather than the German Kurrentschrift on the immigration oath; consequently, the signatures appear different in style, although that is to be expected for someone living in America for over 56 years.

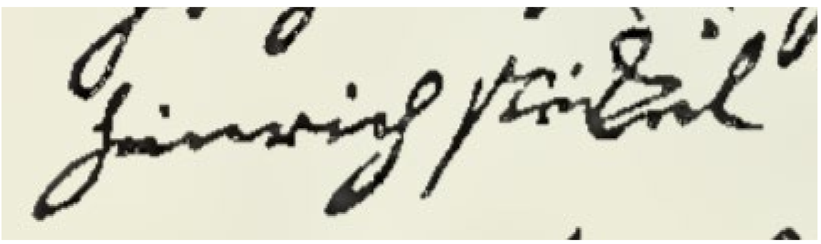

Figure 4: Heinrich's signature (as "Heinrich Stöckel") in Kurrentschrift on the immigration record for the Jennefer, when he was 18 years old.[30]

[23] "France, Naissance et baptêmes, 1546-1896," FamilySearch (https://familysearch.org/ark:/61903/1:1:FMKY-S3X : 14 September 2019), Theobald Stoeckel, 20 May 1798; citing Birth, Schoenbourg, Bas-Rhin, Alsace, France, Archives départementales du Jura (Departmental Archives of Jura), France. FHL microfilm 799,578.
[24] "France, Mariages, 1546-1924", database, FamilySearch (https://familysearch.org/ark:/61903/1:1:FFWS-DW5 : 7 October 2019), Theobald Stoeckel, 25 Mar 1788; citing Marriage, Schoenbourg, Bas-Rhin, Alsace, France, Archives départementales du Jura (Departmental Archives of Jura), France. FHL microfilm 799,577.
[25] Etter, Gilbert. 2008. Lohr Reconstituted Families from 1641 to 1930. "Lohr, Bas-Rhin 67273, arrondissement de Saverne, canton de La Petite Pierre, Familles de 1640 à 1930." Cercle Généalogique d'Alsace, Section Ile-de-France.
[26] Etter, Gilbert. 2008. Lohr Reconstituted Families from 1641 to 1930. "Lohr, Bas-Rhin 67273, arrondissement de Saverne, canton de La Petite Pierre, Familles de 1640 à 1930." Cercle Généalogique d'Alsace, Section Ile-de-France. Entry for Stoeckel, Johann Nicolaus x Maria Elisabetha SCHUH, p. 162.
[27] Etter, Gilbert. 2010. Schoenbourg, entry for Stoeckel, Jean Nicholas, p. 103
[28] Etter, Gilbert. 2008. Lohr Reconstituted Families from 1641 to 1930, entry for Stoeckel, Jean Nicholas p. 162.
[29] Strassburger, Ralph Beaver, and Hincke, William John (ed.). 1934. *Pennsylvania German pioneers: a publication of the original lists of arrivals in the port of Philadelphia from 1727 to 1808*, Vol. I. Norristown, Pennsylvania: Pennsylvania German Society. List 249C, p. 798. https://archive.org/details/pennsbylvaniagerm43stra/page/798/mode/2up
[30] Strassburger and Hincke, *Pennsylvania German pioneers*, p. 798.

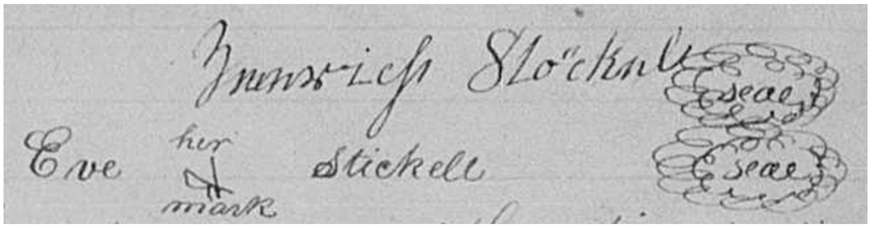

Figure 5: Heinrich's signature (as "Heinrich Stöckel") when he sold land with wife "Eve" in February 1820, when he was 74 years old.[31]

With no other Stöckels on the passenger list, Heinrich must have emigrated without any of his immediate family who stayed behind in Alsace. However, another passenger arriving on the Jeneffer, Johann Michael Braun,[32] may have been the Michael Braun who sponsored the previously referenced baptism of Henry's daughter Polly in the Lutheran Church in Frederick, Maryland. The timing of the immigration also fit the known or inferred birth dates for the six children: Henry Jr. (1766, based upon tax records), Elizabeth (1767, based upon her tombstone), George (1768, based upon tax records), Anna Maria (1772, baptism record), Anna Catherine (1775, baptism record), and Nicholas (1779, based upon tax records).

Finding more Autosomal DNA matches to Stoeckels from New Jersey

I identified more autosomal DNA matches between descendants of Henry and descendants of a George Washington Stoeckel, who was born in December 1856 in New Jersey.[33] The 1860 census shows George Stoeckel as a child (age 4) living in Bordentown, Burlington, New Jersey, with Adam Stockel, born Germany, a "cordwinder" (cordwainer) age 51; Odelia, a weaver age 47; Joseph F., age 17; and Ann, age 10.[34] A family history compiled by Gilbert Etter indicate that Adam was most likely Johann Adam Stoeckel born 10 March 1808 in Schoenbourg, France, and the younger brother of Theobold Stoeckel, Jr., who I mentioned earlier.[35] Etter's work records that both Adam and a third brother, Henri Stoeckel (born 1811) had emigrated from France,[36] while another source states that Adam and Henri migrated from Schoenbourg to America on 1 January 1828.[37] The 1830 Federal Census includes a record for an "Adams Stickel" in Morris County, New Jersey, with two males age 20-30 (possibly Adam and his younger brother Henri), one male age 50-60, and one female age 30-40.[38] Figure 6 illustrates the autosomal DNA matches shared between descendants of Johann Heinrich Stöckel/Henry Stickel Sr. (through his daughters Katherine Elizabeth and Anna Catherine) and Johann Nicklaus Stoeckel (through Thiebaut's sons Thiebaut Jr. and Adam). The fact that shared matches connect through two siblings on each side imparts greater confidence that the hypothesized relationships are correct.

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[31] Muskingum County, Ohio Deed Book F, p. 47-48. https://www.familysearch.org/ark:/61903/3:1:3Q9M-CS4Y-FCCF)/

[32] Strassburger and Hincke, *Pennsylvania German pioneers*, p. 798.

[33] Household of George Stoeckel. Year: 1900; Census Place: Newark Ward 10, Essex, New Jersey; Roll: 965; Page: 17; Enumeration District: 0100/ Image from 1900 United States Federal Census [database on-line]. Lehi, UT, USA: Ancestry.com Operations Inc, 2004.

[34] Household of Adam Stokel, in Borough of Bordentown, Burlington, New Jersey, United States. United States Census, 1860, database with images, FamilySearch https://familysearch.org/ark:/61903/1:1:MFC7-19H : 18 February 2021.

[35] Etter, Gilbert. 2010. Schoenbourg 67454, Bas-Rhin Reconstitution des familles des XVIII et XIX siècles. Cercle Généalogique d'Alsace, Section Ile-de-France. https://www.alsace-genealogie.com. Entries for Stoeckel, Jean Nicholas, p. 103 and Stoeckel, Jean Thiébaut, p. 104.

[36] Etter, Gilbert. 2010. Schoenbourg, p. 104.

[37] Schrader-Muggenthaler, Cornelia. 1989. The Alsace Emigration Book. Vol. 1. Apollo, PA: Closson Press.

[38] US Federal Census Year: 1830; Census Place: Hanover, Morris, New Jersey; Series: M19; Roll: 82; Page: 15; Family History Library Film: 0337935.

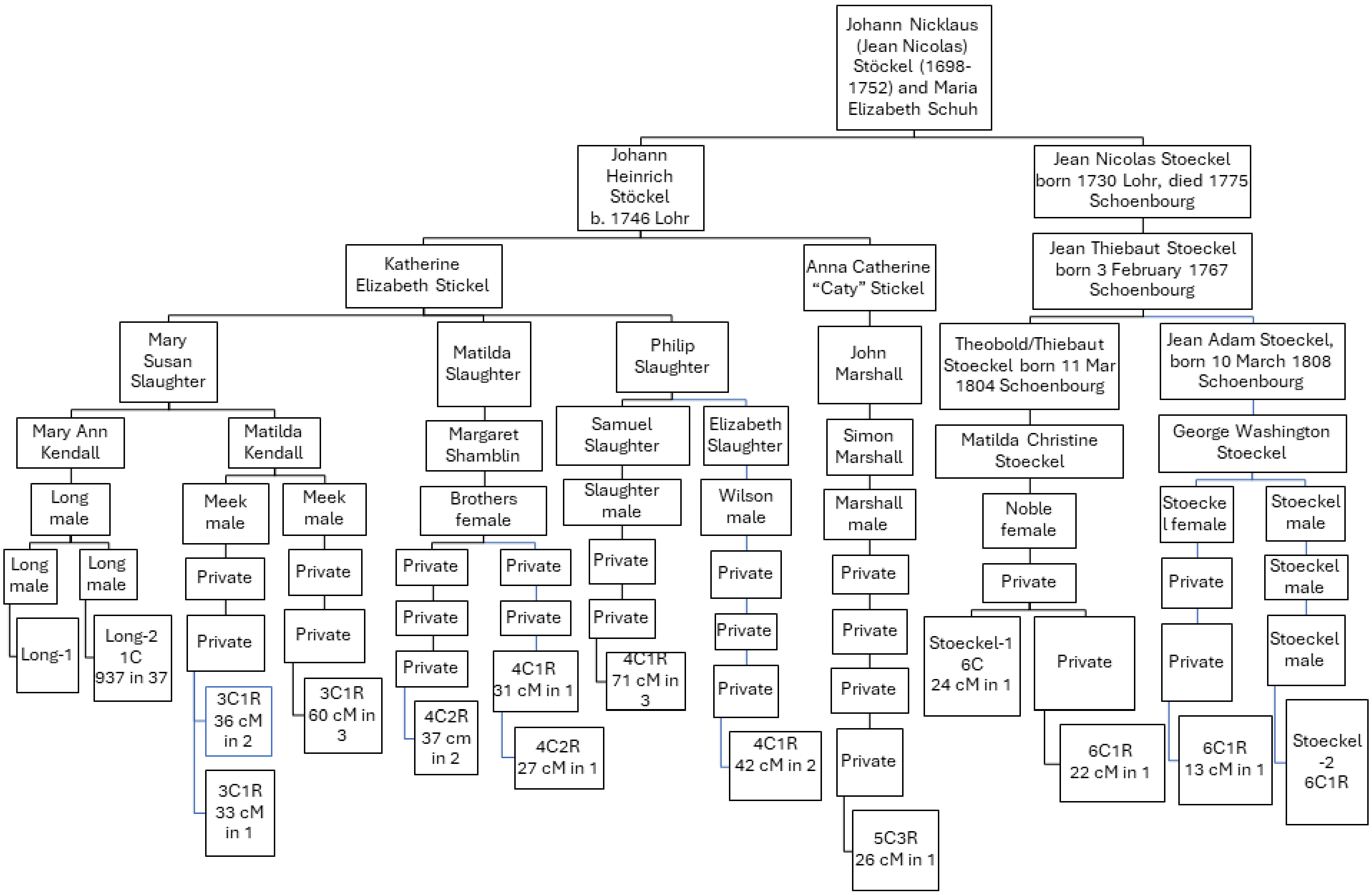

Figure 6: Relationships and shared autosomal DNA (in total shared cM and number of segments as reported by Ancestry) between Long-1 (father of the 1st author) and a Stoeckel descendant (Stoeckel-1); all of the matches similarly match Long-2 and are likely to all share a DNA segment inherited from Nicklaus Stoeckel Sr. and Maria Elizabeth Schuh.

Verifying Relationships with Y-DNA

Y-DNA was invaluable in verifying all the connections that had been inferred from autosomal DNA matches and traditional genealogical research. The administrators of the Stickel surname project had found that the group of Stickle descendants associated with Virginia and Ohio belonged to predicted haplogroup J-M172, based upon STR results. That result was distinct from other members of the Stickel project. These Stickel males were assumed to relate to Henry Sr. through Henry Jr. and George, because until I had found the will and determined additional relationships using tax records, no one had realized that Nicholas was another possible ancestor. The administrators arranged for three of the testers to upgrade to next generation (Big Y) testing, which provided the additional resolution needed to attribute lineages to particular sons.

In the meantime, I identified two descendants, discovered as autosomal DNA matches at AncestryDNA, whose Y-DNA could further verify key connections. One was a descendant of Jean Nicholas Stoeckel (born 1730) through Adam Stoeckel. Another was a descendant of Henry Jr., through his son Henry (III). By examining their raw AncestryDNA results using the Morley Y subclade predictor,

[39] and YSEQ clade predictor,[40] we learned that both were positive for the J-L70 marker, which lies below J-M172.[41] This confirmed that they likely shared a common ancestor; however, the estimated time to a common ancestor based on that SNP result was still nearly 4,000 years.[42] Fortunately, interested participants donated to the Stickle project general fund to cover the cost of upgrading these newly found matches to the Big Y results presented here.

Johann Nicholas Stöckel Sr./J-FT355185

The results of the Big Y tests (Figure 7) show that all the testers share a common haplogroup, J-FT355185, with the year 1612 CE as the estimated date of common ancestry. We infer that Johann Nicholas Stöckel Sr., who was actually born in 1696, belonged to this group.[43] The results do not indicate whether he was the first to carry this SNP, since all testers in this group carry this marker. The descendant of Adam Stockel (Stoeckel-2 in Figure 5), is the most distantly related member of the group which was consistent with Adam's grandfather being Henry's brother. That descendant's test results had 5 differences from the modal STR values for the group.

Johann Heinrich Stöckel/J-FT358504

The remaining testers in the group belong to haplogroup J-FT358504, with an estimated date of 1643 CE (range of 1448-1784). This haplogroup therefore represents Heinrich/Henry Sr. who was actually born about 1746. He must be the progenitor of this haplogroup since the ancestral lineage and the descendant of his brother do not carry this marker. The mean estimated date to a common ancestor reported by FTDNA departed more from his actual birth year with the addition of the last two Big Y tests; prior to that, the estimate had been 1692 CE. The descendant of Henry Stickel Jr. through Henry Stickel III (born about 1789) had 4 differences from the modal STR values for the group. Another tester who descends from Nicholas Stickel, through Thomas Chappell Stickel, had 5 differences from the modal STR values for the group. The Big Y results assigned J-FT358504 as the terminal haplogroup for these descendants of Henry Stickel Jr. and his younger brother Nicholas Stickel. These two descendants also did not share STR markers that were different from the descendants of George, which is consistent with their being descended from different sons of Henry Sr.

George Stickel/J-FT394625

Family trees combined with historical records identified three lineages descending from George Stickel. One descends from a younger Henry Stickel (born about 1791), who was identified as a son of George Stickel because he resided in the same county as George (Clarke County, Virginia) and had married Elizabeth Bolen, whose family also lived near George. A second descends from a Jacob Stickell, who was listed as a tithable of George Stickel in an 1828 tax record in Loudoun County.[44] A third descends from Joseph Stickel, who was identified as the son of George Stickel in his baptism record at the New Jerusalem Lutheran Church from 1813.[45] The STR results for all three were only 1 or 2 differences from the modal STR values, indicating that they were indeed the most closely related testers in the group (descendants of George Stickel are close to the mode because they represent the majority of testers with STR results). The Big Y results confirmed that all three belonged to J-FT394625, which had an estimated date of 1794 CE, which is very close to my inferred birth year of George Stickel in 1768.[46] This result indicates that George was the progenitor of this haplogroup since descendants of the lines from his siblings and his cousin do not carry it. The estimated date for this haplogroup was just 26 years later than George Stickel's birth.

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39 MorleyDNA, "Y-SNP Subclade Predictor (beta)," https://ytree.morleydna.com/. Accessed 4/29/2023.
40 YSEQ Clade Finder (version 1.0), https://cladefinder.yseq.net/. Accessed 4/29/2023.
41 FamilyTreeDNA, "Haplogroup Story: The J-L70 Story," https://discover.familytreedna.com/y-dna/J-L70/story. Accessed 5 May 2023.
42 J-L170 Ytree, YFull, https://www.yfull.com/tree/J-L70/. Accessed 2/17/2024.
43 "Stickle: Origins of the Stickle(s), Stickel(s), Stickell(s) and related families" webpage at FamilyTreeDNA. https://www.familytreedna.com/groups/stickle/about. Accessed 23 April 2023.
44 Patricia B. Duncan. 2004. Loudoun County, Virginia Personal Property Tax List 1782-1850. Heritage Books. "Stickle, George & son Jacob" listed in 1828 personal property tax roll.
45 "Virginia Births and Christenings, 1584-1917", database, FamilySearch (https://familysearch.org/ark:/61903/1:1:VRRH-224), "Stickel, Joseph, born 17 Sep 1813, baptized 31 Oct 1813, parents: Georg Stickel & Christina, sponsors: parents."
46 "FamilyTreeDNA, "Haplogroup Story: The J-FT394625 Story". https://discover.familytreedna.com/y-dna/J-FT394625/story. Accessed 23 April 2023.

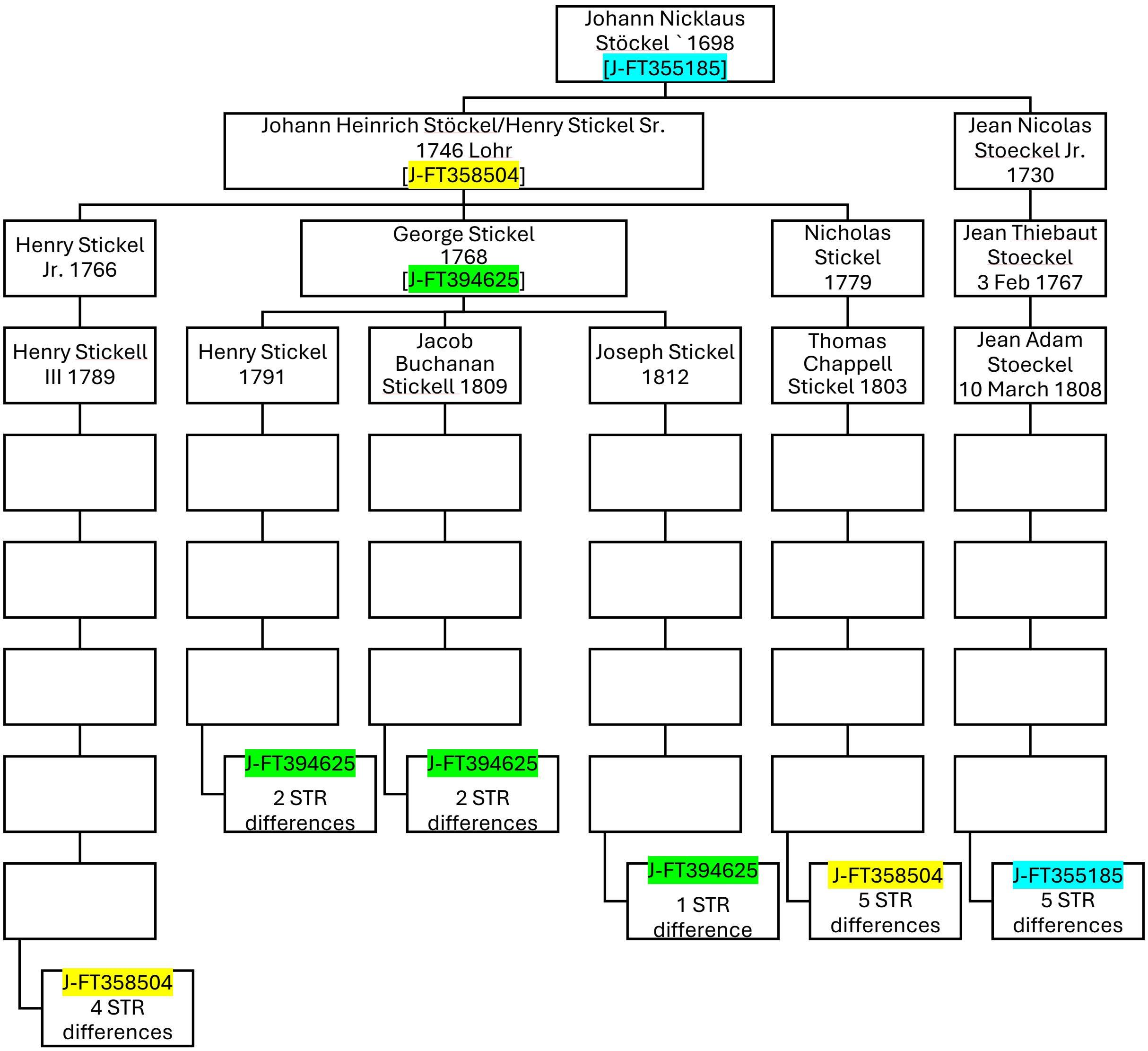

Figure 7: Results of next-generation sequencing for Y-DNA (Big-Y) for six testers (with color-coded labels representing the tested terminal haplogroups for specific lineages (with names of the ancestors and their birthdates or estimated birth years), and the number of STR differences from the modal values of the group for each tester.

CONCLUSIONS

The quest to reunite Henry Stickel's family was achieved by integrating traditional genealogical research with autosomal, X and Y-DNA testing and analysis, all of which was made possible through extensive collaboration. The effort began by examining shared matches among descendants of Katherine Elizabeth Stickel and Frederick Slaughter, which led first to shared autosomal and X-DNA matches with Stickel ancestors from Ohio and Virginia, and then to Stoeckel relatives from Alsace, France. We compiled extensive records that reconstructed Henry's life and revealed that his name was originally Johann Heinrich Stöckel, a surname variation that had not been explicitly included when the Stickel surname DNA project was initiated. All lines of evidence, including traditional genealogy, autosomal DNA, X-DNA and next-generation Y-DNA, indicate that "Johann Heinrich Stöckel" from Lohr is Henry Stickel from Virginia. Reconstructing his life with his wife Eva revealed a large family that spread from the German Settlement in northern Virginia into Ohio, and whose descendants have used the spelling variants of Stickel, Stickell, and Stickle. This analysis identified descendants from all of the six children named in Henry's will, as well as his cousins who emigrated to New Jersey in the early 19th century and whose origins had been unknown to their descendants. Initial Y-DNA testing using STRs, as well as SNPs in the raw AncestryDNA data, confirmed that hypothesized descendants belonged to the same haplogroup. Next generation sequencing Y-DNA test results were entirely consistent with the family tree developed through careful examination of records, including the identification of four lineages descended from three sons of Henry Stickel Sr. and his brother Johann Nicholas Stoeckel (Jr.). I have very high confidence that the relationships between the Stickels in America and the Stoeckels of Alsace are correct, not merely because of the Y and autosomal DNA evidence, but also because family histories for the Stoeckel lines in Alsace are very detailed, with apparently complete lists of children and years (or even precise dates) of birth and emigration, and those timings match up with passenger lists and tax/census lists for the immigrants in America. Even without the DNA evidence, a careful genealogist with sufficient access to the written evidence could have made these connections. However, the DNA directed me to those family histories and records and validated the relationships. This research demonstrates the growing power of leveraging autosomal, X and Y-DNA to reconstruct relationships deep into the 1700s (back to fifth great-grandparents) and across the Atlantic Ocean.

ACKNOWLEDGMENTS

Potentially identifying information of testers was removed including usernames, emails, kit numbers and names of ancestors through the level of great-grandparents. Permission was obtained from testers for including personally specific information such as terminal haplogroups. I give special thanks to Linda S. Herman, whose collaboration was invaluable in documenting the family connections and critically evaluating hypotheses throughout this research; her efforts informed much of the content featured in the Appendix. This research would not have been possible without the efforts by the organizers of the Stickle Y-DNA project and key collaborations who arranged access to DNA results or family records: Mark Stickle, Michael Godown, Wesley Stickel, Larry Stickell, Mark L. Stickell, Bud Smith, Kathryn Fulda, Bill Breidenbach, and Rick Stoeckel. I also thank Patricia Duncan, Marcia Hahn, Mike Zapf, Ellen Stoeckel Alexander, Charles Kassel, and Gilbert Etter (deceased) for sharing and interpreting records that informed this work. I dedicate this work to my parents, Douglas Long and Annie Groven, who inspired this search.

APPENDIX: GENEALOGICAL SUMMARY AND SUPPORTING RECORDS

This is a summary of Heinrich Stöckel, his children, and his grandchildren as identified through my research with extensive collaboration with Linda Herman. The body of the article explains where DNA evidence was used to revise relationships that were mistaken in previously published or online family trees. This summary may not represent a complete accounting of his grandchildren given the apparent lack of baptism and will records among the second generation. Readers are cautioned that not every grandchild listed has been exhaustively researched by the author, and only one or a few sources have been included here to identify those specific individuals. However, Linda Herman's tree at Ancestry ("Nicholas Stickel Family Tree," https://www.ancestry.com/family-tree/person/tree/55867470, under username lherman49) contains additional source information.

First Generation

1. Johann Heinrich "Henry" Stöckel was born in 1746 in Lohr, Bas-Rhin, Grand-Est, Republic of France to Johann 'Nicklaus' Stöckel (Stoeckel) and Maria Elisabetha Schuh[47]. He died before 15 Feb 1825 at the age of 79 in Wills township, Guernsey County, Ohio.

Etter's genealogy for families of Lohr identifies Johann Heinrich Stöckel as the seventh child (and 3rd son) of Johann Nicolaus Stoeckel (born 07 December 1698 to Johann Jacob Stoeckel and Anna Margaretha Gangloff, died June 1752) and Maria Elisabeth Schuh (daughter of Johann Adam Schuh et Anna Margaretha Marx). Nicklaus Stöckel was a school master ("maître d'école"). This record indicates that Heinrich lost his father when he was only about 6 years old.[48]

Heinrich's older siblings were as follows:

- i. Johann Nicolaus Stoeckel born about 1730 in Lohr, Bas-Rhin France; died about 1775 in Schoenbourg, Bas-Rhin, France. He was the father of the Theobold Stoeckel Sr. mentioned above.
- ii. Anna Margaretha Stoeckel born about 1731 in Lohr.
- iii. Maria Elisabeth Stoeckel born about 1733 in Lohr; died after 1771 in Schoenbourg.
- iv. Johann Adam Stoeckel born on 19 January 1738 in Lohr; died 01 May 1817.
- v. Eva Catharina Stoeckel born on 15 December 1739 in Lohr; died 20 March 1818 in Lohr.

[47] Etter, Gilbert. 2010. Schoenbourg 67454, Bas-Rhin Reconstitution des familles des XVIII et XIX siècles. Cercle Généalogique d'Alsace, Section Ile-de-France. https://www.alsace-genealogie.com. Entry for Stoeckel, Jean Nicholas, p. 103.
[48] Ibid.

vi. Maria Barbara Stoeckel born on 29 September 1742 in Lohr; died 21 July 1814 in Petersbach, Bas-Rhin, France.

Heinrich immigrated to America, arriving in Philadelphia in November 1764. Heinrich married his wife Anna Eva (maiden name not determined) likely about 1765 after he arrived. They had the following children:

+2 i. Henry Stickle II, born about 1766, Virginia; married Maria Katherine "Caty" Michael, 31 Mar 1787, Fauquier, Virginia; died about 1810, Virginia.

+3 ii. Katherine Elisabeth Stickel, born 31 Jan 1767, Virginia, United States; died 14 Nov 1842, Guernsey County, Ohio.

+4 iii. George Stickel, born in 1768, Loudoun County, Virginia; married Christina Jane "Jenny" Michael, 21 Nov 1789, Fauquier, Virginia; died 18 May 1857, Lovettsville, Loudoun, Virginia.

+5 iv. Anna Maria Mary Polly Stickel, born 31 Jul 1772, Loudoun County, Virginia; died 10 Feb 1859, Guernsey County, Ohio.

+6 v. Anna Catharina Stickel, born 20 Feb 1775, Loudoun County, Virginia; married Simon Marshall, 18 Oct 1794, Fauquier, Virginia; died about 1860, Monroe, Perry, Ohio.

+7 vi. Nicholas Stickel, born about 1779, Loudoun County, Virginia; likely died around 1812, perhaps in Ohio where his widow remarried.

The family resided in Shelburne Parish, Loudoun County in 1773 and 1774,[49] where the "German Settlement" was located around Lovettsville.[50] On 13 October 1773, the county ordered "Henry Seagler" and other men to "work on the road whereof William Stanhope is Surveyor when required'[51]; this record likely refers to Henry Sr. and the road from Goose Creek to Broad Run where, in May 1771, William Stanhope had been appointed Overseer.[52] On 24 June 1774, Henry Stickle was recorded as owing a note in the amount of 3 pounds, 11 shillings, and 7 pence to the estate of William Douglas, who was a sheriff of Loudoun County who recorded the tithables list for Loudoun County in 1774 cited above.[53] By 1786, Henry Sr. was living in Fauquier County, Virginia according to the property tax records in that county (recorded as "Henry Stackle" as the only tithable male "above 21").[54] The fact that there were no other tithables, nor entries for George or Henry Jr., suggests that his two oldest two sons were not yet 21, which is consistent their being born after his marriage to their mother Eva about 1765.

A property tax record in 1788 shows the household of Heinrich (as Henry Stickle Senior) being levied taxes for 3 males above the age of 16, listing Henry Stickle Sr., George Stickle, and a third line showing "Stickle, Henry" with "Frederick" written above Henry (Figure 7).[55] That record evidently led some family historians to mistakenly assign "Frederick Stickel" as another son of Heinrich.[56] However, Heinrich's daughter Katherine Elizabeth had married Frederick Slaughter about that time (based upon the birth of their daughter Mary Susan Slaughter in January 1789). Therefore, this confusing notation can be explained as Heinrich's young son-in-law Frederick Slaughter residing in the household. The same type of living arrangement is indicated for young Henry Jr., who was listed as a tithable of Daniel Michael, the father of Henry Stickel Jr.'s new bride in 1788.[57]

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[49] Sparacio, Ruth Trickey and Sam Sparacio. Tithables, Loudoun County, Virginia [1775-1781]. McLean, Virginia: R. & S. Sparacio, 1992. Entry for Stickel, Henry, 1 tithable, list taken in Shelburne Parish for 1773 by Josias Clapham, and 1 tithable in list taken by William Douglass for 1774.

[50] Scheel, Eugene. "Ample Land Drew German Settlers to Loudoun County." The History of Loudoun County, Virginia. https://www.loudounhistory.org/history/loudoun-german-settlers/. Accessed 4/26/2023.

[51] Recorded in Loudoun Order Book F, p. 242 as reported in Duncan, Patricia B. and Anne Brush Miller. Loudoun County Road Orders 1757-1783. Report by the Virginia Center for Transportation Innovation and Research, Charlottesville, VA for the Virginia Department of Transportation. https://www.virginiadot.org/vtrc/main/online_reports/pdf/13-r10.pdf. Accessed 4/26/2023.

[52] Recorded in Loudoun Order Book E, p. 119, as reported in Duncan, Patricia B. and Anne Brush Miller. Loudoun County Road Orders 1757-1783. Report by the Virginia Center for Transportation Innovation and Research, Charlottesville, VA for the Virginia Department of Transportation. https://www.virginiadot.org/vtrc/main/online_reports/pdf/13-r10.pdf13. Accessed 4/26/2023.

[53] Loudoun County Will Books, Vol. C. "A list of bonds and notes due the estate of William Douglas, Esquire, Deceased," https://www.familysearch.org/ark:/61903/3:1:3QSQ-G9P6-M9ZC.

[54] Fauquier County personal property tax list, 1786 p. 28. Entry for "Henry Stackle." Image at https://www.familysearch.org/ark:/61903/3:1:3Q9M-CSQ2-Q3RV-T?i=110&cat=775969. Accessed 5/8/2023.

[55] Fauquier County, Virginia personal property tax list 1788 B, entry for Henry Stickle Sr. Image at: https://www.familysearch.org/ark:/61903/3:1:3Q9M-CSQ2-Q3B2-1?i=220&cat=775969. Accessed 5/8/2023.

[56] Watts, Donald E. "Henry and George Stickle of Fauquier County, Virginia and their descendants," 17.

[57] Fauquier County, Virginia personal property tax list 1788 B, entry for Daniel Michel. Image at https://www.familysearch.org/ark:/61903/3:1:3Q9M-CSQ2-Q3BX-Y?i=216&cat=775969. Accessed 5/8/2023.

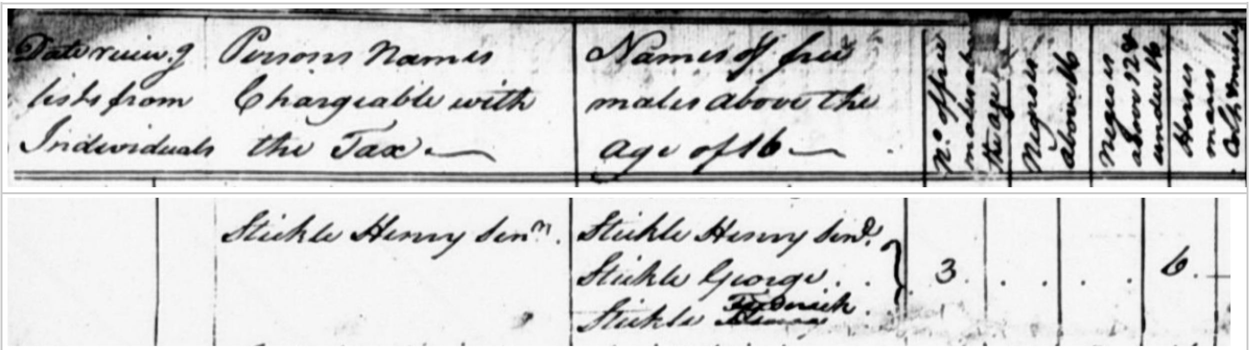

Figure 8: Personal property tax record for "Henry Stickle Sr." in 1788.

In the 1789 property tax rolls, Heinrich Stickel Sr. is shown with son George Stickel as a tithable in Fauquier County, Virginia,[58] while son Henry Stickel Jr. appears in the Third Battalion, Loudoun County, VA[59]. On 21 Nov 1789 in Fauquier County, Virginia, young George (spelled as "Stuckle") married Jenny/Jane Michael/Michel, another daughter of Daniel Michael.[60]

In 1793, Henry Stickle (Sr.) was granted 100 acres in Loudoun County, Virginia in a lease from Denny Martin, nephew of Lord Fairfax.[61] This 100-acre parcel is shown in land tax records for the "Third Battalion, Loudoun County" from 1807 to 1815, where it is described as being "on the N[orth] fork [of] Goos[e] Creek" in 1815, and as being "on the N[orth] Fork of Be[a]ver Dam" in 1816.[62] The watersheds of those creeks are adjacent in the west-central portion of Loudoun County, so the land might have been on the divide between them. Meanwhile, 50 acres of leased land "on the top of Blue Ridge" under George Stickel are shown in the same land tax records from 1807 to 1815.[63] Also in 1793, in Fauquier County, Virginia, a Stephen Simmons was bound to a Henry Stickle—presumably Henry Sr. who may have been wanting more hands to manage the recently leased land.[64]

Within a few years after 1810, Heinrich and many members of his family had relocated to Ohio. His granddaughter Phoebe Stickel married Solomon Myers on April 14, 1811 in Muskingum County, Ohio.[65] The following year, another granddaughter, Mary Stickel, married John Betz (spelled "Beatz") in Muskingum County Ohio on 6 February 1812.[66]

On 19 June 1813, Heinrich purchased 32 acres from Daniel Converse (the "original proprietor" of the land) and Daniel's wife Sally within NE ¼ of Sec. 8 Township 12 Range 13 of Muskingum County, Ohio for $300.[67] On the same day, his son-in-law Simon Marshall purchased 18 acres adjacent in NE ¼ of Sec. 8 Township 12 Range 13 of Muskingum County, Ohio also from Daniel Converse for $150.[68] Henry Sr. moved with his daughter Katherine Elizabeth Stickel and her husband Frederick Slaughter and their children up the Muskingum River in east-central Ohio, as he (recorded as "Henry Strickle"), Simon Marshall, and Frederick Slaughter all appear in the

58 Fauquier County, Virginia personal property tax list 1789 B, entry for Henry Stickle. Image at https://www.familysearch.org/ark:/61903/3:1:3Q9M-CSQ2-Q3BC-G?i=274&cat=775969. Accessed 5/8/2023.

59 Patricia B. Duncan. 2004. *Loudoun County, Virginia Personal Property Tax List 1782-1850*. Heritage Books.

60 "Virginia Marriages, 1785-1940," database, FamilySearch (https://familysearch.org/ark:/61903/1:1:XR8X-PL9 : 11 February 2018), Entry for George Stukle and Jenny Michael, 21 Nov 1789; citing Fauquier County, Virginia, reference 273; FHL microfilm 31,633. Original record available at: www.mark.stickels.org/Documents/Stickles-George-Marriage-To-Jenny-Michel.pdf, accessed 5/7/2023.

61 Patricia B. Duncan. Abstracts of Loudoun County Deed Books, 4B, p. 426. Date: 26 Mar 1834; returned to court: 14 Apr 1834. "French THOMPSON & wife Nancy of Ldn to Greenbarry THOMPSON. Trust for debt to Mary Ann SINGLETON using 100a leased land (granted 1793 by Denny FAIRFAX to Henry STICKLE, now in poss. of French) and farm animals, farm and household items. Wit: Cuthbert POWELL, Thomas M. COLSTON. Delv. pr order 15 Jul 1834."

62 Patricia B. Duncan. *Index to Loudoun County, Virginia Land Tax Lists, 1803-1817*. Heritage Books.

63 Patricia B. Duncan. *Index to Loudoun County, Virginia Land Tax Lists, 1803-1817*. Heritage Books.

64 Alcock, John P. 1994, *Fauquier families*, Athens, Georgia: Iberian Pub. Co p. 318 of the 1759-1799 volume. Minute Book 10-316a.

65 Ohio, County Marriage Records, 1774-1993 film number 000910163

66 "Ohio, County Marriages, 1789-2016", database with images, FamilySearch (https://www.familysearch.org/ark:/61903/1:1:2QQP-B5T : 29 September 2021), John Beaty and Mary Stickle, 1812, Muskingum County, Ohio.

67 Muskingum County, Ohio Deed Book D, recorded 7 November 1813 in Book D, p. 172-173. https://www.familysearch.org/ark:/61903/3:1:3Q9M-CSLX-L3GL-5

68 Muskingum County, Ohio Deed Book D, recorded 21 October 1813 in Book D, p. 161-162. https://www.familysearch.org/ark:/61903/3:1:3Q9M-CSLX-L3GR-4

1816 tax list for Muskingum County, Ohio.[69] On 13 August 1819, Henry Stickel Sr.'s daughter Caty Stickel and son-in-law Simon Marshall sold the land adjacent to Heinrich's to Michael Peters for $234.[70] A few months later, on 19 February 1820, Heinrich and Eva also sold their land in Muskingum County to Michael Peters for $500, with Thomas Stickel (presumably his grandson Thomas Chappell Stickel) serving as a witness and Henry Sr. signing as "Heinrich Stöckel".[71] The 1820 Federal census for Wills Township, Guernsey County, Ohio lists Henry Sr., recorded as "Henry Strukle" residing near Frederick Slaughter.[72]

Second Generation

Henry Stickel Jr.

2. Henry Stickle Jr. was born about 1766 in Virginia, based upon the taxation records noted above. On 17 March 1787 in Fauquier County, Virginia, Henry Jr. married Maria Katherine "Caty" Michael (Michel/Mitchell).[73] She was the daughter of Daniel Michael/Michel and Maria Schober.[74]

Henry Jr. appears to have died by 1810 in Virginia. In the 1810 federal census for Virginia, his father-in-law Daniel Michael had two females in his home age 26-44 (in addition to his wife age 45+) and several small children;[75] this suggests that Henry Jr.'s wife Caty Michael and some of her children might have returned to live with her parents. Caty Michael may have remarried to Michael Shanks. A Shanks genealogy notes a marriage on February 14, 1811, between Michael Shanks and "Mary Michael, a daughter of Daniel Michels and Mary Stover."[76] However, Michael Shanks appeared to have several children born before 1811, including Michael Shanks Jr. born 1807, whose listed his parents as Michael Shanks and Mary on his marriage in 1857.[77] It seems possible that Michael Shanks was first married (circa 1787) to Caty's sister Magdalena, whose baptism was recorded 26 December 1768 to Daniel Michel and Mary, with Adam Schober and Maria Magdalena as sponsors.[78] Such a relationship would account for the two marriages between Michael Shanks and Michael women.

Since Henry Jr. and George married two sisters, their descendants have a double cousin relationship that makes it harder to determine which couple are their direct ancestors based upon analysis of shared DNA. We attribute several third generation Stickels to Henry Jr. if they were not clearly linked to George, they were born before 1802 (when we think that Nicholas likely married and began having children, as explained below), and they removed to Pennsylvania or Ohio around the time of Henry Jr.'s apparent death. Based upon that assumption, Henry Stickle and Maria Katherine "Caty" Michael likely had the following children:

8 i. Henry Stickel III was born on 21 Dec 1789 in Virginia.[79] He resided in Antrim, Franklin County, Pennsylvania in an 1814 tax record.[80] He died on 7 Oct 1862 at the age of 72 in Marion, Franklin, Pennsylvania and was buried in the Salem Evangelical Lutheran Church Cemetery there.[81] Henry Stickel who was born about 1789 is likely to be the son of Henry Jr. since George married in November 1789.

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[69] Muskingum County, Ohio 1816 Tax List Proprietors, extracted from Ohio, The Cross Road of our Nation, Records & Pioneer Families, Vol XI, No I, Jan-Mar 1970), http://www.usgenwebsites.org/OHMuskingum/taxlist1816.htm

[70] Muskingum County, Ohio Deed Book F, p. 413, recorded 13 August 1819. https://www.familysearch.org/ark:/61903/3:1:3Q9M-CS4Y-FC6N

[71] Muskingum County, Ohio Deed Book F, p. 47-48, Henry and Eve Stickell to Michael Peters, sale, 4 March 1820. https://www.familysearch.org/ark:/61903/3:1:3Q9M-CS4Y-FCCF.

[72] "Henry Strukle" household on August 7, 1820, consisting of 1 male age 45+ and 1 female age 45+, 1820 US Census; Wills, Guernsey, Ohio; Page: 179; NARA Roll: M33_91; Image: 195.

[73] Alcock, John P. 1994. *Fauquier families*, Athens, Georgia: Iberian Pub. Co., p. 191. Image of original marriage record for Henry Stickle and Caty Michael is available at: https://www.mark.stickels.org/Documents/Stickle-Henry-MarriageCert-page2030.pdf, accessed 5/7/2023.

[74] Maria Katherine Michael, birth 28 Nov 1766, christening date: 1 Jan 1767, Father Daniel Michael, Mother: Maria. German Reformed Church, Frederick, Frederick, Maryland. Maryland, U.S., Births and Christenings Index, 1662-1911, FHL Film Number: 13935.

[75] Year: 1810; Census Place: Fauquier, Virginia; Roll: 68; Page: 248; Image: 00483; Family History Library Film: 0181428.

[76] Lambert, Audrey June (Denny). "Descendants of Henry Shanks", family tree available at http://www.ajlambert.com/shanks/desc_hs.pdf. Accessed 5/13/2013.

[77] "West Virginia Marriages, 1854-1932", database, FamilySearch (https://familysearch.org/ark:/61903/1:1:HVL-3GW2 : 30 January 2020).

[78] Evangelical Lutheran Church Historic Parish Records Baptisms 1762-1811, Volume II, p. 58. https://faithconnector.s3.amazonaws.com/twinspires/downloads/evangelical_lutheran_church_historic_parish_records_baptisms_1762_1811_volume_ii.pdf

[79] Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/76193168/henry-stickle: accessed 5/11/2023, memorial 76193168, Henry Stickle (1789-1862), Salem Evangelical Lutheran Church Cemetery, Marion, Franklin County, Pennsylvania; gravestone photograph by Eric Roof.

[80] Ancestry.com. Pennsylvania, U.S., Septennial Census, 1779-1863 [database on-line]. Provo, UT, USA: Ancestry.com Operations, Inc., 2012. Franklin County, 1814.

[81] Find A Grave, memorial 76193168, Henry Stickle (1789-1862); gravestone photograph by Eric Roof.

9 ii. Phoebe Stickel was born on 23 Jul 1791 in Virginia. She died on 2 Sep 1885 at the age of 94 in New Salisbury, Indiana and was buried in the Pennington Chapel Cemetery, Corydon, Harrison County, Indiana.[82]

10 iii. Michael Stickel was born on 29 Sep 1792 in Virginia. He was recorded in the 1820 Federal Census in Antrim, Franklin County, Pennsylvania. He died on 28 February 1863 in Greencastle, Franklin County, Pennsylvania and was buried in the German Reformed Cemetery there.[83]

11 iv. Mary Stickel was born on 4 Sep 1794 in Virginia. She died on 20 Jun 1878 at the age of 83 in Mercer County, Ohio, and she is buried in the Zion State Line Cemetery in Padua, Mercer County.[84]

12 v. Simon Stickel was born in 1795 in Virginia and died 11 June 1880 at age 84.[85] He married Mary Shank, daughter of Michael Shank of Fauquier County, Virginia, on 5 Oct 1818.[86] This Simon Stickel of Fauquier County, is attributed to Henry since a younger Simon Stickel of Loudoun County appears to have been a son of George.

13 vi. Washington Bayless Stickel was born in 1798 in Virginia. He died in Muskingum County, Ohio, with his will proved 23 February 1875, in which he named himself as being from Franklin Township, Coshocton County, Ohio.[87]

15 viii. Susanna Stickel, according to her tombstone, was born 7 July 1799 in Virginia and died on 1 Oct 1873 (aged 79 y 2 m 24 d) in Alexandria, Licking, Ohio.[88,89] She married David Thorp 13 January 1826 in Coshocton County, Ohio.[90]

Katherine Elizabeth Stickel

3. Katherine Elisabeth Stickel was born on 31 Jan 1767 in Virginia, United States. She died on 14 Nov 1842 at the age of 75 in Guernsey County, Ohio.[91] Elizabeth was buried in McQuade Cemetery, Guernsey County, Ohio.

In a letter to a chapter of the Ohio Genealogical Society, a descendant asserted that Frederick's wife was "Elizabeth Slaughter" who died in 1842.[92] That year is inscribed on Katherine Elizabeth Stickel's tombstone which states that she was born in 1767 and died on 14 November 1842 at age 75 years, 9 months, and 14 days.[93] Elizabeth is named as the wife of Frederick Slaughter in a deed received by the court on 2 Apr 1834 in which they gave land to their son Philip.[94]

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[82] Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/29342260/phebe-myers: accessed 5/11/2023, memorial 29342260, Phebe Myers (1781 (sic)-1885), Pennington Chapel Cemetery, Corydon, Harrison County, Indiana; gravestone photograph by Tammie Wolfe Feiock.

[83] Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/30061439/michael-stickel: accessed 5/13/2013, memorial 30061439, Michael Stickel (1792-1863), Plot 5-H1, German Reformed Cemetery, Greencastle, Franklin County, Pennsylvania, gravestone photograph by Denali Rose.

[84] Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/118308540/mary-betz: accessed 5/11/2023, memorial 118308540, Mary Betz (1794-1878), Old Section, Row 29, Grave 2, Zion State Line Cemetery, Padua, Mercer County, Ohio, USA; gravestone photograph by James Drummond.

[85] "Virginia Deaths and Burials, 1853–1912." Index. FamilySearch, Salt Lake City, Utah, 2010. Index entries derived from digital copies of original and compiled records. FHL Film Number 31637.

[86] "Virginia, Vital Records, 1715-1901", database, FamilySearch (https://www.familysearch.org/ark:/61903/1:1:6JGZ-X29W : accessed 16 November 2022), Simon Stickell, 1818.

[87] Ohio, U.S. Wills and Probate Records, 1786-1998, https://www.ancestry.com/imageviewer/collections/8801/images/005449237_00088.

[88] Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/54842470/susanna-thorp: accessed 5/11/2023, memorial 54842470, Susanna Thorp (1805-1879), Maple Grove Cemetery, Saint Albans Township, Licking County, Ohio; gravestone photograph by Debe Clark. https://www.findagrave.com/memorial/54842470/susanna-thorp

[89] A better transcription is shown at http://files.usgwarchives.net/oh/licking/cemeteries/maplgrovecem2.txt.

[90] "Susan Stickles" and "David Tharp". Ohio, U.S., County Marriage Records, 1774-1993, Marriage Place: Coshocton, Ohio, Film Number 000895287.

[91] Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/33570529/elisabeth-slaughter: accessed 5/11/2023, memorial 33570529, Elizabeth Slaughter (1767-1842), McQuade Cemetery, Guernsey County, Ohio; gravestone photograph by TwoRoos.

[92] Shirley M. Glenn, Sunnyvale CA, to Susan Radcliff. Letter, 2 December 2001. On file with the Noble County Chapter of the Ohio Genealogical Society, Caldwell, Ohio.

[93] *Find A Grave,* database with images (http://www.findagrave.com : accessed 23 April 2023), memorial 33570529, Elizabeth Slaughter, McQuade Cemetery, Guernsey County, Ohio; gravestone photograph by TwoRoos, https://www.findagrave.com/memorial/33570529/slaughter

[94] Guernsey County, Deed records v. H 1832-1834, p. 100. https://www.familysearch.org/ark:/61903/3:1:3QS7-L9WY-TF6N

Members of Frederick Slaughter and Katherine Elizabeth Stickel's family were affiliated with the Salem Baptist Church of Salesville in Guernsey County, Ohio. On 12 August 1843, Frederick Slaughter "shared his experience" and was baptized in the Salem Baptist Church.[95] Soon afterwards, Frederick and others, were dismissed from the Salem Baptist Church,[96] likely to form another church. A biographical portrait notes that Elizabeth Slaughter, "daughter of Fred Slaughter, from Virginia, of Dutch descent" was an early settler of Guernsey County, Ohio and a member of the Baptist Church.[97]

Frederick Slaughter and Katherine Elizabeth Stickel had the following children:

+16 i. Mary Susan Slaughter, born Jan 1789, married Zebedee Kendall; died 19 Jan 1885, Center, Guernsey County.[98]

+17 ii. Matilda Dolly Ann Slaughter, born 1791, Virginia; married Caleb Shamblen, 25 Mar 1825, Guernsey, Ohio[99]; resided 1870, Henry, Iowa, United States.[100]

+18 iii. Frederick Slaughter died 29 Sep 1835, buried in Salesville Hill United Brethren Cemetery, Salesville, Guernsey County, Ohio.[101]

+19 iv. Phillip Slaughter, born 1796, Virginia;[102] married Lucinda Shamblen, 20 Sep 1815, Belmont, Belmont, Ohio.[103]

+20 v. Elizabeth Slaughter, born about 1798, Virginia; died 6 Sep 1846, Guernsey County, Ohio.[104] She was married to Jeremiah Wilson who died on February 16, 1850.[105]

+21 vi. Margaret Slaughter, born about 1798, United States; married John Smith, 9 Mar 1828, Guernsey, Ohio;[106] died 12 Nov 1835, Guernsey County, Ohio.[107]

+22 vii. Catherine Slaughter married William Erton, 11 Jan 1816, Guernsey County, Ohio.[108]

+23 viii. Henry Slaughter born about 1802, Virginia; died 14 Jan 1864, Colfax, Clinton County, Indiana.[109]

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[95] "Salem Baptist Church, Guernsey County, Ohio" Guernsey County Roots & Branches 20(4): November 1996, Guernsey County Genealogical Society, Cambridge, Ohio, p. 73.
[96] Guernsey County Roots & Branches 20(4), p. 73.
[97] Goodspeed Publishing. 1892. "Biographical and Historical Memoirs of Muskingum County." Press of John Morris Company, Chicago.
[98] A notice in the Cambridge Jeffersonian (Cambridge, Ohio) dated February 12, 1885 states that she had died recently at the age of 96. Cambridge Jeffersonian (Cambridge, Ohio) 12 Feb 1885, p. 3, https://www.newspapers.com/newspage/35986746/.
[99] "Ohio, County Marriages, 1789-2016", database with images, FamilySearch (https://www.familysearch.org/ark:/61903/1:1:XZNL-7Z7 : 29 September 2021), Caleb Shamlin and Dolly Anne Slaughter, 1825.
[100] "United States Census, 1870", database with images, FamilySearch (https://www.familysearch.org/ark:/61903/1:1:M643-5DY : 28 May 2021), Matilda Shamble in entry for Caleb Shamble, 1870.
[101] Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/76801354/frederick-slaughter: accessed 5/11/2023, memorial 76801354, Frederick Slaughter (unknown-1835), Salesville Hill United Brethren Cemetery, Salesville, Guernsey County, Ohio; gravestone photograph by TwoRoos.
[102] "United States Census, 1850," database with images, FamilySearch (https://www.familysearch.org/ark:/61903/1:1:2HJZ-QTF : 21 December 2020), Philip Slaughter, Wills Township, Guernsey, Ohio, United States; citing family , NARA microfilm publication (Washington, D.C.: National Archives and Records Administration, n.d.).
[103] Ohio, County Marriages, 1789-2016", database with images, FamilySearch (https://www.familysearch.org/ark:/61903/1:1:X8TD-4BM : 29 September 2021), Phillip Slaughter and Lucinda Nichols, 1815, Marriage book B, p. 121.
[104] "Salem Baptist Church, Guernsey County, Ohio" Guernsey County Roots & Branches 20(4): November 1996, Guernsey County Genealogical Society, Cambridge, Ohio, p. 74.
[105] Guernsey County Roots & Branches 20(4), p. 74.
[106] "Ohio, County Marriages, 1789-2016", database with images, FamilySearch (https://www.familysearch.org/ark:/61903/1:1:2QQ7-BLS : 29 September 2021), John Smith and Margaret Slaughter, 1828.
[107] "Salem Baptist Church, Guernsey County, Ohio," Guernsey County Roots & Branches 20(4): November 1996, Guernsey County Genealogical Society, Cambridge, Ohio, p.. 71. "Nov. 12, Dec'd Margaret Smith."
[108] "Ohio, County Marriages, 1789-2016", database with images, FamilySearch (https://www.familysearch.org/ark:/61903/1:1:XZNL-1PV : 29 September 2021), William Erton and Catharine Slaughter, 1816.
[109] Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/130789457/henry-slaughter: accessed 5/11/2023, memorial 130789457, Henry Slaughter (1801-1864), Mckendra Cemetery, Colfax, Clinton County, Indiana, USA.

+24 ix. Ann Slaughter married Benjamin Dillehay, 31 Dec 1835, Guernsey, Ohio.[110]

+25 x. Eve Slaughter, born 2 Apr 1805, Virginia; married John Lanham, 27 Mar 1823, Guernsey County, Ohio, United States; probably died 5 Apr 1885 in Lowell, Washington, Ohio and was buried in Camp Creek Cemetery, Viola, Richland County, Wisconsin.[111]

George Stickel

4. George Stickel was born about 1768, probably in Lovettsville, Loudoun County, Virginia. On 30 April 1787 in Fauquier County, Virginia, property tax rolls record "Henry Stickle Sr." with tithable George and listed above Henry Stickle Jr.[112] George Stickel married Christina Jane "Jenny" Michael on 21 Nov 1789 in Fauquier, Virginia. Jenny was another daughter of Daniel Michael and Maria Schober, was born in 1770 in Frederick, Frederick, Maryland. A death record for George indicates that he (recorded as "George Stickler") died 18 May 1857 at age 103 in Lovettsville, Loudoun County, VA with wife Jane, at the residence of his son "Joseph Stickler" and that he was born to "Henry and Mary Stickler" near Lovettsville, Loudoun, Virginia.[113] That age is inconsistent with other records, including the 1850 census (when he was also living with his son Joseph), which shows that he was 82 in 1850, which implies that he was born about 1768. The 1880 census for Joseph Stickle shows that his father was born in Virginia.

Many of George's children appeared to remain in Loudoun and Clarke counties in Virginia, while their cousins moved to Pennsylvania and Ohio. Several of his sons are included in tax lists as tithables with George when they appeared to be 18-21 years old. George and Jane/Jenny had the following children:

26 i. Henry Stickle was about 1792 in Virginia[114] and died 13 Oct 1881 in Clarke County, Virginia. Henry Stickel is listed as a tithable of George in the 1810 tax list for the Third District of Loudoun County 1810 tax list: "George & son Henry."[115]

+27 ii. Daniel Stickel, born about 1792 in Virginia; married Mary Lanham, 30 May 1811, Frederick County, Virginia; died before 1830, Virginia.

28 iii. George Stickel Jr. was born on 21 Dec 1794 in Virginia. He was listed as tithable separately from George Stickel Sr. and Simon in the 1821 tax list for the Second District, Loudoun County, Virginia as "Stickkle, George Jr." He died on 20 Aug 1886 at the age of 91 in Doddridge County, West Virginia.

29 iv. Phoebe Stickel was born in 1795 in Virginia. She died on 22 Feb 1873 at the age of 78 in Barbour, West Virginia.

30 v. (Possibly) Jane Stickel was born about 1800 in Virginia. She was listed on the 1850 census as 50 years old, living near Simon Stickel, although it is not clear whether the surname Stickel came through birth or marriage.[116]

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[110] "Ohio, County Marriages, 1789-2016", database with images, FamilySearch (https://www.familysearch.org/ark:/61903/1:1:XZNP-TTR : 29 September 2021), Benjamin Dillehay and Anne Slaughter, 1835.

[111] Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/95521189/eve-lanam: accessed 5/11/2023, memorial 95521189, Eve Slaughter Lanam (1805-1895, died aged 90 years 3 days."), Camp Creek Cemetery, Viola, Richland County, Wisconsin, USA; gravestone photograph by D.

[112] Fauquier County personal property tax list 1787 C. Entries for "Henry Stickle Sr.", 30 April 1787 and Henry Stickle Jr., 1 May 1787. Image at https://www.familysearch.org/ark:/61903/3:1:3Q9M-CSQ2-Q3B2-R?i=172&cat=775969. Accessed 5/8/2023.

[113] "Virginia Deaths and Burials, 1853-1912", database, FamilySearch (https://familysearch.org/ark:/61903/1:1:X5TM-KRX: 29 January 2020), George Strickler, 1857.

[114] "United States Census, 1850," database with images, FamilySearch (https://www.familysearch.org/ark:/61903/1:1:M88Y-LW3 : 23 December 2020), household of Henry Stickles, age 58. 1850 US Census, District 12, Clarke County, Virginia, Occupation: Cooper; NARA microfilm publication (Washington, D.C.: National Archives and Records Administration, n.d.).

[115] Duncan, Patricia B. 2004. Loudoun County, Virginia Personal Property Tax List 1782-1850. Heritage Books. Entry for "George Stickle & son Henry" in 1810C and 1811C Third District.

[116] "United States Census, 1850," database with images, FamilySearch (https://www.familysearch.org/ark:/61903/1:1:M88Y-LQD : 23 December 2020), Jane Stickles in household of Jesse Furr, Clarke County, Virginia, United States; NARA microfilm publication (Washington, D.C.: National Archives and Records Administration, n.d.).

31 vi. Simon S. Stickel was born in 1802 in Virginia. He is listed as the son of George in the 1820 tax list for the Third District of Loudoun County, Virginia: "Stickkle, George Sr. & son Simon."[117] He apparently lived until 1880 in Virginia.[118]

32 vii. Sophia Stickel was born in 1805 in Virginia.[119] She married William Ross 2 September 1830.[120]

33 viii. Jacob Buchanan Stickel was born about 1809 in Virginia and died 18 June 1894 in Franklin County, Pennsylvania.[121] A tax record indicates that he was a son of George.[122]

34 ix. Mary Stickel was born on 11 Dec 1811 in Virginia. She married Jonas Whitacre, 13 February 1836 Frederick County, Virginia.[123] They resided in Loudoun County, Virginia in 1850.[124]

35 x. Joseph Stickel was born on 17 Sep 1813 in Lovettsville, Loudoun County, Virginia.[125]

Anna Maria "Polly" Stickel

5. Anna Maria Mary "Polly" Stickel, was born on 31 Jul 1772. She married Joseph Smith. Polly is believed to have died on 10 Feb 1859 and been buried at the Salem Baptist Church cemetery in Guernsey County, Ohio.[126]

We know that Polly had been married to a Smith when Henry Stickel Sr. wrote his will. Identifying her family involves some uncertainty due to limited records from Virginia and Ohio in the early 19th century, challenges in tracing the Smith surname because it is so common, and apparent intermarriage that complicates DNA analysis. She appears to have married Joseph Smith in Fauquier County, Virginia and then moved to Muskingum and Guernsey counties in Ohio like her parents. Joseph was likely the Joseph Smith recorded in Muskingum County tax lists in 1809 and 1810.[127] There is a tombstone for his son Lewis Smith in the Salem Baptist Church Cemetery that reads, "In loving memory of Lewis Smith, son of Joseph and Mary Smith, who departed this life on October the 10th 1846 aged 27 years 6 months 23 days."[128] That tombstone is located next to a stone marker bearing "J.S.", which is thought to represent Joseph Smith.[129]

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117 Duncan, Patricia B. 2004. Loudoun County, Virginia Personal Property Tax List 1782-1850. Heritage Books. Entry for "George Stickkle & son Simon" in 1820C (Third District) and 1821B (Second District) lists.

118 1880 U.S. Federal Census of Virginia, Fauquier Co., Marshall, p 52C, Simon Stickle, age 85, born Virginia to parents from Virginia, in household of "Jno Jeffriess" [John Jeffries].

119 Ancestry.com. 1850 United States Federal Census [database on-line]. Lehi, UT, USA: Ancestry.com Operations, Inc., 2009. Images reproduced by FamilySearch. Entry for William Ross age 43, Sophia Ross, 45, Simon Ross age 17, Phebe Ross age 10.

120 Ancestry.com. Virginia, U.S., Compiled Marriages, 1740-1850 [database on-line]. Lehi, UT, USA: Ancestry.com Operations Inc, 1999. Entry for "Sophia Stickle and William Ross", Loudoun County, Virginia.

121 Stickell, Lawrence. The Letter: Clues between the Lines", Ohio Genealogical Society Quartlery, Vol. 60 (2020), No. 1, pp. 67-80

122 Duncan, Patricia B. 2004. Loudoun County, Virginia Personal Property Tax List 1782-1850. Heritage Books. "Stickle, George & son Jacob" listed in 1828 personal property tax roll.

123 Virginia, U.S., Compiled Marriages, 1740-1850 [database on-line]. Lehi, UT, USA: Ancestry.com Operations Inc, 1999. Entry for "Mary Stickle and James Whitacre", Frederick County, Virginia.

124 1850 U.S. Federal Census of Virginia, Loudoun County, Virginia. Entry for Jonas Whitacre (transcribed as "Inas Whitecar") age 37, Mary age 39, John age 13, Jacob age 9, Mary age 6, Joseph age 3 and Sarah Ross age 13. The National Archives in Washington D.C.; Record Group: Records of the Bureau of the Census; Record Group Number: 29; Series Number: M432; Residence Date: 1850; Home in 1850: Loudoun, Virginia; Roll: 957; Page: 169b.

125 "Virginia Births and Christenings, 1584-1917", database, FamilySearch (https://familysearch.org/ark:/61903/1:1:VRRH-224), "Stickel, Joseph, born 17 Sep 1813, baptized 31 Oct 1813, parents: Georg Stickel & Christina, sponsors: parents", New Jerusalem Evangelical Lutheran Church, Lovettsville, Loudoun, Virginia, United States.

126 Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/182380292/mary-smith: accessed 8/18/2023, memorial 47843954, Salem Baptist Church Cemetery, Salesville, Guernsey County, Ohio; entry by bud smith.

127 Ohio Early Census Index, Muskingum County, 1809 tax list p. 9 and 1810 Washington County Ohio Census Index p. 13. Ancestry.com. Ohio, U.S., Compiled Census and Census Substitutes Index, 1790-1890 [database on-line]. Provo, UT, USA: Ancestry.com Operations Inc, 1999.

128 Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/47843954/lewis-smith: accessed 5/11/2023, memorial 47843954, Lewis Smith (1819-1846), Salem Baptist Church Cemetery, Salesville, Guernsey County, Ohio; gravestone photograph by bud smith.

129 Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/182380195/joseph-smith: accessed 5/11/2023, memorial 182380195, Joseph Smith (unknown-1824), Section A, Row 11, grave 3, Salem Baptist Church Cemetery, Salesville, Guernsey County, Ohio; gravestone photograph by bud smith.

The records of the Salem Baptist Church[130] identify a number of Smiths being received, dismissed, or excluded on the same days, which suggests that they were part of one family:

- "Jane Smith received by baptism" Nov. 1828, p. 70.
- "Henry Smith received by letter" Nov. 1828, p. 70.
- "John Smith and Margaret Smith by Baptism" February 1831, p. 70.
- "Received by Baptism on the 2nd Lords Day in April 1834…Mary Smith Jr." p. 70.
- "Received by Baptism November 10, 1833…Joseph Smith, Manley Smith" (p. 70-71).
- "Received by Baptism December 8, 1833…Lias [Elias] Smith" (p. 71).
- "30th August 1834. The following is a list of the member composing the Church on the day of adoption of the above Constitution or Articles…Mary Smith, Henry Smith, Jane Smith, John Smith, Joseph Smith, Harriet Smith, Manley Smith, Lias Smith" (p. 71).
- "Dismissed by letter from Salem Baptist church, March 7th 1840, "Henry Smith, Jane Smith, Mary Smith, John Smith, Elias Smith" (p. 72).
- "Dismissed by letter September 8th 1840, Manley Smith" (p. 72).
- "July 31, 1846, excluded Joseph and Harriet Smith" (p. 74).

The household of Joseph Smith and Polly Stickel Smith is likely recorded as the household of "Jos. Smith" in the Federal Census for Zanesville, Muskingum County on 7 August 1820, with suggested identities and birth years of the children:

2 Males<10: Elias (1813), Lewis (1819)
3 Males 10-15: William (1804), Joseph (1805), Mandley (1806)
1 Male 16-25: Henry (1801)
1 Male 26-44: Joseph (probably roughly the same age as Polly and older than indicated in this census)
3 Females<10: Mary (1810)
Females 26-44: Polly (born 1772 and therefore 4 years older than indicated in this census)

Joseph Smith appears to have died before 1830 in Guernsey County Ohio. In that year, the federal census in Richland Township, Guernsey County includes a household for William Smith (age 20-30) with another male age 20-30, a male age 15-20, two males age 10-15, a female age 20-30, and a female age 60-70; the latter of whom may be Polly (actually age 58); that household is next to one with a Joseph Smith age 15-20, a male under 5, and a female age 20-30.[131] These unusual demographics suggest a large family where the father has passed away. That William Smith was likely the one who then married Elizabeth Kendall on 28 Jan 1834 in Guernsey County,[132] a granddaughter of Katherine Elizabeth Stickel through her daughter Mary Susan Slaughter and Mary Susan's husband Zebedee Kendall.

The 1840 census for Jackson Township, Guernsey County (across the western border of Richland Township), includes a Mary Smith, age 50-60 with a male age 20-30, adjacent to a Henry Smith (age 30-40), a female age 20-30, two boys under 5 and two girls under 5. They are listed adjacent to John Botts Sr. (age 50-60). Polly Smith, appearing as "Mary Smith" age 69 born Maryland (which is possible based upon her baptism record), is listed with George W. Smith, who appears to be her youngest son, in the 1850 Federal Census.[133]

130 "Salem Baptist Church, Guernsey County, Ohio," Guernsey County Roots & Branches 20(4): November 1996, Guernsey County Genealogical Society, Cambridge, Ohio, p. 70-78.
131 Year: 1830; Census Place: Richland, Guernsey, Ohio; Series: M19; Roll: 131; Page: 433; Family History Library Film: 0337942.
132 Ohio, County Marriage Records, 1774-1993 film number 000894935.
133 The National Archives in Washington D.C.; Record Group: Records of the Bureau of the Census; Record Group Number: 29; Series Number: M432; Residence Date: 1850; Home in 1850: Wright, Guernsey, Ohio; Roll: 684; Page: 315a.

The family of John Botts relocated from Guernsey County to Good Hope Township, Hocking County, Ohio by 1850.[134] In that same township, John Smith and Sarah Botts Smith appear in the 1860 Federal Census.[135]

Polly and Joseph likely had the following children:

36 i. John Smith, born about 1800. John Smith married Margaret Slaughter on 9 March 1828, Guernsey County, Ohio.[136] Margaret was a granddaughter of Henry Stickel Sr. through his daughter Elizabeth Stickel Slaughter; this relationship indicates that John Smith married his first cousin. As noted in the record above, the couple was baptized together in the church in 1831.[137] However, Margaret Slaughter died only a few years later, on 12 November 1835 in Guernsey County.[138] John then married Sarah Botts, the daughter of John Botts and Sarah Haines, on 6 April 1837 in Guernsey County.[139] He died about 1873, Good Hope twp., Hocking County, Ohio.

37 ii. Henry Smith, born 15 Jan 1800, Virginia; married Jane Stigler, 19 Mar 1828, Guernsey County.[140] He secondly married Anna White Hall, 9 May 1842, Guernsey County.[141]

38 iii. William Smith, born 20 September 1803, Fauquier County, Virginia; married Elizabeth Kendall, 28 January 1834, Guernsey County, Ohio. He died 15 May 1890, Noble County, Ohio.

39 iv. Joseph L. Smith was born about December 1803 in Virginia and died in Stock Township, Noble County, Ohio on 3 September 1877.[142] The 1850 Federal census lists him as "Joseph L. Smith" age 46 with a son named Leander.[143] He married Harriet Stigler, 18 Oct 1827, Guernsey, Ohio.[144] He was buried in the Mount Tabor Cemetery in Carlisle Township, Noble County, Ohio.[145]

40 v. Mandley T. Smith, born 12 December 1806, Fauquier County, Virginia; married Debby Ann Devold, 2 Apr 1840, Morgan, Ohio.[146] He died 19 March 1892, West White Township, Benton County, Missouri, and was buried in the Mount Olivet Cemetery, Roseland, Henry County, Missouri.[147]

41 vi. Mary Smith was born about 1810, died about 1831, and was buried in Salesville, Guernsey County, Ohio.[148]

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[134] The National Archives in Washington D.C.; Record Group: Records of the Bureau of the Census; Record Group Number: 29; Series Number: M432; Residence Date: 1850; Home in 1850: Good Hope, Hocking, Ohio; Roll: 695; Page: 17b.

[135] The National Archives in Washington D.C.; Record Group: Records of the Bureau of the Census; Record Group Number: 29; Series Number: M653; Residence Date: 1860; Home in 1860: Good Hope, Hocking, Ohio; Roll: M653_988; Page: 42; Family History Library Film: 803988.

[136] Ohio, County Marriage Records, 1774-1993 film number 000894935.

[137] "Salem Baptist Church, Guernsey County, Ohio," Guernsey County Roots & Branches 20(4): November 1996, Guernsey County Genealogical Society, Cambridge, Ohio, p. 70: "John Smith and Margaret Smith received first Lord's day (Sunday) February AD 1830 (7 February 1830).

[138] "Salem Baptist Church, Guernsey County, Ohio," Guernsey County Roots & Branches 20(4): November 1996, Guernsey County Genealogical Society, Cambridge, Ohio, p.. 71. "Nov. 12, Dec'd Margaret Smith."

[139] Ohio, County Marriage Records, 1774-1993 film number 000317295.

[140] Marriage record book A, 1811-1832, Guernsey County, Ohio. Film Number: 000894935.

[141] Marriage record book B, Guernsey County, Ohio. Film Number 000317295

[142] Noble County, Ohio death records, 1867-1909, vol 1-4. Joseph L. Smith born Virginia to Joseph Smith, died 3 September 1877, age 73 years, 10 months. https://familysearch.org/ark:/61903/1:1:F6K8-F66.

[143] The National Archives in Washington D.C.; Record Group: Records of the Bureau of the Census; Record Group Number: 29; Series Number: M432; Residence Date: 1850; Home in 1850: Franklin, Monroe, Ohio; Roll: 712; Page: 485a.

[144] Marriage record book A, 1811-1832, Guernsey County, Ohio. Film Number: 000317295.

[145] Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/173470637/joseph-l.-smith: accessed 5/11/2023, memorial 173470637, Joseph L Smith (1810-1831), Mount Tabor Cemetery, Carlisle, Noble County, Ohio; gravestone photograph by Rabbit's Hill.

[146] Ancestry.com. Ohio, U.S., County Marriage Records, 1774-1993 [database on-line]. Lehi, UT, USA: Ancestry.com Operations, Inc., 2016. Film Number 00091065.

[147] Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/47655099/mandley-t-smith: accessed 5/11/2023, memorial 47655099, Mandley T Smith (1806-1892), Mount Olivet Cemetery, Roseland, Henry County, Missouri; gravestone photograph by bud smith.

[148] Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/52917966/mary-smith: accessed 5/11/2023, memorial 52917966, Mary Smith (1810-1831), Salem Baptist Church Cemetery, Salesville, Guernsey County, Ohio; gravestone photograph by Rabbit's Hill.

42 vii. Elias Smith, born 28 May 1812; married Sarah Hulda Evilsizer (who was previously married to John Sigman[149]) on 13 May 1845, Guernsey, Ohio[150], and died 18 June 1884, Fayette Township, Lawrence County, Ohio age 72 years 21 days.[151]

43 viii. Lewis Smith was born on 12 Mar 1819, died on 10 Oct 1846, and was buried in Salesville, Guernsey County, Ohio.[152]

44 ix. George Smith, born about 1820, Guernsey County, Ohio.[153]

Catherine

6. Anna Catharina "Catherine" "Caty" Stickel was born on 20 Feb 1775 in Loudoun, Virginia. Caty's father Henry Stickel Sr. endorsed her marriage to Simon Marshall on 17 October, the license was granted on 18 October 1794, and the marriage occurred on 22 October 1794.[154]

Catherine Stickel and Simon Marshall had at least one child:

45 i. John Colwell Marshall was born on 10 Mar 1795 in Loudoun County, Virginia. He married Rebecca Harr on 24 April 1817 in Muskingum County, Ohio.[155] They resided in Monroe Township, Perry, Ohio in 1850.[156]

However, the 1830 census for the household of her husband, Simon Marshall, shows a male born between 1800-1810, and a female born between 1815-1820, so it is possible that she had other children whom we have not identified.[157]

Nicholas

7. Nicholas Stickel was born about 1779 in Loudoun County, Virginia. He likely married Mary Chappell about 1802. She was born in 1779 in Maryland,[158] married secondly William Bethard, and died 23 September 1858 in Fulton County, Illinois.[159]

Nicholas was likely named after his paternal grandfather. On the 1795 and 1797 property tax rolls for the Third Battalion [District], Loudoun County, VA, Heinrich is listed with a "son" as a tithable (above age 16), while his two other sons and son-in-law Frederick Slaughter are listed separately.[160] Therefore, the remaining son must be Nicholas who would have been born about 1779 if he were 16 when first listed as a tithable in 1795. From 1799-1801, Nicholas appears with his father in tax rolls as "Henry & son Nicholas".[161] In 1802, for the Third District, Loudoun County, N. [Nicholas] Stickle appears in the personal property tax rolls with Heinrich Stickle

[149] "Ohio, County Marriages, 1789-2016", database with images, FamilySearch (https://www.familysearch.org/ark:/61903/1:1:2QQW-QQZ : 29 September 2021), John Sigman and Sarah Evilsizer, 1835.
[150] "Ohio, County Marriages, 1789-2016", database with images, FamilySearch (https://www.familysearch.org/ark:/61903/1:1:XDPL-WX5 : 29 September 2021), Elias Smith and Sarah Sigman, 1845.
[151] "Ohio, County Death Records, 1840-2001," database with images, FamilySearch (https://familysearch.org/ark:/61903/1:1:F6VC-LYX : 1 March 2021), Elias Smith, 18 Jun 1884; citing Death, Fayette Township, Lawrence, Ohio, United States, source ID ldg1 p298 reg14, County courthouses, Ohio; FHL microfilm 317,745.
[152] Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/47843954/lewis-smith: accessed 5/11/2023, memorial 47843954, Lewis Smith (1819-1846), Salem Baptist Church Cemetery, Salesville, Guernsey County, Ohio; gravestone photograph by bud smith.
[153] Entry for "George W. Smith with Sarah E Smith; Afredda Smith; John A Smith." Year: 1860; Census Place: Good Hope, Hocking, Ohio; Page: 43; Family History Library Film: 803988.
[154] "Virginia, Vital Records, 1715-1901", database, FamilySearch (https://www.familysearch.org/ark:/61903/1:1:6JLM-L7ZP : 15 November 2022), Caty Stickle in entry for Simon Marshall, 1794.
[155] "Ohio, County Marriages, 1789-2016", database with images, FamilySearch (https://www.familysearch.org/ark:/61903/1:1:2QQR-LM8 : 29 September 2021), John Marshall and Rebecca Harr, 1817.
[156] "United States Census, 1850," database with images, FamilySearch (https://www.familysearch.org/ark:/61903/1:1:MXQY-54R : 21 December 2020), John Marshall, Monroe Township, Perry, Ohio, United States; citing family , NARA microfilm publication (Washington, D.C.: National Archives and Records Administration, n.d.)
[157] "United States Census, 1830," database with images, *FamilySearch* (https://familysearch.org/ark:/61903/1:1:XH5G-685 : 20 February 2021), Simon Marshall, Blue Rock, Muskingum, Ohio, United States; citing 247, NARA microfilm publication M19, (Washington D.C.: National Archives and Records Administration, n.d.), roll 137; FHL microfilm 337,948.
[158] "United States Census, 1850," The National Archives in Washington D.C.; Record Group: Records of the Bureau of the Census; Record Group Number: 29; Series Number: M432; Residence Date: 1850; Home in 1850: Jerome, Union, Ohio; Roll: 736; Page: 128b.
[159] https://www.findagrave.com/memorial/121764118/mary-beathard?
[160] Duncan, Patricia B. 2004. Loudoun County, Virginia Personal Property Tax List 1782-1850. Heritage Books. "Stickle, Henry & son" listed in 1795C (First Battalion) and 1797C (Third Battalion) personal property tax rolls.
[161] Duncan, Patricia B. 2004. Loudoun County, Virginia Personal Property Tax List 1782-1850, "Stickle, Henry & son Nicholas" listed in 1799C, 1800C, and 1801C (Third District) personal property tax rolls.

and S. [Stephen] Simmons,[162] the person who had been bound to Henry Sr. nine years earlier in 1792. From 1803-1805 and 1807, Nicholas appears separately from Henry Stickel Sr..[163] In 1806, Nicholas again is listed with his father.[164] Nicholas Stickel last appears in the tax records in year 1807 in the Third District in Loudoun County; there was no tax list for 1808, and he does not appear on the 1809 or later tax lists for Loudoun. In 1815, a "Betcy Stickler" appears in the tax rolls for the same district,[165] so we considered the possibility that she might have been Nicholas' widow, although that is a long gap and there is no other evidence connecting them.

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Instead, we conclude that Nicholas married Mary "Polly" Chappell about 1802 when Nicholas first appears as a household head, separately from his father, in the year before his presumed son Thomas was born. As for his elder brothers, being listed separately in the tax rolls was likely a sign of being newly married. It seems likely that Nicholas and Mary were the parents of not only Thomas (b. 1803), but two other Stickels with previously unidentified Stickel fathers: Sarah Stickel (b. 1804) and John Stickel (b. 1812). Nicholas and Mary may have moved to Ohio around 1808, when he disappears from Virginia tax rolls. He may have then died about 1812, about when John was born, and before 25 October 1813, when Mary Chappell, now known as "Polly Steckles," remarried to William Bethard in Madison County, Ohio.[166] The 1850 census for John indicates that he was born in Ohio about 1812, and a biographical portrait states that "John Stickle, whose mother had married William Bethard, settled on Sugar Run, where he farmed."[167] While Mary and her second husband William had additional children,[168] Thomas appears to have stayed with his grandfather, because on 19 February 1820, a Thomas Stickel witnessed Heinrich and Eva's sale of land in Muskingum County,[169] and the name Thomas otherwise does not appear among Heinrich's grandchildren.

Mary "Polly" Chappell was likely a daughter of Thomas Chappell of Loudoun County. He was born about 1755 in Lower Potomac Hundred, Maryland and married Eleanor Harvey in St James Parish, Anne Arundel County, 11 January 1781.[170] He moved to Loudoun County and died there sometime after 1830. The Chappell and Stickel families clearly were acquainted and must have lived near each other, because on 11 July 1808, a court ordered that Thomas "Chapel", Henry Stickle, and others "view the most convenient way to open a road from the Cross roads between Joseph Carr's Mill and the old Baptist Meeting House by Lanham's Blacksmith shop."[171] A DAR entry for him names only son James Moore Chappell (b. 1797) and daughter Siggarina or Sigga.[172] However, the 1790 census for Thomas Chappell in Maryland reports one son under 16 and four women in the household,[173] which indicates that he had other daughters, one of whom was likely Mary.

46 i. Thomas Chappell Stickel was born on 5 Apr 1803 in Virginia. He died on 21 Nov 1866 at the age of 63 in Manlius, Bureau County, Illinois.[174]

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162 Duncan, Patricia B. 2004. Loudoun County, Virginia Personal Property Tax List 1782-1850, "Stickle, Henry and Stickle, N. and Simmons, S." listed in 1802C (Third District) personal property tax rolls.
163 Duncan, Patricia B. 2004. Loudoun County, Virginia Personal Property Tax List 1782-1850, "Stickle, Nicholas" listed in 1803C, 1804C, 1805C, and 1807C (Third District) personal property tax rolls.
164 Duncan, Patricia B. 2004. Loudoun County, Virginia Personal Property Tax List 1782-1850, "Stickle, Henry & son Nicholas" listed in 1806C (Third District) personal property tax rolls
165 Duncan, Patricia B. 2004. Loudoun County, Virginia Personal Property Tax List 1782-1850, "Stickler, Betcy" listed in 1815A (Third District) personal property tax rolls.
166 "Ohio, County Marriages, 1789-2016", database with images, *FamilySearch* (https://www.familysearch.org/ark:/61903/1:1:XDPH-67W : 29 September 2021), William Bethard and Polly Steckels, 1813.
167 "The History of Union County, Ohio" by W.H. Beers & Co., 1883, Chicago. https://archive.org/details/historyofunionco00dura/page/274/mode/2up?q=Stickle, p. 275.
168 "The History of Union County, Ohio" by W.H. Beers & Co., 1883, Chicago.
169 Muskingum County, Ohio Deed Book F, p. 47-48, Henry and Eve Stickell to Michael Peters, sale, 4 March 1820. https://www.familysearch.org/ark:/61903/3:1:3Q9M-CS4Y-FCCF.
170 Maryland Marriages, 1778-1800.
171 Loudoun County Order Book 2, 11 July 1808.
172 https://services.dar.org/Public/DAR_Research/search_adb/?action=full&p_id=A042998
173 Household of Thomas Chapell, Montgomery, Maryland, 1 male 16 and over, 1 male under 16, 4 females, Year: 1790; Census Place: Montgomery, Maryland; Series: M637; Roll: 3; Page: 266; Image: 155; Family History Library Film: 0568143.
174 Find A Grave. *Find A Grave*, database with images (https://www.findagrave.com/memorial/105226726/thomas-chappell-stickell: accessed 5/11/2023, memorial 105226726, Thomas Chappell Stickell (1803-1866), Follett Cemetery,Manlius, Bureau County, Illinois; gravestone photograph by Har37x.

47 ii. Sarah Stickle was born 14 Dec 1804 in Virginia.[175,176] She married Moses Green in Union County on 9 Oct 1823.[177] Moses Green died in May 1850. “Moses Green owned a small place on Sugar Run, taking possession about 1820. He died in this township.”[178]

48 iii. John Stickle was born about 1812 in Ohio.[179] He married Minerva Duncan, 15 Feb 1838 Madison County, Ohio.[180]

175 “United States Census, 1850," The National Archives in Washington D.C.; Record Group: Records of the Bureau of the Census; Record Group Number: 29; Series Number: M432; Residence Date: 1850; Home in 1850: Jerome, Union, Ohio; Roll: 736; Page: 128b

176 “United States Census, 1880," Sarah Green, widow, in household of Nelson Green, born Virginia to parents from Virginia. Year: 1880; Census Place: Keithsburg, Mercer, Illinois; Roll: 236; Page: 309D; Enumeration District: 176.

177 Ancestry.com. Ohio, U.S., County Marriage Records, 1774-1993 [database on-line]. Lehi, UT, USA: Ancestry.com Operations, Inc., 2016.

178 "The History of Union County, Ohio” by W.H. Beers & Co., 1883, Chicago, p. 275. https://archive.org/details/historyofunionco00dura/page/274. Ms. Jane Hannoun, wife of a descendant of Sarah Stickel, first alerted us to the Stickel connection to this line based upon these records.

179 Household of John Stickle. The National Archives in Washington D.C.; Record Group: Records of the Bureau of the Census; Record Group Number: 29; Series Number: M432; Residence Date: 1850; Home in 1850: Union, Madison, Ohio; Roll: 706; Page: 181a

180 "Ohio, County Marriages, 1789-2016", database with images, *FamilySearch* (https://www.familysearch.org/ark:/61903/1:1:X8NX-9LB), Entry for Moses Green and Sarah Stickle, 09 Oct 1823.

Journal of Genetic Genealogy

Who Was Lisbeth's Great-Grandfather?

A Follow-Up Using *BanyanDNA* and *WATO plus*

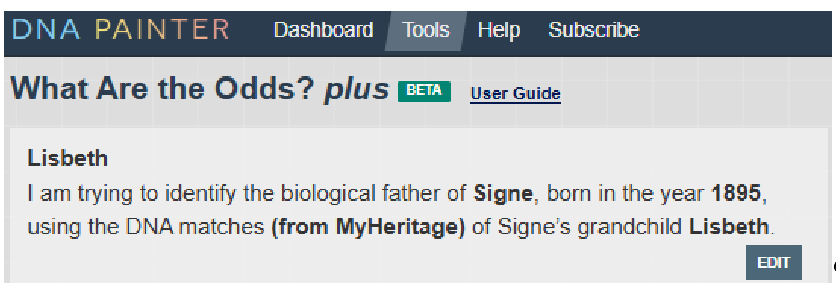
Rob Flanagan Stieglitz

Today's genealogist/family historian who uses DNA can expect new products to be developed periodically to assist in researching their genetic matches. *BanyanDNA* (beta version,) has recently been released. This new web-based product provides the genetic genealogist additional tools along with *WATO* (*What Are The Odds*) to help predict accurate relationships of your DNA matches.[1] Additionally, *WATO plus* (beta version) has also been released, a new upgraded version of *WATO.*[2]

Both of these new web-based tools can be a major benefit to the genetic genealogist. *BanyanDNA* can help identify ancestors and determine relationships between yourself and your DNA matches. Most significant though is its ability to customize your trees whether you have pedigree collapse, double cousins, or (in a future release) endogamy."[3]

These new two web-based tools would have been valuable in supporting my hypothesis in my narrative "Who was Lisbeth's Great-Grandfather," published in the March 2024 issue of *The Journal of Genetic Genealogy.*[4] The subject of the article was unaware of who her great-grandfather was, as her grandmother's birth was listed as illegitimate. "Lisbeth," tested with *MyHeritage* and she was a strong genetic match to my wife and her cousins who descend from the same Swedish ancestors. The amount of DNA they share is what I call genealogical, meaning the likelihood of finding their MRCA (Most Recent Common Ancestors) is quite possible.

Having used *WATO* on multiple occasions the newest change I believe is a significant upgrade. As an experienced author of genealogical proof articles, the most important part of your narrative is the question you are asking. The changes with *WATO plus* begin with the new, updated research question format. This means the question of your narrative is identical to your *WATO plus* printout[5]



[6]

Image 1 - Research Question

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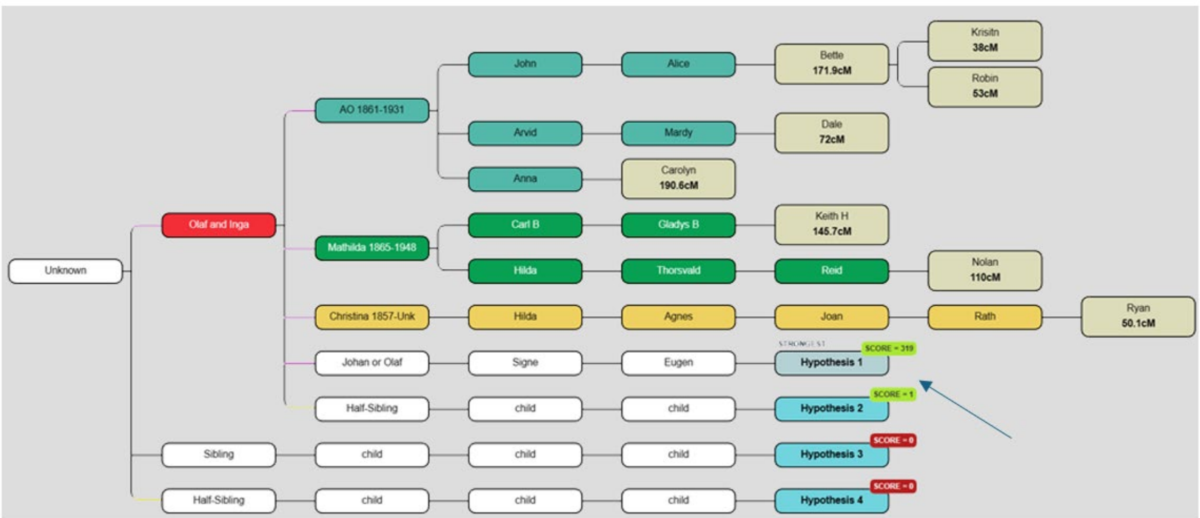
[1] "BanyanDNA FAQ," *BanyanDNA*, 2023 (https://www.banyandna.com/docs/faq).
[2] Jonny Perl, Getting Started | DNA Painter WATO+ User Guide," *DNAPainter* (https://dnapainter.com/help/user-guide/wato-plus).
[3] "BanyanDNA FAQ," *BanyanDNA,* 2023 (https://www.banyandna.com/docs/faq).
[4] Robert Flanagan Stieglitz, "Who Was Lisbeth's Great-Grandfather? "*The Journal of Genetic Genealogy,* 12, no. 1, Mar 2024 (https://jogg.info/wp-content/uploads/2024/03/121.006-Full-Article.pdf).
[5] Diahan Southard, "What Are the Odds? Plus (WATO+): A New Upgrade to the Classic Tool," *Your DNA Guide - Diahan Southard*, 23 Feb 202 (https://www.yourdnaguide.com/ydgblog/wato-plus).
[6] https://dnapainter.com/tools/wato3/1054

The research methodology I used is described in my article in *Family Tree Magazine*, published in its 2023 July/August issue.[7] The conclusion drawn was Olof Olsson and Inga Andersdotter were the MRCAs of Lisbeth and Bette (and her cousins) and therefore her great-grandfather, a son of Olga and Inga.[8] *WATO plus* would be more specific to the question asked in my narrative. The new tool makes the subject (Lisbeth's great-grandfather) of the question the hypothesis, rather than the relationship to the match. This provides a more direct answer to the question. This difference can be seen in the original *WATO* readout (Image 2) compared to the readout provided by *WATO plus* (Image 3)



[9]

Image 2 – *WATO*

WATO predicts Lisbeth and Bette are third cousins, while *WATO plus* predicts Lisbeth's great grandfather was the son of Olaf and Inga and therefore a brother to Bette's great-grandfather, Adolph. A direct response to my research question.

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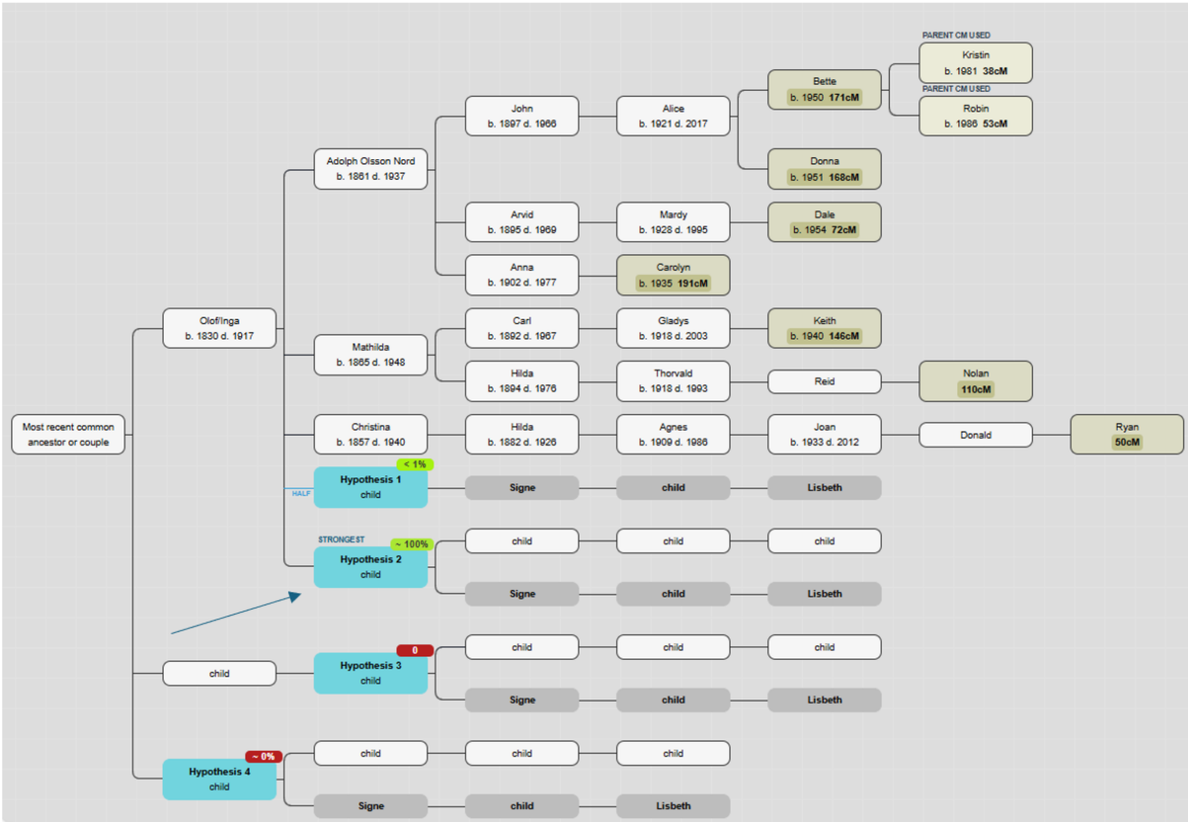
[7] Robert Flanagan Stieglitz,."6 Steps for Applying the Scientific Method to Genetic Genealogy," *Family Tree Magazine,* 21 Jun 2023 (https://familytreemagazine.com/dna/scientific-method-genetic-genealogy/).
[8] Flanagan Stieglitz, "Who Was Lisbeth's Great-Grandfather? "*The Journal of Genetic Genealogy,* 12, no. 1, Mar 2024.
[9] Stieglitz, "Who Was Lisbeth's Great-Grandfather? "*The Journal of Genetic Genealogy,* 12, no. 1, Mar 2024.



[10]

Image 3 - ***WATO plus***

In the conclusion of my genealogical proof narrative ("Who Was Lisbeth's Great-Grandfather? "), I brought up the possibility of endogamy. According to DNA Educator, Diahan Southard, "Endogamy is the practice of marrying within the same group of people for several generations."[11] The result would find that matches at a confirmed relationship level would have more shared DNA than predicted. Because some of the matches to Lisbeth have higher than average shared DNA than the predicted relationship, I suspect pedigree collapse or endogamy is involved. At his time *Banyan DNA* does not have the ability to test endogamy, but it does for pedigree collapse (a form of endogamy). According to Diana Elder AG® AGL a professional genealogist, author, and speaker - "Pedigree collapse occurs when cousins reproduce, and their descendants have ancestors in more than one place in the family tree. Pedigree collapse can become endogamy if it repeatedly occurs over many generations. However, two to three instances do not qualify the situation as endogamy."[12] Bette does have a known pedigree collapse in her family tree, although not within her Swedish ancestors. Her third-great-grandfather, Garret Dingman's (1796-1875) parents were second cousins. Samuel Dingman married Mary Dingman, both being great-grandchildren of Jacob Dingman and Eva Swartwout. (Image 4)

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[10] "Who Was the Biological Father of Signe?" *DNAPainter - WATO plus* (https://dnapainter.com/tools/wato3/1054).
[11] Diahan Southard, "Endogamy and DNA Testing Tips," *Your DNA Guide*, 28 May 2020. (https://www.yourdnaguide.com/ydgblog/endogamy-dna-test-jewish).
[12] "Endogamy, Pedigree Collapse, and Multiple Relationships: What's the Difference and Why Does It Matter?" 2022, *Family Locket,* 2 Sep 2022 (https://familylocket.com/endogamy-pedigree-collapse-and-multiple-relationships-whats-the-difference-and-why-does-it-matter/).

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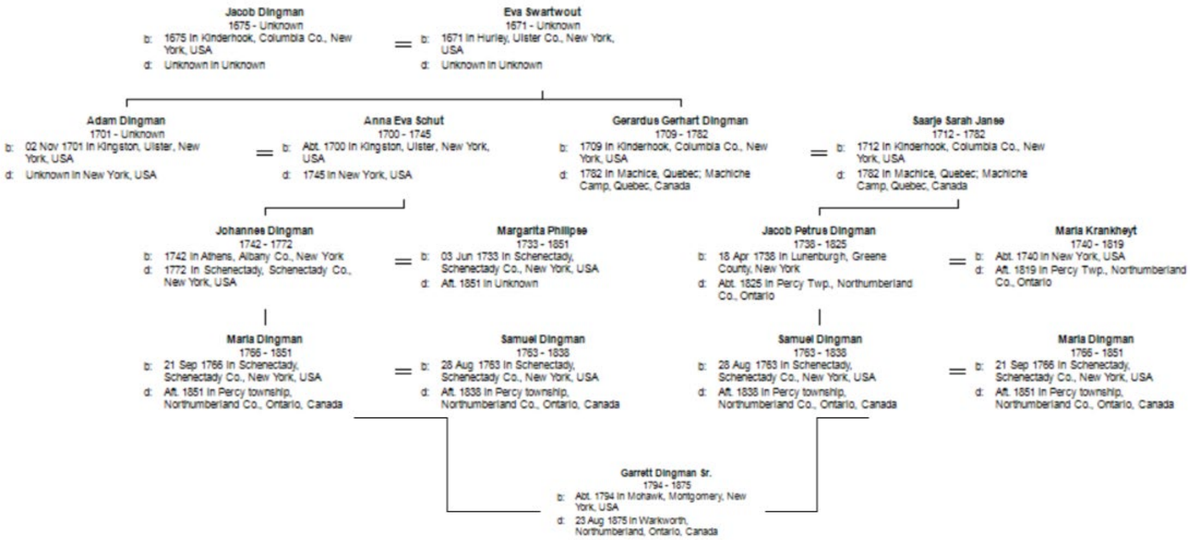
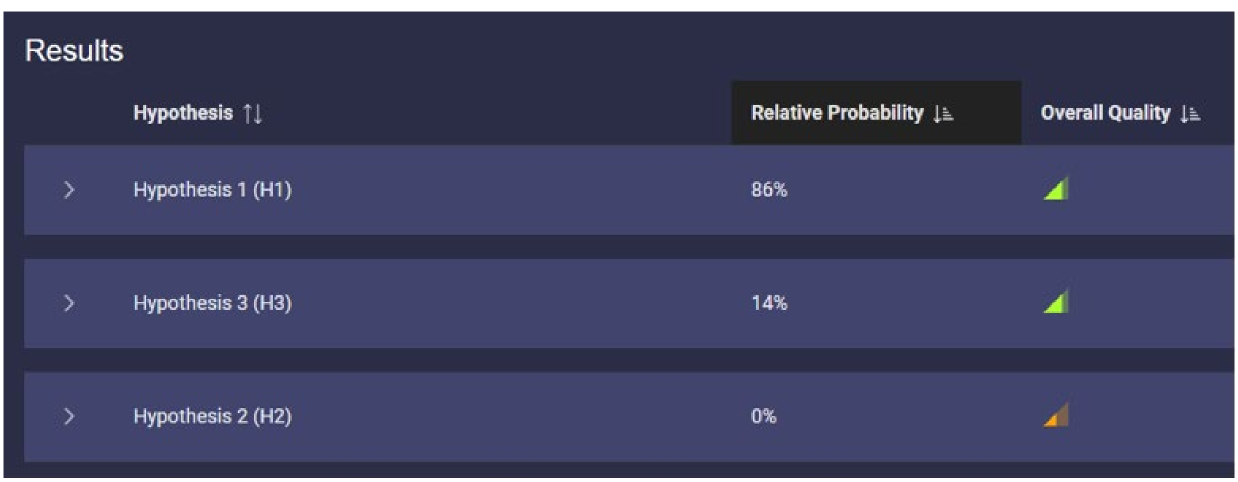


[13]

Image 4 - Example of Pedigree Collapse

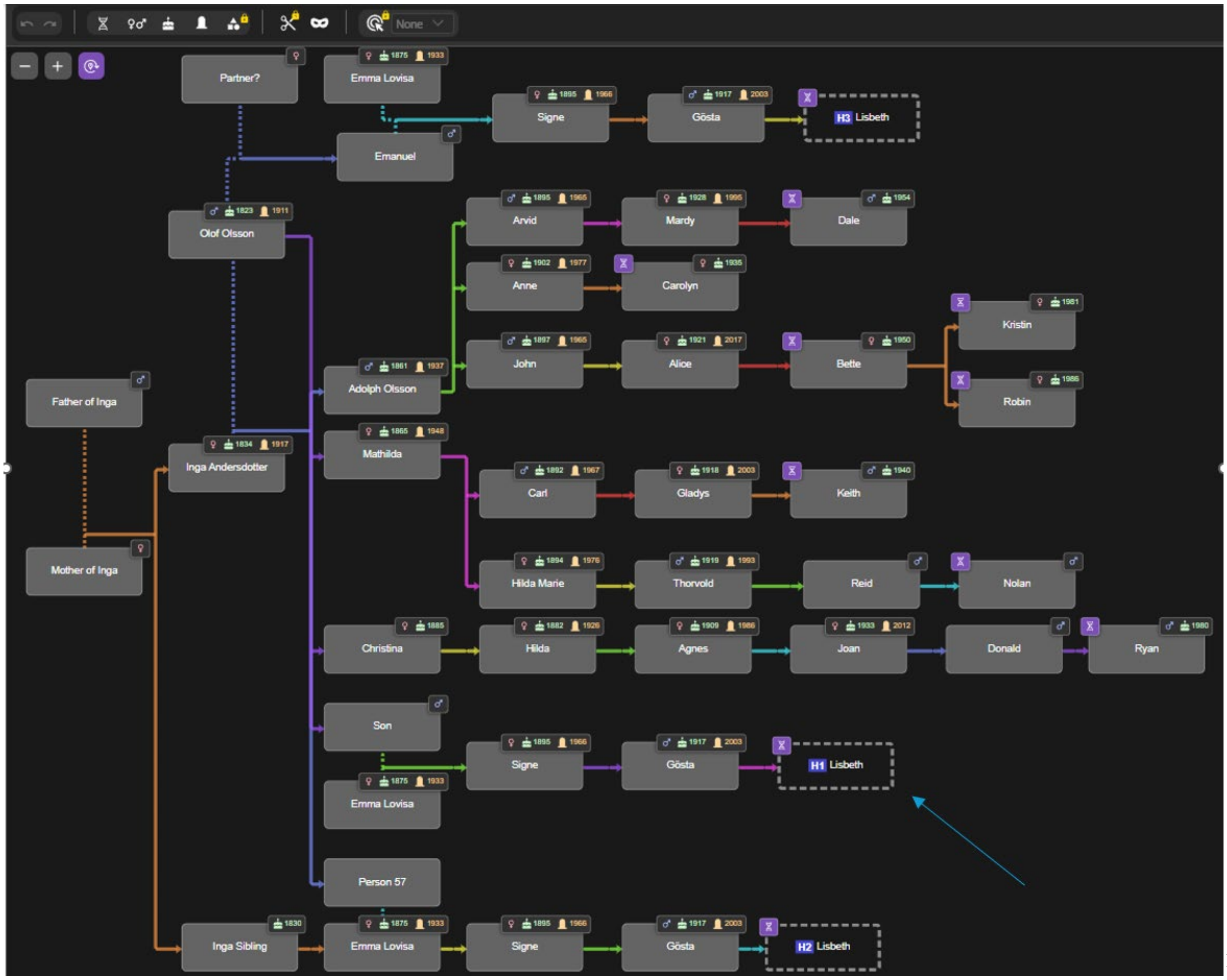
To test for pedigree collapse in "Who was Lisbeth's Great-Grandfather," I built multiple models with different relationship levels. For example, I constructed a *Banyan DNA* model (Image 5) where Emma (Lisbeth's grandmother) married her first cousin (son of Olaf and Inga). Then repeated the process making Emma as a second, then third cousin and so on.

The initial model shown in Image 4 also contains another possibility in addition to pedigree collapse. This being Emma marrying a half-brother. The resultant reading indicate an 86% probability of there being NO pedigree collapse at this relationship hypothesis. The other relationship level hypotheses tests also predicted no pedigree collapse.


Results

Hypothesis	Relative Probability	Overall Quality
Hypothesis 1 (H1)	86%	
Hypothesis 3 (H3)	14%	
Hypothesis 2 (H2)	0%	

[13] Robert Flanagan Stieglitz, "Stieglitz/Johnason Family Tree," *Family Tree Maker*, personal computer database, Fargo, North Dakota, 20 Jun 2024.



[14]

Image 5 – Banyan DNA Pedigree Collapse

As mentioned, there are a few matches with above average shared DNA which does make me believe there is endogamy taking place here. In most cases when new tools are released, I always test with known cousin relationships to see if the new tool provides an accurate result. Unfortunately, at this time I don't have enough descendants of the Dingman family pedigree (Image 4) collapse to test the *Banyan DNA* tool.

Conclusion

The results provided by *BanyanDNA* are not concrete proof of my hypotheses but provide additional support in combination with other evidence when drawing an overall conclusion that Lisbeth's great-grandfather was a son of Olaf and Inga. One might suggest that the negative results by *Banyan DNA* were not beneficial to support my hypothesis. I would disagree, and infer that the negative pedigree collapse result, along with the higher that average shared DNA by the matches then directs my belief that more broad endogamy is most likely involved. The *WATO plus* tool's predicted relationship may be the same as *WATO* but directly answers the original research question rather than indirectly like the original. The addition of these two new web-based tools also reinforces my belief that our genealogical research is never done because the continued development of new tools in conjunction with new documents

[14] "Project - Swedish Connection," BanyanDNA (https://app.banyandna.com/all-projects).

continuingly being released online. "Scientific methods involve a continual process that often incorporates changes to methodology in response to new information learned during experimentation."[15]

[15] Mario Bunge, "Scientific Methods," *Access Science | McGraw Hill's*, 2017 (https://www.accessscience.com/content/article/a607200).