

## Genetic Evidence Relative to the Native American Ancestry of Catharine, the Wife of Lt. John Young (1742-1812)

By

David K. Faux

While the present author has created a 50 plus page document outlining all of the specific details of the testing of descendants of Catharine, the wife of Lt. John Young, the use of this wealth of data at this juncture in time is questionable.

While about 19 descendants have participated in the large autosomal study of the Young family, the primary testing has focused on three individuals:

Larry Young: The reason being that he is the great great great grandson of Catharine and Lt. John Young making him the individual closest generation – wise to the couple and so most likely to show evidence of Native American ancestry.

Betty Yundt: Betty was included in the in depth investigation since she is a descendant of two of the sons of Catharine and Lt. John Young, making it more likely that segments of Catharine's Native American heritage would have passed down to her.

David Faux: The reason for the inclusion of the author is one of practical expedience, plus the fact that he is 8 generations removed from Catharine and Lt. John Young and would be a good example of how many generations segments from a Native American ancestor might be expected to remain detectable.

While huge volumes of data have been generated in this enterprise, it is largely inconsistent and vague. While all three individuals have been shown to possess three or more Native American segments, in none will all of these blocks of DNA be plainly visible across the board. Typically:

Larry has by a good margin the most Native American ancestry in all global tests and subtests where this ancestry is measured.

Betty has the most robust Native American segments.

David has the most informative segments thanks to the cutting edge and high powered testing that has been thrown at it.

That being said, the document that was included has been filed away until such time as there is more consistency seen and less confusion likely for any reader other than the present author.

In the opinion of the present author the weight of genetic evidence show clearly that Catharine was highly admixed. While this would be true for most Mohawks, it appears

to be particularly true for her. This means that in addition to having a European biological father, her only clear Native American line would appear to be the Clan line via the mother's mother's mother and so on. Catharine's great uncle Johannes Crine Anequendahonji ("Dark Belly") was known as "White Hans" and as "a whitish Indian living at the Mohawks". The son of Hans was known as John "Blue Eyed" Green Aronghyengtha. It goes without saying that the evidence here points strongly towards significant admixture in the family, and thus the questionable value of using present day genetic tests to validate Native American ancestry in this family.

The company which did the testing, providing the raw data which can be analyzed using in house features such as the "Native American Ancestry Finder" tool, as well as enabling the author to send away raw data files to be analyzed by third parties who offer sophisticated analyses beyond what is presently available through 23andMe (who uses the Han Chinese as a proxy for Native American in all their comparisons). The explanation that is included with the above tool is that Native American ancestry can at this point (since 2008) only be reliably detected for 5 generations in the past. Beyond that it is likely that there will be no genetic evidence of Native American ancestry. This puts a severe restriction on the use of DNA research to cross validate the genealogy. When all is said and done, the genealogy is excellent and does not profit from being compared and contrasted to measures that may or may not see evidence of Native American background in present day descendants of Catharine.

However, as an example of the types of data one would find in the more extensive file, here follows the most recent data analysis, which will illustrate the types of data being investigated:

### **Most Recent Examples of Native American Ancestry Testing**

Recently many of those doing genetic research using the most up to date admixture tools have contributed their reference samples and algorithms to Gedmatch.com. From here users can upload their raw data and use any of a number of methods to analyze the data to determine percentage of one group or another in the genome, or a chromosome by chromosome analysis (including a colour coded painting of where the ancestral blocks are found).

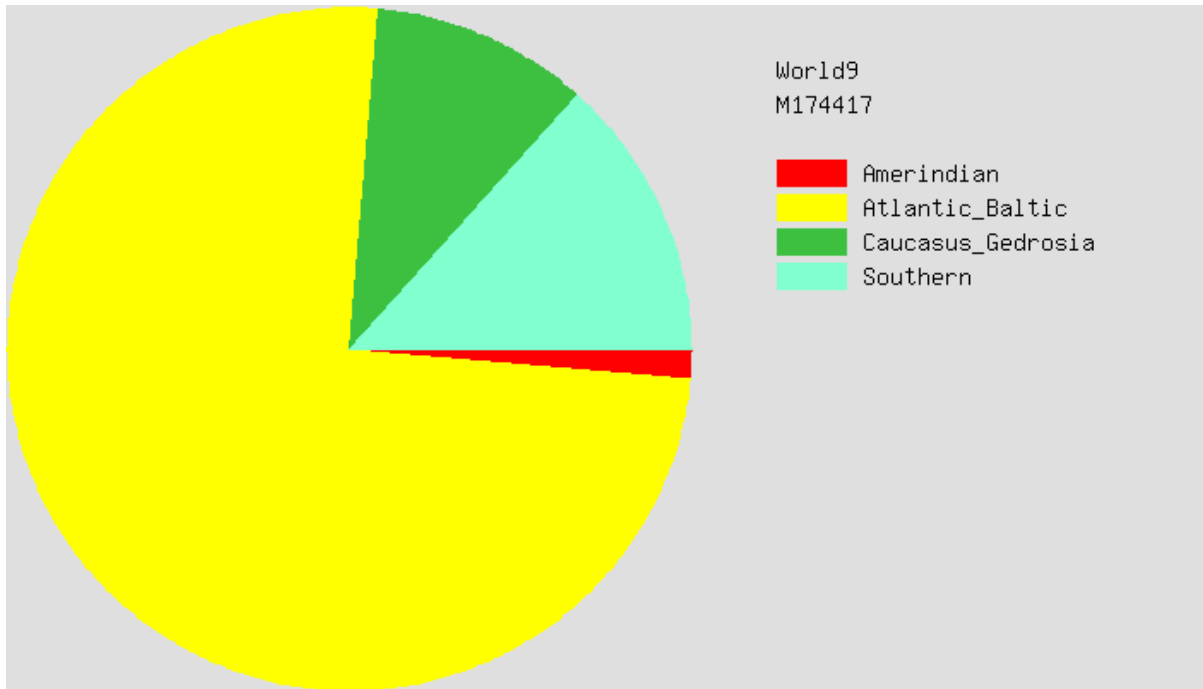
#### **Dodecad World 9 Admixture via Gedmatch.com**

**Larry Young:**

Population

Amerindian	1.28%
East_Asian	-
African	-

Atlantic_Baltic	75.04%
Australasian	0.66%
Siberian	0.55%
Caucasus_Gedrosia	10.32%
Southern	11.74%
South_Asian	0.40%



In the “Oracle” matching of populations using World9, Larry’s results are as follows:

**Mixed Mode Population Sharing:**

#	Primary Population (source)	Secondary Population (source)	Distance
1	98.7% British (Dodecad)	1.3% PEL30	0.6
2	98.8% British (Dodecad)	1.2% Maya	0.62
3	98.9% British (Dodecad)	1.1% Pima	0.62
4	97.8% British (Dodecad)	2.2% MEX30	0.62

5	98.9% British (Dodecad)	1.1% Karitiana	0.63
6	98.9% British (Dodecad)	1.1% Surui	0.63
7	98.9% British (Dodecad)	1.1% Colombians	0.63
8	98.1% British (Dodecad)	1.9% Ecuadorian	0.64
9	98.6% Kent (1000 Genomes)	1.4% Athabask	0.64
10	98.5% British (Dodecad)	1.5% Athabask	0.66
11	98.6% Cornwall (1000 Genomes)	1.4% Athabask	0.7
12	98.8% Kent (1000 Genomes)	1.2% PEL30	0.71
13	98.9% Kent (1000 Genomes)	1.1% Maya	0.71
14	98.2% Kent (1000 Genomes)	1.8% Ecuadorian	0.71
15	99% Kent (1000 Genomes)	1% Pima	0.71
16	98% Kent (1000 Genomes)	2% MEX30	0.72
17	99% Kent (1000 Genomes)	1% Colombians	0.72
18	99% Kent (1000 Genomes)	1% Karitiana	0.72
19	99% Kent (1000 Genomes)	1% Surui	0.72
20	97.5% British (Dodecad)	2.5% Colombian	0.76

Here it is crystal clear that without exception, Larry's matchings are only between British and all Native American reference groups (admixed such as PEL30, and unadmixed such as Karitiana). The signal is so strong that the algorithm did not chose even one Northern European group such as French with which to match. This is perhaps the single most persuasive and conclusive DNA evidence of Native American ancestry seen to date. The above pattern is not seen in anyone who does not have Native American ancestry, above about 1%.

**David Faux:**

Population

Amerindian	0.59%
East_Asian	-
African	-

Atlantic_Baltic	73.55%
Australasian	0.33%
Siberian	0.25%
Caucasus_Gedrosia	13.59%
Southern	11.62%
South_Asian	0.07%

It is interesting to note that Larry has twice or more the percentage of David on Amerindian, Australasian, South Asian and Siberian. This ratio, or close to it, is what one would expect if this measure was tapping into valid Native American and surrogate DNA.

The Dodecad world9 Oracle results for others with documented Native American ancestry (including two individuals who are about 4% Cree, one who is 1/32 Oneida – Mohawk, and a fourth individual who is Mi'qmaq about 2.5% with a Native American maternal mitochondrial DNA (mtDNA) haplogroup - X2a1a) have a duplicate of what is seen above with Larry on this test.

The above “Oracle” pattern was not seen with David, most of whose primary matches were German, and all of whose secondary matches were West Asian, the likely explanation being that the signal was much weaker from Native American sources (Larry being 4 generations closer to Catharine Hill Young) – although the Amerindian plus Australasian and Siberian percentages seen in World9 are higher than those whose only ancestry is British.

**Update:** In December 2012 the testing company 23andMe released an excellent feature to replace the old Ancestry Painting which did not include any Native American reference samples – East Asians such as the Han Chinese were used as a proxy. None of the descendants of Catharine, including Larry, received a single Native American segment on this test (except those known via genealogy to have other Indian ancestry via the Cree). This Ancestry Composition Test is particularly damaging to the attempt to match up the genealogical and DNA evidence and may have the power to dismiss the hypothesis that Catharine was Native American – or leaving us with the realization that she had so much admixture that it could not be detected with the newest of measures in even those most proximal to her generation – wise.

**Conclusion:** In the opinion of the author, the genealogy, which is extremely robust, extensive and consistent should be relied on here until such time as genetic testing allows further information that is both valid and reliable to be added to the mix.

While Larry shows some evidence of genetic evidence of Native American ancestry, it is somewhat inconsistent. The fact is that he is between two and four generations closer to Catharine Hill Young than the rest of the family in the Project and should show evidence

comparable to others with between 1/32 and 1/128 Native American – which is not generally the case. Although of all the participants in this branch of the family, he has the strongest link (as expected by virtue of his generational proximity). In December 2012 the testing company 23andMe released an excellent feature to replace the old Ancestry Painting which did not include any Native American reference samples – East Asians such as the Han Chinese were used as a proxy. It

A sensible conclusion, largely based on data such as the above charts relating to Larry, and other data shown in the more comprehensive document, is that the DNA evidence at best only weakly supports the paper trail, but little is to be gained **at this point** to continue focusing on this line of research until more sophisticated technological advances offer the possibility of a conclusive answer. Hence we can leave the matter here until full genome sequencing, further advances in admixture programmes, better selection of ancestral informative markers, and the use of more appropriate Native American reference samples emerge. At that point we can resume the exploration of the genomes of various descendants of Catharine, the wife of Lt. John Young, to see what can be learned from this data source.

David K. Faux, Ph.D., C.Psych. (Retired)  
Cypress California and Caledonia Ontario  
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