

Family Locket Genealogists

Daniel Arnold Research Project

23 June 2022

OBJECTIVE

The objective for this research session was to use DNA and documentary evidence to discover the parents of Daniel Arnold. Daniel Arnold was born 6 August 1806 in Saratoga County, New York, and died 15 June 1881 in Henderson, Jefferson County, New York. He married Lydia Willey.

LIMITATIONS

- The time allotted for this research session was limited to thirty hours.
- Documents that provide direct evidence for parent-child linkage are often missing or during the period in which Daniel Arnold, his parents, and grandparents lived.
- With every passing generation, the amount of DNA passed down from an ancestor is diminished by approximately half. Daniel Arnold is test taker Amos 3's great-grandfather. DNA matches who descend from Daniel would be Amos 3's third cousins. DNA matches who descend from Daniel's parents would be fourth cousins, and DNA matches who descend from Daniel's grandparents would be fifth cousins. Due to a process called recombination, not all descendants of Daniel, his parents, and his grandparents will share DNA with one another. To maximize the coverage of Daniel Arnold's genome, test takers who descend from each of his children should be analyzed. The test takers whose DNA was analyzed during this research session each descend from the same child, Amos George Arnold.

RESULTS SUMMARY

- Summarized documentary and DNA evidence discovered to date. Noted that evidence points to Amasa Arnold and Chloe Woodward as parents for Daniel Arnold.
- Created a web page to be used to recruit additional test takers to help increase coverage of Daniel Arnold's genome for use in this project.

- Received DNA match lists for four additional test takers, all descendants of Amos George Arnold.
- Analyzed each test taker's DNA test results and further confirmed the probability of a genetic relationship to Amasa Arnold and Chloe Woodward.
- Used AncestryDNA ThruLines® to find DNA matches who descend from the Woodward line.
- Verified each ThruLines® hypothesis by documenting generational links for each match's path back to Joshua Woodward or his father Benjamin, confirming that the amount of shared DNA fits within the parameters set forth by the Shared cM Project for each relationship, and confirming that the matches all belong to the same genetic network.
- Identified the maiden name of Chloe Woodward's mother: Sarah Clemons.
- Used AncestryDNA ThruLines® to find DNA matches who descend from Chloe Woodward's mother Sarah Clemons line.
- Verified each ThruLines® hypothesis by documenting generational links for each match's path back to a Clemons ancestor living in Charlton, Worcester County, Massachusetts, where Joshua Woodward and Sarah Clemons also lived.
- Confirmed that the amount of shared DNA fits within the parameters set forth by the Shared cM Project for each relationship, then confirmed that the matches all belong to the same genetic network.
- Noted that the final connection to hypothesized common ancestors Philip Clemons and Elizabeth Pudney could not be made.
- Determined that although that final link could not be made, a group of Clemons individuals of the same generation living in the same town in Massachusetts could all be siblings. Suggested that future research could provide the needed generational linkage.
- Concluded that the documentary evidence and genetic connections back to the Woodward and Clemons lines strongly suggest that Daniel Arnold was the son of Amasa Arnold and Chloe Woodward.

BACKGROUND INFORMATION

Daniel Arnold married Lydia Willey sometime prior to 1827, when their first son, Titus, was born.¹ Titus was the namesake of Lydia's father, Titus Willey.² Lydia probably lived in Exeter, Otsego County, New York, with her father when the 1820 census was taken.³ Fourteen-year-old Daniel also probably lived with his father in 1820, perhaps in Exeter. Only one Arnold family was enumerated in Exeter in 1820—the head of household was Amasa Arnold.⁴

Evidence confirms the possibility that Amasa Arnold could be Daniel's father. Daniel Arnold's age and gender align with Amasa Arnold's household members as enumerated in 1820. The proximity of this Arnold family to Lydia Willey's family provides evidence for a possible relationship. Furthermore, Daniel and Lydia named their second son Amasa, perhaps after Daniel's father.⁵

Daniel Arnold's 1806 birthplace aligns with an earlier residence of an Amasa Arnold. New York State censuses taken in 1855,⁶ 1865,⁷ and 1875⁸ all provide Daniel's place of birth: Saratoga County, New York. Amasa Arnold was living in Greenfield, Saratoga County, New York in 1800, just six years prior to Daniel's birth.⁹ No other Amasa Arnold was enumerated in 1800.¹⁰

¹ "Family Group Record," Daniel Arnold and Lydia Willey family and children, 20 Jul 2007, "Great Amount of Information on Daniel Arnold," PDF document in the files of Amos 4, p. 10-11.

² Henry Willey, *Isaac Willey of New London, Conn., and His Descendants* (New Bedford, Massachusetts: Henry Willey, 1888), 21-22; image copy, *Google Books* (<https://www.google.com/books> : accessed 19 November 2020).

³ 1820 U.S. census, Otsego County, New York, population schedule, Exeter, p. 170, line 5, Titus Willey; image, *FamilySearch* (<https://www.familysearch.org/ark:/61903/3:1:33S7-9YYK-RDB> : accessed 19 Nov 2020); citing National Archives publication M33, roll 74.

⁴ 1820 U.S. census, Otsego County, New York, population schedule, Exeter, p. 167, line 42, Amasa Arnold; image, *Ancestry* (https://www.ancestry.com/imageviewer/collections/7734/images/4433301_00178 : accessed 19 Nov 2020); citing National Archives publication M33, roll 74.

⁵ For Daniels children's names, see Jefferson County, New York, Wills 20:229-232, Daniel Arnold, 24 June 1881; image, *FamilySearch* (<https://www.familysearch.org/ark:/61903/3:1:33SQ-GY CJ-KVP> : accessed 19 Nov 2020).

⁶ 1855 New York state census, Jefferson County, population schedule, Hounsfield, E.D. 1, p. 3, dwelling 27, family 28, Daniel Arnold household; image, *FamilySearch* (<https://www.familysearch.org/ark:/61903/1:1:K6Q1-CR2> : accessed 9 Nov 2020).

⁷ 1865 New York state census, Jefferson County, Henderson, p. 35, dwelling 251, family 266, Daniel Arnold household; image, *FamilySearch* (<https://www.familysearch.org/ark:/61903/3:1:9392-9FSG-F3> : accessed 10 Nov 2020).

⁸ 1875 New York state census, Jefferson County, Henderson, p. 2, dwelling 18, family 19, Daniel Arnold household; image, *FamilySearch* (<https://www.familysearch.org/ark:/61903/3:1:33S7-95MB-9FS1> : accessed 10 Nov 2020).

⁹ 1800 U.S. census, Saratoga County, New York, Greenfield, p. 1134, line 9, Amasa Arnold; image, *Ancestry* (https://www.ancestry.com/imageviewer/collections/7590/images/4440844_00109 : accessed 19 Nov 2020); citing National Archives publication M32, roll 27.

¹⁰ "1800 United States Federal Census," search results for Amasa Arnold, *Ancestry* (<https://www.ancestry.com/search/collections/7590/> : accessed 21 Nov 2020).

No probate record for Amasa Arnold that might name his children has been discovered.¹¹ Another probable son, Amos, was enumerated just a few households before Amasa in Exeter, Otsego County, in 1830.¹² Amos did not appear to have children. His wife Emily J. Arnold presented a petition to the court naming all known heirs-at-law.¹³ Emily stated she did not know all the names of her deceased husband's heirs, except:

- [...?...] Arnold
- Charles Arnold
- Clara Mason
- Elizabeth Adams
- Other persons unknown

These persons were likely Amos Arnold's siblings. Further study of documents for the named individuals revealed their ages and birthplaces.¹⁴ Each of them fits within Amasa Arnold's households from 1800-1830.¹⁵ A death record for Clara Mason named Amos Arnold and Chloe Woodward as her parents.¹⁶ Amos Arnold, who died in 1865, was not old enough to be Clara's father.¹⁷ The Amos named on Clara's death record could be Amasa Arnold. Daniel Arnold could have been the first heir listed on Emily J. Arnold's probate petition, or one of the unknown persons mentioned by Emily. Amasa Arnold and Chloe Woodward could be Daniel Arnold's parents.

Autosomal DNA evidence provides additional corroboration for this hypothesis. *Ancestry* DNA matches for test taker Amos 3 were discovered to have descended from Clarissa

¹¹ Nicole Dyer, "Who Were the Parents of Daniel Arnold?" p. 24; report to Amos 4, Tucson Arizona, 24 November 2020; digital copy held by Alice Childs, Highland, Utah.

¹² 1830 U.S. census, Otsego County, New York, population schedule, Exeter, p. 28, line 26, Amos Arnold; image, *Ancestry* (https://www.ancestry.com/imageviewer/collections/8058/images/4410714_00055 : accessed 19 Nov 2020); citing National Archives publication M19, roll 102.

¹³ Cayuga County, New York, Wills Q:189-191, Amos Arnold, 1866; image, *FamilySearch* (<https://www.familysearch.org/ark:/61903/3:1:33S7-9YC6-LS3> : accessed 21 Nov 2020).

¹⁴ Nicole Dyer, "Who Were the Parents of Daniel Arnold?" p. 25-36; report to Amos 4, Tucson Arizona, 24 November 2020; digital copy held by Alice Childs, Highland, Utah.

¹⁵ Alice Childs, AG, "Who Was the Father of Daniel Arnold," p. 3-6; report to Amos 4, Tucson, Arizona, 30 July 2021; digital copy held by Childs, Highland, UT.

¹⁶ "Michigan, U.S., Death Records, 1867-1952," Clara Mason, 18 October 1885; image, *Ancestry* (https://www.ancestry.com/imageviewer/collections/60872/images/44471_355338-00636 : accessed 22 Nov 2020); citing Michigan Dept. of Health, Division for Vital Records and Health Statistics, Lansing, Michigan.

¹⁷ Nicole Dyer, "Who Were the Parents of Daniel Arnold?" p. 30-31; report to Amos 4, Tucson Arizona, 24 November 2020; digital copy held by Alice Childs, Highland, Utah.

[Clara] Mason and Charles Arnold.¹⁸ Their shared DNA fits within the parameters set forth by the Shared cM Project, meaning that the DNA matches' hypothesized relationships through common ancestors Amasa Arnold and Chloe Woodward are possible.¹⁹

With Amasa Arnold as a strong paternal candidate for Daniel Arnold, the next steps in the research process focused on identifying and eliminating other candidates. Because Daniel Arnold was born in Saratoga County in 1806, the heads of households in Saratoga County in 1800 and 1810 were examined. Several men were identified and all but two were able to be eliminated using a variety of records. Amasa Arnold of Greenfield and Anthony Arnold of Milton remained.²⁰

Without documentation to eliminate either Amasa or Anthony Arnold as paternal candidates, DNA evidence could again be useful. The name of Anthony's wife was not discovered, but Amasa Arnold's wife has been identified as Chloe Woodward. Finding DNA matches who descend from the Woodward line would provide good evidence to further link Amasa Arnold and Chloe Woodward as parents to Daniel Arnold. This task was the focus of this research session.

*A note about names: Variations in surname spellings occurred across records and within DNA matches' trees. When discussing a report or a DNA match's tree, spellings have been retained as they occurred in the source. Otherwise, spellings have been standardized: Arnold, Woodward, and Clemons.

FINDINGS AND ANALYSIS

DNA Coverage

The concept of DNA coverage is important for persons wishing to use Autosomal DNA to identify unknown ancestors. A child inherits fifty percent of his mother's DNA and fifty percent of his father's DNA. Grandchildren inherit an average of twenty-five percent of each of their grandparents' DNA. The amount of an ancestor's DNA inherited by a descendant grows

¹⁸ Nicole Dyer, "Who Were the Parents of Daniel Arnold?" p. 29-33; report to Amos 4, Tucson Arizona, 24 November 2020; digital copy held by Alice Childs, Highland, Utah.

¹⁹ Blaine Bettinger and Johnny Perl, "The Shared cM Project 3.0 tool v4," *DNA Painter* (<https://dnainter.com/tools/sharedcmv4> : accessed 21 June 2020).

²⁰ Alice Childs, AG, "Who Was the Father of Daniel Arnold," p. 15-22; report to Amos 4, Tucson, Arizona, 30 July 2021; digital copy held by Childs, Highland, UT.

incrementally smaller with every passing generation. Additionally, due to a process called recombination, different parts of an ancestor’s DNA are passed to each of their descendants, so not all descendants will share DNA from a common ancestor, starting at the third cousin level.²¹ To attain maximum coverage of an unknown ancestor’s genome and have the greatest chance of identifying that ancestor, it is important to use DNA from as many unique descendants of a research subject as possible.

At the start of this research session, Amos 4 and Amos 3 were the only test takers whose DNA was available for analysis. DNA matches who had been identified as descendants of Amos George Arnold were asked to share their DNA. Four DNA matches responded, resulting in calculated DNA coverage of 63.86% of Amos George Arnold’s genome.²² Each of these matches share DNA with one another. They are all part of the same genetic network, which provides genetic evidence that they all share common ancestor Amos George Arnold. Additional matches have been contacted but have not yet responded.

Table 1. DNA Test Takers and Their Relationship to Amos George Arnold

DNA Test Taker	Match ID (Figure 1 below)	Descent from Amos George Arnold
[Private]	Amos 4	Keith James Arnold > Elbert Arnold > Amos George Arnold
[Private]	Amos 3	Elbert Arnold > Amos George Arnold
[Private]	Amos 5	Terrell Lorin Arnold > Elbert Arnold > Amos George Arnold
[Private]	Amos 6	Terrell Lorin Arnold > Elbert Arnold > Amos George Arnold
[Private]	Amos 1	Henry Arnold > Amos George Arnold
[Private]	Amos 2	Ruth Estella Fransen > Edith Arnold > Amos George Arnold

"DNA Matches for Amos 3," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 10 June 2022); shared match lists for Amos 4 (sharing 1869 cM DNA with Amos 3), Amos 5 (sharing 1831 cM DNA with Amos 3), Amos 6 (sharing 1758 cM DNA with Amos 3), Amos 1 (sharing 762 cM DNA with Amos 3), and Amos 2 (sharing 349 cM DNA with Amos 3).

Because each of these test takers descends from only one child of Daniel Arnold and Lydia Willey, coverage of the genome for that generation is only 31.93%. A web page created by

²¹ "Cousin Statistics," *International Society of Genetic Genealogy Wiki* (https://isogg.org/wiki/Cousin_statistics : accessed 13 June 2022).

²² Nicole Dyer, "Who Were the Parents of Daniel Arnold?" section 2, "Current Coverage," web page, *FamilyLocket* (<https://familylocket.com/parents-of-daniel-arnold/> : accessed 10 June 2022).

Nicole Dyer at *FamilyLocket* calls for descendants of other children of Daniel Arnold and Lydia Willey who are willing to share their DNA results or take a DNA test to maximize coverage for that generation.²³ For this session, DNA analysis was limited to the six test takers whose DNA results have already been shared for the purposes of this project.

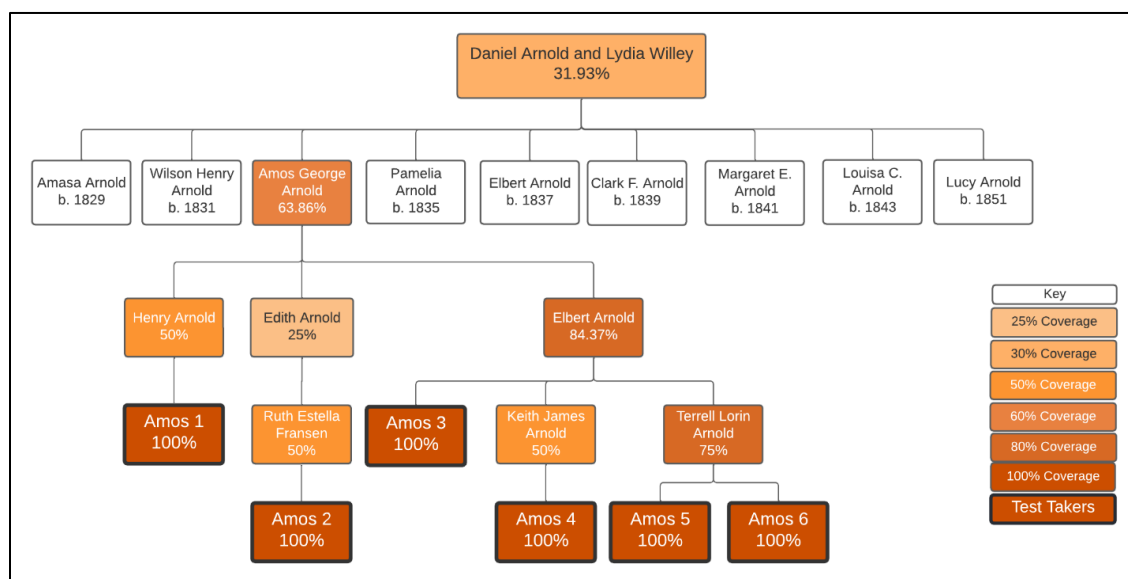


Figure 1. Current Autosomal DNA Coverage for Daniel Arnold

Confirming Probability of Genetic Relationships to Amasa Arnold and Chloe Woodward

During the November 2020 research session, possible siblings of Daniel Arnold were identified.²⁴ DNA matches for Amos 3 who descend from two of these siblings, Charles and Clarissa Arnold, were discovered. The validity of these matches as evidence for a genetic connection to a group of siblings would be enhanced if the additional test takers also shared the appropriate amounts of DNA with these DNA matches.

All three descendants shared DNA with at least three of the test takers in the genetic network analyzed during this research session (Figure 2 below). The amounts of DNA shared between the test takers and the descendants of Charles Arnold and Clarissa Arnold fits within the parameters set forth by the Shared cM Project.²⁵ Additionally, the amounts of shared DNA

²³ Nicole Dyer, "Who Were the Parents of Daniel Arnold?" web page, *FamilyLocket* (<https://familyloket.com/parents-of-daniel-arnold/>; accessed 10 June 2022).

²⁴ Nicole Dyer, "Who Were the Parents of Daniel Arnold?" report to Amos 4, Tucson Arizona, 24 November 2020; digital copy held by Alice Childs, Highland, Utah.

²⁵ Blaine Bettinger and Johnny Perl, "The Shared cM Project 3.0 tool v4," *DNA Painter* (<https://dnainter.com/tools/sharedcmv4>; accessed 10 June 2022).

for each relationship fall in the top three bins when viewing a histogram that illustrates submissions for that relationship (Figure 3 below). The hypothesized relationships between the test takers and the descendants of Charles and Clarissa Arnold are statistically very possible.

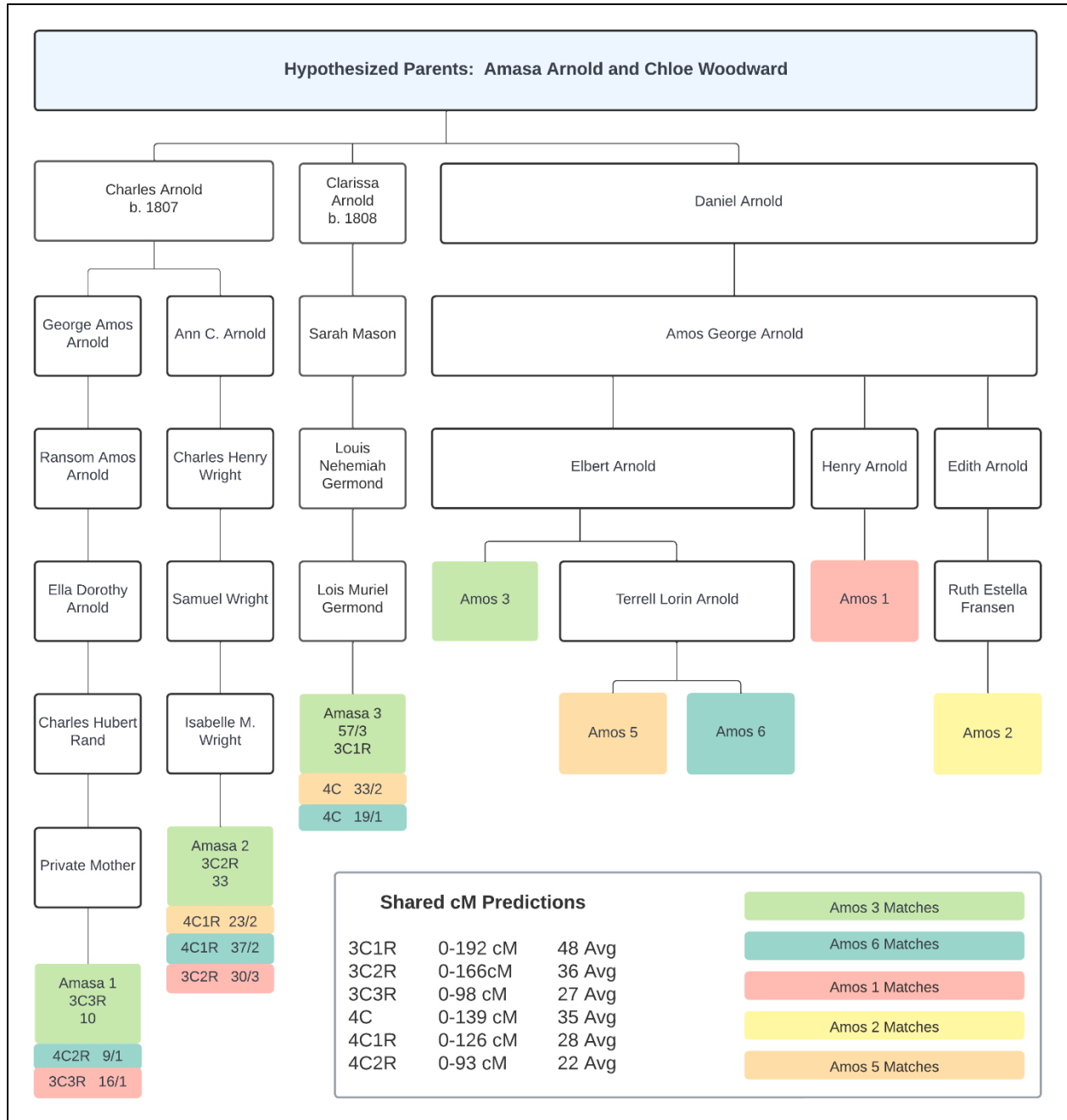


Figure 2. Shared DNA Between Arnold DNA Matches and Descendants of Amos George Arnold

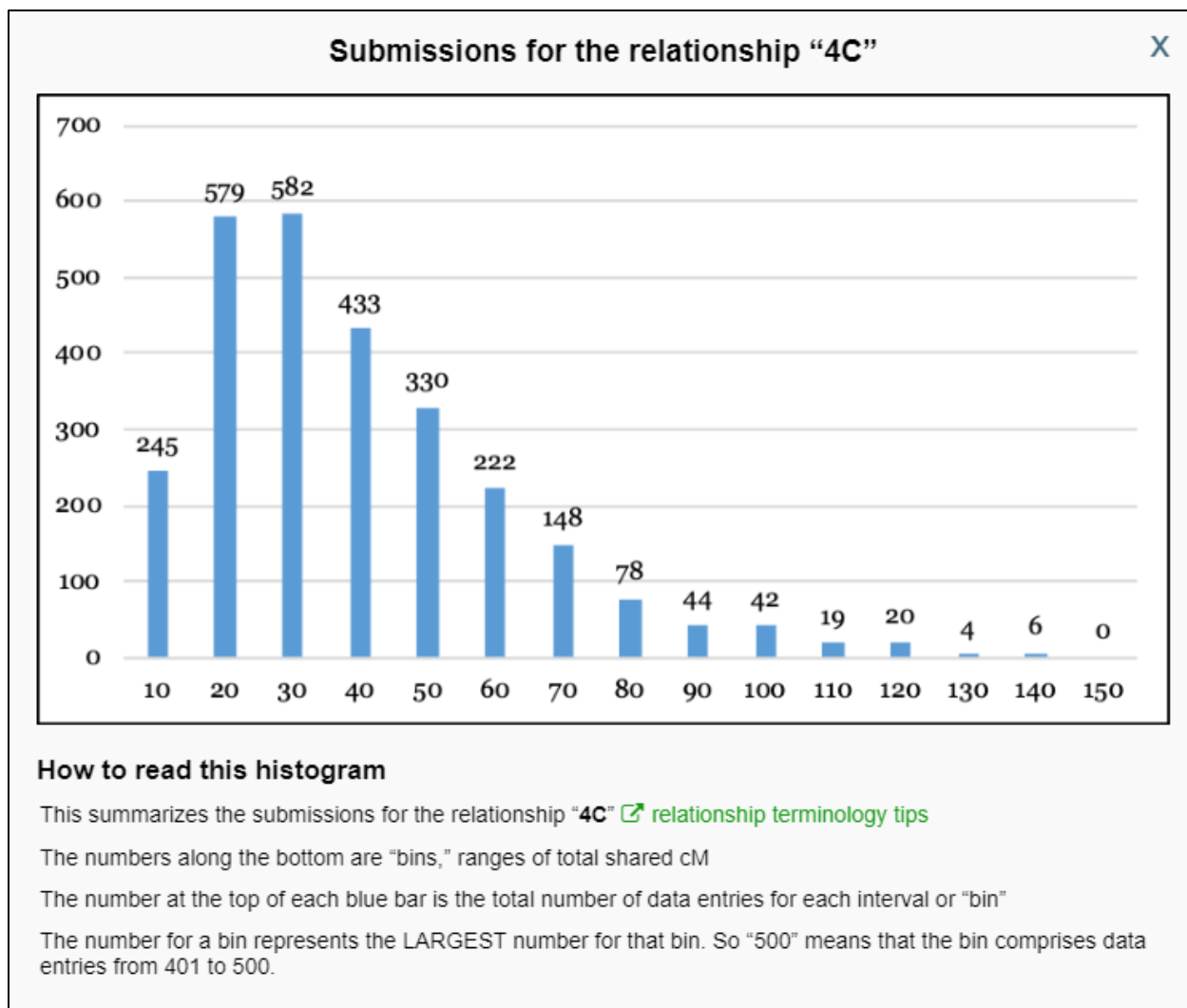


Figure 3. Sample Histogram, Submissions for the Relationship "4C"

Using AncestryDNA ThruLines® to Find DNA Matches Who Descend from the Woodward Line

Clarissa Mason's parents were Amos [Amasa] Arnold and Chloe Woodward.²⁶ Finding DNA matches in the Arnold genetic network who descend from Chloe Woodward's parents and grandparents would add further evidence that Daniel was their son. The Woodward family originated in Massachusetts. Amasa Arnold and Chloe Woodward were married in Charlton,

²⁶ "Michigan, U.S., Death Records, 1867-1952," Clara Mason, 18 October 1885; image, *Ancestry* (https://www.ancestry.com/imageviewer/collections/60872/images/44471_355338-00636 : accessed 22 Nov 2020); citing Michigan Dept. of Health, Division for Vital Records and Health Statistics, Lansing, Michigan.

Worcester County, Massachusetts in 1793.²⁷ Chloe was born in Spencer, Worcester County to Joshua and Sarah Woodward on 11 August 1772.²⁸ Joshua Woodward was the son of Benjamin Woodward.²⁹

AncestryDNA ThruLines® helps test takers see how they might be related to their DNA matches. The tool uses information from the test taker's tree linked to their DNA test to find people who appear in both the test taker's tree and in DNA matches' trees.³⁰ Because ThruLines® are based on family trees entered by users, the suggested common ancestors are only as accurate as the information in the family trees. ThruLines® are a great starting point to gain clues, but additional work must be done to document generational linkage in each tree.

ThruLines® from each of the five test takers for this project to Joshua Woodward and his father Benjamin Woodward revealed eight DNA matches who descend from the Woodward line.³¹ A complete diagram of these ThruLines® has been included with the documents that accompany this report.³² To test whether these ThruLines® were valid, the following steps were taken.

²⁷ "Massachusetts, U.S., Town and Vital Records, 1620-1988," database with images, *Ancestry* (<https://www.ancestry.com/discoveryui-content/view/15318377:2495> : accessed 14 April 2022) > Charlton > Births, Marriages, and Death > image 83 of 1179; p. 142, entry 6, marriage, Ammasa Arnol - Chloe Woodard, 11 June 1793; Charlton Town Clerk's Office. **Document 1**

²⁸ "Massachusetts, U.S., Town and Vital Records, 1620-1988," database with images, *Ancestry* (https://www.ancestry.com/imageviewer/collections/2495/images/40143_268090_0003-00082 : accessed 7 April 2022) > Spencer > Births, Marriages, and Death > image 83 of 1063; p. 159, entry 14, birth, Chloe Woodward, 11 August 1772. **Document 2**

²⁹ Probate Office, Worcester County, Massachusetts, Probate Records, Series A, Vol 25, p. 310-11, will of Benjamin Woodard, written 25 October 1793, proved 5 November 1793; image, *FamilySearch* (<https://www.familysearch.org/ark:/61903/3:1:3Q9M-C9YB-6K57> : accessed 15 April 2022), FHL DGS #7,704,442, images 487-88 of 616; Worcester County Courthouse, Worcester. **Document 3**

³⁰ "AncestryDNA ThruLines®," article, *Ancestry* (https://support.ancestry.com/s/article/AncestryDNA-ThruLines?language=en_US : accessed 11 June 2022).

³¹ "ThruLines® for Amos 3," *AncestryDNA* (<https://www.ancestry.com/dna> : accessed 7 April 2022), matches through Joshua Woodward (1750-1796) and matches through Benjamin Woodward (1713-1793).

"ThruLines® for Amos 1," *AncestryDNA* (<https://www.ancestry.com/dna> : accessed 11 May 2022), matches through Benjamin Woodward (1713-1793).

"ThruLines® for Amos 5," *AncestryDNA* (<https://www.ancestry.com/dna> : accessed 11 May 2022), matches through Benjamin Woodward (1713-1793).

"ThruLines® for Amos 6," *AncestryDNA* (<https://www.ancestry.com/dna> : accessed 11 May 2022), matches through Benjamin Woodward (1713-1793).

"ThruLines® for Amos 2," *AncestryDNA* (<https://www.ancestry.com/dna> : accessed 11 May 2022), matches through Benjamin Woodward (1713-1793).

³² Alice Childs, AG, "Woodward Descendancy Chart," digital diagram created with *LucidChart* (<https://lucidchart.com>), *Ancestry* DNA matches for Amos 3, Amos 1, Amos 5, Amos 6, and Amos 2, created 15 June 2022, privately held by Childs, Highland, UT. **Document 4**

Verification of DNA Matches' Trees

Documentary evidence was discovered for each generational link from every match back to either Joshua Woodward or his father Benjamin Woodward. Each DNA match was added to the "Arnold Family Tree" on Nicole Dyer's account at *Ancestry*.³³ Documents pertaining to each DNA match have been attached to the correct person in their ancestral line back to Benjamin Woodward.³⁴ The lines of ascent are illustrated in Figures 4-6 and the evidence for each generational connection is summarized below:

*Amos 2's DNA Match Benjamin 1 (6C, sharing 15 cM DNA across 1 segment)*³⁵

- An obituary for Roland H. Perry transcribed at *Find a Grave* names his daughter Benjamin 1.
- Roland H. Perry was enumerated in the household of his father, Earl S. Perry, in Waltham, Middlesex County, Massachusetts, in 1930 and 1940.
- Earl S. Perry was named as a son in his mother Adelaide (Hooker) Perry's obituary.
- Adelaide Hooker was enumerated in the household of her parents Leavins Hooker and Caroline E. Hooker in Sturbridge, Worcester County, Massachusetts, in 1860. Leavins Hooker married Caroline Clemence on 23 February 1825 in Sturbridge.
- Caroline Hooker's parents were named as Aaron and Lucretia Clemence on her death certificate.
- Massachusetts Town and Vital Records show that Aaron Clemons was born to Jonathan and Hannah Clemons on 10 March 1776 in Charlton, Worcester County, Massachusetts.
- Hannah Clemons was named in her father Benjamin Woodward's 1793 will. Benjamin was a resident of Spencer, Worcester County, Massachusetts when he died.

³³ Nicole Dyer and Alice Childs, AG, "Arnold Family Tree," public member tree, *Ancestry* (<https://www.ancestry.com/family-tree/tree/172196512/family> : accessed 11 June 2022).

³⁴ Nicole Dyer and Alice Childs, AG, "Arnold Family Tree," public member tree, *Ancestry* (<https://www.ancestry.com/family-tree/tree/172196512/family> : accessed 11 June 2022). Perform a Tree Search for each match to find their line of ascent and corresponding documents.

³⁵ "DNA Matches for Amos 2," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 13 June 2022), Benjamin 1 sharing 15 cM DNA across 1 segment with Amos 2.

Nicole Dyer and Alice Childs, AG, "Arnold Family Tree," profile for Benjamin 1 (Living), public member tree, *Ancestry* (<https://www.ancestry.com/family-tree/tree/172196512/family?cfpid=202373515920> : accessed 13 June 2022).

*Amos 2's DNA Match Benjamin 2 (6C, sharing 22 cM DNA across 1 segment)*³⁶

- Benjamin 2 was enumerated in the household of her parents, Norman and Helen Ward in Cumberland, Allegany County, Maryland, in 1950.
- A Social Security Claim for Norman Witter Ward, who died in North Brookfield, Massachusetts, named his parents, Allen B. Ward and Pearl Witter.
- Pearl J. Witter was enumerated in the household of her parents Wilber and Phala Witter in North Brookfield, Worcester County, Massachusetts, in 1900. Pearl Witter Ward's death certificate provide a maiden name for Phala: Phalla Kingbury Hooker.
- A Sturbridge, Massachusetts, birth record for Phalla Hooker names her parents, Leavens and Caroline Hooker. Leavins Hooker married Caroline Clemence on 23 February 1825 in Sturbridge.
- Caroline Hooker's parents were named as Aaron and Lucretia Clemence on her death certificate.
- Massachusetts Town and Vital Records show that Aaron Clemons was born to Jonathan and Hannah Clemons on 10 March 1776 in Charlton, Worcester County, Massachusetts.
- Hannah Clemons was named in her father Benjamin Woodward's 1793 will. Benjamin was a resident of Spencer, Worcester County, Massachusetts when he died.

³⁶ DNA Matches for Amos 2," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 13 June 2022), Benjamin 2, sharing 11 cM DNA across 1 segment with Amos 2.

Nicole Dyer and Alice Childs, AG, "Arnold Family Tree," profile for Louise A. Ward [Benjamin 2] (Living), public member tree, *Ancestry* (<https://www.ancestry.com/family-tree/tree/172196512/family?cfpid=202373516682> : accessed 13 June 2022).

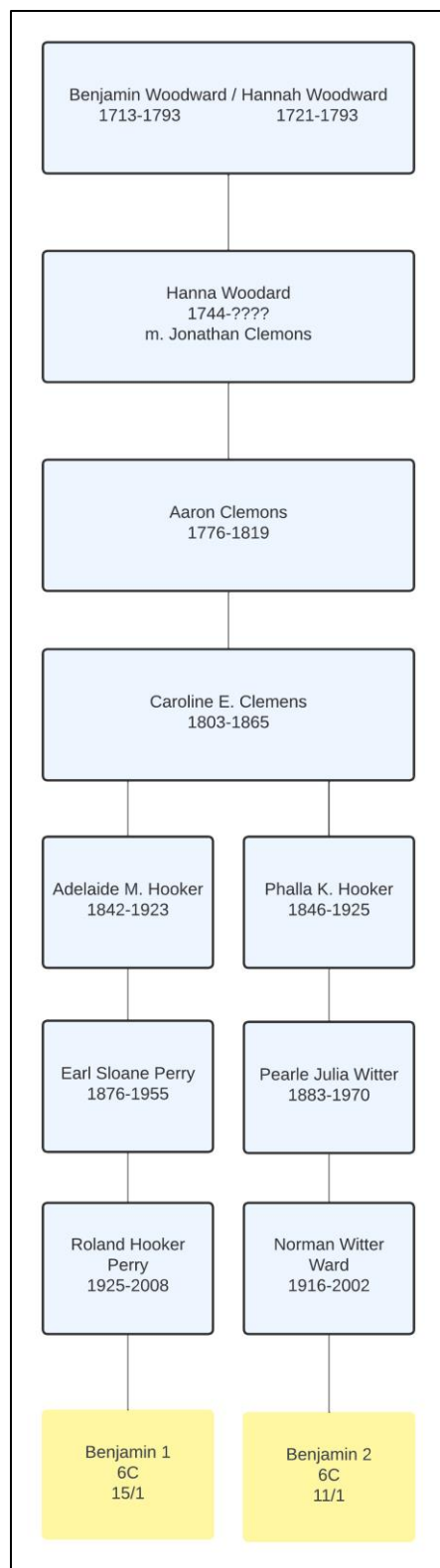


Figure 4. DNA Matches Benjamin 1 and Benjamin 2

*Amos 1's DNA Match Joshua 1 (4C1R, sharing 13 cM DNA across 1 segment)*³⁷

- Joshua 1 was enumerated in the household of his parents Richard and Gladys Savage in South Deerfield, Franklin County, Massachusetts, in 1950.
- A 1939 marriage record for Richard Le Roy Savage and Gladys Helen Calkins names Gladys's parents, Edward Alston Calkins and Gertrude Helen Calkins.
- Edward A. Calkins was enumerated in the household of his parents, John A. and Lucy S. Calkins, in Wilbraham, Hampden County, Massachusetts, in 1900.
- Lucy S. Woodard married John A. Calkins on 29 June 1882 in Brimfield, Massachusetts. Her parents were named on the marriage record: Austin and Sophronia Woodard.
- A death record for Austin Woodard of Brimfield, Massachusetts, states that Austin was born to Wright Woodard and Clarina Harwood Woodward in Charlton, Massachusetts.
- A birth record for Wright Woodard of Charlton, Massachusetts, names his parents Joshua and Sarah Woodard.
- Joshua Woodward was named in his father Benjamin Woodward's 1793 will.

*Amos 1's DNA Match Joshua 2 (4C3R, sharing 17 cM DNA across 2 segments)*³⁸

- Joshua 2's presumed mother was named in the 2006 obituary of her mother, Marion J. Calkins.
- Marion's obituary names her parents, Howard F. Calkins and Jane T. Calkins.
- Howard F. Calkins was enumerated in the household of his parents, John A. and Lucy S. Calkins, in Wilbraham, Hampden, Massachusetts, in 1900.
- Lucy S. Woodard married John A. Calkins on 29 June 1882 in Brimfield, Massachusetts. Her parents were named on the marriage record: Austin and Sophronia Woodard.

³⁷ "DNA Matches for Amos 1," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 13 June 2022), Joshua 1 sharing 13 cM DNA across 1 segment with Amos 1.

Nicole Dyer and Alice Childs, AG, "Arnold Family Tree," profile for Joshua 1 (Living), public member tree, *Ancestry* (<https://www.ancestry.com/family-tree/tree/172196512/family?cfpid=202372600424> : accessed 13 June 2022).

³⁸ "DNA Matches for Amos 1," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 13 June 2022), Joshua 2 sharing 17 cM DNA across 2 segments with Amos 1.

Nicole Dyer and Alice Childs, AG, "Arnold Family Tree," profile for Joshua 2 (Living), public member tree, *Ancestry* (<https://www.ancestry.com/family-tree/tree/172196512/family?cfpid=202372607719> : accessed 13 June 2022).

- A death record for Austin Woodard of Brimfield, Massachusetts, states that Austin was born to Wright Woodard and Clarina Harwood Woodward in Charlton, Massachusetts.
- A birth record for Wright Woodard of Charlton, Massachusetts, names his parents Joshua and Sarah Woodard.
- Joshua Woodward was named in his father Benjamin Woodward's 1793 will.

Amos 6's DNA Match Joshua 3 (5C, sharing 15 cM DNA across 1 segment)³⁹

- An obituary transcription on John Howard Calkins' *Find a Grave* memorial names his son, Joshua 3.
- John H. Calkins was enumerated the household of his parents, Howard F. Calkins and Jane T. Calkins, in Wilbraham, Hampden, Massachusetts, in 1930. Also present in the household was Howard's mother, Lucy S. Calkins.
- Howard F. Calkins was enumerated in the household of his parents, John A. Calkins and Lucy S. Calkins, in Wilbraham, Hampden, Massachusetts, in 1900.
- Lucy S. Woodard married John A. Calkins on 29 June 1882 in Brimfield, Massachusetts. Her parents were named on the marriage record: Austin and Sophronia Woodard.
- A death record for Austin Woodard of Brimfield, Massachusetts, states that Austin was born to Wright Woodard and Clarina Harwood Woodward in Charlton, Massachusetts.
- A birth record for Wright Woodard of Charlton, Massachusetts, names his parents Joshua and Sarah Woodard.
- Joshua Woodward was named in his father Benjamin Woodward's 1793 will.

³⁹ "DNA Matches for Amos 6," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 13 June 2022), Joshua 3, sharing 15 cM DNA across 1 segment with Amos 1.

Nicole Dyer and Alice Childs, AG, "Arnold Family Tree," profile for Joshua 3 (Living), public member tree, *Ancestry* (<https://www.ancestry.com/family-tree/tree/172196512/family?cfpid=202372608108> : accessed 13 June 2022).

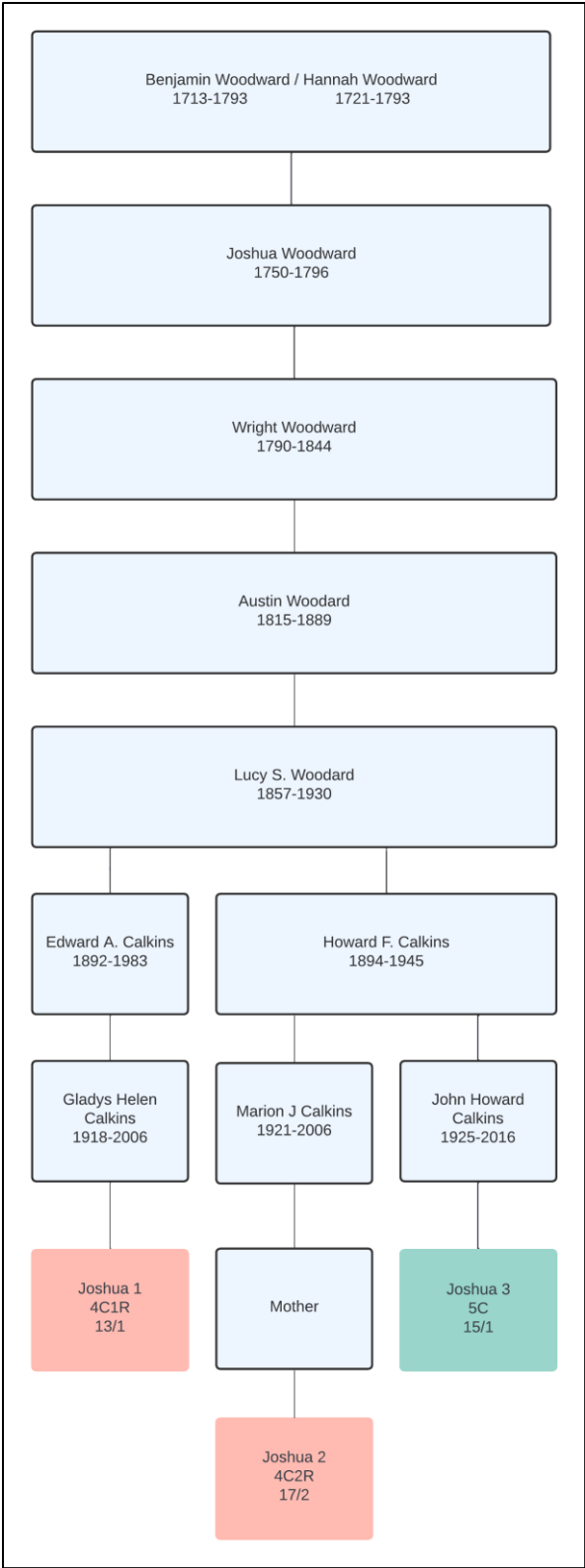


Figure 5. DNA Matches Joshua 1, Joshua 2, and Joshua 3

*Amos 3's DNA Match Joshua 4 (4C2R, sharing 9 cM DNA across 1 segment)*⁴⁰

- *Note:* Joshua 4 also matches test taker Amos 5 (5C1R, sharing 11 cM DNA across 1 segment).⁴¹
- A *Spokeo* profile for Joshua 4 shows a connection with a probable mother. The mother's maiden name was discovered in a 1968 marriage record.
- In 1950, the three-year-old mother of Joshua 4 was enumerated in the household of her grandfather, Lewis P. Damon, in Fall River, Bristol County, Massachusetts. Also present in the household were her presumed parents, Edward and Florence Wilson. Florence was listed as a daughter to the head of household, Lewis P. Damon.
- A Social Security Claim for Florence Woodard Wilson named Lewis P. Damon and Florence S. Haley as her parents. Lewis's obituary also named his daughter Florence.
- A Social Security Claim for Lewis Porter Damon named Henry D. Damon and Florence Woodard as his parents.
- A marriage record for Henry D. Danson [Damon] and Florence E. Woodard named Florence's parents, Addison and Mary J. Woodard.
- A death record for Addison Woodard states that he was born in 1809 in Charlton, Massachusetts, to Walter Woodard and Nancy McKinstry.
- A death record for Walter Woodard states the names of his parents: Joshua Woodard and Sarah Woodard.
- Joshua Woodward was named in his father Benjamin Woodward's 1793 will.

⁴⁰ "DNA Matches for Amos 3," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 13 June 2022), Joshua 4, sharing 9 cM DNA across 1 segment with Amos 3.

Nicole Dyer and Alice Childs, AG, "Arnold Family Tree," profile for Joshua 4 (Living), public member tree, *Ancestry* (<https://www.ancestry.com/family-tree/tree/172106512/family?cfpid=202373503129> : accessed 13 June 2022).

⁴¹ "DNA Matches for Amos 5," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 13 June 2022), Joshua 4, sharing 11 cM DNA across 1 segment with Amos 5.

Amos 3's DNA Matches Benjamin 4 (5C2R, sharing 15 cM DNA across 1 segment)⁴² and Benjamin 3 (5C1R, sharing 17 cM DNA across 1 segment)⁴³

- *Note:* Benjamin 4 is also a match to Amos 6 and Amos 1.⁴⁴
- DNA match Benjamin 4 is probably grandchild of Robert Dean Hinds. The children of Robert Dean Hinds were named in his obituary. Benjamin 4 is probably the child of one of these children. A message has been sent to Benjamin 4 via *Ancestry's* messaging system seeking clarification of this relationship. Benjamin 4 manages the DNA kit for another match, Benjamin 3. Benjamin 3 is probably Robert Dean Hinds' daughter who was mentioned in his obituary.
- Robert Dean Hinds' birth certificate states he was born 20 January 1924 to Chas W. Hinds and Eva Fletcher.
- A social security application for Eva Emiley Hinds names her parents Arillius H. Fletcher and Jane F. Whipple. Eva Fletcher was enumerated in the household of her parents Aurelius and Jane Fletcher in Pesotum, Champaign, Illinois, in 1900.
- A 1918 death record for Aurelins H. Fletcher names his father Joseph Fletcher.
- Joseph A. Fletcher was named in the 1823 will of his mother, Anna Fletcher, of Petersborough, Hillsborough County, New Hampshire. A marriage record provides Anna's maiden name of Morgan.
- Anna Morgan was born 17 September 1763 in Spencer, Worcester County, Massachusetts. Her birth records names her parents, Robert and Mary Morgan.
- A marriage record provides Mary Morgan's maiden name: Woodward.
- Benjamin Woodward's 1793 will names his daughter, Mary Morgan.

⁴² "DNA Matches for Amos 3," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 13 June 2022), Benjamin 4, sharing 15 cM DNA across 1 segment with Amos 3.

Nicole Dyer and Alice Childs, AG, "Arnold Family Tree," profile for abramparish (Living), public member tree, *Ancestry* (<https://www.ancestry.com/family-tree/tree/172196512/family?cfpid=202373527701> : accessed 13 June 2022).

⁴³ "DNA Matches for Amos 3," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 13 June 2022), Benjamin 3, sharing 17 cM DNA across 1 segment with Amos 3.

Nicole Dyer and Alice Childs, AG, "Arnold Family Tree," profile for Benjamin 3 (Living), public member tree, *Ancestry* (<https://www.ancestry.com/family-tree/tree/172196512/family?cfpid=202373527735> : accessed 13 June 2022).

⁴⁴ "DNA Matches for Amos 6," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 13 June 2022), Benjamin 4, sharing 10 cM DNA across 1 segment with Amos 6.

"DNA Matches for Amos 1," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 13 June 2022), Benjamin 4, sharing 14 cM DNA across 1 segment with Amos 3.

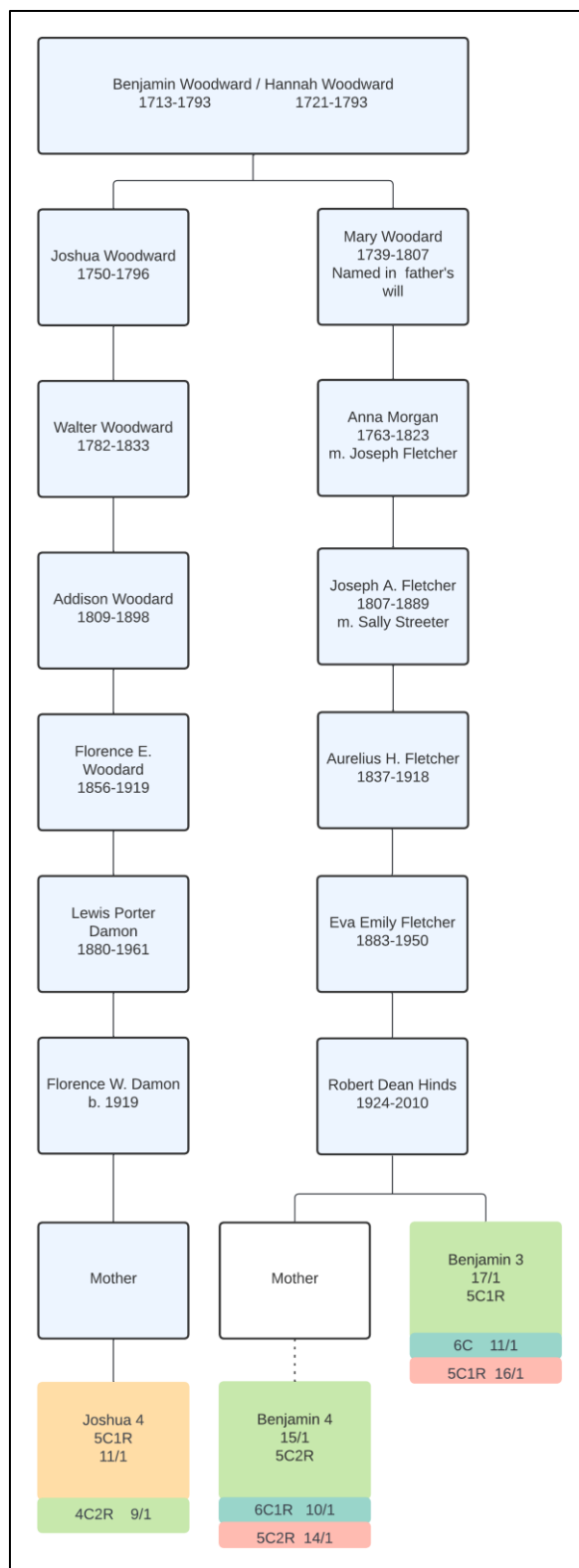


Figure 6. DNA Matches Joshua 4, Benjamin 4, and Benjamin 3

Analysis of Shared DNA for Each Relationship

The next step in the analysis of matches who descend from the Woodward line was to test each relationship and determine whether hypothesized relationships to each test taker fit within the parameters set forth by the Shared cM Project.⁴⁵ Relationships between the DNA matches and the test takers are depicted in the “Woodward Descendancy Chart” that accompanies this report.⁴⁶

Table 2 below illustrates each relationship, the range of shared DNA for that relationship, and the average amount of DNA for that relationship. The last column notes whether each relationship falls within the bell curve on the relationship histogram, or whether it is an outlier. All but one relationship fell within the bin at the top of the histogram, and that one was still on the bell curve. Each relationship is statistically probable.

Table 2. Probabilities for Hypothesized Relationships of Woodward DNA Matches

DNA Match	Test Taker	Relationship/cM	Range	Average	Histogram
Benjamin 1 ^a	Amos 2	6C/15 cM	0-71 cM	18 cM	Top of Bell Curve
Benjamin 2 ^b	Amos 2	6C/11 cM	0-71 cM	18 cM	Top of Bell Curve
Joshua 1 ^c	Amos 1	4C1R/13 cM	0-126	28 cM	Top of Bell Curve
Joshua 2 ^d	Amos 1	4C2R/17 cM	0-93 cM	22 cM	Top of Bell Curve
Joshua 3 ^e	Amos 6	5C/15 cM	0-117 cM	25 cM	Top of Bell Curve
Joshua 4 ^f	Amos 3	4C2R/9 cM	0-93 cM	22 cM	Middle of Bell Curve
Joshua 4 ^g	Amos 5	5C1R/11 cM	0-80 cM	21 cM	Top of Bell Curve
Benjamin 4 ^h	Amos 3	5C2R/15 cM	0-65 cM	18 cM	Top of Bell Curve
Benjamin 4 ⁱ	Amos 1	5C2R/14 cM	0-65 cM	18 cM	Top of Bell Curve
Benjamin 4 ^j	Amos 6	6C1R/10 cM	0-56 cM	15 cM	Top of Bell Curve
khinds183 ^k	Amos 3	5C1R/17 cM	0-80 cM	21 cM	Top of Bell Curve

⁴⁵ Blaine Bettinger and Johnny Perl, "The Shared cM Project 3.0 tool v4 Beta," *DNA Painter* (<https://dnapainter.com/tools/sharedcmv4> : accessed 16 June 2022).

⁴⁶ Alice Childs, AG, "Woodward Descendant Chart," digital diagram created with *Lucidchart* (<https://lucidchart.com>), DNA matches from *AncestryDNA* for Amos 3, Amos 1, Amos 5, Amos 6, and Amos 2, generated 15 June 2022; privately held by Childs, Highland, Utah. **Document 4**

Benjamin 3 ^l	Amos 1	5C1R/16 cM	0-80 cM	21 cM	Top of Bell Curve
Benjamin 3 ^m	Amos 6	6C/11 cM	0-71 cM	18 cM	Top of Bell Curve

For Statistical probabilities for each relationship, see Blaine Bettinger and Johnny Perl, "The Shared cM Project 3.0 tool v4 Beta," *DNA Painter* (<https://dnapainter.com/tools/sharedcmv4> : accessed 16 June 2022).

- a. "DNA Matches for Amos 2," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 15 June 2022), Benjamin 1, hypothesized 6C relationship, sharing 15 cM DNA across 1 segment with Amos 2.
- b. "DNA Matches for Amos 2," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 15 June 2022), Benjamin 2, hypothesized 6C relationship, sharing 11 cM DNA across 1 segment with Amos 2.
- c. "DNA Matches for Amos 1," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 15 June 2022), Joshua 1, hypothesized 4C1R relationship, sharing 13 cM DNA across 1 segment with Amos 1.
- d. "DNA Matches for Amos 1," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 15 June 2022), Joshua 2, hypothesized 4C2R relationship, sharing 17 cM DNA across 2 segments with Amos 1.
- e. "DNA Matches for Amos 6," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 15 June 2022), Joshua 3, hypothesized 5C relationship, sharing 15 cM DNA across 1 segment with Amos 6.
- f. "DNA Matches for Amos 3," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 15 June 2022), Joshua 4, hypothesized 4C2R relationship, sharing 9 cM DNA across 1 segment with Amos 3.
- g. "DNA Matches for Amos 5," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 15 June 2022), Joshua 4, hypothesized 5C1R relationship, sharing 11 cM DNA across 1 segment with Amos 5.
- h. "DNA Matches for Amos 3," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 15 June 2022), Benjamin 4, hypothesized 5C2R relationship, sharing 15 cM DNA across 1 segment with Amos 3.
- i. "DNA Matches for Amos 1," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 15 June 2022), Benjamin 4, hypothesized 5C2R relationship, sharing 14 cM DNA across 1 segment with Amos 1.
- j. "DNA Matches for Amos 6," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 15 June 2022), Benjamin 4, hypothesized 6C1R relationship, sharing 10 cM DNA across 1 segment with Amos 6.
- k. "DNA Matches for Amos 3," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 15 June 2022), Benjamin 3, hypothesized 5C1R relationship, sharing 17 cM DNA across 1 segment with Amos 3.
- l. "DNA Matches for Amos 1," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 15 June 2022), Benjamin 3, hypothesized 5C1R relationship, sharing 16 cM DNA across 1 segment with Amos 1.
- m. "DNA Matches for Amos 6," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 15 June 2022), Benjamin 3, hypothesized 6C relationship, sharing 11 cM DNA across 1 segment with Amos 6.

Do the Woodward DNA Matches Form a Genetic Network?

The final step in analyzing the ThruLines® hypotheses is to ensure that all matches form a genetic network. If the matches share DNA with more than one of the five test takers used for analysis in this study, it can be presumed they are all part of the same genetic network.

DNA matches Joshua 4, Benjamin 4, and Benjamin 3 all match more than one of the test takers in this study on only one segment of DNA. They all appear to be a part of the Arnold/Woodward genetic network.

Amos 2's DNA match Benjamin 2 does not match the other four test takers whose DNA was analyzed for this case. Marion and Benjamin 2 share 11 cm DNA on just one segment. That segment could have been inherited from a common ancestor. Looking at any shared matches between Amos 2 and Benjamin 2 could help determine whether Benjamin 2 is in the Arnold genetic network.

Shared matches for Amos 2 and Benjamin 2 include Arnold/Woodward 1.⁴⁷ Arnold/Woodward 1 also matches each of the test takers in this study. Arnold/Woodward 1 does not have a tree uploaded to *Ancestry*. She has not responded to an inquiry about her descent from an Arnold ancestor sent 11 June 2022.⁴⁸ Her exact descent from the Arnold line is undetermined. However, because she is a shared match with each test taker, they all probably share a common ancestor. Arnold/Woodward 1 is probably in the Arnold/Woodward genetic network with the five test takers. Her match Benjamin 2, who only shares one segment of DNA with Arnold/Woodward 1 and Amos 2, is probably in the same genetic network.

Table 3. Shared DNA Between Test Takers and Arnold/Woodward 1

Test Taker	Shared DNA	Segments	Hypothesized Relationship
Amos 3	270 cM	13 segments	2-3 Cousin
Amos 6	165 cM	13 segments	2-3 Cousin
Amos 5	209 cM	7 segments	2-3 Cousin
Amos 1	432 cM	16 segments	1-2 Cousin
Amos 2	330 cM	15 segments	2-3 cousin

“DNA Matches for Amos 3, Amos 6, Amos 5, Amos 1, and Amos 2,” database reports, *Ancestry* (<https://ancestry.com/dna> : accessed 11 June 2022), Arnold/Woodward 1.

Amos 1’s DNA match Joshua 2 does not match any of the other test takers being analyzed for this project. Amos 1 and Joshua 2 share 17 cM DNA across 2 segments.⁴⁹ Joshua 2 also shares DNA with a closer cousin, Amos 7.⁵⁰ Amos 7 is a descendant of Amos George Arnold, and is test taker Amos 2’s brother:

⁴⁷ “DNA Matches for Amos 2,” database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 11 June 2022), shared match with Benjamin 2, Arnold/Woodward 1, sharing 330 cM DNA across 16 segments with Amos 2.

⁴⁸ Alice Childs for Nicole Dyer, (Ancestry Messaging System) to Arnold/Woodward 1, 11 June 2022, inquiry regarding descent from Arnold Ancestors; privately held by Dyer, *Ancestry* messaging system, private account.

⁴⁹ “DNA Matches for Amos 1,” database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 16 June 2022), shared match with Joshua 2, sharing 17 cM DNA across 2 segments.

⁵⁰ “DNA Matches for Amos 1,” database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 16 June 2022), shared match with Joshua 2, sharing 17 cM DNA across 2 segments; shared match with DF Call52, sharing 367 cM DNA across 21 segments.

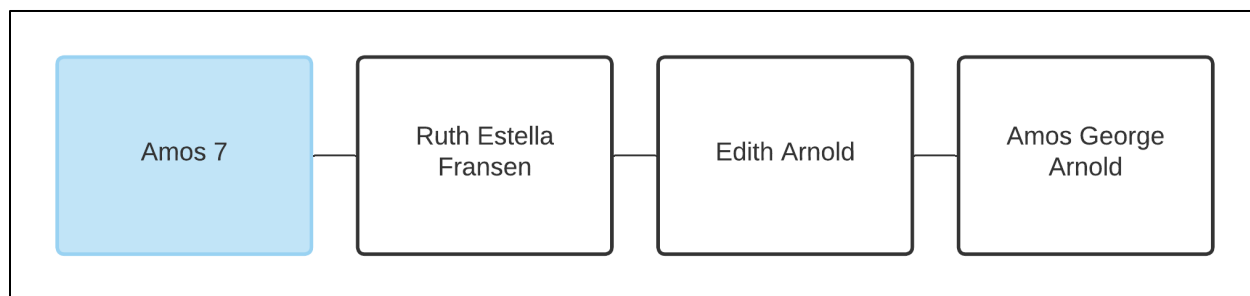


Figure 7. Amos 7, Descent from Amos George Arnold

Amos 7 matches each of the five test takers in this study (Table 4 below). Because Joshua 2 matches Amos 7, it can be presumed that Joshua 2 is part of the Arnold/Woodward genetic network.

Table 4. Shared DNA between Test Takers and Amos 7

Test Taker	Shared DNA	Segments	Relationship
Amos 3	410 cM	17 segments	1C1R
Amos 6	276 cM	12 segments	2C
Amos 5	190 cM	11 segments	2C
Amos 1	367 cM	21 segments	1C1R
Amos 2	2585 cM	45 segments	Brother

“DNA Matches for Amos 3, Amos 6, Amos 5, Amos 1, and Amos 2,” database reports, *Ancestry* (<https://ancestry.com/dna> : accessed 11 June 2022), Amos 7.

Amos 6’s match Joshua 3 does not match any of the other test takers in this study.⁵¹ A shared match for Amos 6 and Joshua 3 is Arnold/Woodward 2.⁵² Arnold/Woodward 2 also matches Amos 6’s sister, Amos 5.⁵³ Arnold/Woodward 2 does not have a tree attached to his profile and does not match any of the other test takers, but an examination of Arnold Woodward 2 and Amos 6’s shared matches shows that many of them have a common ancestor, Amos

⁵¹ “DNA Matches for Amos 6,” database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 16 June 2022), Joshua 3, sharing 15 cM DNA across 1 segment.

⁵² “DNA Matches for Amos 6,” database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 16 June 2022), Joshua 3, sharing 15 cM DNA across 1 segment; shared match with Walter Stewart, sharing 25 cM DNA across 1 segment.

⁵³ “DNA Matches for Amos 5,” database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 16 June 2022), Walter Stewart, sharing 13 cM DNA across 1 segment.

George Arnold.⁵⁴ Amos 6, Joshua 3, and Arnold/Woodward 2 all appear to be connected to the Arnold/Woodward genetic network.

No evidence was discovered during this analysis to determine whether DNA matches Benjamin 1 (Amos 2) or Joshua 1 (Amos 1) belong to the Arnold/Woodward genetic network. However, the verification of the same common ancestors discussed above and the fact that they each only share one segment of DNA with the test takers make it probable. Future research could thoroughly study the pedigrees of Benjamin 1 and Joshua 1 and check them against Amos 2 and Amos 1's trees for any other common ancestors who could be the source of the shared DNA. This pedigree analysis should be done to rule out other reasons for the shared DNA.

The ThruLines® hypotheses for eight matches who descend from common ancestors Joshua Woodward and his father Benjamin Woodward are probably accurate. Each tree has been verified, the amounts of shared DNA for hypothesized relationships are statistically possible, and they matches appear to form a genetic network. DNA evidence suggests that Amasa Arnold and Chloe Woodward are very good candidates for the parents of Daniel Arnold.

Using Ancestry DNA ThruLines® to Find Matches Back to the Clemons Line

Joshua Woodward of Spencer, Worcester County, Massachusetts, and Sarah Clemons of Charlton in the same county declared their intent to marry on 27 September 1771.⁵⁵ They were married one month later, on 24 October 1771.⁵⁶ This marriage date aligns with the birth of their first daughter Chloe Woodward on 11 August 1772 in Spencer.⁵⁷ With a maiden name for Sarah Clemons, additional *Ancestry* ThruLines® to a Clemons ancestor could be sought for further verification of a genetic connection to Chloe Woodward through her mother's line.

⁵⁴ "DNA Matches for Amos 6," database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 16 June 2022), shared matches with Arnold/Woodward 2, sharing 25 cM DNA across 1 segment.

⁵⁵ "Massachusetts, U.S., Town and Vital Records, 1620-1988," database with images, *Ancestry* (<https://www.ancestry.com/discoveryui-content/view/15317798:2495> : accessed 18 June 2022) > Charlton > Births, Marriages and Death > image 69 of 1179; p. 114, entry 3, marriage intention, Joshua Woodward – Sarah Clemons, 27 September 1771; Charlton Town Clerk's Office. **Document 5**

⁵⁶ "Massachusetts, U.S., Town and Vital Records, 1620-1988," database with images, *Ancestry* (<https://www.ancestry.com/discoveryui-content/view/15319092:2495> : accessed 18 June 2022) > Charlton > Births, Marriages and Death > image 104 of 1179; p. 157, entry 8, marriage, Joshua Woodward – Sarah Clemons, 4 October 1771; Charlton Town Clerk's Office. **Document 6**

⁵⁷ "Massachusetts, U.S., Town and Vital Records, 1620-1988," database with images, *Ancestry* (https://www.ancestry.com/imageviewer/collections/2495/images/40143_268090_0003-00082 : accessed 7 April 2022) > Spencer > Births, Marriages, and Death > image 83 of 1063; p. 159, entry 14, birth, Chloe Woodward, 11 August 1772; Spencer Town Clerk's Office. **Document 2**

ThruLines® for each of the test takers suggest Philip Clemons as a possible father for Sarah Clemons.⁵⁸ The matches to Philip Clemons from each DNA match are illustrated in the document titled “Clemons Descendancy Diagram” that accompanies this report.⁵⁹

Due to time restraints, only selected matches were used for the analysis during this research session. Priority was given to descendants from different hypothesized children of Philip Clemons who share DNA with more than one test taker. Three matches fit this category (see Table 5). These matches are all in the Arnold/Clemons genetic network. The amount of DNA shared by each match fits within the parameters set forth by the shared cM project. Their relationships to the test takers are statistically possible.

Table 5. Probabilities for Hypothesized Relationships of Clemons DNA Matches

DNA Match	Test Taker	Relationship/cM	Range	Average	Histogram
Philip 1 ^a	Amos 3	5C1R/18 cM	0-80 cM	21 cM	Top of Bell Curve
Philip 1 ^b	Amos 5	6C/15 cM	0-81 cM	18 cM	Top of Bell Curve
Philip 2 ^c	Amos 6	H6C/11 cM	No Data	No Data	No Data
Philip 2 ^d	Amos 5	H6C/11 cM	No Data	No Data	No Data
Philip 3 ^e	Amos 3	5C1R/13	0-80 cM	21 cM	Top of Bell Curve
Philip 3 ^f	Amos 1	5C1R/13	0-80 cM	21 cM	Top of Bell Curve
Philip 3 ^g	Amos 2	6C/14	0-81 cM	18 cM	Top of Bell Curve

a. “DNA Matches for Amos 3,” database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 20 June 2022), Philip 1, hypothesized 5C1R relationship, sharing 18 cM DNA across 2 segments with Amos 3.
b. “DNA Matches for Amos 5,” database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 20 June 2022), Philip 1, hypothesized 6C relationship, sharing 15 cM DNA across 1 segment with Amos 5.
c. “DNA Matches for Amos 6,” database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 20 June 2022), Philip 2, hypothesized H6C relationship, sharing 11 cM DNA across 1 segment with Amos 6.
d. “DNA Matches for Amos 5,” database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 20 June 2022), Philip 2, hypothesized H6C relationship, sharing 9 cM DNA across 1 segment with Amos 5.
e. “DNA Matches for Amos 3,” database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 20 June 2022), Philip 3, hypothesized 5C1R relationship, sharing 13 cM DNA across 1 segment with Amos 3.
f. “DNA Matches for Amos 1,” database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 20 June 2022), Philip 3, hypothesized 5C1R relationship, sharing 13 cM DNA across 1 segment with Amos 1.
g. “DNA Matches for Amos 2,” database report, *AncestryDNA* (<https://ancestry.com/dna> : accessed 20 June 2022), Philip 3, hypothesized 6C relationship, sharing 14 cM DNA across 1 segment with Amos 2.

⁵⁸ “ThruLines® for Amos 3, Amos 1, Amos 5, Amos 6, and Amos 2,” *AncestryDNA* (<https://www.ancestry.com/dna> : accessed 11 May 2022), matches through Philip 1a Clemons (1689-1763).

⁵⁹ Alice Childs, AG, “Clemons Descendancy Diagram,” digital diagram created with *Lucidchart* (<https://lucidchart.com>), DNA matches from *AncestryDNA* for Amos 3, Amos 1, Amos 5, Amos 6, and Amos 2 generated 12 May 2022, privately held by Alice Childs, Highland, UT. **Document 7**

Verification of DNA Matches' Trees

The next step in confirming the ThruLines® suggestions for the Clemons DNA matches was to verify generational linkage back to the hypothesized common ancestors Philip Clemons and Elizabeth Pudney. Trees for each of the DNA matches were analyzed and documentation for each generational connection has been added to the “Arnold Family Tree” at *Ancestry*.⁶⁰ Their paths back to the hypothesized common ancestors are illustrated in Figure 8 and summarized below.

*Amos 3's Match Philip 1 (5C1R, sharing 18 cM DNA across 2 segments); also matches Amos 5 (6C, sharing 11 cM DNA across 1 segment)*⁶¹

- A wedding announcement for Philip 1's sister names her sister Philip 1 and their father, Mr. J.C. Smith.
- J.C. Vernon Smith was enumerated in the household of his father, Harold G. Smith, in Newlson, Nuckolls, Nebraska, in 1920. The family lived in Los Angeles, California, in 1930.
- Harold Gage Smith married Catharine Daisy Harp on 30 December 1900. His parents were named on the record: John C. Smith and Minnie M. Gage. John C. Smith's obituary names Harold G. Smith as his son.
- The obituary for Harriet E. Smith names her husband Samuel J. Smith and son John Smith.
- David Clemens named his daughter Harriet, wife of Samuel J. Smith, as a beneficiary in his 1831 will.
- David Clemons was born 30 December 1773 in Charlton, Massachusetts, to Jonathan and Hannah Clemons.

⁶⁰ Nicole Dyer and Alice Childs, AG, “Arnold Family Tree,” profile for Philip 1 (Living); public member tree, *Ancestry* (<https://www.ancestry.com/family-tree/tree/172196512/family?cfpid=202374166198> : accessed 13 June 2022).

Nicole Dyer and Alice Childs, AG, “Arnold Family Tree,” profile for Philip 2 (Living); public member tree, *Ancestry* (<https://www.ancestry.com/family-tree/tree/172196512/family?cfpid=202373797615> <https://www.ancestry.com/family-tree/tree/172196512/family/pedigree> : accessed 13 June 2022).

Nicole Dyer and Alice Childs, AG, “Arnold Family Tree,” profile for Philip 3 (Living); public member tree, *Ancestry* (<https://www.ancestry.com/family-tree/tree/172196512/family?cfpid=202374154859> : accessed 13 June 2022).

⁶¹ Nicole Dyer and Alice Childs, AG, “Arnold Family Tree,” profile for Philip 1 (Living), public member tree, *Ancestry* (<https://www.ancestry.com/family-tree/tree/172196512/family?cfpid=202374166198> : accessed 13 June 2022).

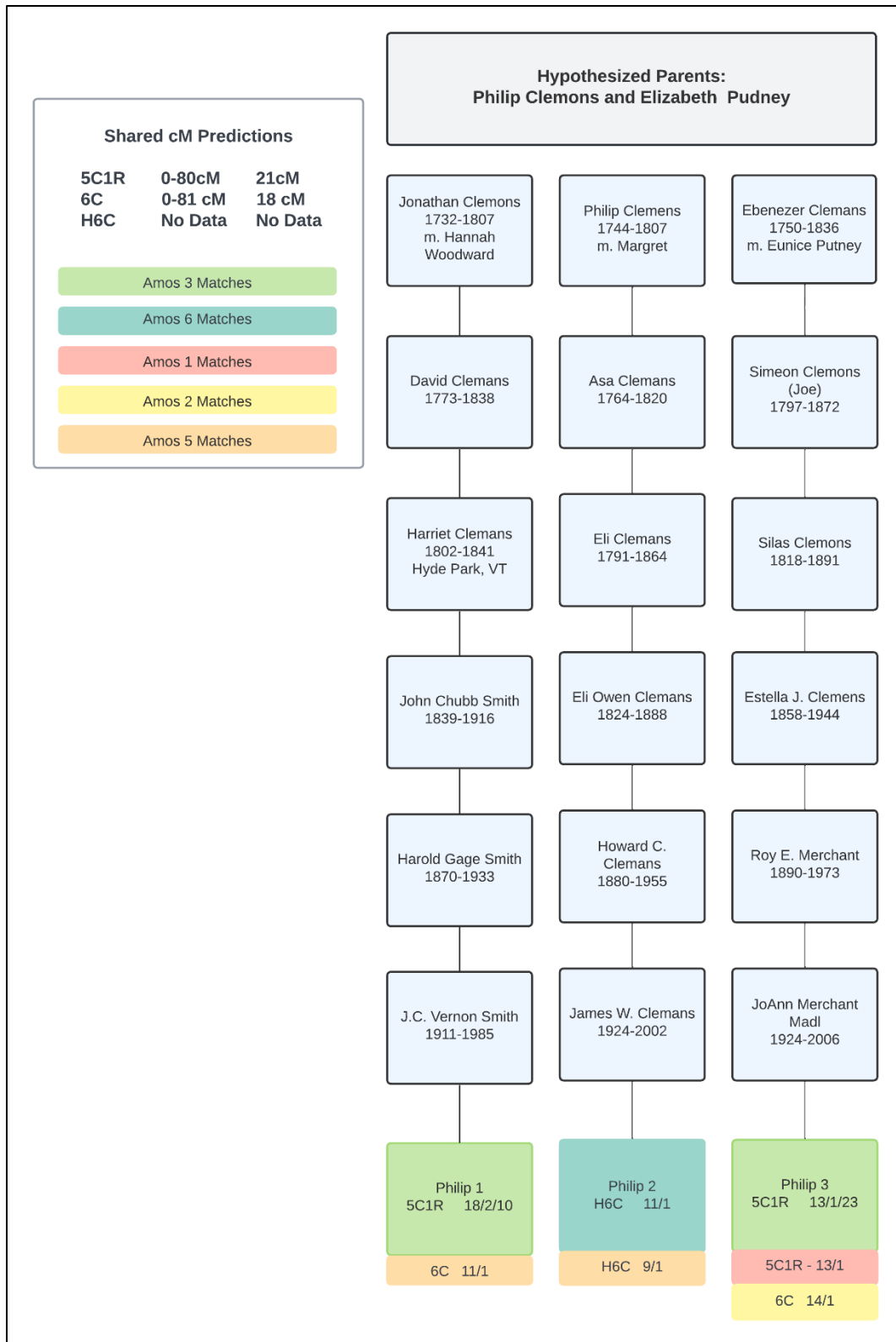


Figure 8. DNA Matches who Descend from the Clemons Line

*Amos 6's Match Philip 2 (H6C, sharing 13 cM DNA across 1 segment. Also matches Amos 5 (H6C, 9 cM DNA across 1 segment)*⁶²

- Philip 2 was enumerated in the household of his father James W. Clemans in Snohomish, Washington, in 1940.
- James W. Clemens was enumerated in the household of his parents, Howard C. and Nellie V. Clemans in Snohomish, Washington, in 1930.
- Howard Calhoun Clemans was born 20 November 1880 to Eli Owen Clemans and Maria Huldah Calhoun.
- Eli Clemans named his son Eli O. Clemans as a beneficiary in his 1853 will.
- Asa Clemans of Charlton, Worcester County, Massachusetts, named his son Eli in his 1820 will.
- Asa Clemons was born 10 September 1764 in Charlton, Worcester, Massachusetts, to Philip and Margret Clemens.

*Amos 3's Match Philip 3 (5C1R, sharing 13 cM DNA across 1 segment); also matches Amos 1 (5C1R, sharing 13 cM DNA across 1 segment) and Amos 2 (6C, sharing 14 cM DNA across 1 segment)*⁶³

- Philip 3 was enumerated in the household of his parents, Robert L. Madl and Jo Ann Madl in Palmyra, Douglas, Kansas, in 1950. Philip 3 was also named in his father Ronald Madl's obituary.
- JoAnn Madl's obituary named her husband, Robert L. Madl and parents Roy and Ester (Ferguson) Merchant.
- Roy E. Merchant was named in his father Herschel Nelson Merchant's obituary. The obituary also provided the maiden name of Roy's Mother: Estella Clemmons.
- Estella Clemence was enumerated in the household of her father Silas Clemence in Hayes, Franklin, Kansas, in 1880. Estella Merchant was named as an heir to the decedent in the probate files for the estate of Silas Clemons.
- Silas Clemons was buried in Monterey Cemetery, Oconomowoc, Waukesha County, Wisconsin. His hypothesized mother, Claricy Clemence Clemens (1796-1848) was buried in the same cemetery. Her headstone states she was the "wife of S. Clemans." Clarissa

⁶² Nicole Dyer and Alice Childs, AG, "Arnold Family Tree," profile for Philip 2, public member tree, *Ancestry* (<https://www.ancestry.com/family-tree/tree/172196512/family?cfpid=202373797615> : accessed 13 June 2022).

⁶³ Nicole Dyer and Alice Childs, AG, "Arnold Family Tree," profile for Philip 3, public member tree, *Ancestry* (<https://www.ancestry.com/family-tree/tree/172196512/family?cfpid=202374154859> : accessed 13 June 2022).

Clemons married Simeon Clemons on 27 August 1815 in Charlton, Worcester County, Massachusetts.

- No evidence for the link from Simeon Clemens to Ebenezer Clemons was discovered during this research. However, Simeon’s wife Claricy/Clarissa Clemons was found to descend from Philip Clemons Jr. Her birth record states that she was born to Reuben and Chloe Clemons on 19 September 1796 in Charlton, Worcester County, Massachusetts.
- Reuben Clemens was the son of Philip and Margaret Clemons. A birth record reveals that he was born 22 August 1771 in Charlton, Worcester County, Massachusetts.

The discovery of Philip 3’s Clemons connection through Philip and Margaret Clemons eliminates one of the three independent lines of descent and creates different relationships than would be present if he was related through Ebenezer Clemons. However, the amounts of shared DNA with each test taker still fit within the parameters set forth by the Shared cM Project (see Table 6).

Table 6. Probabilities for Hypothesized Relationships of Philip 3 to Test Takers

DNA Match	Test Taker	Relationship/cM	Range	Average	Histogram
Philip 3	Amos 3	5C2R/13 cM	0-65 cM	18 cM	Top of Bell Curve
Philip 3	Amos 1	5C2R/13 cM	0-65 cM	18 cM	Top of Bell Curve
Philip 3	Amos 2	6C1R/14 cM	0-56 cM	15 cM	Top of Bell Curve
a. “DNA Matches for Amos 3,” database report, <i>AncestryDNA</i> (https://ancestry.com/dna : accessed 20 June 2022), Philip 3, hypothesized 5C2R relationship, sharing 13 cM DNA across 1 segment with Amos 3. b. “DNA Matches for Amos 1,” database report, <i>AncestryDNA</i> (https://ancestry.com/dna : accessed 20 June 2022), Philip 3, hypothesized 5C2R relationship, sharing 13 cM DNA across 1 segment with Amos 1. c. “DNA Matches for Amos 2,” database report, <i>AncestryDNA</i> (https://ancestry.com/dna : accessed 20 June 2022), Philip 3, hypothesized 6C1R relationship, sharing 14 cM DNA across 1 segment with Amos 2.					

Time could be dedicated in a future research session to continued verification of other matches’ lines and building out the Clemons portion of the Arnold Family Tree at *Ancestry*. Doing so could reveal additional connections through independent lines and solidify the DNA evidence pointing to Sarah Clemons as an ancestor for each of the test takers from this study.

Seeking the Final Connection to Philip Clemons and Elizabeth Pudney

ThruLines® suggests Philip Clemons and Elizabeth Pudney as parents for each of the Clemons children discussed above. Philip Clemons and Elizabeth Pudney were married in

Salem, Essex County, Massachusetts, on 17 February 1725-26.⁶⁴ Direct evidence for the links from Jonathan, Philip Jr., and Ebenezer Clemons to Philip Clemons and Elizabeth Pudney has not yet been discovered.⁶⁵ However, Jonathan, Ebenezer, and Philip Clemons Jr. each lived in Charlton, Worcester, Massachusetts, along with several other Clemons individuals. The births of their children were recorded there, along with the births of most of the children for Sarah Clemons and Joshua Woodward, as illustrated in Figure 9 below.

Six Clemons individuals who appear to be of the same generation living in the same town suggest a possible sibling relationship. Future research could focus on finding evidence for the connection from these children to their hypothesized parents Philip Clemons and Eliza Pudney. Evidence could be discovered in Charlton, Worcester County records or in Salem, Essex County records. If this final connection can be verified, the evidence for a genetic connection to the Clemons family can be solidified and would provide further evidence that Chloe Woodward was Daniel Arnold's mother.

CONCLUSION

At this point, the time allotted for this research session had expired. Much progress was made with the objective to discover the parents of Daniel Arnold. Previous research had already uncovered evidence that favored Amasa Arnold and Chloe Woodward as Daniel's parents. Genetic analysis during this session provided additional evidence in favor of that hypothesis.

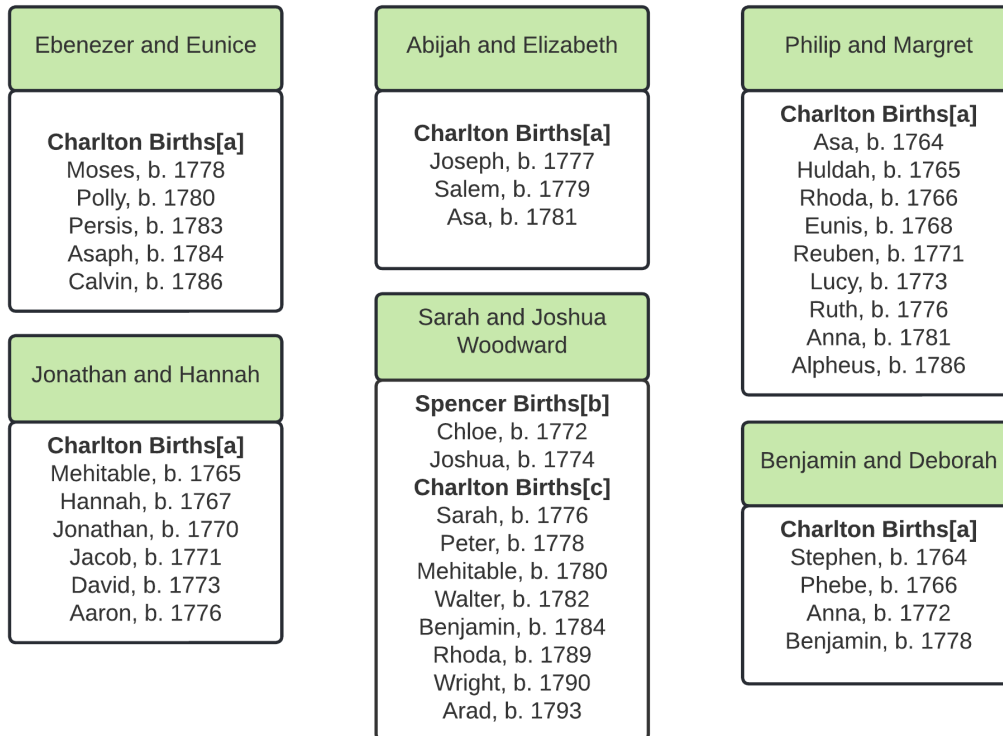
DNA matches who descend from the probable children of Amasa Arnold and Chloe Woodward were discovered to match four new test takers whose DNA kits were utilized during this session. Additionally, each of five test takers' DNA matches who descend from Chloe's parental Woodward and Clemons lines revealed possible genetic connections to those lines. These connections were solidified by the documentary verification of each DNA match's path back to the common Woodward and Clemons ancestors.

⁶⁴ "Massachusetts, U.S., Town and Vital Records, 1620-1988," database with images, *Ancestry* (https://www.ancestry.com/imageviewer/collections/2495/images/41254_265598-01206 : accessed 21 June 2022) > Salem > Vital Record Transcripts > image 1205 of 2879; "Salem Marriages," p. 218, entry for Phillip Clemens and Eliza[beth] Pudney, 17 February 1725-26. **Document 8**

⁶⁵ "Vital records of Salem, Massachusetts to the end of the year 1849," database with images, *Ancestry* (<https://www.ancestry.com/imageviewer/collections/10110/> : accessed 16 June 2022) > Vol. I. Salem births to the end of the year 1849 > images 182-183, entries for Clemens (and surname variations).

DNA and documentary evidence discovered over the course of three research sessions provides strong evidence that Amasa Arnold and Chloe Woodward were the parents of Daniel Arnold.

**Hypothesized Clemons Siblings Living in Charlton, Worcester County,
Massachusetts, 1764-1793**



Sources:

a. "Charlton Births," *Vital Records of Charlton, Massachusetts to the end of the year 1849*, (Worcester, Massachusetts: Franklin P. Rice, 1905, 26-28, entries for Clemans/Clemons/Clemonts; images, "Massachusetts, U.S., Town and Vital Records, 1620-1988," database with images, *Ancestry* (https://www.ancestry.com/imageviewer/collections/2495/images/41254_265491-00026 : accessed 20 June 2022) > Charlton > Vital Record Transcripts > images 25-27 of 265.

b. "Massachusetts, U.S., Town and Vital Records, 1620-1988," database with images, *Ancestry* (https://www.ancestry.com/imageviewer/collections/2495/images/40143_268090__0003-00082 : accessed 20 June 2022) > Spencer > Births, Marriages and Death > image 83 of 1063; p. 159, entries 14 and 15, Chloe Woodward (11 August 1772) and Joshua Woodward (15 July 1774); Charlton Town Clerk's Office.

c. "Charlton Births," *Vital Records of Charlton, Massachusetts to the end of the year 1849*, (Worcester, Massachusetts: Franklin P. Rice, 1905, 113, children of Joshua and Sarah Woodard; images, "Massachusetts, U.S., Town and Vital Records, 1620-1988," database with images, *Ancestry* (https://www.ancestry.com/imageviewer/collections/2495/images/41254_265491-00113 : accessed 20 June 2022) > Charlton > Vital Record Transcripts > image 112 of 265.

Figure 9. Hypothesized Clemons Siblings Living in Charlton, Massachusetts

SUGGESTIONS FOR FUTURE RESEARCH

- Analyze DNA evidence for each new test taker who responds to the call for test takers on the Daniel Arnold page at *FamilyLocket*.
- Study the pedigrees of Benjamin 1 (Amos 2's DNA match) and Joshua 1 (Amos 1's DNA match) and check them against Amos 2 and Amos 1's trees for any other common ancestors who could be the source of the shared DNA. This pedigree analysis should be done to rule out other reasons for the shared DNA.
- Continue analyzing ThruLines® for each DNA test taker to Philip Clemons and Elizabeth Pudney.
 - Refer to the Clemons LucidChart diagram that accompanies this report.
 - Add each DNA match and documentation for generational linkage to the [Arnold Family Tree](#) at *Ancestry*.
- Work to prove the parent/child connections from each Clemons individual living in Charlton, Worcester County, Massachusetts, from 1764-1793 to Philip Clemons and Elizabeth Pudney. Study town, probate, and land records for Worcester County and Essex County in Massachusetts.
 - Massachusetts, U.S., Town and Vital Records, 1620-1988, <https://www.ancestry.com/search/collections/2495/>
 - Worcester County, Massachusetts, U.S., Probate Files, 1731-1925, <https://www.ancestry.com/search/collections/61934/>
 - Essex County, Massachusetts Probate Records, 1635-1681, <https://www.ancestry.com/search/collections/6593/>
 - [Worcester County Land Records](#) at *FamilySearch*
 - [Essex County Land Records](#) at *FamilySearch*

Thanks for allowing us to research your family! We look forward to continuing as desired.

AC / ND

©2022 Family Locket Genealogists

<https://familylocket.com>